Dissertation

By

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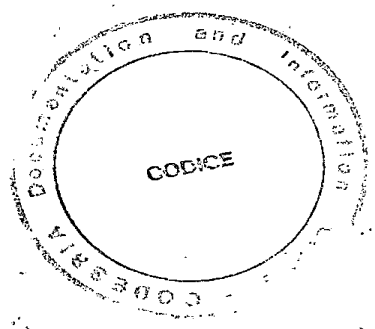
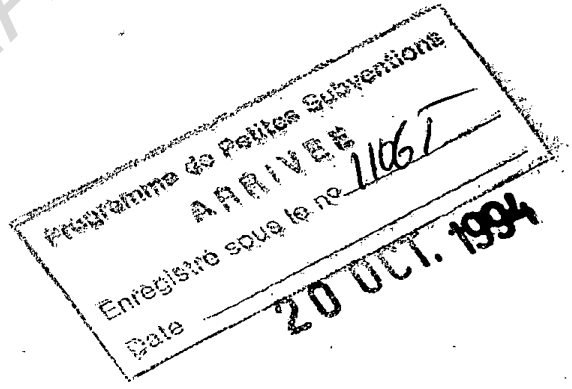
Sanitation and Health Problems in Nigerian Cities: a Case of Enugu

Disraeli 1977



"The Health of the People is really the foundation upon which all their happiness and powers as a state depend."

– Disraeli, 1977.



CERTIFICATION

MR EVANS IFEANYI ASOGWA, a postgraduate student in the Department of Sociology/Anthropology, stressing on Development Studies, has satisfactorily completed the requirements for the course and research work for the degree of Master of Science (M.Sc.) in Sociology/Anthropology. The work embodied in his thesis is original and has not been submitted in part or in full for any other diploma or degree of this or any other University.

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To my grandmother, Orefi Eze, of the Blessed memory, whose zeal for work was untiring until her death in 1987. May her gentle soul rest in peace.

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PREFACE

Urban areas must contend with the problem of environmental sanitation albeit at varying degrees. The growth of urban areas has entailed the manifestation of such problems as is evident in most cities of the world from as far back as the days of the industrial revolution in England to the present time. African cities however, record the highest cases of sanitary problems with their attendant health implications. This, no doubt, is related to the level of development of the continent.

Many factors are responsible for the emergence and sustenance of these problems in Nigerian cities. This research tried to identify these problems, as well as identify some of the possible health problems posed by them in a model Nigerian city -Enugu. This is based on the understanding that there is a very close relationship between environmental sanitation and the people's health problems in a particular locality.

Chapter one of this work is the general introduction. It contains the statement of problem, the research questions, objectives and significance of study, the research hypotheses, and the definition of terms. In chapter two, efforts were made at reviewing relevant literatures on city sanitation and health problems in general, and those with particular reference to Nigerian cities. In chapter three, the methodology adopted in

this work was shown. Chapter four represents a brief historical account of the physical development of the city of Enugu. In chapter five, data collected from the field were systematically presented and analyzed, while in chapter six which is the conclusion, attempts were made at making recommendations necessary for solving the problems of sanitation and health in Enugu.

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ABSTRACT

Societal changes and developments have always entailed the emergence of new problems. Nigerian urbanization has, among its other concommitants, led to the emergence of problems of environmental sanitation and increased health problems. Demographic, ecological, economic and administrative factors were identified as having contributed to the emergence of the problems. No one factor could fully account for these problems but rather the interaction of the dynamics of these factors culminates in these problems in Nigerian cities. Also, the pattern of urban growth and development, and the inability of the government to contain the tide of change by making adequate provisions for sanitation were identified as having exacerbated the problem.

Hypotheses tested using the X statistic show that income level is an important determinant of the levels of environmental sanitation; that sanitation problems varied among residential areas. For instance, there were more of the problems in the areas with inadequate supply of sanitary facilities such as drainage, refuse depots, refuse vans, pipe borne water, good residential houses etc. The study also proved that there could be a positive correlation between the level of environmental sanitation and the health of the people. There were more reported cases of infections in those areas

with little or no supply of sanitary facilities. Among these areas are Abakpa-Nike, Emene, Ogui Urban, Iva-Valley, 'Ugwu' Alfred and 'Ugwu' Aaron.

The work debunks such erroneous assumptions such as that sanitary problems originate from the innate indispositions of the individual Nigeran to good sanitary conditions as embodied in such sayings as "Nigerians are naturally dirty". In the main, it goes to prove that urban sanitary problems are environmental-based; they are part of the reactions or adjustments to the unfavourable conditions of city life as exemplified in Enugu, Nigeria. The problem has become part of the ingrained daily life of the urban dweller.

Finally, the problems of environmental sanitation and health in Nigerian cities are seen as fundamental problems of development. The Nigerian cities are seen as fundamental problems of development. The solutions to these problems lie first of all, in perceiving the problems from this perspective and, secondly, in reorganizing the machinery charged with maintaining good sanitary conditions.

CHAPTER ONE

INTRODUCTION

The importance of maintaining a healthy environment as an aspect of preventive medicine in health-care programmes is not in doubt. This is owing to the increasing understanding of the relationship between environmental conditions and the state of man's health. It has been discovered that quite a good number of diseases suffered by man are preventable through good sanitary management. It is in recognition of the above facts that the World Health Organization (W.H.O.) emphasises preventive medicine as one of the major means of achieving health for all by the year 2,000 A.D. Nothing could have been more timely for health care in Nigeria, especially now that the cost of living and health care is rapidly increasing beyond the reach of the average Nigerian. The average Nigerian can neither afford the very expensive food items which are primary to him, nor can be afford the equally expensive health services which are often very secondary in his thought.

Nigerian cities are very dirty. A cursory look at some of the streets and residential areas of these cities portrays their minimal level of sanitation. Such cases of sanitary abuse are not unconnected with the peculiar patterns or trends in these cities; they are also part of the crises of development which most of the third world nations are undergoing.

Some health experts are of the opinion that many of the diseases that are endemic to Nigerian cities are consequent upon their poor sanitary conditions. They are preventable only if attempts are made to nip them in the bud. The endemic nature of these diseases and their consequences, have forced some Nigerian urbanites into self medication and other medical treatments which cost them huge sums of money. Sanitary problems have persisted in our urban areas despite the campaign for improved sanitation and health care by the government. This work will thus aim at identifying those factors that have contributed to the emergence and to the sustenance of sanitary problems in Nigerian cities, and also at identifying the impact this is having on the health of the inhabitants of Enugu, a model Nigerian city.

1.1 STATEMENT OF PROBLEM

Nigeria is currently battling with such environmental problems as decertification, landslides, erosion, pollution and sanitary problems. These problems occur at varying degrees but they all pose serious problems to the lives of Nigerians. Sanitary problems appear to be most common among these problems and they attract more attention from the government. In line with this, many health personnel in this country have called on Nigerians to maintain a high level of environmental cleanliness and personal hygiene.1 They have on several occasions made it

clear that a clean environment is the key to healthy living using such slogans as "Health is Wealth" and "Cleanliness is next to Godliness" to support their claims.

The emphasis on the importance of a clean environment is not a recent phenomenon. Edwin Chadwich, a famous 19th century sanitarian, showed that by manipulating the environment, the general health of a nation would be improved. He emphasised the dialectical relationship between man and his environment noting that man is a product of his environment (see Onukogu, 1988). Similarly, Paul Benjamin (1958) writing in this century, noted the ingrained relationship between man's culture and his health. According to him, man is a biological, social and cultural animal - with culture mediating between man and his environment. He therefore, called on man to use his cultural heritage to transform his environment so as to make it more comfortable for him, thereby improving on his health. It is in line with this opinion that Fajewonyomi, a Nigerian, writing in 1983, observed that at present, a considerable number of health problems in our societies are consequences of a wider range of environmental factors. The solutions to these problems, according to him, depend on the effective manipulation of these environmental factors by man.

Notwithstanding all these emphases on a clean environment, many Nigerians have failed to show keen interest in maintaining

a clean and relatively disease-free environment. We are thus faced with the problem of locating reasons for this state of affair. Some Nigerians for instance, are of the opinion that governments should consider more serious and fundamental problems like unemployment, illiteracy and armed robbery instead of concentrating public attention in a "diversionary style" on what they termed "a cosmetic sanitation campaign that will soon fizzle out...." (See Oladepo, 1985). This kind of opinion is clearly represented by that of one Emeka Nwosu of No. 3 Kirikiri Road, Ajegule, Lagos, who asked "what is a clean environment to me when I hardly eat once a day? I've been retrenched and up till now I have secured no job" (Ibid). One is compelled to ask whether this opinion as represented by Emeka Nwosu is widely held by Nigerians and if so, in what ways do the 'fundamental' problems mentioned above contribute to sanitary problems? Do they elicit sanitary problems or do they act as a blockage to sanitation programmes?

The problem of sanitation is assuming wider dimensions in Nigeria. This is moreso in cities. In Enugu for instance, heaps of garbage adorn the streets. There are instances of decomposing bodies of animals littering the streets. They emit very offensive odours and attract flies and other scavengers. At times, the streets are flooded following the blockade of gutters and other water channels by refuse. Sewage disposal is

still poor in the city. The bucket system is still in use in some areas despite Edict No. 5 of 1984 outlawing it. Those who use the water system cannot find enough water to flush their toilets. They are forced to live with decomposing faeces that they occasionally dispose of in gutters, or even at times along the streets. Those who live in the densely populated areas of Abakpa-Nike, Iva-Valley, Emene, Ogui urban, 'Ugwu' Aaron and 'Ugwu' Alfred defecate in bushes very close to human dwellings. There is also the shortage of public conveniences. Rain water carries these dirt and human wastes into streams and rivers which are sources of domestic water supply, (Okoye, 1978). Also, in these areas mentioned above, people live in over-crowded dwellings and in very close contact with domestic animals that are without adequate veterinary care. These animals could be a sure means of transmitting diseases once they are infected (Hair, 1953).

It therefore becomes imperative to pause and ponder whether these problems of sanitation and health are a corollary of urbanization processes, and if so, whether all urbanized areas or cities are therefore dirty, and if all cities are not dirty as is the case, what factors are responsible for making Nigerian cities dirty? Could they therefore be associated with the poor management of urbanization? Another pertinent issue in the problem will be to know why the Nigerian urban dweller

continues to live in the city even though the city is dirty and may not be very conducive for his health. The Nigerian urban dweller is regularly sick and spends some fortune on medical treatment. His standard of living is lowered so also is his productivity.

Our hospitals, with a growing characteristic of inadequacy of drugs and personnel, are continually admitting people whose illnesses would have otherwise been prevented through better sanitary management. The issues that arise here are: whose responsibility is it to maintain a clean environment? - the government or the urban dwellers? Are their roles in maintaining a clean environment exclusive of each other or complementary? Looking at the problems of sanitation and health in Nigeria, one may be forced to conclude that the very essence of preventive medicine may not have been fully grasped by the authorities concerned, or may be put more appropriately, that attempts by governments to project preventive medicine have been stymied or sabotaged by policy implementers. Such structural impediments may be deliberate attempts by some interest groups both within and outside the country to undermine the nation's health programmes, and in so doing, amass wealth through the sale of drugs, medical equipments and through other forms of medical charges.

The state of the nation's health care has ebbed greatly with the worsening economy. This is even why more emphasis should be on preventive rather than on curative medicine. Disease prevention is far cheaper than its cure. This argument was well articulated in the Poor Law Commission in Britain as early as 1838 (Encyclopedia Britannica). The idea of disease prevention is widely gaining acceptance in Nigeria; it was entrenched in our traditional values even before our contact with the West. There was a strong emphasis on keeping the environment - houses, streams, market places and open spaces- clean albeit there was no scientific understanding of the relationship between man's environment and his health in terms of disease transmission then. It is therefore surprising that such values of cleanliness associated with our traditional societies (in Igboland at least) are not exhibited by many of our urban dwellers who are in most cases products of the rural areas. This is even more baffling in this era of science and technology where the relationship between the environment and the people's health has been scientifically proven, and when a significant proportion of the urban population is literate enough as to guarantee their understanding of the implications of this relationship.

From the foregoing therefore, this research tries to find out whether the problem of sanitation and health could be

associated with the people's value system, culture, urbanization processes or whether there are structural problems of urbaniza-tion that promote unsanitary activities, and also whether sanitary problems pose health problems to the residents of Enugu.

1.2 RESEARCH QUESTIONS

It is the goal of this research to provide answers to the underlisted questions as they are very salient to the entire research:

1. What factors are responsible for the poor sanitary conditions of Enugu?
2. Are there differences in the level of sanitation between the residential areas of Enugu, and if so, what are the causes and consequences?
3. What roles are played by the urban residents in the problem of sanitation in Enugu.
4. What are the expected roles of the Anambra State Environmental Sanitation Authority (ASESA) in maintaining a high-quality environment; to what extent do they fulfill these roles? Are there any inhibitive and or facilitating factors?
5. Is there any relationship between the level of environmental sanitation and the state of a people's health?

1.3 OBJECTIVES OF STUDY

Throughout this work, attempts are made to:

1. highlight the impact of rapid population growth, pattern of residence, socio-economic and cultural factors on the problem of sanitation and health;
2. appraise the major sanitary problems facing the urban dwellers of Enugu, noting their causes and sources of sustenance;
3. Analyze the sanitary control efforts in Enugu from a sociological perspective with the objective of finding out if they are adequate, and possibly to know if there are structural impediments to them;
4. to show that there is a relationship between poor sanitation and disease occurrence;
5. make practical suggestions, based on our findings, on how to improve the quality of environmental sanitation in Enugu.

1.4 HYPOTHESES

Only two hypotheses as stated hereunder will be tested in this work.

1. There is a relationship between the level of environmental cleanliness and patterns of living as well as the availability of sanitary facilities.

2. The higher the socio-economic class of the inhabitants of a residential area, the higher the level of cleanliness of that area.

1.5 SIGNIFICANCE OF STUDY

This study has both theoretical and practical significance. Theoretically, it will add to the existing knowledge of urban planning and development both in Nigeria in particular and Africa in general. This stems from the fact that quite a good number of African cities exhibit similar developmental characteristics as opposed to cities in some other parts of the world.

This work will also contribute to health care delivery and health management through the enhanced understanding of the epidemiology of some tropical diseases from the socio-cultural perspective, and the need to maintain a clean environment. The work will also contribute to the general field of medical sociology. Its contribution also spans the general field of development studies since the level of development of environmental sanitation and health is related to the overall level of development of any society. This work reinforces the usual plea in the social sciences for a multi-disciplinary approach to the problems of societal change within the context of rapid socio-economic and cultural changes.

Practically, this work is directed at increasing public awareness on the existing sanitary problems in our cities, as well as on the implications of these problems on the health of the populace. To this end, it will contribute to solving the problems of urban sanitary deterioration if some of the practical suggestions embodied in it are put into use. It will also be of use to policy makers both in the area of health and urban development; so also will it benefit city planners in their urban renewal programmes and in the planning of emerging cities. And since most African cities share many characteristics or features, the applicability of the result of this research may extend to them.

1.6 DEFINITION OF TERMS

Sanitation: The term has been variously defined by different sources. There is however, a similarity of opinion in these definitions as their pivot has always been the maintenance of good health through the effective manipulation of environmental factors. For instance, the (Encyclopedia Britannica) defined it as "The application of measures to make environmental conditions favourable". It has also been defined as the study and the use of hygienic measures such as drainage, ventilation, pure water supply" etc. (International Encyclopedia of the Social Sciences). It is also the presence of the rules and conditions of health; especially, of absence of dirt and agents

of infections or diseases; tending to promote health and healthful conditions". (Ibid).

For this work however, sanitation is defined as the promotion of hygiene and the prevention of diseases through the effective manipulation and maintenance of sanitary conditions. The problem of sanitation in cities will be viewed as relating to all activities and issues that encourage a dirty environment; policies that hinder the public process of maintaining a very healthy environment and or that constitute obstacles to the public health process of preventing diseases, prolonging life and promoting physical and mental efficiency through organized community effort.

Health: Health means complete physical, mental and social well-being and not merely the absence of diseases (W.H.O. 1964). Health problems embrace a very wide spectrum that includes among others, poor sanitation, malnutrition, drug addiction, diseases and infirmity, absence or dearth of drugs etc. In this work, however, health problems are limited to only those that emanate as a result of poor sanitary maintenance in the urban area.

The City: The concept 'city' is riddled with controversy just as many other Social Science concepts. Louis Wirth in his "Urbanism as a way of life" conceptualized it in terms of size, population density and heterogeneity. Also, arguments

have been generated by later scholars some of whom conceptualized the city in terms of what the city does in social, organizational and economic terms (Gugler and Flanagan, 1979). All these conceptualizations have broadened our understanding of the concept.

The controversies in their various conceptualizations stem from the peculiarities of city development in different parts of the world. This is even more glaring when we juxtapose city development in Africa and those of Europe and America.

The concept has been used in contrast to other forms of community like 'village' and 'town' with all of them not having very specific meanings. In America for instance, the city is defined as "Municipal Charters granted by the state legislatures which raise towns and villages to the rank of cities". In England on the other hand, 'city' is the title of dignity bestowed on towns by virtue of some pre-eminence and does not confer any special municipal functions (Kruper, 1965).

In Nigeria, as in many other African countries, the concept city is used indiscriminately to label large settlements or towns depending on their populations and state of physical development. The raging controversy in the definition of the concept notwithstanding, size and dense population concentration are salient components of any

definition of the city. Thus for this study, the city is any large town with a pre-requisite of large population density and with some measure of physical development. It will be used interchangeably with township or urban area.

NOTES

1. Such clarion calls in very recent times include that of:

   A. Innocent Ugochukwu Nigerian Statesman. February 26, 1989.

   B. Professor A.B.C. Nwosu, Anambra State Health Commissioner in his radio and television broadcast to mark the World Health Day, 1990. Refer to Daily Times, April 9, 1990.

   C. Gabby Anike in "Towards a Healthier World" in Daily Star, April 7, 1990.

   D. Nneka Amechina (Mrs). Refer to 1990 World Health Day, Daily Star, April 7, 1990.

CHAPTER TWO

LITERATURE REVIEW

Most of the cultures of the world including the 'primitive' cultures, made provisions for the practice of cleanliness and personal hygiene. Cleanliness was related to religious practices; there was an apparent wish to be clean in the eyes of the gods (Encyclopedia Britannica). However, there was no initial understanding of the relationship between the environment and health. Epidemics or other illnesses were viewed as divine curses to punish man for his sins. Such an opinion informed our traditional health system which always emphasized pacifying and appeasing the gods, the sole guardian of disease, illness and health.

2.1 SCIENTIFIC DISCOVERIES

A turning point in the understanding of the relationship between sanitation and health was reached in Greece during the 5th and 4th centuries B.C. This period witnessed the first major attempt at a rational, scientific theory of disease causation (Encyclopedia Britannica). The fact that malaria was associated with swamps was established as early as 503-403 B.C., though the reason for the association was still obscure. In the Book Airs, Water And Places which is thought to have been written by Hippocrates in the 5th or 4th century B.C., there was a first systematic attempt made to set a causal

relationship between man's environment and the diseases that afflict him. Between the gap that existed from that period and the 19th century when the new sciences of bacteriology and immunology emerged, this theory formed the theoretical basis for the understanding of both endemic and epidemic diseases.

The emergence of plagues during the middle ages beginning with the plague of 542 A.D. and ending with the Black Death of 1348 A.D. saw the emergence of new methods of controlling diseases. The isolation of identified cases of infection easily became a means of controlling disease spread. Sanitation programmes however emerged to stem the tide of these plagues and epidemics. Its major thrust was to improve environmental quality based on the existing relationship between the environment and the spread of diseases. Thus the development of sanitation programmes for pure water supply, garbage disposal, sewage disposal, and food inspection became expedient. Such programmes were of utmost importance in the cities where people lived in very crowded settings, not only that, they did so in a rural manner - living with domestic animals around them, but without enough space as in the rural areas.

The 16th and 17th centuries were marked by many impressive technological advances which culminated in certain scientific discoveries. These include that by William Harvey on blood

circulation; the growing use of experimentation; progress in the study of diseases among individuals and groups, and of most importance, the first consistent explanation by Girolamo Fracastro of the spread of diseases by contagion, (Encyclopedia Britannica) on 'Public Health'. Writers and leaders of that period emphasised the need for a healthy population since its role in national development was recognised. There was however, no organized government action to maintain environmental sanitation at the national level.

One major outcome of the industrial revolution in Europe was the rapid increase in population, especially that of the urban areas. With such rapid population increases there emerged an acute shortage of housing and other amenities thereby triggering off conditions that were conducive to the spread of diseases and poor health. Society's emphasis then shifted to disease prevention based on the understanding that diseases have negative consequences for the society. Buttressing the need for this shift in emphasis, the poor Law Commission created in 1834 in England argued that "The expenditures necessary for the adoption and maintenance of measures of prevention would ultimately amount to less than the cost of the disease now constantly engendered" (Ibid).

Other discoveries of the 19th century including the discovery of the "germ theory" by Louis Pasteur, Koch and

others; the identification by Ronald Ross that mosquito is a carrier of malaria parasites; the discovery by Walter Reed and James Caroll that yellow fever is a filtrable virus carried by mosquitoes all helped in concretising this link between the environment and health, hence the propensity of the population in most societies to step up actions on sanitation.

2.2 DEMOGRAPHIC/ECOLOGICAL FACTORS

Writers of the 19th century including Engels, Virchrow, Chadwick (see Briscoe, 1984) Marx and other social reformers drew attention to the critical role of environmental conditions in mediating the relationship between social and economic factors on one hand, and morbidity and mortality on the other. In driving home this point, Marx for instance in his book Capital (see Bakacs, 1972) drew attention to the observation by far-sighted physicians of the New Castle Fever Hospital that:

> There can be little doubt that the greatest cause of the continuance and spread of the typhus has been the over-crowding of human beings, and the uncleanliness of their dwellings. The rooms in which labourers in many cases live, are situated in confined and unwholesome yards or courts and for space, light, air, and cleanliness, are models of insufficiency and insalubrity, and a disgrace to any civilized country; in them, men, women, and children lie at night huddled together, and as regards the men, the night shift succeeds the day-shift, and the day-shift and night-shift in unbroken series for sometime together, the beds having scarcely time to cool; the whole house badly supplied with water, and worse with privies, dirty, unventilated and pestiferous.

The above observation made in Europe over one hundred years ago is in some respects valid in Nigeria today since some

of the conditions mentioned above are still present in many parts of Nigerian cities. The rapid increase in diseases such as typhoid fever and gastro intestinal diseases in Nigeria, is not unconnected with this kind of development. And no doubt these conditions as stated above are still present in Nigerian cities because the structural factors which promote them persist.

Many recent writers on sanitation accept the fact of the relationship between the environment and health. They see it as an urban-based problem that has been transformed into large proportions by urban development. This opinion is shared by Hilst (1969), Priest (1969), Ellis (1969), Savas (1977), Inyang (1977), Nwana (1977), Adebanwo (1978), Sada (1978) among others.

According to Priest (1969), wherever human beings congregate on a large scale, as is typical of an urban area, they will be faced with the sanitary problem of refuse disposal. Equally, Savas (1977) opined that sanitation problems increase with population growth - the more the population density the greater the impact of solid waste on public health and environmental quality since the problem of disposal is increased by large population density.

Ellis (1969) does not however see population increase per se as constituting serious problems to sanitation rather

population increase coupled with rapid urbanization, as is taking place all over the world, constitutes problems to environmental sanitation. This argument does not differ much from that of Priest and Savas above. Rapid population increase entails urbanization. Thus, Nwana (1977) posited that the problems of environmental sanitation emerged with the growth and development of towns and urban areas. Prior to this, according to her, there were sanitary measures adopted in the rural areas to take care of wastes. Correct as this opinion may be, it is germane to point out that the fact that there were sanitary measures adopted in the rural areas meant that the problem existed but there were adequate checks and control. This is opposed to the urban areas where rapid urban development is not equalled by adequate sanitary control measures.

Abdalla (1984) in agreeing with the above arguments raised by Nwana and Ellis, observed that human settlements, particularly urban settlement, has a high concentration of man-made elements and are therefore the locus of the greatest conflict between man and his natural environment. Through this conflict, according to him, there emerges a paradox which in effect leads to a deterioration of the environment. He identified accelerated population growth, increased urbanization and new expansions in technology with their

peculiar demand for space, food and natural resources as the major factors responsible for such environmental deterioration. He however, does not see any of these factors as constituting any serious harm on its own account, rather it is the un-coordinated and unplanned efforts to accommodate population, to control urbanization and industrialization, and to manage land and resources that have resulted to serious environmental problems. He however, neither showed whether these problems outlined above stem from government agencies or individuals, nor specify roles that will be played by either individuals or governments in maintaining a sound environment and good health.

In an earlier contribution by Hilst (1969), it was observed that most of man's activities generate waste which must be disposed of since it occupies space and as pollutants constitute sanitary nuisances. He was however, of the view that such human activities are not peculiar to the urban environment, rather the urban environment is more susceptible to environmental pollutants for two major reasons:

1. The high population density and the variety of activities which define an urban area lead to more and varied forms of pollution;
2. The increasing pressure on land limiting the land surface for solid waste disposal.

Here, one observes a seeming harmony of opinion among the theorists above. They all perceive the problem of sanitation as a function of rapid social change, of which rapid population growth plays a very key role; that the problem of sanitation should be located within the context of human activities at a given time. It is such human activities, with their omissions and commissions that have impacted negatively on city sanitation.

The fact that rapid population growth constitutes a problem to sanitation is not in doubt. However, the flaws in some of the opinions presented above were their failures in highlighting some other salient urban dynamics that could lead to, or sustain sanitary problems.

2.3 INDUSTRIALIZATION

Some literatures on sanitation in Nigeria emphasised the role of industrialization, in addition to urbanization, as also playing a major role in exacerbating the problem of sanitation and health in Nigerian cities. The fact that Nigeria, as many other countries in Africa, is not fully industrialized notwithstanding, the impact of industries on the problem of sanitation and health in Nigeria is already enormous and will keep magnifying with time. This is even moreso now that there is emphasis on industrialization as a pre-requisite to economic development. The enormity of this problem is heightened by the

fact that as a result of the country's level of development, adequate measures are not taken to control industrial activities relating to waste treatment and disposal are very costly ventures. And what is more, most of the industries are multinational corporations that place emphasis on optimum profit. They lack the "moral conscience" to consider the well-being of their hosts.

Inyang (1977) in his "study of pollution in some Nigerian Towns" did observe the serious health hazards posed by industrial growth. This study was done primarily through the observational method. The waste disposal methods of some selected industries were studied for a given period. Evidence from the study shows that carbon dioxide produced by iron and steel mills in Enugu, in addition to those emitting from incernerators and kitchens is fast polluting the air of the town. He observed also that these industries situated at Emene discharge their effluent into the Ekulu river which also receives both liquid and solid wastes from Abakpa Nike. This river has become very conducive to the growth of harmful micro-organisms.

This river is increasingly being used as a source of domestic water supply with its health implications. Suffice it to say that the seriousness of Inyang's observation must have increased between the time of his study and now. Many more

industries have sprang up in Emene, so also has Enugu recorded more population increases.

The study by Ajayi (1987) on the "Threat of Chemical Pollution" showed a positive correlation between the level of industrialization and the extent of chemical pollution in Nigeria. The study was equally observational in nature. The industrial estates of Apapa, Ilupeju, Agbara and Ikeja were studied using this method. The study revealed that in these centres, industrial wastes were indiscriminately discharged into the open or public drains since the factories have inadequate treatment plants; atimes they are completely inexistent. According to Ajayi, "wastes discharged into gutters are corrosive while fumes emanating from some factories have choking, irritating and offensive odours". This study by Ajayi also revealed or established a positive relationship between the extent of chemical pollution in Nigeria and the lack of adequate and effective factory act to compel factory owners to protect their environment from pollution.

Aguiyi-Ironsi et al (1988) share the above opinion of Ajayi. According to them, "there are no guidelines for industrial effluent discharge in Nigeria". The result of this is that industries discharge or dump their toxic wastes indiscriminately into rivers and into deep trenches from where they seep into underground water supply. Instances of this

abound in many Nigerian cities. At the Ekenwan dump site in Benin City, Bendel State, for instance, all types of wastes- both industrial and domestic - continue to form toxic liquid which seeps into the nearby Ogba river, a main source of water supply, and of recent, a site for the state government's fishing project. Tests carried out in this river have shown a very high level of Ammonia concentration as high as 300 mg per litre as compared to the normal permissible level of 0.02 mg per litre. Also, most of the industries situated in the Kano State Industrial Site dump their untreated effluent in pits dug around their factories. For instance, from the deep waste pit behind ANTERTAN in Sharada, toxic effluent spill over into Challawa river which is a main source of domestic water supply in Kano State.

The importance of these studies on industrialization is much. However, their contribution to our understanding of the topic under study is restricted to only the roles played by industrialization in generating sanitary problems. It is pertinent to observe that a major part of sanitary and health problems in our cities at the moment are unconnected to the generation of industrial wastes by industries. But this does not preclude the fact that sanitation and health problems will not be exacerbated by increasing industrialization, especially unplanned one.

Dike's (1985) study of the city of Onitsha also shows a positive correlation between industrialization and environmental pollution. He observed that Onitsha is now assuming the status of one of the leading industrial centres in Nigeria. This has invariably predisposed the town to atmospheric pollution. This, according to him, may with time, assume the same proportion with those of the industrialized nations. The study revealed that in the production processes of some of the four industries involved in the study certain raw materials used are toxic and injurious to health. Examples of these include the production of sulphur monoxide in the process of smelting iron. Specifically, of these four industries he studied, only the General Cotton treats its effluent before disposal. Also, three of the industries namely Allied Steel, General Cotton and Premier Breweries dump their effluent into the river, while Alliance International, which is located inside the town, dumps its solid wastes in nearby bushes. The implications of such indiscriminate dumping on the health of the residents of Onitsha and the environs are enormous. Such implications include the choking smell emitting from such dumps, the blocking of water channels thereby causing serious flooding and the contamination of underground water by toxic chemicals from such wastes.

The effects of industrial wastes on the health of the urban population have been documented. Ogunrombi (1978), noted

that effluent (comprising sulphur dioxide, sulphuric acid mists and metallic oxide and sooth) from several factories were strongly suspected of causing the death of 60 persons in the disaster of the Mense Valley, Belgium in 1930. Many people also took ill, with coughing, breathlessness, chest pain, eye and nose irritations. Also, in 1948, in Donova, Pennsylvania, USA, 20 lives were lost with over 6,000 people falling sick as a result of the accumulated industrial pollutants from zinc smelter, wire-coating mill and sulphuric acid plant (Ibid).

It has been observed that the increasing concentration of carbon monoxide in the air is harmful to health. The chemical deprives the body of oxygen, tends to cause suffocation and inhibits metabolic processes in the cell of the human body. People with heart and lung diseases are the worst hit (Inyang, 1977).

From all indications, the environmental problems associated with industrialization, especially that of atmospheric pollution, are bound to increase. The natural process of dispersal and dilution of these poisonous gases into the atmosphere is now being hampered by the ever increasing urban population and industrial activities. In Nigeria, for instance, the development of agro-based industries, refinery, petro-chemical industries, an integrated iron and steel complex, cement industries and other related industries are

encouraged. No doubt, these awre worthwhile ventures since they are part of the necessary steps to pull the nation out of its quagmire of industrial dependency or put more appropriately, economic dependency. What critics are against however, is the indiscriminate way these industries are established; there are no detailed studies of the sanitary and health problems that these industries will constitute before they are established. Such failures have increased the health cost of the industries. Though the health problems posed by rapid industrialization on the urban population are recognised, industries cannot be considered as acting in isolation of other urban dynamics or factors. For instance, it may constitute sanitary problems indirectly through accelerating the trend of urbanization. Such trends include migration into cities which, in the main, helps in the disintegration of the urban ecology (Bakacs, 1972).

Adeeko (See Aguiyi-Ironsi et al, 1988) a chief occupational hygienist, observed that many of Nigeria's industries are very noisy. Many of these industries are located in the urban area. According to him, quite unlike in many other cities the world over, Nigerian cities have no codes to govern noise levels. Both Inyang (1977) and Dike (1985), pointed out the health implications of noise in our urban areas. Adeeko notes that high noise level (above 90 decibels)

could lead to temporary or permanent deafness. Excess noise could also alter one's physiological state by speeding up pulse and respiratory rates. This has the potency of causing heart attack in individuals with existing cardiac problems or chronic effects like hypertension and ulcers.

2.4 THE SOCIO ECONOMIC CONDITIONS OF URBAN DWELLERS

Many writers on sanitation both from the social science and health disciplines are of the opinion that the existence of sanitary problems in our cities is partly a function of the inadequacies of facilities which would have made the city clean and liveable. It had been earlier noted that there is an ever increasing population growth without a corresponding increase in the facilities necessary for effective environmental sanitation programmes. Such a situation is not surprising for a third world country like Nigeria that is experiencing very rapid social changes. The urban population is increasing through both the natural process of procreation and through migrations from the rural areas. With its promise of employment and other goodies of life, the urban area has consistently attracted rural migrants. This situation is even exacerbated by the push factors or pressures exerted on the rural areas by rural poverty and the continuous underdevelopment of the rural areas (Turner, 1969; Gugler and Flanagan, 1979; Almai, 1984).

An increase in urban population entails added pressure on the existing urban infrastructures. Turner (1969) and Almai (1984) for instance, did note that there is an increasing demand for housing following population increase. They also opined that since most of the urban migrants are poor, they tend to dwell in the urban fringe where very cheap, albeit poorly constructed houses are readily available. These cheap tenements and shacks occupied by them are supposed to be temporary measures for they will readily abandon them whenever their living conditions improve. It is however, necessary to note that most of them do not get out of this condition as they are caught in a circle or web of poverty in the urban area.

Sanitary conditions in the urban fringes could be likened to those in the old city centres or what Mabogunje (1968) called the 'old city'. Okediji and Abayode (1967) aptly described the core area of Nigerian cities as "unhealthy, filthy, crowded and highly susceptible to any epidemic". Their full description of the core area of Ibadan vis-a-vis sanitation, will suffice here to show how the unavailability of infrastructures and other facilities impinge on urban sanitation. According to them, in the core area of the city of Ibadan:

> Most of the houses are built on mud and sticks.... Most of the houses have no kitchens and cooking is done in the corridor. An observer can see beads of carbon on the walls of the corridor. Most of the

> clay pots used for cooking are unwashed, and contain dirty water on the surface of which one sees dead flies and cockroaches. Cobwebs are common features of the various corners of the dwelling units. In places where there are separate kitchens, they are usually unswept and full of obnoxious odour. Aggravating this condition is the allocation of an uncovered "pit latrine" directly behind the kitchen. There are usually bits of dried excreta all over the places. In some houses, the "pit latrine" is used by all members of the compound and the responsibility of cleaning it is not assumed by anybody. Standing water all over the place affords breeding ground for mosquitoes and flies. Most of the gutters are uncemented and full of foul smelling water. Some houses have no "pit latrine" and the inmates are not financially able to employ nightsoil men to serve them. In such cases, the members of the household go to the nearby bush or pit to excrete. To walk near the walls of any building is to experience the terrible odour of urine disposed there by the inmates and passersby....

This very succinct description of parts of a Nigerian city done over twenty years ago is still valid today in-as-much-as many of the features described above are still tenable in many Nigerian

urban core areas and in most of the urban fringe areas.

One major infrastructure that is insufficient and has consistently defied solutions is housing. Government's attempt at arresting this situation by providing additional accommodation through the "low cost" housing scheme has nit mitigated this problem. And because of this acute shortage of housing, rental levels have remained alarmingly high; the quality of the few available ones and the services therein are substandard thereby constituting health hazards. Following

this development, urban residents, especially the poor rural migrants gravitate to the urban fringes where both urban and rural features exist side by side. Since these areas are not usually planned, coupled with the poverty of its inhabitants, they soon degenerate to slums with very drastic consequences on sanitation and the health of the inhabitants.

Gutkind's (1969) study of East and Central Africa correlates the quality of the residential area with the income level of its inhabitants. According to him, there is no concern by the government in the development of housing and the re-development of the existing slum areas. This opinion of Gutkind may not be entirely correct as efforts have been made by governments to correct such situations. Hanna and Hanna (1971), however, pointed out that even these attempts at re-development through urban renewal programmes have been strongly resisted since it involves a reorganization of social networks, including extended family links and friendship relations, which are of importance in African cities. This observation falls in line with the findings of Peter Marris (1960) in his study of "Slum clearance and Family Life in Lagos".

The above opinions of Hanna and Hanna (1971) and Marris (1960) are here viewed with skepticism. To argue that housing development or urban renewal programmes failed following reactions of urban dwellers to it seems an incomplete argument.

The problem of slum dwelling is to be located within a more fundamental problem of urban poverty. Thus, even without an organized urban renewal programme, an improvement in the income level of urban dwellers will invariably improve on their housing conditions, by at least increasing the number of rooms and other facilities, hence on the level of their environmental conditions. There have also been opinions that rather than construct buildings by way of low cost housing or even urban renewal programmes that may not fall in line with the cultural expectations of the urban dwellers encouragement should be given to them in form of loans and cheap building materials so as to construct houses to their own cultural tastes. This is however, without certain constraints. Such a programme for instance, may not succeed if the government on its part fails to organize it in such a way as to avert the haphazard construction of houses.

The importance of housing in the maintenance of good sanitary and health conditions has been emphasised by Davies (1977), Lucas and Gilles (1977), Onyedika (1977), Anderson et al (1978), and by Kenkwo (1982). According to Davies, the house in which a person lives has an important influence upon his health. Poor housing, according to him, makes an individual more liable to disease or to the effects of illness. He noted that poor housing areas awre usually characterized by

over-crowding with its attendant problem of increase in vermin and the spread of air-borne diseases such as pulmonary tuberculosis. Such poor housing units are also characterized by leaky roofs. This induces dampness of houses and could lead to various rheumatic problems and higher child mortality. Such areas are equally characterized by poor lighting, steeply steps and cracked floors. All these contribute to increased home accidents. Onyedika (1977) pointed out that poor housing could be a contributory factor to mental illness. According to him, "Symptoms of stress and various psychosomatic illnesses that are associated with stress have been observed among human beings as a result of over-crowding".

The import of these contributions is quite significant to our understanding of aspects of sanitary problems in our urban areas as well as their consequences for the population therein. A significant proportion of Nigerian city dwellers live in areas that are without adequate sanitary facilities; where sanitary breakdown has become part of their everyday experience. The questions that may arise at this point are: why are there these continuous breakdown in sanitation? And what are the sanitary facilities that are usually lacked in the urban area?

Adekunle (1976) and Udo (1978) have identified the characteristics of a "healthy environment". These include,

amongst others, adequate and regular supply of water, sanitary waste disposal and comfortable and sanitary housing. The inadequacies in the provision of these have tended to heighten sanitary problems in the cities. Instances of this abound. Recent statistics from the World Health Organization (W.H.O.) (see Ogunrombi, 1978) have shown that only 28 per cent of the urban population in developing nations are served by water-borne sewage and that 29 per cent have no sanitary facilities whatsoever. In advancing this point further, with reference to Nigeria, Ogunrombi notes that the current excreta and waste management facilities in Nigerian cities are grossly inadequate. Throughout the federation he notes, there is yet no single city with a central sewage treatment plant. He identified the high construction and maintenance cost of the system, insufficiency of manpower, the poor economic status of the people, and the lack of water supply as factors responsible for this.

The inadequacy of water supply has been one major problem hindering the achievement of good sanitation among Nigerian city dwellers. Ogunrombi (1978) emphasised the role of water. He notes that only 30 per cent of Nigerians (including rural dwellers) are served with home connections whereas the rest obtain their water from public taps and other sources such as streams, rivers and lake. He attributes the shortage of water

to the seasonal fluctuations in water level, pollution of available streams and rivers, and the haphazard development of available sources of water supply. Enugu for instance, with its teeming population has only four main sources of pipe borne water supply namely, the Iva head, Ekulu, Enugu crash programme and the greater Enugu. This is grossly inadequate for the town and is manifested in the acute water shortage or scarcity in some parts of the town. The need for adequate water supply both in quantity and quality is based on the fact that certain disease conditions are logical outcomes of the failure to meet this need. Among the water-related diseases discussed in Ogunrombi's study were water-borne, water-based and water-washed diseases. It has earlier been noted in this review that the inadequacy of water supply has necessitated the increasing use of unclean water for domestic purposes. This is the cause of water-borne diseases. Also, the use of water polluted by toxic industrial wastes containing heavy metals such as lead and mercury may also cause non-infectious diseases such as cancer, infertility and genetic mutations (Inyang, 1977).

Both Fajenwonyomi (1983) and Creepy (see Akarue, 1988) share the same opinion with Ogunrombi. Lending credence to it, Fajenwonyomi attributed the persistence of cholera and other gastro-intestinal infections in most developing communities to the inadequacy of good quality water supply. He also notes

that a majority of the diseases existing in the developing nations are related to poor water management. In the same vein, Creepy attributed the outbreak of typhoid fever in the FESTAC area of Lagos State to the infection of drinking water from burst sewages. The acute shortage of water, according to him, has forced the residents of the area to dig private water wells with the high risk of contamination. Of interest however, is that he holds the opinion that this shortage of water is a function of the non-challance of the authorities concerned namely the Federal Housing Authority (F.H.A.) and the Badagary Local Government to maintain their facilities. These people concerned with the provision and maintenance of facilities do not really feel the plight of the masses. They do not live with them, rather they live in the ivory towers and while the two authorities concerned are busy passing the buck, the inhabitants of the area are silently dying.

From the foregoing, it could be deciphered that the problem of sanitation may not necessarily be attributable to only over-population or urban poverty but could also be located in the inability of the authorities concerned to provide some of the sanitary facilities needed by the urban dwellers. But one could still add here that the failure of the authorities concerned with sanitation could be consequent on the fact that the people to be attended to and their needs are too many while

the resources of the authorities are lean. This is true about may Nigerian organizations charged with the provision of essential services so also it may be untrue about many.

Nwana (1977), Sule (1982) and Dike (1985) also hold the opinion that the non-provision or the inadequacy of sanitary facilities is a major obstacle to effective sanitation. Both Dike and Sule are however, of the opinion that such inadequacies are not uniform in the cities with respect to residential areas. While some areas enjoy all the necessary sanitary facilities that make for a clean and healthy environment, others do not. For instance, Sule's (1982) study of Surulere area of Lagos State shows that the area has depots and dustbins meant for refuse disposal. He observed however, that the low income areas of Surulere were neglected in terms of solid waste disposal locations as only very few existed in the area. In line with this observation, Dike's (1985) study of Onitsha, Anambra State, also showed a disparity in the provision of sanitary amenities among residential areas. The authorities concerned do not provide refuse bins for the low income residential areas; they also favour the high income areas in the day-to-day removal of refuse. But it is necessary to observe here that the non-removal of refuse from the low-income areas may not necessarily be intentional on the part of the authorities concerned but may be a function of other

variables. This issue will be treated in the later part of this review.

The problem of sanitation in Nigeria cities has also been attributed to the failure on the part of government to plan towns effectively. Part of this problem is associated with the inadequacies of policies of urban development. For instance, Ogunrombi (1978) posits that the environmental problems associated with our cities cannot fully be grappled now since there are no existing "comprehensive and revolutionary government policies" to take care of them. Adding to this Binney (1984) maintains that the prevalence of insects in our cities is a consequence of our inability to effectively plan our urban areas. In the planning of urban layouts he observed, certain insect-proofing devices are conspicuously left out thus creating breeding spaces for insects. Very little attention is given to environmental cleanliness in the implementation of urban policies, and even when provided, are inadequately maintained.

Obiagwu (1987) also lent credence to this. He notes that the proliferation of rodents and other pests in our urban areas is not only as a result of our dirty environment but is also attributable to our faulty pest control system. The lack of a definite pest control system according to him, has triggered off the emergence of many quacks who exploit the sensibilities

of the urbanites. They hawk cheap chemicals or pesticides along the streets, in motor parks, markets and even in residential homes with reckless abandon. Such chemicals (pesticides) as "Ota pia pia", "chop and go" etc. when wrongly used, as is always the case, constitute direct health hazard; when inadequately applied, could lead to the development of resistant strains among the pests and rodents being controlled.

The flaw in this opinion is that it removed the human element from this aspect of sanitation. Though some areas may be well planned the ways by which individuals dispose of wastes contributes to the increase in pests and rodents. For instance, the October (1989) edition of AWKE, a Christian Magazine, in the topic "Feeding the Rats" observed that in the United States of America, the people of New York are being blamed for their city's exploding rat population. The chief problem there, it observes, is the improper garbage disposal. "People feed the rats by hurling garbage out of their windows, throwing food on subway tracks, leaving leftovers on park grounds and so forth". It therefore concludes that even though $10.5 million is spent on rat control programme by the city, the number of rats will continue to increase because the rats cannot eat their bait. For instance, Vogelsang, a New York City exterminator observes: "why would rats eat the poison we put down when they can have caviar-chicken, steak, pizza - straight out of the garbage

bags! You gotta starve a rat. No food, no water. Then he'll eat poison". Though rats do not eat cavier-chicken here in Nigeria, the attitude of many Nigerians towards the disposal of garbage may not be different from that of New Yorkers in this respect, if not even worse.

According to Nwana (1977) unplanned housing or town leaves room for indiscriminate disposal of refuse and sewage. She sees urban sanitation problems more as a consequence of the poor implementation of policy rather than the non-provision of those policies, as argued by Ogunrombi (1978) and Obiagwu (1987). According to her in the area of building in Nigeria for instance, Public Health Laws and Public Health Rules have made adequate provisions for standards to be met. This is to ensure good health in them. Citing excerpts from sections 40, 41 and 42 of the Public Health Ordinance, formerly 183 Laws of Eastern Nigeria which states that "occupiers of all premises shall provide covered receptacles for rubbish ... that" ... no plans for any building shall be passed by the council until the medical officer of Health (M.O.H.) has had an opportunity of examining the same", she observes that the policies are not strictly followed. She notes that unscrupulous and corrupt city officials fail to ensure that the requirements of this policy are met before approving them. This view, as many others that have been reviewed, sees the problem of sanitation

as factor-specific of which the solution lies in addressing the specific factor responsible for it.

Sanitary problems in our cities have both immediate and remote causes. A clear understanding of the problem has to take cognisance of this fact. According to Abdalla (1984), to comprehend the problem and the trend of sanitary conditions in our cities, one must have a clear understanding of the way these towns emerged and grew. Most Nigerian cities are legacies of colonialism. The colonialists who planned them had their own conveniences in mind; they did not address themselves to the long-term effects of their plans. Such stereotype plans adopted for most of the towns fall short of the needs arising from the present trends in these towns. Such trends include rapid population growth and increasing urbanization, increasing industrialization, urban activities and mass poverty.

One could differentiate the old town from the new town in most of these cities. Each of them has peculiarities and poses different problems for environmental sanitation. Mabogunje's (1968) study on urbanization in Nigeria attests to this. In that study he concluded that "the disposal of solid waste from the old towns presents serious difficulties due to the inaccessibility of the congested area. The long trek from family compounds and foot-paths to far-away refuse depots often encourages the human carriers to lighten this load by

scattering refuse along stream banks and open spaces, thereby contributing to generally poor sanitary officials for their failure to clear refuse regularly in the low-income areas of Onitsha and Enugu (see Koren, 1980; Dike, 1985).

Okoli (1982), Ugochukwu (1983) and Nwosu (1984) added another dimension to our understanding of the problem of sanitation and health in our cities. They argued that ignorance, indifference, and the unco-operative attitude of urban dwellers are major issues to be considered if these problems are to be effectively grappled with. Okoli for instance posited that "Nigerians as a whole are unhygienic". Ugochukwu reiterating this point notes that "the average Nigerian citizen takes sewage and refuse disposal for granted, hardly realizing how complex and difficult are the problems faced by public health workers and officials". These views see an inherent tendency in Nigerians to live in a dirty environment; and that Nigerians are unaware of the positive relationship between the environment and health conditions. It is this their opinion that aptly explains why Okoli (1982), Ugochukwu (1983) and Nwosu (1984) strongly agreed with Nwana's (1977) panacea for a healthy environment which states that "If people realize that there is a positive relationship between the environment and health, they are likely to endeavour to maintain a satisfactory environment in order to ensure good health".

The fact that ignorance or apathy impacts negatively on sanitation is well known to students of Public Health. But to say that Nigerians as a whole are unhygienic, or that they are ignorant of the positive relationship between sanitary conditions and their health, is to the least, incorrect. The above opinion of Okoli et al precludes the fact that many urban dwellers are rural migrants (see Gugler and Flanagan, 1979) with a good knowledge of what a clean environment ought to be. It is however, a different thing to argue like Dike (1985) that the "hitherto clean" rural migrant adjusts to and endures the dirty urban environment for economic reasons, not necessarily that he is unaware that it is harmful to his health. The rural migrant adjusts to and endures this dirty urban environment in-as-much-as it enables him exploit it economically. And even if it entails living in a dirty environment, so long as it does not directly affect his economic activities, he may not really care. Thus, ignorance, as any other factor, when discussed outside the context of the entire societal processes does not place it in the right perspective for understanding its role in the problem of sanitation and health in Nigerian cities. This however, does not rule out the possibility that some Nigerians are unaware of the consequences of a dirty environment. The problems should therefore be viewed within the context of a given socio-economic and cultural matrix as it will immensely aid our understanding.

2.5 THEORETICAL FRAMEWORK

All through the literature reviewed above, issues relating to urban demography and ecology, industrialization and the socio-economic conditions of urban dwellers were extensively discussed as they affect sanitation and the health of urban dwellers. It is necessary to stress the inter-relatedness of these factors since taken singly, none of them can provide us with a sound theoretic base for a macro study or discussion of the topic under study.

Sanitation problem is an urban-based problem or phenomenon, at least in the sense that it assumes higher proportions in the urban area. This is however, not to suggest that the effects of poor sanitation are restricted to the urban areas only. An understanding of the increasing links between the urban and the rural areas will help to buttress this.

Sanitary and health problems in our urban areas, no doubt, are heightened by such problems as rapid population growth, urbanization and industrialization, poverty of the urban dwellers and the inability of governments to meet with people's expectations in city planning and in the provision of facilities necessary in aiding city sanitation. Health experts have pointed out that many of the diseases that afflict urban dwellers in Nigeria may be related to the poor level of sanitation of these urban centres. The health problems which

arise from poor sanitation will not be viewed from the point of view of how clean or dirty an urban area is per se rather it has to be viewed from a general framework of development and underdevelopment; as an aspect of our underdevelopment and the inappropriateness of our development strategies, especially in the urban areas. For instance, the increasing urbanization of very few centres to the detriment of the vast majority of the rural areas in the country has escalated the rapid migration of the rural populace into these few urban centres. This is moreso where the rural areas are grossly underdeveloped and the rural dwellers, especially the youths lack the wherewithal of satisfying their numerous needs. Also, the emphasis on industrialization and the neglect of rural agriculture and craft have in addition to triggering off the emergence of industries without well defined provisions for environmental maintenance entailed the concentration of labour in the urban areas to meet the demands of these industries. Such large population concentration in the urban areas is one major factor responsible for the poor sanitary conditions of Nigerian cities. This is however, not a prelude to accepting the demographic model of urban studies as the theoretical framework to be adopted for this work.

Rapid population increase or population concentration per se does not constitute sanitary and health problems in

isolation. Rather in addition to other varieties such as poor city planning, the socio-economic status of urban dwellers, the availability of sanitary facilities, the efficiency of sanitary authorities, or simply the level of development, large population may or may not constitute sanitary problems. It is thus germane to point out that to equate the level of population concentration with the level of sanitation of a place may constitute an ignis fatuus since there are cities which have very high population concentration yet they have a high level of cleanliness and vice versa. A comparison of cities in the developed and the underdeveloped parts of the world will help to throw more light on this. A critical analysis of the level of sanitation in Nigeria therefore, must not dwell only on the role of rapid population growth in either generating or escalating sanitary problems. It has to go beyond this. It has to evaluate all other development processes that have led to the emergence of large urban population in the first place, and all other factors or variables that interplay with it in creating or in sustaining sanitary problems. It is worth noting that negative demographic features, urban poverty, unavailability of sanitary facilities and amenities, inefficiency of sanitary workers, inadequate urban planning, the development of slums and urban straggle are mere manifestations of a more fundamental problem - underdevelopment.

An understanding of the realities of the African urban centres will, to a reasonable extent, enhance our understanding of the issues under discussion. Cognisance must be given to the fact that modern African urbanization could easily be differentiated from those of the western nations both in the way these cities originated and in some of urban trends being manifested in them. Studies have shown that African urbanization has a rural base (Breithorbe, 1979; Dike, 1985). The typical African urban dweller does not consider the urban area as his home. He rather sees it as a "no man's land" where he migrates to in search of the golden fleece and other goodies of life. All these enable him to improve on his life and those of his kins way back in the village. Since he will eventually retire to the village later in his life, he lays more emphasis on developing his village - his home - as opposed to the development of the urban area which is still alien to him. The reality of this is easily grasped if one considers the relative young age of the urban phenomenon in many parts of Africa. The typical urbanite may thus be forced to develop an indifferent attitude to city sanitation since there are other more pressing issues confronting him.

The requirement of the traditional African normative system, coupled with the determination to survive in an alien environment necessitates a clustering of the rural migrants

within a given area of the city. And because most of these new migrants awre poor and cannot afford the high rentage charged on urban houses in the fairly good areas of the city, they readily move to the slum areas of the city where they can afford rents. They also by themselves construct temporary accommodations in form of batch houses according to their income levels. No doubt, these low income areas are the dirtiest in our cities. Their unorganized nature, coupled with the 'lack' of interest by both the government and sanitary officials in the areas have made them the anti-thesis of the high income residential areas in the cities. In Enugu, this ecologic stand falls short of explaining all the issues that are involved in the problem of sanitation and health. There are other non-ecological issues that are involved in the problems of which ecologism as a theoretical framework cannot fully highlight.

This theoretical framework is better informed by the fact that adequate sanitary measures are taken in the rural areas to keep them clean. Bindle's (1898) and Johnston's (1923) observations about Igbo villages (see Dike, 1985) are pointers to this fact. The typical villager understands that there is a relationship between his environment and his health thus he regularly cleans his house and compound. One may then begin to wonder why the urbanite (who has a rural background) with his

reputation for being more informed and enlightened, seems ignorant of the need for a clean environment. But then it is our opinion that Nigerian cities are dirty not because their residents are totally ignorant of the need for a clean environment but rather that in addition to the demographic, cultural, economic and ecological factors that have earlier been discussed, the socio-economic milieu of the city contributes immensely to the problem under study. These socio-economic factors have tended to cloud the urbanite's perception of sanitation. For instance, life in Nigerian cities is so harsh that the urbanites are almost at the threshold of surviving. And because many of them belong to the less privileged class, and with the government and its agents showing little or no real commitment to their welfare, they develop a fatalistic attitude to urban problems, sanitation and health. These urban residents concern themselves more with the immediate problems of high cost of goods and services, food scarcity, unemployment, and the general high cost of living. They thus tend to regard sanitation as a luxury rather than a necessity.

Most of these issues that have just been pointed out above are embodied in the Marxist framework of urban studies. Specifically, the framework for instance will view the problem of sanitation and health in Enugu as a socio-economic problem

and especially the manifestation of the class conflict between the privileged and the less privileged. Residential patterns in Enugu tend to confirm this framework. Earlier works on sanitation in Enugu have indicated that there is a great difference in the level of sanitation between such areas as the Government Reservation Area (GRA), Independence Layout, New Haven and Trans Ekulu on one hand and such other areas as Abakpa-Nike, Emene, Iva-Valley, Ogui urban and Coal Camp on the other. While the former areas are well planned and invariably, with a higher level of sanitation, and probably with a lesser incidence of sanitary-based diseases, the latter areas are a hedge podge of meaningless planning with very poor level of environmental sanitation. It is necessary to point out that the socio-economic statuses of residents of these two areas when juxtaposed are at two polar ends. We must however, not lose sight of exceptional cases. While a majority of those engaged in formulating government policies reside in the former areas, occupants of the latter areas are at the receiving end of the fall-outs of such policy formulations. From this Marxist perspective also, the dirty areas of Enugu are merely the manifestations of the economic changes in the state. It is such economic changes that have necessitated the gravitation of youths to the urban area in the first place, in search of jobs; that have tended to marginalize the migrants economically and

hence socially as indicated in their residential areas and in their levels of health; and have equally affected the efficiency of the authorities charged with environmental cleanliness since they can no longer afford most essentials of their job especially in this era of Structural Adjustment Programme (SAP). It is these issues and the accompanying sanitary breakdown that may have tended to escalate sanitary-based diseases like malaria, Typhoid Fever and gastro intestinal diseases. We should however, differentiate the older parts of the city from the newer parts since the circumstances that led to the growth of the former are different.

This Marxist framework appears almost perfect in its formulations. It is, however, not all aspects of the problems of sanitation and health in Enugu that can be thoroughly explained in terms of the economic relations between classes in the urban area.

The government has on its own part failed in its city planning efforts and especially in the provision of adequate amenities that will ensure good sanitation and health. It is such lack of planning of the cities coupled with the psychological inhibitions developed by the urbanite that may have tended to condition a majority of them to accept some naive ideas about sanitation and health as evidenced in the

saying made popular by 'Chief Zebrudaya' of the "New Masquerade" that "germs have no authority in the belly of an African man". This kind of saying no doubt, has very far-reaching effects on the problem of sanitation and health.

In this section, we have tried to highlight salient aspects of the Demographic, Ecological and Marxist approaches of urban environmental study, especially as they relate to the problem under study. It is however, necessary to reiterate that taken singly or in isolation, none of these models can provide us a sound theoretical framework for the present study. It is therefore, the aim of this study to adopt what is referred to in this work as the integrated approach or model as the framework for this study. This multi-dimensional approach is simply a conglomeration of the relevant aspects of the models of urban studies that have been highlighted in this work. These models are the Demographic, Ecological and the Marxist models. This integrated model is broader than any one of the above mentioned approaches in that it recognises the cultural, economic, social, ecological and demographic factors of development with particular reference to the problem of sanitation and health. This thus provides us a better theoretical framework for analyzing and understanding sanitary and health problems in Nigerian cities.

CHAPTER THREE

RESEARCH METHODOLOGY/RESEARCH DESIGN

3.1 SCOPE OF STUDY

The geographical areas covered in this study include the whole of Enugu urban and all the other adjoining settlements of Abakpa-Nike, Emene, Iva-Valley, "Ugwu" Aaron, "Ugwu" Alfred and "Ugwu" Ogbodo which are quite proximate to the city itself. The choice of Enugu as the study setting is based on: its size, its level of development, the researcher's knowledge of the city and the relative proximity of the town to the researcher.

The time span of this work was one academic session - the 1991/92 academic session. The field work of this study lasted for six months - between May and November, 1992. The total population that was involved in this work is about 800,000 (Statistical Abstract, 1989).

3.2 SAMPLE PLAN/SAMPLE SIZE

Enugu has an estimated population of about 800,000 persons. The number of households or families are however considerably less. The town is divided into seventeen major residential areas namely: Abakpa-Nike, Achara Layout, Asata, Awkunanaw (including China Town), Emene, Government Reservation Area (GRA), Independence Layout, Iva-Valley, Maryland, New Haven, Obiagu, Ogbete (Coal Camp), Ogui-urban, Ogui New Layout, Trans Ekulu, Uwani and the small settlements comprising "Ugwu" Alfred, "Ugwu" Aaron and "Ugwu" Odogwu. Samples were drawn

from each of the seventeen residential zones of the town as follows:

The number of streets in each of the residential zones was first counted. An average of thirty streets was obtained for each of the zones. The 10th building in every 3rd street was selected, starting from the Eastern part of the zones to their western parts. (The map of Enugu showing the various zones is attached as figure 1 for easy guidance). In each of these 10th building, the 3rd room or flat was selected. In the Government Reservation Area, Independence Layout, parts of Trans Ekulu and the Abakpa Housing Estate where most of the buildings are single family buildings, the entire building was usually selected. In selecting the person who responded to the questionnaire, any enlightened adult in the family that was present at the time of distribution of the questionnaires was selected. In some cases, parents who were selected as respondents preferred to refer the questionnaires to either their sons or daughters, especially those in higher institutions for answers. Most of the parents claimed they did not have time.

Naturally, not all the questionnaires administered were duly completed and returned on time. On some occasions questionnaires were retrieved from persons and given to some other members of the family, or even to persons in another room or flat in the same compound to complete. In all, one hundred

and seventy persons from the seventeen zones were selected as respondents at the rate of ten persons per residential zone. Thus, one hundred and seventy questionnaires were distributed out of which one hundred and sixty were duly completed and returned.

Seven officials of ASESA were interviewed during the fieldwork. Of this number, two were from adminstration department specially from the Public Relations unit and Operations while the other five were field staff of ASESA. Two persons out of these five field workers belong to the refuse disposal unit while the other three belong to the levy collection unit. The aim of this selection was to ensure that the views of both the administrative and field staff of ASESA were adequately represented.

3.3 INSTRUMENTS FOR DATA COLLECTION

There is the existing controversy between advocates of qualitative as opposed to quantitative research in Africa (see Cohen, 1973). The major issue in this controversy hinges on the mode of data collection in social research that each of them emphasizes. While the peculiarities of each of them is recognised, this work combined aspects of both the quantitative and qualitative research methodologies bearing in mind that both methodologies are inter-related and can be used simultaneously to complement each other. In choosing the data collection method, three very important issues were considered:

1. The fact that sanitary and health problems of urban dwellers are being appraised, makes it expedient that data should be collected from the urban dwellers themselves. The urbanites were in a better position to supply data relating to the type of houses they live in, the number of rooms they occupy, the number of children they have, the quantity and quality of sanitary facilities available to them, their sanitary habits etc. All these information were collected through the use of the questionnaire. The questionnaires which were self-administered, contained 35 questions out of which only one was an open-ended or non-structured question. The rest were structured questions in which the respondents were required to choose answers from the options stated.

2. The fact that sanitary officials will supply part of the data needed for this work. The data which were collected from them bordered on the facilities available to them in the discharge of their roles, their achievements and on some of the problems they encounter in their attempt at maintaining a clean environment. All these information were collected from some members of the Anambra State Environmental Sanitation Authority (ASESA) through unstructured interviews.

3. Available documents relating to such issues as the population of Enugu, history of Enugu, residential

patterns, and patterns of the distribution of sanitary facilities are made use of. Also information from both government and private hospitals in Enugu which relate to the occurrence of certain communicable diseases or epidemics were of immense use to the research. Medical records were obtained from the Park Lane General Hospital, Enugu and from two private hospitals - CIMAC clinic and St. Hilda's Hospital all in Enugu.

3.4 LIMITATIONS OF THE STUDY

This work would have been more meaningful and more revealing if a comparative study of sanitary conditions and their health implications were carried out in many Nigerian cities, and (or also) if a diachronic study of the problems of sanitation and health in Enugu was carried out. Unfortunately, time and resource constraints could not permit such an extensive research. In the light of these, attempts were made at selecting a highly representative sample that elicited the views of almost all segments of the society.

3.5 METHOD OF DATA ANALYSIS

Percentages were used to reduce the raw data collected through the questionnaire to manageable proportions. It thus made them easily comparable. The Phi (Ø) statistic was employed in testing the hypotheses involved in this work. The results were later converted to Chi-square (X^2) for the tests of correlation and association).

CHAPTER FOUR

BACKGROUND TO THE STUDY (BRIEF HISTORY OF THE PHYSICAL DEVELOPMENT OF ENUGU, 1900-1989)

Enugu is located along the Udi Hills on an altitude of 209.3 metres above sea level. It has an overall land area of 72.37 square kilometres and is on latitude 6 27N and on longitude 7 29E. It is a town that has grown within eighty years into both a commercial and most importantly, an administrative town.

The major factor that brought about the development of the town was the discovery of coal in 1909 by a team of Geologists led by a mining Engineer, Mr Kiston, who were in search of Silver on the Udi hills. The point of this discovery is on the valley of a stream on an escarpment located a few miles from the present location of the town (Swardt & Casey, 1963). Before this discovery, Enugu town was inexistent and its present site was merely a farmland belonging to Ngwo, Akegbe, Abor and Nike.

The discovery of coal in the site triggered off several other exploratory surveys by various teams of Federal Geologists with the aim of determining the extent, quality and workability of the coal deposits discovered. Of major importance to the growth and development of the city was the construction of railway from the South Eastern Coast, the

present day Port Harcourt, to the proposed Enugu coal mine for the evacuation of coal. Also, the first world war of 1914-1918 necessitated an increased need for the exploitation of coal in Enugu which was then the only coal mine discovered so far in the whole of West Africa. Based on this, one Mr. W. J. Leck, a mining engineer, was sent from Britain to Nigeria in 1914 to open the Enugu coal mine (National Archives Report, 1915). He arrived Udi on the 11th of January, 1915 along with some labourers from Onitsha, under the headship of one Mr Alfred Inoma. They became the first recorded inhabitants of Enugu. While Mr Leck and other Europeans settled on the Hill top, the native labourers camped closer to the mine on the foot of the hill. This camp is referred today as Alfred's Camp ("Ugwu" Alfred) taking its name from Mr Alfred Inoma. That same year also witnessed the transfer of Udi prisons from its Udi location to Enugu.

The visit of Sir Frederick Luggard, the then Governor General, made a dramatic impact on the development of the town. He settled the controversy raging among the Europeans on the location of the town. He supported the siting of the town on the plains close to the Udi junction as opposed to its siting on top of the hill. Before this time, the Nigerian workers had already set up "bush houses" on the plains south of the Ogbete river. It was at this period that a layout for the town was

worked out and work commenced on it immediately. Rail line construction reached the Udi junction in 1915 and trains started arriving the town from 1916. This development necessitated the arrival and permanent settlement of railway workers in the town.

By the Council Order in 1917, Enugu was declared a second class township under the name Enugu Ngwo, derived from a nearby village located on a hill. However, for purposes of distinction, the town dropped the name Ngwo in 1920 and has since remained Enugu; the village has dropped Enugu and has remained Ngwo since then. As at 1917 the town was made up of only two residential areas - the European Reservation Area sited on a slightly elevated tract of land south of the Aria river, and the native location sited south of the Ogbete river. There was also a neutral zone separating these two areas in line with the segregational policy of the whites (Okoye, 1977). As at that time, the town was administered by a local authority that was responsible to the Resident of the Province. This local authority was advised by the Township Advisory Board which then included the Medical Officer, the Colliery Manager, and the Prison Superintendent. Its membership was however, broadened in 1920 to include two Nigerians.

The development rate of the town has been considerably high. This was mainly due to the rapid development of the coal

industry, the major factor for the emergence of the town. It is this that has earned the town the name "Coal city". As at 1915 for instance, about 700 persons from the neighbouring villages were already employed by the industry. The effects of the Influenza epidemic of 1918 however reduced the town's population drastically, killing about 11,000 persons in the Udi Province. This also had a drastic effect on the coal industry (National Archives Report, 1915). This death toll, coupled with the construction of rail lines to the North meant a competition for scarce labourers. Consequently, forced labour was introduced with district officers from Onitsha and Owerri provinces conscripting labour to the mines. Prominent chiefs like Onyeama of the then Agbaja and Chief Chukwuani of Nkanu were paid some commissions in order to induce their subjects to go and work in the mines.

In addition to the existence of the Colliery, prisons and railway, other departments were established in the town. Among them was the establishment of a hospital following the posting of a medical officer to Enugu in 1917. The Public Works Department (PWD) was then constructing many government buildings. By 1920 Enugu became the administrative headquarters of the district. Although this lasted for only eight years much was achieved in terms of physical development of the town.

The private sector also contributed to the development of the town. As early as 1919, some European firms had already secured business areas in the European Reservation Area; by 1920 the Miller Brothers, African and Eastern Trade Corporation, African Oil nuts, John Holt, a French Company and the Bank of British West Africa had already started business in the town. This meant a gradual concentration of people in the town and the invasion of the residential areas for commercial purposes. Nigerian business men were not left out. Their businesses were however, mainly concentrated in the African location of Ogbete. The growth of private businesses was rapid that by 1927 about 1,000 of the total work-force in the town were privately employed (Okoye, 1977).

The growth of economic activities in the town attracted rural migrants with a consequent rise in the demand for residential land and the corresponding rapid physical development of the town. For instance, as far back as 1919, over 500 thatched houses in the native location had been built and fully occupied.

By 1920, the colliery and railway started building permanent quarters for their European staff in the Reservation Areas. In 1923, the railway built quarters for its African staff NorthEast of the railway station, away from the African location in the South. This is the present day Artisan

quarters or China Town (Okoye, 1977). By 1924, a power house for the generation of electricity was completed, and in 1926 pipe borne water system was installed.

It is important to point out that as at that time no streamlined plan for the development of the town existed. However, with the formation in Lagos in 1922 of a permanent Town Planning Committee charged with the responsibility of planning of all towns in the Southern Provinces of Nigeria, a town planning sub-committee was formed in Enugu. Its responsibility was to advise on the allocation of building sites and on the problem of future development in the town.

Enugu continued growing at such a very fast rate that by 1925 both the European and African locations were almost full and were yearning for expansion. A new layout for European reservation was planned across the Aria river on an elevated stretch of land between the Aria and the Ekulu rivers. An European hospital (the present-day Parklane Hospital) was opened there in 1926. The terrain of the African location could not allow its expansion southwards thus a new African location was sought. This was laid out in 1925 between the neutral zone separating the railway ground from the Asata river. 1927 witnessed the incorporation of Iva-Valley, Colliery Camps, Alfred's Camp and the hill top site into the Enugu urban District. At the end of that year, the built up

area of Enugu had exceeded 202 hectares and 500 acres; its population of 3,170 by 1921 census population had risen to above 7,000.

The decision to transfer the administrative headquarters of the Southern Provinces of Nigeria to Enugu was another factor that facilitated growth in the town. Construction of administrative offices (the secretariat) commenced (National Archives Report, 1927). However, the actual transfer became effective in 1929. This triggered off another influx of civil servants and migrants from both neighbouring and far villages in search of employment into the town. Building of houses in the second African location albeit designated the Eastern Native or African location was accelerated, and by 1933 the location had been extended northwards. It is necessary to point out that by 1930 a new Building Ordinance was promulgated in Enugu. This required that all new houses in the township should have permanent roof and to occupy not more than 50 per cent of its plot. During this period also an industrial site located East of the Asata river was selected; a police depot was opened; so also a military barracks. This period witnessed the setting up of a Township Advisory Board to replace the then moribund Town Planning Committee. It consisted of 12 members out of which two were Nigerians.

The population of the town continued to grow at a relatively rapid rate.

Thus as at 1931, its population was about 15,000, distributed as shown in the table below:

TABLE 1: POPULATION OF ENUGU AS AT 1931

Southern Native Location	3,500
Eastern Native Location	3,300
Concrete Town (Extension of the Eastern Native Location	2,400
Iva Valley, Hill Top and Others	3,500

SOURCE: Culled from Okoye, 1977.

This meant an increase of 10,000 in ten years, with migration accounting for this relatively rapid increase. The consequence was a shortage of residential accommodation which has continued till now. The layout of the town as at 1934 is shown as figure 2.

The growth of the town has been rapid from 1940 onwards. During world war II there were increased activities in the colliery and the railway. Military establishments in the town were enlarged. There were further immigration in response to the job opportunities. The growth of the neighbouring village population and the increase in the number of educated young men entailed an increased gravitation or influx into the town from these neighbouring and far away villages. The three African residential areas then namely: Ogui, Coal Camp and Asata together with their extensions and the railway artisan quarters

(China town) were all full and over-crowded. Many migrants who could not find houses in the town or those who could not afford the rent sought accommodation in the nearby village of Ogui riverside where cheap rooms and cheap land for cultivation abound. The riverside was not subject to the township regulations with regards to housing, health and tax. Social life there was quasi urban with rural norms prevailing. It became an acculturation ground for new migrants. Houses began to spring up in the village in a haphazard manner owing to the absence of ordered layouts. Following the encroachment of the Enugu township, the area was annexed to Enugu. It was declared an urban area in 1940 thus falling under the control of the local authority. Since then it has been known as the Ogui urban area.

In trying to alleviate the housing problems of colliery workers, the colliery built three model housing estates: the Udi Siding, located west of the prison and opened in 1943; the forest Hill Estate opened in 1944; and the Valley Road Estate located on the branch road to Iva-Valley mines, opened in 1945 (Okoye, 1977). The housing situation in the town did not improve much. It was worse in the Ogui urban area. There was such a great influx that the little village grew over night. The village was bereft of any plan or growth model: there were no drainage system, no streets, and no pipe borne water. The

area turned into a slum with its attendant corollary. It gained the nick name 'Ogui urban Jungle'.

The population of the town had by 1945 risen to 35,500 distributed as shown in the table below:

TABLE 2: POPULATION DISTRIBUTION OF ENUGU, 1945

Coal Camp	11,000
Ogui	6,000
Asata	7,500
Ogui Urban	5,000
Others	6,000
Total	35,500

SOURCE: Dewhurst Census, 1945.

This showed a 22,000 or 170 per cent increase in 14 years. Analysis of the population census confirmed over crowding in all the areas especially in the African quarters. Room occupancy ratio in various parts of the town was approximately 3 per room in the government quarters as shown below:

TABLE 3: NUMBER OF PERSONS PER ROOM IN ENUGU, 1945*

Asata	2.51
Ogui	2.65
Coal Camp	2.86
Ogui urban area	2.51
Government Quarters (e.g. China Town)	3.55

*Children were counted as whole units.

SOURCE: Dewhurst Census, 1945.

The implication of this development was the growth of high density low class residential areas with most of the government quarters degenerating into slums. The corollary was the emergence of very poor sanitary conditions. The enormity of the problem was such that the Enugu Local Authority in reflecting over it observed thus:

> It cannot be denied that the native locations of Enugu are over crowded insanitary slums. Apart from Ogui riverside which presents a special and very difficult problem, the worst houses are government owned.... Enugu has no public gardens, no playgrounds and no street lighting. Drains are filthy, inadequate, and conservancy arrangements are dreadful. There is no lorry for disposing town refuse: not even a hand cart, and this is a town of 35,000 people, where the bucket system is nearly universal.... The cause of this state of affairs is the complete lack of any policy due probably to changes of officers; there have been twenty two since January 1940; a confusing office organization, made up of four water-tight compartments all of which spend the major part of their time collecting money and little time on spending it; and most important, shortage of Township funds.... (National Archives, Enugu).

The visit of Miss Benson, a town Planning Officer in 1945 however, brought about certain changes in the town. There was the acquisition of Uwani in 1947, the building of New railway quarters near the railway workshops in 1949 and the new colliery quarters in the coal camp. All these were however, preceded by the extension of Asata Layout in 1946. In the subsequent years, especially in 1950, extensive improvement schemes including the tarring of streets, building of concrete drains and providing fluorescent street lights were launched. All these had a soothing effect on sanitary problems in the town. The increase in the town's population kept frustrating all intentions of combating the problem. The 1953 national census figure of Enugu stood at 63,000. This almost doubled that of 1945. Its distribution is shown in the figure below:

FIGURE 4: POPULATION DISTRIBUTION OF ENUGU, 1953

Ogbete (Coal camp)	16,500
Ogui	6,000
Asata	12,000
Ogui Urban Area	9,000
GRA (including army barracks)	3,000
Government staff quarters (China town, Secretariat quarter, Railway quarters etc)	4,500
Colliery Camps	6,000
Uwani	800
Abakpa Nike	2,000
Others	3,200

SOURCE: 1952/53 National Census

It has been earlier pointed out that apart from the influence of coal, the administrative position of Enugu helped to facilitate its growth. For instance, the provisions of the 1946 constitution ushered in the regional system of government. Consequently Enugu was made the regional capital of Eastern Nigeria. This entailed the reconstruction of new residential houses for government officials. The increasing of political awareness and the quest for independence led to the reconstruction of the Township Advisory Board which was hitherto dominated by Europeans. The body as at 1948 included

13 Nigerians and 6 Europeans. The same political changes also led to the emergence of a Town Planning Authority (gazetted on 11th May, 1950) to replace the Township Advisory Board (Okoye, 1977). The local authority was appointed the chairman, the Development Officer was appointed the Secretary while the members of the Township Advisory Board together with the area architect and the sanitary superintendents were appointed as members. The authority had jurisdiction of all the areas within the radius of 3 miles from the centre of the Enugu-Kaduna rail line junction. This was mainly to enable it exercise powers over such emerging 'village towns' as Abakpa-Nike and Ogui which were rapidly turning into shanty towns. This change did not help much. The locus of power was still with the representatives of the colonial masters, thus the planning of the town was anything but indigenized.

The Local Government Reforms in Eastern Nigeria introduced the urban District Council Government in Enugu in 1954. Members of the council were to be elected. Majority of the seats were won by the National Council of Nigeria and the Camerouns (NCNC). The party elected its Enugu branch president Malam Umaru Altine, a Fulani cattle dealer from Sokoto Province as the Chairman of the Council (Sklar, 1963). The council then was mostly concerned with the maintenance of roads and drains in the layouts, market matters, including motor parks, and the

general sanitary conditions of the town. In 1956, Enugu was elevated to a municipality with Altine being its first Mayor. Party politics and corruption played down the efficiency of the municipal council in carrying out its duties. The problem of sanitation continued to exacerbate.

Nigeria's independence in 1960 precipitated a diversification of both the economic and administrative set up of Enugu. The implication was another rapid surge into the city. This is understandable from the increase in the town's population based on the 1963 population census. It rose to 138,459, more than double that of 1953. The corollary was the increased quest for residential buildings both in the high and in the low density areas. Two new high density residential areas were established to alleviate the problem: the New Haven Layout in 1963 and the Achara Layout in 1964. The independence layout, a low density residential area, established in 1962, was extended in 1966 and the low cost housing estate was built in Abakpa Nike. All these notwithstanding, the problem of residential accommodation and its consequent sanitary problems continued to grow alongside the growth of the town. The problem attained an unprecedented height between 1980 and 1984.

Not much happened between 1966 and 1970 in terms of the development of Enugu owing to the Nigerian-Biafra war of that period. The war, however played a major role in increasing

sanitary problems in the city. This was mainly by way of concentrating people in the town immediately after the war owing to their inability to go back to their former places of residence within Nigeria. The obvious implication of this was the heightened problem of shortage of residential buildings. The population of Abakpa-Nike and Emene had to increase very sharply. The town continued to grow, though not westward, owing to its peculiar topography.

With the creation of Imo State out of the former East Central State in 1976, the town's population dropped a little as many civil servants from Imo State migrated to Owerri to continue work in their new state capital. This reduction in population did not mean much as there was an immediate insurge of people from villages in Anambra and from other parts of the country, to fill the vacancies created by the 'exodus' of civil servants to Owerri. The problem of sanitation thus persisted.

The oil boom era of the middle to late nineteen seventies created another major opportunity for the influx of people into the town. Many industries and other forms of business organizations sprang up in the town thereby creating job opportunities for migrants. Most of these industries include ANAMCO, ALUMACO, Niger gas, Sun Flower, Flour Mill, NNPC oil depot, and the moribund Nigersteel among others. Their emergence added yet another dimension to the problem of

sanitation in Enugu - that of the control of industrial effluent and other industrial bye-products. With this increasing industrialization in the town, its population, especially those of Abakpa-Nike and Emene increased drastically. The two areas became major receptors of the new migrants into the city. The two areas have also grown to be major slums in the town, with their sanitary conditions ebbing almost beyond human tolerance.

The politics of the second republic was responsible for yet another increase in the population of Enugu between 1979 and 1983. Politicians and their relations converged in the town in search of any available opportunity for exploitation. Contractors and offices emerged everywhere over night. The volume of business increased tremendously. All the necessary precautions in terms of urban planning were thrown overboard and buildings started to spring up in very disorganized manner. Drains and even streets were at times blocked by the buildings of very influential politicians or people. This continued unabated so also the sanitary problems it constituted until the days of the austerity measures that culminated in the Structural Adjustment Programme (SAP), and the eventual demise of the political era in 1983.

By this time, Enugu had lost its charm and status as one of the cleanest cities in Nigeria. The problem of sanitation

reached such an alarming state that the then state military government was forced to set up a task force on Works, Housing, Vehicles and Environmental Sanitation. The task force was established by virtue of Edict No. 5 of 1984 (ASESA Publication, 1986). It initiated the cleaning of the environment by directly involving the citizens through Saturday clean-up exercises. The task force which was headed by the then Wing Commander Monday Ikpeazu was military in character. The period of this task force coincided with the launching of the War Against Indiscipline (WAI) campaign by the Buhari-Idiagbon regime. This was intended to achieve some degree of conformity amongst Nigerian citizens. Thus acts such as indiscriminate defecation, urination or disposal of refuse were considered as anti-WAI. The task force achieved some commendable efforts in environmental sanitation in Enugu, more especially in the removal of junks along the streets and around residential areas. There were however incessant complaints against the military approach adopted by this task force by citizens of Anambra State. The task force harassed, intimidated, and victimized even well-meaning citizens of this state through its activities.

The task force was consequently replaced in 1985 with the establishment of the Anambra State Environmental Sanitation Authority (ASESA) by Edict No. 15 of 1985. The authority was charged with the following responsibilities:

a. To organize and carry out the collection, removal and disposal of refuse in the urban towns and other places specified by the edict;

b. Organize and carry out street cleaning; and

c. Promote, encourage and foster the maintenance of clean and healthy environment (Ibid).

The authority, quite unlike the task force that preceded it, has a more direct approach to the problem of sanitation in Enugu. On its inception, it recognised the fact that Enugu was dirty and needed immediate cleaning. It thus launched phased programmes through which it hoped to achieve this. Phase one of the programme is made up of; Collection and disposal of refuse junks, cutting of grass on the verges of the roads, road and street sweeping, and cleaning of drains and gutters. Phase two is the pest and vector control services. Phase three embraces conservancy/sewage dislodgement services, while phase four, which borders on aesthetics is on improvement of parks and open spaces. All these four phases of sanitation programme have been launched by ASESA with some success despite the numerous problems that face the authority.

Enugu has grown considerably within the past seven decades, and as it grows so does the problem of sanitation in the town grow. This trend is akin to those of European and African cities. The problems of urban sanitation are usually

associated with rapid/increasing urbanization, moreso where adequate measures are not taken at planning the city or in providing facilities for the teeming population. This idea forms a background of this work.

CHAPTER FIVE

PRESENTATION AND ANALYSIS OF DATA

The total number of questionnaires distributed through the period of fieldwork for this research were 170. Out of this number, 160 or 94 per cent of the respondents duly completed and returned their questionnaires. This percentage of return is considerably very high and may have been as a result of the fact that they were personally distributed and collected by the researcher.

PERSONAL DATA OF RESPONDENTS:

TABLE I: MARITAL STATUS OF RESPONDENTS

Marital Status of Respondents	No of Respondents	Percentage
Married	56	35%
Single	104	65%
Total	160	100%

Figures from table I above indicate that 35 per cent of the respondents are married while 65 per cent of them are single.

TABLE II: SEX OF RESPONDENTS

Sex of Respondents	No. of Respondents	Percentage
Male	106	66%
Female	54	34%
Total	160	100%

Figures from table II above indicate that 66 per cent of the respondents are males while 34 per cent are females. With this figure, one could say with some measure of conviction that there are more males than females in Enugu. This finding is in line with the population trend in Enugu as observed in the Dewhurst population census of Enugu in 1931, 1945 and also in the 1952/53 National Population Census. Okoye (1977) attributes this trend to the growth of the urban population mostly through migration instead of through natural population increases. This issue had earlier been pointed out in the literature review of this work. Males often-times migrate into cities in search of economic opportunities leaving their wives and children way back in the village. The difficulties of urban life, especially in terms of cost of living, coupled with the existing link between the urban and the rural areas are issues that play major roles in bringing about this population trend. The implications of this trend on sanitation had also

been pointed out earlier. The male urbanites especially the single ones, do not take care of cleaning their environment. This is understandable if we take cognisance of the fact that the males are not traditionally socialized like their female counterparts to perform certain functions that will help in keeping the home and the surrounding environment clean. This is one area of conflict between tradition and modern values in terms of role specialization and the requirements of modern medical practices.

TABLE III: AGE OF RESPONDENTS

Age Bracket of Respondents	No. of Respondents	Percentage
20 - 29	100	62.5%
30 - 39	38	23.8%
40 - 49	12	7.5%
50 - 59	10	6%
60 and above	Nil	Nil
Total	160	99.8%

Figures from table III above show that the age bracket 20 - 29 constitutes a majority of the respondents, representing 62.5 per cent of them. It is followed by the age brackets 30-39 with 23.8 per cent, 40 - 49 with 7.5 per cent, 50 - 59 with only 6 per cent of the respondents and lastly by the age

bracket 60 and above with no respondent. These figures tend to support the claim that there are more young people than old ones in the urban area; it also tends to confirm a socio-cultural aspect of African urban life which relates to the fact that aged people tend to retire to the rural areas after they must have acquired economic and social statuses in the urban areas.

TABLE IV: INCOME OF RESPONDENTS

Annual Income Range of Respondents (in Naira)	No. of Respondents	Percentage
1,500 - 3,000	56	44.4%
3,001 - 4,501	22	17.5%
4,502 - 6,002	26	20.6%
6,003 - 7,503	16	12.7%
7,504 - 9,004	Nil	Nil
9.005 and above	6	4.8%
Total	126	100%

(N.B: Not all the 160 respondents responded to this question).

The major income bracket from the table above is that between N1,500.00 - N3,000.00. A total number of 56 or 44.4 per cent of the 126 respondents fall into this income bracket. Only 4.8 per cent of the respondents earn above N9,000.00 per annum.

This data tends to portray Enugu as a fairly poor town. This is even worse if one considers the rapid decline in the value of the Naira. The figures are not very surprising. Apart from the fact that there is a high tendency of people not disclosing their real incomes (declaring less than they actually earn), Enugu has a greater preponderance of civil servants as opposed to, say, Onitsha, which is a business centre.

TABLE V: EDUCATIONAL QUALIFICATION OF RESPONDENTS

Qualifications	No. of Respondents	Percentage
No formal education	4	2.5%
Primary school only	20	12.5%
Secondary Institutions only	86	53.8%
Tertiary Institutions	50	31.2%
Total	160	100%

From table V above, we gather that 2.5 per cent of the total number of respondents had no formal education, 12.5 per cent of them attended primary school only, 53.8 per cent attended secondary school only, while 31.2 per cent attended tertiary institutions.

TABLE VI: OCCUPATION OF RESPONDENTS

Occupation	No. of Respondents	Percentage
Public service	76	47.5%
Business sector	24	15.%
Unemployed	8	5%
Student	52	32.5%
Total	160	100%

Figures from table VI above indicate that 47.5 per cent of the respondents are public servants, 15 per cent of them are in the business sector, 32.5 per cent of them are students while 5 per cent of them are unemployed. The number of the respondents shown here as unemployed may not be a true reflection of the unemployment situation in Enugu neither does it portray the level of the city's economic decadence. The level of unemployment in Enugu in particular and the country in general has almost reached unmanageable proportions. Unfortunately the impact of the employment generation programmes introduced by the government has not been extensively felt. The economic crunch has forced both government and private organizations to retrench people at an alarming rate. All these have tended to increase the level of poverty of the town. The impact of this and the attendant poverty on both sanitation and the health of

the people is grave. Many of the residents of the town cannot afford and do not have access to some of the facilities needed for maintaining a clean environment. With these developments, there are bound to be increases in the rate of disease transmission. What is more, many urbanites cannot afford the high cost of drugs or medical treatment. Even where they can afford the drugs, some of the ones at their reach are fake ones resulting from the fact that some Nigerians or foreigners or at other times, a collusion of both, take advantage of the situation occasioned by the economic crunch and produce or import fake or expired drugs.

TABLE VII: SHOWING WHETHER URBAN RESIDENTS WOULD OR WOULD NOT RETIRE TO THE VILLAGE LATER IN LIFE

Will retire	128	80%
Will not retire	32	20%
Total		100%

Table VII shows that 128 or 80 per cent of the respondents may eventually retire to the village at old age. On the other hand, 32 or 20% of the respondents may not retire to the village at old age. These findings tend to confirm earlier findings on African urbanism. The studies on African urbanism have shown that the typical African urban dweller does not regard the urban area as his home but rather as an alien place

where he migrates to in search of jobs and other socio-economic gains. The urban area is 'home' only in so far as it offers temporary accommodation to the urban sojourner whose main interest is to exploit all the available opportunities that the urban area can afford. He still retains a very strong tie with his village, and leaves the township whenever it is no more conducive for his socio-economic life. The very high percentage of those that will retire to the village at old age could be explained by the fact that urbanization in this part of the country is still very new especially when compared to some Yoruba and Northern areas in the country. Equally worthy of note is that urbanization in most parts of the country is not in situ, consequently many urban dwellers usually migrate from their various villages to the urban area. The implication of these urbanization processes and trends on sanitation is that urban residents free alienated from the urban areas and are therefore forced to develop apathy toward sanitation programme. And because the city dweller is more interested in his village than in his immediate urban environment, this problem of sanitation continues unabated. It is only this that explains the logic behind the action of the urban dweller who lives in squalor in the urban area but saves his money to build a fine house with all sanitary conveniences in the village.

5.1 THE PROBLEM OF HOUSING/OVER CROWDING - PERSONS PER HOUSEHOLD/HOUSING UNIT

TABLE VIII: TOTAL COMPOSITION OF HOUSEHOLD

	Number	Percentage
Less than five persons per household	20	12.5%
Between 5 and 7 persons per household	44	27.5%
Between 8 and 10 persons per household	48	30.0%
Above 10 persons per household	48	30.0%
Total	160	100%

Table VIII shows the total number of persons that make up households in Enugu. Figures from the table show that 12.5 per cent of the respondents have households with less than four persons, 27.5 per cent have households with more than 7 persons. The figures are not surprising. Many Nigerian families are usually composed of more than 5 persons. The traditional culture of the people is wholly responsible for this. There is usually an emphasis on procreation as the popularity of families are usually tested on their numerical strength.

The implication of the above figures on sanitation and health problems in Enugu will not be fully grasped except if the figures are juxtaposed with the figures derived from the responses to the questions bordering on the number of rooms the

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The implication of the above figures on sanitation and health problems in Enugu will not be fully grasped except if the figures are juxtaposed with the figures derived from the responses to the questions bordering on the number of rooms the

respondents occupy, and also on the type of apartments they occupy. A majority that is, 73 per cent of those whose households are more than 7 in number reside in the densely populated areas of Abakpa-Nike, Emene, Iva-Valley, 'Ugwu' Aaron, Coal Camp and Ogui Urban. Also, 65 per cent of the respondents live in single room apartments or what is popularly called 'yard' or 'face-me-I-face-you' compound. 18.75 per cent of them live in flats; while 10 per cent of the respondents live in batchas.

The typical compound or 'yard' in Enugu is still dirty. Washing of toilets and bathrooms and the sweeping of compounds are the responsibility of all occupants of the compound. This at times leads to quarrels as to whose turn it is to keep the compound clean. And when anything is being collectively managed, as with the cleaning of the compound here, there are bound to be lapses since everybody's thing is nobody's thing. A case in point was at Iva-Valley, Enugu, where the researcher noticed that liquid faecal excrement flowed freely between the front of one compound and the back of another compound. One of the respondents informed the researcher that there have been repeated quarrels between the occupants of the two compounds because of the nuisance. Upon further investigation into this matter, it was gathered from the occupants of the compound from where the waste was emanating that the tenant whose

responsibility it was to pay the night soil man for the month of August, 1989 went on his annual leave without making adequate provisions for the removal of the faeces by their night soil man. They also informed the researcher that their landlord has not been handy to replace their old toilet buckets. Occupants of both compounds felt non-challant about taking care of the situation since they did not see it as constituting any serious danger to their health. However, chickens, ducks and pigs were seen feeding freely from the waste. According to an informant, an abatement notice was served on the compound where the nuisance was emanating from about two months ago yet nothing has been done to improve the situation. The informant feels strongly that the health Superintendent who served the notice must have been 'bought over' since there have not been further reactions from him.

In terms of the number of rooms occupied by respondents, 38 per cent live in just one room, 31 per cent live in two rooms, 16 per cent live in three rooms while the rest 15 per cent live in more than three rooms. From this figure and from table III above, one notices that many of the respondents or families with upwards of 7 - 10 members live in either one or two rooms. These rooms are usually crammed with beds and other household items. They are stuffy with little or no ventilation. It is still these rooms that shelter both the

sick and the healthy members of the household. In the course of this fieldwork the researcher happened to have come across a family of eleven persons living in just one room at Iva-Valley. Apart from the parents, six of the children are above ten years. They do not see their situation as anything very unique for they claim that they are not the only people in the neighbourhood with such a high number living in just one room. We know however, the implications of such over-crowding on the health of the people especially in the event of any outbreak of disease.

The result from the field work shows that in terms of kitchen facilities, chickens, ducks and pigs were seen feeding freely from the waste. According to an informant, an abatement notice was served on the compound where the nuisance was emanating from about two months ago yet nothing has been done to improve the situation. The informant fells strongly that the health Superintendent who served the notice must have been 'bought over' since there have not been further reactions from him.

The result from the field work shows that in terms of kitchen facilities, 57 per cent of the respondents cook in a general kitchen with other compound members; 33 per cent own private kitchens, while 10 per cent cook in the open spaces of their compounds. The kitchens in some parts of the residential

areas are mere eye sores. They fit into the description of the core areas of Ibadan by Okediji and Abayode (1967).

In most of these densely populated areas, many of the houses did not look the least habitable yet they were completely occupied. Not only that, many of them were over-crowded. Some of these houses were batchers constructed with rusted corrugated iron sheets or with planks. Bearing in mind the fact that poor housing predisposes an individual to diseases or their effects, we may thus observe here that there may be more cases or incidence of sanitary-related diseases in the urban fringes of Abakpa-Nike, Emene, Iva-Valley and the other adjoining settlements of 'Ugwu' Odogwu and 'Ugwu' Alfred than in the other residential areas of Enugu. This assertion will however, be backed up at a later part of this analysis.

The problem of housing has plagued the city of Enugu for a long time. The situation in Onitsha, a commercial town in the state, is even better. There, houses exist albeit at very high rents. In Enugu, newly transferred workers or new migrants into the town search for houses for upwards of one year. They are usually constrained to squat with friends or relations as the case may be, pending when they are able to secure their own accommodation. This problem tends to increase the problem of over-crowding. And when these new migrants fail to get a decent accommodation in the main town, the urban fringes come

to their rescue. Ngwo, which was not included in the research area, is increasingly becoming a receptor of new migrants into Enugu, especially those who wish to run away from the stigma of poverty, crime and squalor associated with Abakpa-Nike, Iva-Valley, Emene, and Ogui-Urban. It is however, the prediction of this researcher that Ngwo will sooner acquire the stigma associated with the above-named areas if adequate arrangements or planning are not made to contain this new influx of people into the town.

5.2 LACK OF SANITARY FACILITIES

Lack of sanitary facilities such as good water supply, good toilet facilities, and adequate refuse disposal facilities are suspected to be major causes of the increase in sanitary and health problems in Enugu. In this research, attempts were made to find out the extent to which some of these required facilities were being supplied to the inhabitants of Enugu, and also to find out how the lack of such facilities could possibly affect the health of the urban dwellers. Specifically, on the issue of water supply, the response shown in the table below paint the situation picture of the town.

TABLE IX: RESPONSES ON WHETHER THERE ARE ENOUGH WATER TAPS IN ENUGU URBAN

RESPONSE	NUMBER	PERCENTAGE
Yes	92	57.5%
No	68	42.5%
Total (N)	160	100%

The figures from table IV above show that 57.5 per cent of the respondents in Enugu live in areas that have enough water taps while the other 42.5 per cent live in areas without enough water taps. The existence of water taps is however, not synonymous with adequate or regular water supply. The syndrome of dry water taps observed by Ogunrombi (1978) in Nigerian cities is applicable to Enugu. The figures above did not differentiate homes that have private connections from those that do not have.

In Anambra State it has become government policy that public water taps which were hitherto not charged for any quantity of water supplied to them are now required to pay N113.00 monthly water rate per tap. This has added another dimension to the problem of water scarcity in the town as some of the taps now remain dry almost all through the year. The Enugu Local Government undertook to foot the bill of some taps located in some strategic areas of the town leaving other areas

without water. It is necessary to point out that not all the houses with private connections are regularly supplied with water. Water supply is usually rotated to various areas depending on time and on days of the week. This is unconnected with the high cost of supplying water to the public and also with the fact that the existing water schemes in Enugu namely: the Iva-Valley head, Ekulu, Enugu crash programme and the greater Enugu (popularly referred to as Ajalli) are not enough to supply all areas of the town water at the same time. The population of the town and the need for more water are increasing without a corresponding increase in the number of water schemes. All through the seven decades of the town's existence only those four water schemes have been established. Ekulu became operational in 1966, Iva-head in 1977, the Enugu crash programme which was sunk at the peak of water scarcity in the town became operational in 1982, while the greater Enugu, which supplies water to both Udi and Ezeagu Local Governments, was constructed in 1985 (Statistical Abstract, 1989).

In order to find out the rate of water supply so as to determine the extent of the problem posed by scarcity of water in the town, another question relating to the regularity of water supply to various areas was posed to the respondents. Results from the question are hereunder tabulated.

TABLE X: RESPONDENTS' RATING OF WATER SUPPLY TO THEIR AREAS

OPTION RATING	NUMBER	PERCENTAGE
Adequately supplied (12-15)	28	17.5%
Fairly supplied (8-11)	36	22.5%
Inadequately supplied (4-7)	62	38.75%
Not supplied (0-3)	34	21.25%
Total	160	100%

If the figures from tables IX and X are juxtaposed, the problem of water supply in Enugu becomes more discernible. For instance, of all the residential areas of Enugu, only 17.5 per cent are adequately supplied with pipe borne water despite the fact that 57.7 per cent of the residential areas of Enugu are thought to have enough water taps. Of importance also is that as high as 21.25 per cent of the areas in the town are not supplied with water at all.

The inadequacy of water supply in the town is a major cause of sanitary problems; it also poses high health risk on the inhabitants of the town. Kids can be seen along the streets of Enugu at all times of the day searching for water. This predisposes them to road mishaps. The long queues at public taps are ugly sights. It is these problems that compel some of the inhabitants of Enugu to search for alternative sources of water supply.

It was gathered from the field work that in the absence of adequate water supply 62.5 per cent of the respondents buy water from public water sellers, 26.25 per cent of them use stream water as an alternative while 11.25 per cent collect water from water wells/reservoirs. The above figures do not however include the use of rain water during the rainy season. The health implication of these alternative sources of water supply is obvious. There is now a proliferation of private water tanks in many areas of Enugu. The researcher's investigations revealed that water is at times stored in these tanks for over a long period - from the rainy season to the dry season - before it is either used or sold to the unsuspecting public. This is done essentially to maximize profit. Also, some of the water tankers that sell water to the inhabitants of Enugu collect water not from the borehole but from streams and rivers around Enugu. This means that more than 26.25 per cent of the respondents actually use water from streams/rivers. The risk with either stream water or river water, especially those around the urban areas, is that of pollution by both human and industrial wastes. That of Ekulu river in Enugu is a case in point.

There are opinions in the health circle that the extent of adequate water supply both in quantity and quality is an effective determinant of the health conditions of a particular

population. Ogunrombi's and Fajewonyomi's observations that certain disease conditions are a logical outcome of the inadequacy of water supply had earlier been noted in the review. Records collected from hospitals in Enugu indicate that the incidence of typhoid fever is on the increase in the town. The extent of this disease, which is to some extent water borne, is an indication of the poor quality of water consumed in Enugu. It is also the contention of this researcher that if a detailed study of the health implications of the water consumed in Enugu now is carried out in future, it may be discovered that certain non-infectious diseases such as cancer, infertility, hypertension etc. may be on the increase resulting from the cumulative effects of the consumption of unwholesome water from rivers and streams that have been polluted by industrial effluent containing heavy irons such as lead and mercury.

On the type of toilet facilities available to the residents of Enugu, 76.87 per cent use the water closet system, 12.5 per cent still use the bucket system, while the rest 10.63 per cent are served by the pit latrine. The prevalence of the water closet system in Enugu is as a result of an edict promulgated in 1985 by the state government outlawing the use of the bucket system in the town. In terms of sanitary convenience the water closet system is the best among the three

types of toilet facilities existing in the town, more especially now that night soil men and land for disposing the waste are hard to come by. The problem it however has, as was discovered during the field work, is that of inadequate water supply. Some of the respondents claim that faeces are left to accumulate for some time before it is flushed out due to scarcity of water. This is a negation of the very essence of the water system in the first place. It may thus account for the indiscriminate disposal of faeces in gutters, along streets and in recreation parks in Enugu. The situation is worse around Obiagu, parts of Abakpa-Nike, Awkunanaw, Emene and Iva-Valley. These areas have recorded cases of chronic water shortage or scarcity.

Opinions vary as to the cause of water scarcity in Enugu. A majority of the respondents especially those resident in areas that are worst hit claim that the problem is a function of the inefficiency of the Anambra State Water Board and not necessarily that there is no water. They claim that the staff of the board prefer selling water to water tanker drivers who then resell to the public instead of supplying to the public directly. This claim is even substantiated by some staff of the water board itself. An informant, who is a staff of the Enugu Zonal Water Board, claims that the revenue accruing from water sales to water tankers supercedes that accruing from

water rates. The water board has been commercialized; it pays its staff and carries out its maintenance works and takes care of other running costs from the revenue it generates monthly. They see water supply to the public as a non-profit venture moreso since many people refuse to pay their water rates. Unlike before now, it does not see water supply as a social service to the people.

5.3 THE PROBLEM OF REFUSE DISPOSAL

TABLE VI: THE MEANS THROUGH WHICH FAMILIES DISPOSE OF THEIR REFUSE IN ENUGU

MEANS OF DISPOSAL	NUMBER RESPONDENTS	PERCENTAGE
Private disposal agents	13	8.12%
In government refuse collecting centres	104	65%
Collected by government agents	8	5%
Dump in open places	35	21.87%
Total	160	99.99%

One major problem associated with sanitation and health is that of refuse disposal. Even with the concerted efforts of ASESA, one still finds large heaps of refuse in many parts of the city. The refuse bins are usually over-flowing with decomposing refuse. Results from the fieldwork as are presented in table VI above indicate that a majority of the

respondents in Enugu, 65 per cent specifically, dispose of their refuse in the government refuse dumps. It is from these dumps that ASESA staff collect them for appropriate disposal. 21.87 per cent dispose of their refuse in open spaces while only 5 per cent of the entire population have their refuse collected by government agents from the front of their houses. We must note however, that the options given above are not mutually exclusive. Our emphasis was on the one that is most important to the residents of those areas. From the foregoing, the most important means of refuse disposal is through the government refuse dumps thus another question was posed to the respondents to find out the problems they encounter with this method of refuse disposal: their responses are hereunder presented in table VII.

TABLE XII: PROBLEMS ENCOUNTERED BY THOSE WHO DISPOSE OF THEIR REFUSE IN GOVERNMENT DUMP SITES IN ENUGU

PROBLEM ENCOUNTERED	NUMBER RESPONDENTS	PERCENTAGE
Irregularity in refuse collection by the authorities concerned	39	37.5%
Dump sites located far from the house	19	18.26%
Dump sites are usually over-filled with decomposing and smelling refuse	46	44.23%
Total	104	99.99%

The figures from table VII above indicate that 37.5 per cent of those who dispose their refuse in government refuse collection centres have their major bane as the irregularity of refuse collection by government agents. For 18.26 per cent, it is the paucity of the dump sites that is their major bane while for the rest 44.23 per cent, their major problem is that the dump sites are usually over-filled with decomposing and smelling refuse. A survey of the dump sites in the city affirms all these responses. The dump sites are very few in number. Invariably, the favoured ones are usually over-filled with refuse following the irregularity of refuse collection from the dump sites by government agents (the staff of ASESA). For instance, it takes about two days for any of the dumps to fill to the brim, yet on the average, it takes about one week for the staff of ASESA to collect the refuse for effective disposal. It is therefore not surprising that the areas surrounding the refuse dumps are usually converted to refuse dumps. Also, because of the long distance between refuse dumps and some compounds, available open spaces are also converted into refuse dumps to meet the needs of the people. And because the authorities regard them as illegal ones, the refuse in them may not get disposed of properly. Since all these refuse are not properly disposed of, rain, wind, human and animal scavengers litter the streets with the refuse. Refuse

constitutes aesthetic nuisances and are conducive breeding spaces for rodents and dangerous insects and above all, are conducive for the formation of certain poisonous gases such as sulphur dioxide and ozone (Polychlorinatedbiphenyls (PCBS)).

When the problem of refuse disposal was raised with some officials of ASESA, they refused to take all the blames. In their defence, they pointed out that ASESA lacks the facilities required for keeping Enugu clean. For instance, the authority has at its disposal only six tippers, one dilapidated pail loader and two 'Kukas'. But according to them, the authority requires between 30 - 35 tippers daily for effective operation. It was also pointed out that there are no gloves, boots and masks for refuse dump workers. They use their bare hands in removing refuse to the detriment of their own health. This invariably affects the morale of the workers as well as their productivity. These issues will be discussed later in this work.

5.4 INCIDENCE OF DISEASES

Most, if not all the literatures earlier reviewed in this work expressed a positive relationship between the level of environmental cleanliness and the health of the residents of that area. It is a fact that some diseases are more prevalent in particular areas than in others. This difference, depending on the disease, could be accounted for by the differences in

the level of environmental cleanliness or other issues relating to the environment. The successes recorded in eradicating diseases such as malaria, small pox and cholera in some parts of the world were only made possible through a better management of environmental sanitation. Malaria for instance, a scourge of the tropical and especially African countries, is a consequence of the environmental conditions which have been conducive for the growth and sustenance of mosquitoes, the major carrier of the disease's causative parasite. Other diseases such as diarrhoea, typhoid fever, measles and dysentery are also related to the extent or the quality of environmental cleanliness. The high incidence of typhoid fever in Anambra State may for instance, be attributed to the failure of sanitation programmes for pure water supply, waste management, and food disposal as was the case in Europe in the middle ages.

In the field work, the researcher sought to find out the common diseases that afflict the residents of Enugu as well as the percentage of occurrence and re-occurrence of the diseases. The results of the findings are hereunder tabulated.

TABLE XIII: SOME OF THE SANITARY-BASED DISEASES THAT AFFLICT THE RESIDENTS OF ENUGU

DISEASES	NUMBER OF OCCURRENCE	PERCENTAGE OF OCCURRENCE	NUMBER OF RE-OCCURRENCE	PERCENTAGE OF RE-OCCURRENCE
Malaria	152	45.5%	356	80.9%
Yellow fever	-	-	-	-
Filariasis	4	1.19%	2	0.45%
Dysentery	62	18.56%	30	6.81%
Diarrhoea	44	13.17%	19	4.31%
Typhoid fever	24	7.8%	5	1.13%
Cholera	-	-	-	-
Ascaris	48	14.37%	27	6.13%
Total	**334**	**99.97%**	**440**	**99.73%**

Figures from table VIII above indicate that on the whole, the respondents have suffered from the diseases listed above for a total of 334 times over a period of 10 years. Out of this number, 45.5 per cent of them were those who had suffered from malaria attack; 1.19 per cent from Filarisasis; 18.56 per cent from dysentery; 7.18 per cent from typhoid fever; and 14.37 per cent from Ascaris (worm). Malaria has a re-occurrence percentage of 80.90 per cent. This is followed by dysentery with 6.81 per cent, Ascaria with 6.13 per cent, diarrhoea with 4.31 per cent, typhoid fever with 1.13 per cent

and finally by filariasis with 0.45 per cent. None of the family members of the sample population has ever suffered from yellow fever or cholera. This may confirm the claim by the Ministry of Health that cholera has been eradicated from Enugu, while yellow fever is under serious check.

The figures in table VIII above are comparable to the medical records collected from hospitals in Enugu (the records are attached as Appendix 1). All the records point to the preponderance of malaria. They thus tend to confirm the claim that malaria is still the most prevalent and the highest killer-disease in Enugu as in most other tropical countries. For instance, it has been claimed that over 200 million people suffer from malaria all over the world annually (Ekanem, 1989). The rate of occurrence is however, higher in Africa. The spread of the disease is attributable to its increased resistance to drugs,

and most importantly, to the growth of an environment which has been conducive for the multiplication of the carrier parasite hence the inability to eradicate the carrier agent. Specifically, Dr. O. J. Ekanem in a paper titled "Malaria epidemiology and resistance pattern in Nigeria", noted that "the spread of malaria and its resistance to drugs was caused by the failure of measures aimed at destroying mosquitoes". The fundamental issues here is that the poor quality of environmental

sanitation brought about the existence of mosquitoes in very harmful proportion in the first place. Such a conducive environment for the growth of mosquitoes is not hard to come by. Bad roads with pot holes abound; improperly disposed cans, bottles and tins also abound. They all hold water where mosquitoes breed.

From the foregoing, the control of mosquitoes must first of all centre on improving the quality of the environment rather than introducing drugs aimed at killing them for sooner or later the mosquitoes develop resistant strains to the drugs. This is usually due to our inability to apply such drugs appropriately and also the inability of the government to afford all the drugs needed for such an eradication programme of mosquitoes. This also applies to the eradication of some other harmful insects and rodents. Such drugs for eradication programmes have their own side effects on individuals who may come into contact with it and may thus with time pose distinct health problems.

Apart from malaria, one other important disease afflicting the inhabitants of Enugu is typhoid fever. The rate of its spread is gradually increasing in the town. This does not mean that its rate of occurrence is higher than say that of dysentery or Ascaris (worm) but that it is more fatal than the latter ones and has complications which make its diagnosis

difficult except through the costly widal test. This is owning to the fact that its symptoms are akin to those of malaria, a very common disease. Results from the field work show that the rate of occurrence of typhoid among the respondents is 7.18 per cent as opposed to diarrhoea, dysentery and worm with occurrence rates of 13.17, 18.56 and 14.37 per cent respectively. It has a re-occurrence rate of 1.13 per cent as opposed to 4.31, 6.81 and 6.31 per cent respectively for the other diseases mentioned above. These figures are comparable to those obtained from hospitals in Enugu. The only exception was recorded at the Park Lane Hospital where the reported cases of typhoid fever constituted 2.83 per cent as against diarrhoea with 1.82 per cent and Amoebic dysentery with 0.15 per cent (refer to Appendix 1). The relative widespread of typhoid fever may be attributable to the consumption of contaminated water. This has become very rampant in Enugu.

One major problem encountered in determining the extent of the spread of any one of the diseases mentioned above is the fact that many sick people do not go to government hospitals for treatment. This is a function of three main factors namely: paucity of government hospitals, poverty of urban dwellers and ignorance. The World Health Organization (W.H.O.) (refer to Punch, November 30, 1989) has observed in relation to the developing countries that "Inspite of their traditional

concentration of health services, they (health services) are not accessible to the majority of the urban residents who are mostly poor. In such countries, urbam basic health services are often under-planned, under funded, under-managed and do not reach out to the neighbourhoods and the household of the urban poor". In Enugu, the most common hospitals are private ones. Their charges are not affordable by a majority of the urban dwellers (not only that, most of them do not keep appropriate medical records). Of importance also is that government hospitals, the few they are, are now synonymous with the out-of-stock syndrome. Consequently, many of the urban dwellers are compelled to patronize the road-side drug stores where their proprietors, without adequate knowledge of medicine, give prescriptions for any kind of illness. The results obtained during the field work show that out of the total number of respondents that have suffered from any of the diseases stated, only 39 or 31.96 per cent of them were treated in government hospitals. The rest 83 or 68.03 per cent were either treated in private hospitals or in nearby drug stores. It is some of these issues that complicate some of the disease conditions and make the realization of health for all by the year 2,000 a very difficult task.

During the field work we also sought to find out whether the spread of some of these transmissible diseases in Enugu

could be as a result of the ignorance of the residents of the town of the relationship between environmental sanitation and their health. 132 or 82.5 per cent of the respondents claimed to be aware of the fact that the cause of the diseases is related to dirty environment. Only 28 or 17.5 per cent of the respondents claimed ignorance of this fact. This finding thus tends to confirm that there may be other extraneous variate that are responsible for the poor sanitary conditions of Enugu; that a majority of the respondents are aware of the roles which poor sanitation plays in the spread of diseases, but are constrained to live in a very dirty environment by such factors as the unavailability of adequate sanitary facilities. This finding tends to lay bare the claim by Okoli (1982) et al that Nigerians are naturally unhygienic or put differently, naturally dirty.

5.5 THE ANAMBRA STATE ENVIRONMENTAL SANITATION AUTHORITY (ASESA)

Environmental sanitation programme in Anambra State has in the recent times been almost synonymous with ASESA. The establishment of ASESA was occasioned by the rapid sanitary deterioration of the state. It was therefore, the hope of the Anambra State government that through the operations of ASESA the state's former level of cleanliness will be restored. In order to function effectively, local government sanitation staff (Public Health Superintendents) were posted to ASESA on secondment so as to beef up ASESA's operations.

The authority has had its good and bad times. This researcher therefore, sought the opinion of the public on ASESA - to find out how the public rates the activities of ASESA and its efforts at maintaining a clean environment in Enugu, as well as to find out the major problems facing ASESA from the point of view of the public. The findings are hereunder tabulated in table IX.

TABLE XIV PUBLIC RATING OF THE CURRENT EFFORTS OF ASESA AT KEEPING ENUGU CLEAN

RATING OPTIONS	NUMBER	PERCENTAGE
Very High (12-15)	23	14.37%
High (8-11)	39	24.37%
Low (4-7)	76	47.5%
Very low (0-3)	22	13.75%
Total	160	99.99%

Figures from table IX indicate that 14.37 per cent of the respondents have very strong confidence in ASESA. They see the efforts of ASESA in keeping Enugu clean as very high and therefore commendable. Also 24.37 per cent of the respondents rate the efforts of ASESA as high only. In all, 38.74 per cent of the entire sample gave a pass mark to ASESA while 61.25 per cent rate the authority otherwise. Most of the respondents in the latter category are of the opinion that the staff of ASESA

have deviated from their major role of sanitary control to other areas which they consider to be outside the jurisdiction of ASESA. Such areas of deviation include the checking of vehicles that are improperly parked or for those that do not have dust bins. In their opinion, if the authority concentrates solely on sanitary control, its effectiveness will be greatly enhanced.

When these issues were raised with the management of ASESA in an interview, it considered this public opinion as erroneous. According to Management, the improper parking of vehicles along streets disturbs traffic flow. This usually causes road accidents. Such traffic hold-ups may at times force some individuals to dispose refuse along the streets. The authority also checks vehicles for sanitary dust bins so as to discourage passengers from littering the streets or motor parks with such refuse as food wraps and cans, orange peelings, banana and groundnut peelings. ASESA's management therefore considers such routine jobs like checking of vehicles as necessary for effective environmental management.

Results obtained from the field work indicate that on the average each households in Enugu pays about N20.00 annually as sanitation levy/charge. The respondents are surprised at what ASESA does with all the money. 73-12 per cent of them claim that they are not getting services commensurate to the amount

they pay as sanitation levy/charges. In a defence of its position, ASESA authorities consider the amount paid by the inhabitants of Enugu as sanitation charges as rather small especially considering the financial constraints of the authority and most importantly the extent of the work the authority is expected to accomplish. According to ASESA's management, the re-organization of ASESA made it expedient for the authority to seek other sources of revenue for its operations. In buttressing this position, it highlighted the provisions of section 26 sub-section 1 of the empowering Edict which states inter alia that "the authority may, subject to the approval of the Commissioner prescribe fees which shall be payable by any person or body that resides or carries on business in a town or place where the authority renders its service or otherwise carries out its function under this Edict". The Edict further states that "Any fees prescribed ... may vary from place to place as the authority deems fit". It is based on these provisions that ASESA varies the sanitation levy it collects from households in Enugu depending on the type of house. For instance, single family room attracts 50K charge per month whereas flats and bungalows attract N5.00 charge per month.

The residents of Abakpa-Nike and Iva-Valley expressed shock that they are expected to pay sanitation charges when in

actual fact ASESA does virtually nothing to alleviate their sanitation problems. They claim that ASESA officials do not come at regular intervals (as they do in some areas) to remove refuse hence the few available refuse dumps are always over-flowing with decomposing and smelling refuse. The researcher noticed such ugly situation not only in the two areas mentioned above but also in Uwani, Ogui (Obiagu), Asata and Emene. These findings and observations support the findings of Sule (1982) and Dike (1985) in their respective studies of Surulere and Onitsha. In these studies, it was discovered that preferences were given to some residential areas in the provision of sanitary facilities and in the removal of refuse to the detriment of some other areas. One may therefore conclude that differential service to different residential areas in terms of sanitation is a reality of Nigerian cities.

In a reaction to the question: "what problems do you think confront ASESA in carrying out its work in Enugu?", the following responses were obtained.

TABLE XV: PUBLIC OPINION OF THE PROBLEMS THAT CONFRONT ASESA IN ENUGU

PROBLEMS OF ASESA	NUMBER OF RESPONDENTS	PERCENTAGE OF RESPONDENTS
The insufficiency of ASESA staff	18	11.25%
Inadequate financing of ASESA	50	31.25%
Government control of ASESA	12	7.5%
Lack of commitment by ASESA staff	38	23.75%
The unco-operative attitude of the public	21	13.12%
Poor management of ASESA	21	13.12%
Total	160	99.99%

The responses from table X indicate that 31.15 per cent of the respondents consider the inadequate financing of ASESA as its major problem. 23.75 per cent of the respondents were of the view that lack of commitment on the part of the authority's staff is its major bane. 13.12 per cent of the respondents consider the un-co-operative attitude of the public to ASESA's programmes as the authority's major problem while for another 13.12 per cent of the respondents, it is the poor management of ASESA that constitutes its major problem. 11.25 per cent of the respondents consider the insufficiency of ASESA staff as the authority's major problem while for the remaining 7.5 per cent, it is Government control of ASESA that constitutes a

major problem. The options presented above, we must note, are not mutually exclusive. Respondents only chose those considered as most important of them. Also, some of the opinions may have been informed by the picture ASESA paints of itself.

These results as obtained from the respondents were raised with the staff of ASESA. They agreed that all the problems listed above constitute problems in varying degrees. They see the problems as inter-related with one giving rise to the other. The officials agreed with the public opinion as reflected in table X above that lack of finance is the most important problem confronting ASESA.

The major source of finance for ASESA is the sanitation levy and other charges. And because people refuse to pay willingly, the authority recruits a large number of people (mostly girls) for house-to-house collection of levies. This increases the financial burden of ASESA by way of its wage bills. We also gathered that the Anambra State Government only started giving the authority annual subventions in 1989. Hitherto, the authority was left entirely to generate its finances. The authority, just like Oliver Twist, considers the N1.6 million given to it by the state government for this current financial year as paltry especially with regards to the authority's high wage bill, the amount of money the authority

owes, and the cost of equipment which it needs; and therefore wants more money.

The officials claim that their inability to meet their financial needs affects every facet of their operations. For instance, the authority cannot procure all the necessary equipments for effective operations; it cannot procure all the necessary equipments for effective operations; it cannot organize conferences, workshops, seminars and public health lectures; and most importantly, it cannot pay its staff regularly. It is therefore, not surprising that most staff of ASESA easily get disenchanted with their work. It was gathered that many of the authority's staff were owed salaries of upwards of four months. The refuse disposers on their own part work under very inhuman conditions. They lack the basic facilities needed for their operations. Lack of commitment by staff is endemic to the authority. Cases of embezzlement of sanitation levies collected
abound. Also many of the staff, especially those who operate along the major roads, have been accused of taking bribes and of harassing decent citizens. The unfortunate thing is that as these problems of ASESA continue to increase, so also do the problems of sanitation and health in Enugu increase.

On the other hand, the authority plays down the unco-operative attitude of the public to ASESA's duties as a major

problem. According to its officials, if the authority is well funded, it will carry out its activities effectively thereby increasing the confidence the public has on it. The authority also de-emphasised the role of the poor management of ASESA as one of its major problems. It rather considers the friction between the authority and the local government Service Commission (LGSC) and that between it and the Enugu local government council as more significant problems. It was the misunderstanding in terms of staff control of the public health superintendents posted to ASESA on secondment from the LGSC that compelled the latter to withdraw all of them from ASESA. With this withdrawal ASESA is now bereft of Public Health Superintendents (Inspectors). Consequently, it can neither inspect premises, serve abatement notices for the removal of nuisance nor institute litigations against offenders. This is causing a lot of problems for ASESA as well as for sanitation in Enugu. As a result, ASESA has started training its own Health Superintendents. The problem of finance is however hampering this project. For instance, only five persons were sponsored to the School of Health Technology Oji River for training in 1989, yet the authority needs to turn out at least thirty health superintendents annually in the next ten years for its effective operations.

The friction between ASESA and the Enugu Local Government Council arose from the collection of tenement rates and other

smaller rates in Enugu. ASESA is contending that 40 per cent of the total tenement rates collected in the town should be paid to it. Also, the local government rate tickets incorporates sanitation levy. ASESA is against this because many residents of Enugu refuse to pay sanitation levy to ASESA on the grounds that they had already paid to Enugu Local Government Area. ASESA is claiming a right to 40 per cent tenement rates and sanitation levies on the grounds that it is its responsibility to keep Enugu clean.

It is pertinent to observe that public opinion on the problems confronting ASESA may be true to a reasonable extent, one however, needs to understand the internal dynamics of ASESA in order to place the problems in the right perspective.

5.6 TESTING OF HYPOTHESES

In this work two hypotheses were tested namely:

I There is a relationship between the level of environmental cleanliness and availability of sanitary facilities.

II The higher the socio-economic class of inhabitants of a residential area, the higher the level of cleanliness of that area.

The Phi statistic (O) was used in testing the hypotheses. The results derived from the computations were later converted to the chi square (X) for a clearer understanding of the relationships/ correlations of variables. The statistical

formula and computations used for testing the above hypotheses are attached as appendix II.

HYPOTHESIS 1: PROVISION OF SANITARY FACILITIES

		HIGH	LOW	
LEVEL OF CLEANLINESS	HIGH	127	33	160
	LOW	108	52	160
		235	85	320

Ho: There is no relationship between the level of environmental cleanliness and the availability of sanitary facilities.

Hi: There is a relationship between the level of environmental cleanliness and the availability of sanitary facilities.

DECISION RULE-CRITERIA

i. Reject Ho (Null Hypothesis) if X calculated is greater than X tabulated at 1 degree of freedom and at a probability level of 0.50.

ii. Accept Hi (Research Hypothesis) if Ho is rejected.

X calculated = 5.408

X tabulated = 0.455

DECISION:

Since X tabulated is less than X calculated, Hi that is the research hypothesis, is accepted. From this hypothesis we therefore conclude that there is a relationship between the

level of cleanliness of a residential area and the patterns of living as well as the availability of sanitary facilities in an area.

The result of this hypothesis is not a new one. It only goes to confirm existing opinions commonly held by residents of Enugu. They see sanitation problems as, mainly caused by government agencies such as ASESA and the Water Board. The over-filled refuse bins, the dry water taps and, poor housing are pointers to government's failure in its sanitation programme. This opinion will however, not be swallowed hook, line and sinker. It is germane to point out that both individuals and government authorities play both major and minor roles in the problem. There are instances where individuals exhibit a non-challant attitude to sanitation programme even when they can afford to lend helping hands; they consider it as government problem, yet it is these urbanites that will eventually feel the impact of poor sanitary conditions in the final analysis. It may be logical to note that many residents of Enugu, as in many other cities in the country, feel alienated from the government. They do not see any relationship between themselves and the government in as much as they are not working for any government establishment. Such individuals either consciously and unconsciously do not allow government programmes to succeed. This is even more now

with the harsh economic conditions which the average Nigerian considers as an unnecessary imposition by the government. Specifically on the issue of sanitation, they feel that the sanitation levies which they pay have shed off all other responsibilities of keeping the surrounding environment clean from them.

The result of this hypothesis confirms the findings of Turner (1969), Nwana (1977), Davies (1977), Sule (1982), Almai (1982) and Dike (1985). All the above-named authors emphasised the negative role the non-provision of facilities play in city sanitation. The result is also an indication that there are no major differences among Nigerian cities in terms of the provision of sanitary facilities.

We must however, not lose sight of the fact that there is a wide range of differences between the provision of sanitary facilities and the effective use of such facilities. The inability to use such facilities effectively could be a major determinant of the level of sanitation.

HYPOTHESIS II

		INCOME		
		HIGH	LOW	
LEVEL OF CLEANLINESS	HIGH	98	62	160
	LOW	108	52	160
		206	114	320

Ho: The higher the socio-economic class of the inhabitants of a residential area, the lower the level of cleanliness of that area.

H1: The higher the socio-economic class of the inhabitants of a residential area, the higher the level of cleanliness of that area.

DECISION RULE-CRITERIA

i. Reject Ho (Null Hypothesis) if X calculated is greater than X tabulated at 1 degree of freedom and at a probability level of 0.50.

ii. Accept H1 if Ho is rejected.

X calculated = 1.35

X tabulated = 0.455

DECISION: Since X calculated is greater than X tabulated, Ho is rejected and H1, the research hypothesis, is accepted.

The result of this hypothesis is better grasped if we note the fact that residential areas could be graduated in terms of the income level of their inhabitants. Or put differently, there is a tendency for people on the same socio-economic range to cluster around a residential area or neighbourhood. In Enugu however, there is a clearer manifestation of this tendency among the extremes of socio-economic levels. While the very rich ones cluster around the Government Reservation Areas, Independence Layout, parts of Trans Ekulu and New Haven,

the poor ones gravitate toward such urban fringes as Abakpa-Nike, Emene, Iva-Valley, "Ugwu" Aaron and "Ugwu" Alfred. By inference, whereas the residents of the former areas can afford the cost of any services in the event of government's failure to provide them, the residents of the latter areas cannot. For instance, all the solid structures in the Government Reservation Areas and Independence Layouts have private pipe borne water connections. Collection of refuse, cutting of weeds and the supply of water are at very regular intervals. The gutters in the areas are usually wide thereby allowing water to flow freely in them. Most of the houses have beautifully cut lawns and flowers and there is less noise or absolute quietude in those areas. This is not unexpected since the areas are the abode of the very rich and top government functionaries. These conditions are almost in opposition to those found in the urban fringes and other areas occupied by the poorer segments of the city of Enugu. But just as Dike (1985) in his study of Onitsha showed, the conditions of the residential areas could be placed in a continuum rather than in outright opposition. The continuum moves regressively from the high income to the low income areas where a majority of the urban poor reside.

CHAPTER SIX

RECOMMENDATIONS

All through the discussions in this research, efforts were made at highlighting those factors which impact negatively on sanitation in Enugu as well as also highlighting the health implications of poor sanitation on urban dwellers. Major issues discussed as being of importance to city sanitation include rapid population growth, new economic trends, improper urban planning, inadequate provision of sanitary facilities and the failure of government's sanitation programmes among others. It is based on the identified problems of environmental sanitation that the following recommendations are being made as a recipe for improving the sanitary and health conditions of the residents of Enugu.

(i) DEVELOPMENT OF HOUSING SCHEMES

Population, as was earlier pointed out becomes a catalyst of sanitary problems only if adequate measures are not taken to contain it. Enugu town is gradually getting more and more urbanized as the years go by. The town's population is ever increasing. Housing facilities, though on the increase, falls short of demand. The long periods of search for houses and the increasing rate of squatting in the town attest to this. Unlike in Onitsha, houses are not springing up at very rapid rates. The high cost of building materials and the increase in

land speculation account for this. It has to be appreciated that a majority of the inhabitants of Enugu are civil servants with relatively low incomes. Most of them cannot afford to build houses in the urban areas.

It thus becomes imperative that government has to embark on a serious and massive housing development scheme. One wonders, for instance, what would have become of housing in Enugu if not for the development of Abakpa-Nike and Trans Ekulu housing estates. The major problems of housing development schemes have always been that they are developed without the degree of seriousness they deserve. In planning such schemes, government does not take into consideration the economic realities of the average Nigerian. This is why they cannot afford such houses, - being low-cost housing units notwithstanding.

The Nigerian city planner does not take cognisance of the inter-connectedness of all aspects of the city especially where it concerns the health and the social well-being of the urban residents. He does not make adequate projections into the future due mainly to the dearth of accurate statistics. The housing scheme that is being advocated here has to be planned and executed not only by urban planners per se but by a team of experts from various disciplines such as urban and Regional Planning, Geography, Architecture, Hydrology, Engineering,

Sociology, Estate Management, Economics and other allied disciplines. Their emphasis has to be in the design and construction of many housing units in well planned estates using very cheap local building materials. The recently concluded workshop on rural housing held at the Onitsha local government secretariat is a step in the right direction. Such workshops should be organized in all local government headquarters and in some communities. The scope of participants for the workshop has to be broadened so as to incorporate non-government experts who are also involved in the design and construction of buildings. Houses so built, no doubt, will be cheaper and thus affordable than the conventional buildings.

The large expanse of land between Emene and Nkalagu, that between Awkunanaw and Agbani and also the one between Abakpa-Nike and Ugwogo-Nike could be used for this scheme. City planners have to take note of the fact that only an infinitesimal proportion of our land area are currently being inhabited. It is because of this that houses are concentrated in few areas (towns) making towns like Enugu look congested. For this scheme that is being advocated, adequate space provisions is necessary and must be utilized.

(ii) HOUSING DEVELOPMENT LOAN

Of equal importance to the housing development scheme, soft loans could be given to civil servants and other poor

members of the urban areas to enable them build their own houses. This is bound to reduce the shortage of houses and its accompanying problem of over-crowding. Of even greater importance, government should make efforts to reduce the cost of building materials so as to make such housing loans meaningful to the beneficiaries. This could be made possible by encouraging research on alter-native sources of building materials especially with emphasis on local building materials. It was through such researches that rice husk was discovered as a raw material for moulding blocks. Government can also encourage industries to or even on its own engage in the mass production of local raw materials such as burnt bricks and roofing tiles. These can serve as alternatives to the costly cement blocks and corrugated iron sheets.

Additional incentives have to be given to the urban dwellers so as to build their own dwelling homes in the township. It is hoped that this will help in changing the orientation of urban dwellers so that they can see the urban areas as their home rather than as a "no man's land" thereby making them more responsive to the urban environment.

(iii) IMPROVING THE EFFICIENCY OF ASESA

It was shown in this work that ASESA plays a central role in the maintenance of environmental sanitation in Anambra State. It thus follows that any meaningful recommendation for

the improvement of sanitation in Enugu should recognise this fact. Such a recommendation should include among other things the improvement of the working conditions of ASESA ranging from an overall improvement in the conditions of service of its staff to an over-all re-organization of its management structure. From the responses gathered from the respondents and from the interview granted by some officials of ASESA, the major problems affecting ASESA were highlighted. Most of the problems boil down to the fact that governments' efforts at improving environmental sanitation have to be increased. Government should show a deeper sense of commitment to sanitation programmes.

It is our hope that if the efficiency of ASESA is improved, sanitation programme in Anambra State will be greatly enhanced. Our recommendations for improving the efficiency of ASESA could be summarized thus:

A. The commercialization of ASESA. We are aware that most government enterprises in Nigeria are inefficient. This may not be unconnected with the fact that the promotions, salaries and other benefits accruing to the workers are not tied to their job performance thus they usually do not show a deep sense of commitment to their jobs and therefore, may not justify the benefits and remunerations they get from such jobs. Such commercialization of ASESA will help to remove most of the

bureaucratic bottlenecks that hamper its operations. And if government gives the commercialized authority all the necessary logistics support, its efficiency will be improved.,

B. The State government can on the alternative vote a large sum of money either as working capital or trading account for ASESA as it is composed now. It is from this fund that most of the financial needs of the authority will be met.

It is pertinent to point out that the commercialization of ASESA as is advocated above should not entail the making of superfluous profits by the authority. Sanitation programme should be considered as part of the social/health services provided by the government to its people. The authority should be made financially independent such that it will be able to sustain itself without full government intervention. Such a measure of independence will eventually lead to the emergence of a new management set-up that understands better the relationship between environmental conditions and the health of the people, and thus will work towards the realization of a cleaner environment.

C. Legal teeth have to be given to the authority by way of promulgating sanitation Edicts. ASESA's legal department should be well organized such that it can prosecute offenders with immediacy. If government establishes a sanitation court as is being requested by ASESA's management, it will go a long

way towards helping the authority achieve some of its objectives. This is most required at this stage of our development where most people do not want to do what they ought to do until they are compelled to. The Buhari/Idiagbon regime of 1983-85 clearly demonstrated the efficacy of force in the implementation of certain sanitation programmes in the country. It is our hope that all these restructurings will invariably improve the efficiency of ASESA in the maintenance of sanitation in the State.

(iv) HEALTH EDUCATION

Results from our field work show that some members of our society (though not in the majority) are ignorant of the fact that poor sanitation leads to the transmission of certain diseases. And even where they are not ignorant of this, they may not be fully aware of the consequences of such diseases. To check such cases of ignorance, the health education unit of the Anambra State Ministry of Health has to beef up its activities. Also, other health institutions have to join hands in educating the public on the values of sanitation. Agencies like schools, hospitals, churches and the mass media have to be used in disseminating sanitary values to the citizens of Anambra State. Television programmes showing how diseases could be transmitted through poor sanitation need to be encouraged. Equally important is that health educators should

visit dirty neighbourhoods with the aim of organizing public lectures on environmental sanitation for the inhabitants. Real life situations in such dirty neighbourhoods have to be used as concrete examples for easy grasp by the residents of such areas.

Incentives such as prizes for the cleanest residential areas, streets and compounds should be re-introduced. The efficacy of this as a strategy for maintaining a clean environment could be ascertained from the interest shown by communities, local governments and state governments during the environmental sanitation competitions between 1983 and 1987.

(v) URBAN RENEWAL PROGRAMME

From our analysis it was gathered that sanitation and health problems are more prevalent in the urban fringes of Enugu namely Abakpa-Nike, Emene, Iva-Valley and in the other smaller settlements on the surrounding hills than in other parts of the town. Such poor sanitation is partly attributable to the poor economic status of their inhabitants as well as to the unplanned nature of such areas. It is such unplanned nature of these areas that gives impetus to the sporadic emergence of settlements. For instance, it was noted from the history of the development of Enugu - between 1915 and the present time - that slums emerged following the inability of the authorities concerned with planning to plan the city and

project far ahead of time. This would have entailed planning for the undeveloped areas of the city which sooner got subsumed in the growing city. The history of Ogui Urban and Abakpa Nike suffices to buttress this. However, since this mistake of not planning or not planning adequately has been made, emphasis should now centre on the re-planning of those areas, as well as guarding against future occurrences.

It is in line with re-planning that urban renewal programme is being recommended. Such urban renewal programme as is being advocated here is for some parts of Enugu. This position is grounded on the fact that some parts or sections of cities could decay faster with time. This may be as a result of increasing population and the pressure they exert on the existing facilities or structures; it could also be as a result of the age of such structures and facilities.

Specifically for Enugu, parts of Abakpa-Nike, Iva-Valley, Emene, Ogui urban, Coal Camp and some parts of Awkunanaw ought to be re-planned, with many of the dilapidated buildings in them giving way to modern ones. Also, expert planning in terms of layouts will be needed such that there could be streets in all parts of these residential areas. The streets should be tarred and drainage channels constructed along them. Amenities such as pipe borne water, public toilets and refuse dumps should be provided in adequate proportions. As much as

possible the streets should be decongested so as to enable sanitation staff have access to all parts of the city for the effective evacuation of refuse.

It is germane to point out that such urban renewal programmes for the 'old city' should be a temporary measure. The failure of the urban renewal programme in Lagos (see Marris, 1960) attests to this. Since these 'old cities' have graduated into slums, McGee's (1963) recommendation for the management of slums becomes very relevant. In his opinion the solution to slum growth and development lies in the over-all planning rather than a piecemeal engineering re-settlement scheme. Thus the urban renewal programme advocated here should be an integral aspect of an over-all urban planning scheme for it is only such that can check the sporadic growth and re-growth of slums. It therefore follows that a master plan for the development of Enugu has to be formulated. Such a master plan can however, become relevant only if dedicated experts take charge of it.

CONCLUSION

All through this work the relationship between environmental sanitation and the health of the people was highlighted. This relationship between them is established thus: increased poor environmental sanitation quality may entail an increase in the level of sanitary-based (transmissible) diseases. Available medical records support this. There were more reported cases of some of the diseases studied in those residential areas where sanitary conditions have deteriorated to a very great extent.

Of importance also is that sanitary problems should be seen as a problem of development; they are reflections of the level of a society's development. For instance, the inability of most Third World countries to eradicate diseases such as malaria and cholera, or even their inability to maintain a high level of environmental cleanliness is not attributable to any innate inadequacies of their people but rather to their inability to effectively plan for the eradication of such diseases within their lean financial resources.

No doubt, individual urban residents contribute to the poor sanitary conditions of the residential areas however, it is pertinent to point out, especially with the historical development processes of our cities as a background, that the pattern of urban development and the dynamics therein account

for most of the problems. Urban residents are merely adjusting and adapting to situations in which they find themselves. Governments should therefore take a greater share of the unsanitary quagmire in most of our cities then members of the public.

We must bear in mind that most of the cities in Nigeria emerged under colonial influence; under governments that were not responsive to the needs and aspirations of its citizens. The issue however still remains that the indigenous governments in Nigeria have not deviated fundamentally from the approaches adopted by the colonial governments in terms of sanitation. Past and present Nigerian governments harped and still harp on the need for a clean environment. Their actions at times tend to portray them as indirectly encouraging poor sanitary habits. It is this seeming contradiction that informed our assertion in the introductory part of this work - "that government has not fully grasped the essence of preventive medicine". The problem of environmental sanitation however, lies more in lack of co-ordination of government's sanitation policies and programmes or put differently, in the failure in the implementation of the noble programmes of government. The fact that government is continually launching campaigns against poor sanitation and health is an indication that it is committed to the health of the people.

One major development problem encountered by Nigeria and many other developing countries is the strategy adopted for development. Most of their conceptions of development are narrow and vague and do not reflect the level of the nation's development. Development ought to be a grassroots affair. Emphasis should be on the satisfaction of the people's basic needs after which other things could be added. Health should be seen as one of these basic needs for it is only a healthy nation that can contemplate the development or the harnessing of resources in its environment. Good health thus is a pre-requisite for national development. It is our opinion that no amount of money spent in order to achieve good health is too much moreso since health is a priority area. It should be recognised that the benefits which accrue from good health programmes are not easily quantifiable but manifest gradually with time in the form of a greater and healthier society. All hands therefore should be on deck in seeing to a better health for the people through proper sanitary management as this will help in shortening our long mach to health for all by the year 2,000.

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APPENDIX I

MEDICAL RECORDS

APPENDIX IA: MEDICAL RECORDS FROM THE PARKLANE GENERAL HOSPITAL ENUGU (1988)

DISEASE	AGE BRACKET	SEX M	SEX F	TOTAL	PER-CENTAGE
TYPHOID FEVER	Under 1 year	-	-		
	1 year to under 5 years	4	5	9	
	5 years " " 15 "	23	24	47	
	15 " " " 45 "	69	34	103	
	45 years +	6	-	6	
	Total	102	63	165	2.83%
DIARRHOEA	Under 1 year	13	15	28	
	1 year to under 5 years	24	21	45	
	5 years " " 15 "	6	8	14	
	15 " " " 45 "	5	10	15	
	45 years +	1	3	4	
	Total	49	57	106	1.82%
MALARIA	Under 1 year	181	138	319	
	1 year to under 5 years	867	523	1390	
	5 years " " 15 "	1047	870	1910	
	15 " " " 45 "	1021	355	1376	
	45 years +	204	252	456	
	Total	3320	2138	5458	93.92%
AMOEBIC DYSENTERY	Under 1 year	2	0	2	
	1 year to under 5 years	1	0	1	
	5 years " " 15 "	1	1	2	
	15 " " " 45 "	2	2	4	
	45 years +	0	0	-	
	Total	6	3	9	0.15%
MEASLES	Under 1 year	8	5	13	
	1 year to under 5 years	14	30	44	
	5 years " " 15 "	6	8	14	
	15 " " " 45 "	1	1	2	
	45 years +	0	0	-	
	Total	29	44	73	1.25%

SOURCE: MEDICAL RECORDS DEPARTMENT, PARKLANE HOSPITAL, ENUGU.

APPENDIX 1B

MEDICAL RECORDS FROM CIMAC HOSPITAL ENUGU

DISEASE	YEAR 1987	1988	TOTAL	PERCENTAGE
Malaria	406	513	919	75.82%
Typhoid Fever	23	34	57	4.70%
Dysentery	56	39	95	7.83%
Diarrhoea	13	21	34	2.80%
Filariasis (Tested)	11	9	20	1.65%
Worms (General)	36	51	87	7.17%

NOTE: There were neither reported cases of Yellow Fever nor Cholera in any of the hospitals visited.

APPENDIX IIA

EXPLANATION OF THE PHI COEFFICIENT ( )

The Phi here is given as:

$$= \frac{\text{Difference of Cross Products}}{\text{Square root of the product of sum of adjacent cells}}$$

or

$$= \frac{ad - bc}{(a+b)(c+d)(a+c)(b+d)}$$

Given a 2 x 2 table thus

a	b
c	d

Conversion to Chi square (X) for test of significance of Phi ( ) is

$$N = X$$

with 1 degree of freedom.

APPENDIX IIB

COMPUTATION OF HYPOTHESIS I

Provision of Sanitary materials

Level of Cleanliness	High	Low	
High	127	33	160
Low	108	52	160
	235	85	320

$$= \frac{ad - bc}{(a+b)(c+d)(a+c)(b+d)}$$

$$= \frac{127 \times 52 - 33 \times 108}{(127 + 33) \times (108 + 52) \times (127 + 108) \times (33 + 52)}$$

$$= \frac{3040}{511360000}$$

$$= \frac{3040}{22703.18}$$

$$= \underline{0.13}$$

Computed X = N

= 320 x (0.13)

= 320 x 0.017

∴ X = 5.4

Tabulated X at 1 d.f. and at a probability level of 0.50 = 0.455

APPENDIX IIC

COMPUTATION OF HYPOTHESIS II

Level of Cleanliness	Income: High	Income: Low	
High	98	62	160
Low	108	52	160
	206	114	320

$$= \frac{ad - bc}{(a+b)(c+d)(a+c)(b+d)}$$

$$= \frac{(98 \times 52) - (62 \times 108)}{(98 + 62) \times (108 + 52) \times (98 + 108) \times (62 + 52)}$$

$$= \frac{-1600}{601190400}$$

$$= \frac{-1600}{24461.7}$$

$$= 0.065$$

Computed X = N

= 320 x (0.065)

= 320 x (4.225 - 03)

= 320 x 0.0004225

$\therefore$ X = 1.35

Tabulated X at 1 d.f. and at a probability level of 0.50 = 0.455

APPENDIX III

SAMPLE QUESTIONNAIRE USED FOR THE FIELD WORK

QUESTIONNAIRE

Department of Sociology/Anthropology
University of Nigeria
Nsukka

Dear Sir/Madam/Miss,

I am a graduate student of the Department of Sociology/Anthropology, University of Nigeria, Nsukka. I am carrying out a research on Sanitation and Health Problems in Nigerian cities, with Enugu as my study base, as part of the requirements for the award of the degree of Master of Science in Sociology.

Please kindly answer the following questions to the best of your knowledge as they will be immense help to this research. All answers will be treated confidentially. Your name, or any form of identity is not required.

Yours sincerely,

Sgd./
Ifeanyi Asogwa E.

Please tick (_/) as appropriate.

1. Sex: A. Male /___/ B. Female /___/.
2. Marital status: A. Married /___/ B. Single /___/
   C. Divorced /___/ D. Separated /___/.
3. Age: A. 20-29 /___/ B. 30-39 /___/ C. 40-49 /___/.
4. Religion: A. Christianity /___/ B. Muslim /___/
   C. Traditional Religion /___/.
5. Income per annum: A. 1,500-3,000/___/ B.3,001-4,501 /___/
   C. 4,502-6,002 /___/ D. 6,003-7,503 /___/
   E. 7,504-9,004 /___/ F. 9,005 and above /___/.

6. Highest academic level attained: A. No formal education/___/

B. Literate only /___/ C. Primary school /___/

D. Secondary School /___/ E. Tertiary Institution /___/.

7. Occupation: A. Public Servant /___/ B. Businessman/___/

C. Unemployed /___/ D. Student /___/.

8. How long have you lived in Enugu? A. Less than one year/___/

B. Between one and five years /___/

C. Between six and ten years /___/ D.Over ten years/___/.

9. Will you eventually retire to your village at old age?

A. Yes /___/ B. No /___/.

10. What is the total composition of your household?

A. Less than four /___/ B. Between five and seven /___/

C. Between eight and ten /___/ D. Above ten /___/.

11. In what type of compound do you live in?

A. Single room compound (yard) /___/ B. Flat /___/

C. Duplex/bungalow /___/ D. Bacha /___/.

12. How many rooms do you occupy in all? One room /___/

B. Two rooms /___/ C. Three rooms /___/

D. Above three rooms /___/.

13. Tick as appropriate to your household:

A. We cook in a general kitchen with other yard members/___/

B. We have a private kitchen /___/

C. We cook in the open yard /___/.

14. In which part of Enugu do you reside, eg. Uwani, Abakpa etc? _____.

15. Are there enough water taps in this area? A. Yes /___/

B. No /___/.

16. How would you rate water supply to your compound on a scale 1-15?
A. Adequately supplied (12-15 /___/

B. Fairly supplied (8-11) /___/ C. Inadequately supplied (4-7) /___/ D. Not supplied (0-3) /___/.

17. In the absence of regular pipe water supply, which other sources of water supply do you use?

A. Streams/rivers /___/ B. Buy water from water sellers /___/ C. Water from wells /___/.

18. What type of toilet facility do you use in your compound?

A. Bush /___/ B. Pit latrine /___/C. Bucket latrine/____/

D. Water closet /___/.

19. Using a scale (1-15), how would you describe the area you live in terms of cleanliness?

A. Very clean (12-15) /___/ B. Clean (8-11) /___/

C. Dirty (4-7) /___/ D. Very dirty /___/.

20. If your answer to question 19 above is either C or D, what factors do you think are responsible for the dirtiness of your residential area?

A. There are too many naturally dirty people in the area /___/

B. There are too many people living in the area /___/

C. There are very few refuse depots where people can dispose of their refuse /___/

D. The area is unplanned thereby inhibiting the work of ASESA in keeping the area clean /___/.

E. ASESA officials do not take any interest in keeping the area clean /___/

F. Any others: _____.

21. Which one of the following is the most important means of disposing your refuse?

A. Private disposal agents /___/

B. Dump at government refuse collecting centres /___/

C. Refuse is collected by government agents from compound refuse bin /___/.

Dump in open spaces or in surrounding bushes /___/.

22. What type of problem do you encounter with the method adopted?
A. Irregularity in refuse collection by the authorities concerned /___/

B. Very few dump sites located in far away spaces /___/
C. The dump site is always over-filled with decomposing and smelling refuse /___/.

23. The inadequate provision of sanitary facilities such as water and refuse disposal materials and good housing by government is a major cause of sanitary problems in Enugu.

A. Strongly agree /___/ B. Agree /___/ C. Disagree /___/

D. Strongly disagree /___/.

24. The poverty of some individuals living in this part of the town contributes to the dirtiness of the area.

A. Strongly agree /___/ B. Agree /___/ C. Disagree /___/

D. Strongly disagree /___/.

25. Among the diseases listed below tick the ones that have been suffered by members of your household between 1979 and now:

A. Malaria /___/ B. Yellow fever /___/ C. Filarasis/___/

D. Dysentery /___/ E. Diarrhoea/___/ F.Typhoid fever/___/

G. Cholera /___/ H. Ascaris (worm) /___/.

26. Are you aware that the cause of any of these diseases is related to a dirty environment?

A. Yes /___/ B. No /___/.

27. Ignorance of the need for a clean environment is a major cause of the dirtiness of the area of Enugu where you reside:

A. Strongly agree /___/ B. Agree /___/ C. Disagree/___/

D. Strongly disagree /___/.

28. Has there been a re-occurrence of any of those diseases listed, in question 25 above among your household?

A. Yes /___/ B. No /___/.

29. B. List the diseases and the number of times:_____
_____.

30. Was treatment for the disease(s) carried out in an approved government hospital?

A. Yes /___/ B. No /___/.

31. How would you rate the current efforts by ASESA to keep Enugu clean using a rate grade 1 - 25?

A. Very high (12-15) /___/ B. High (8-11) /___/

C. Low (4-7) /___/ D. Very low (0-3) /___/.

32. How much do you pay annually as sanitation levy?_____.

33. Do you think you are getting the services equal to this money you pay from ASESA?

A. Yes /___/ B. No /___/.

34. What problems do you think confront ASESA in carrying out its work?

A. The insufficiency of ASESA staff /___/

B. Inadequate finance of ASESA /___/

C. Government control of ASESA /___/

D. Lack of commitment by ASESA staff /___/

E. The unco-operative attitude of Enugu residents /___/

F. Any other _____.

35. Why do you keep your environment clean? A. To avoid the spread of diseases /___/

B. To avoid being fined by ASESA staff /___/

C. I like a beautiful environment /___/

D. Any other: _____.

36. In your opinion suggest possible remedies to the problem of sanitation in Enugu:

A. _____

B. _____

C. _____

APPENDIX IV

EXCERPTS FROM THE INTERVIEW OF ASESA STAFF: OPERATIONS AND PUBLIC RELATIONS DEPARTMENT

Q: What do you consider the most important problem facing ASESA today?

A: Lack of finance has been and is still the bane of ASESA. Since the establishment of ASESA, the State Government was not funding it with grants as was the initial arrangement. However, the sum of N1.8 million was given to the authority for the 1989 financial year. This money is however, not enough. More importantly too, people refuse to pay their sanitation rates and other sanitation levies. It therefore becomes impossible for the Authority to raise enough money to pay its workers.

There is also the problem of lack of equipment. For instance, the public relations Department has neither vehicle nor public address system. It cannot thus make its presence be felt in all the parts of the town. A public address system for instance would have been needed especially on clean-up days for informing people of the need for the clean-up and on what they are supposed to do with their refuse, and other dirts.

Equally, there is the problem of culture - people's attitude to paying to the government. They do not see themselves as part of governing and therefore consider every payment to government agencies as a waste since the latter is supposed to care for its citizens financially and otherwise.

Q: How bad is this problem of lack of equipment?

A: Let me start by giving you an idea of what ASESA needs and what it has. It will paint a clearer picture of some of the problems we are going through. For an effective day's operation, ASESA needs 30-35 tippers to cover the whole of Enugu. On the other hand, only the following vehicles are available to us:

1. Two tippers from the Enugu Local Government.
2. Two tippers bought by ASESA.
3. One dilapidated pail loader.
4. Two kukas inherited from Onitsha ASESA.
5. Two tippers also inherited from Onitsha ASESA.

Also, the following vehicles are available for the general administrative running of ASESA:

1. One saloon car from the Cabinet Office - used by the General manager.
2. One Land Cruiser.
3. Kombi bus for public Relations Department, and
4. 504 saloon car for operations.

The problem is that not only are these vehicles not enough, most of them are in bad shape and are constantly grounded.

May I also add here that one other problem facing us stems from the government. We are a government agency. They expect us to perform wonders in keeping Enugu clean; yet they do not provide us even the commonest items we need for our work. How then do you thank we can perform magic?

Q: What representations have you made to the government in this respect?

A: The people in authority ought to know the needs of ASESA. ASESA is a baby of the government, therefore its needs are well known to government. Nevertheless, on a number of occasions, our G.M. has made necessary contracts with those in authority. For instance, ASESA is at the moment having problems with the Enugu Local ASESA is at the moment having problems with the Enugu Local Government Council for their failure to pay us 40 per cent of the tenement rates collected in the town. This particular issue has caused friction between ASESA and some members of the public. For instance, the receipts issued by Enugu Local Government for rate contains rate and sanitation levy, thus when people pay for their rates and we demand their sanitation levy from them, they make trouble with us. They always claim that they have paid with Enugu Local Government. Yet, it is ASESA that maintains the cleanliness of the whole local government.

Q: Is there no means of informing members of the public about their financial obligations? Or maybe, are the levies so much as to make people dodge them?

A: I even consider the levies cheap; even very cheap. A single family, that is one room pays 50k per month. Flats or bungalows pay N5.00 per month. This is cheap by all standards, especially considering the volume of work we

do. We have organized conferences (two already held this

do. We have organized conferences (two already held this year), interviews, press briefings etc. We have also held meetings with organizations such as Churches, Mechanics, Landlords, National Union of Road Transport Workers etc. to discuss problems of environmental sanitation. All these are yielding fruit, but you know it has to take some time.

Q: If you look through this paper, you will observe how members of the public rate your organizations performance, and also how they rate your problems. Do you agree with them?

A: Like I told you earlier, our people do not like good things. Imagine all the sacrifices we in ASESA have made yet the public fails to appreciate it. But you know that if we are given money like MAMSER, DEFFI etc. we will perform excellently. The only problem we have with members of the public is that we collect money from them so as to provide them essential services. But then NEPA, NITEL etc charge more money than us for providing services. I am sure that with time people will begin to appreciate us and respect our work.

Almost all of us here are being owed salaries for at least three months. You know we generate money with which to pay our staff. When you are not paid for those number of months, how can you be motivated or how can you like your job? I will even say that my staff are well motivated. For someone not to have received his/her salary and still be working shows that the person is highly committed. We had a problem of commitment when most of our staff were Local Government staff. They did not take instructions from us becauso we weren't controlling them. You know the problem of double loyalty. However, the local government staff have all gone back. They were all public health Superintendents. This is one of the reasons for the cancellation of sanitary inspection.

Q: What is the staff strength of ASESA? Is lack of staff a major problem of ASESA?

A: ASESA has a staff strength of between 800 - 1,000 persons. This includes the number in all our operation areas in the state. There are not enough professionals, although we are currently training people. For instance, I just told you about the cancellation of our sanitary inspection programme. It was due to the absence of Public Health Superintendents.

Also, we would have loved to employ lawyers but for our financial problems. We are applying for sanitation courts where people could be tried and given instant justice. The Customary Courts are too slow and are not helping matters.

Q: What are the prospects of ASESA in the state?

A: We are currently engaged in some computer programmes. This will help us computerize our operations. Also, we are negotiating for the African Development Bank (ADB) to come into sanitation programme in Enugu as it did in Onitsha. It is our hope that with all these, ASESA will become very strong and its operations will become appreciated by the government. It is in line with this that we launched ASESA warriors with the people who like football a lot.

EXCERPTS FROM THE INTERVIEW OF TWO STAFF OF ASESA (REFUSE UNIT)

Q: What are your major jobs with ASESA?

A: The major one is to collect refuse from the refuse dumps in Enugu and dispose them. In some areas we collect refuse from compound refuse bins for disposal. Also on environmental sanitation days, we collect refuse from streets for disposal. We load all these refuse into our tippers or kukas and accompany the drivers, if need be, to where they will be disposed at the outskirts of the town. We also report to the office any faults in the dump and also of any building we discover that are without dustbins.

Q: What are the major problems you face in carrying out your jobs?

A: We do not have boots; we do not have gloves; we do not have masks. And you know how difficult and risky it is to carry refuse with your bare hands. At times, what we see in the dumps are better imagined than described. The dumps are not good for descent people. People dispose faeces, sanitary pads, other very rotten items and at times, even dead bodies in the dumps. Yet they expect us to remove them with our bare hands, and without proper medical attention. Are we not human beings?

Another problem is lack of vehicles. When our refuse van or tipper breaks down we can't do any other work until it is repaired. We cannot use barrows because where the refuse are disposed are far from the town. At times, before the vehicles are repaired or before we get an allocation of vehicle in our operation area, the refuse would have rotted heavily or would have been scattered everywhere by human and animal scavengers.

Q: Do you think your pay is commensurate with your work?

A: Like now that I am here, you can't believe that I have not been paid for 5 months. We are here working because we don't want to steal. Apart from that ASESA pays us nothing.

Q: How long do you work a day?

A: Unless our tipper breaks down, we work from morning till 4.00 p.m. every day without break. The break we have is between loading of the refuse and its disposal at the site. But where the tipper breaks down we just wait unless there is any other urgent work that the office assigns us to.