

**GASTRO-ENTERITIS AND POOR SANITATION IN AGAIE  
LOCAL GOVERNMENT AREA NIGER STATE**

**BY**

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MANAGEMENT.**

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## CERTIFICATION

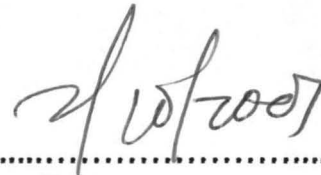
This is to certify that this project is an original work undertaken by me Kawu H. Abubakar PGD/GEO/2000/59 has been prepared in accordance with the regulation governing the preparation and presentation of project in the Department of Geography, Federal University of Technology, Minna, Niger State. Relevant work by other Authors are duly given acknowledgement and accorded credit in this research work.

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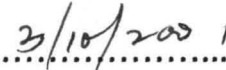


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DATE

## **DEDICATION.**

This piece of work is dedicated to my Father Alh. Abubakar Agaie and Mother whose moral guidance and prayers I swim in.

To my wife Fatima H. Kawu as well as my childrens Sadiq, Aliyu and Mohammed whose untiring patience, courage, moral and mutual understanding made it possible for me to successfully complete my (Post-Graduate) course.

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well being of the human population that occupies it. Its particular characteristics exposes and pre disposes the identifying the agents which predispose on individual that constitute, to its later response call the diseases. The Nigerian environment like in developing countries predispose their members to variety of infections and parasitic disease and to certain severe form of nutritional problems. Added to these problems are the manifestoes of a new set, of diseases closely related to urban - industrIALIZED environment disease that continuously challenges the technology of modern medicine.

It is worth notiny currently (that is as to the time of writing this thesis) on the impact assessment of environmental sanitation on the incidences of gastroenteritis in Agaie Local Government Area of Niger State, a substanted number of adults (male & female including animals habitat like goats, sheep and rams were continually invaded by hurrahs and vomiting which drained so many liver, victims so attacked seldom, escape death and those who did could be seen with a ver thin dehydrated body and eye ball deeply sunk into the sockets. The acts may not be far from an environmental pollution either in the air or from the water used for drinking and preparation of food. In view of this situation, this study attempt to critically examine scope of reach measures to take in combating and averting situations around from gastroenteritis.

Each year more then 60 - 80 million person especially children are affected with the diseases gastroenteritis in the developing countries about 2 million of those affected person die unabated.

In developing countries gastroenteritis disease are endemic, the number of cases and death are specially higher in both young and muddle age group person.

In Nigeria, gastroenteritis is ranked mostly among the killer and common, cause of death in the country statistically there is an increase in the report of gastroenteritis in Niger state preciously mining the state capital suited in 1978 and with a population of a little over 1.2million people by the 1991 census figure - (National Population Commission 1991).

As the town grows in population, the show extend gastroenteritis become even more prevalent it is notoriously a disease of poor crowded communities embattled with shortage of portable water and general poor sanitation of the environment (Lucas et al 1973). The prevalence and endenicity of the disease gastroenteritis in Agaie area from information up surge from the statistical department of the Agaie a Rural Hospital that a rouge my interest to under take a study of the disease found and to find the factors that culminate into the rise in both morbidity and mortality rates which are so alarming and disturbing.

#### **1.1.1 THE DISEASES GASTROENTERITS:**

Lucas et al, (1973) opined that gastroenteritis is one of the commonest causes of childhood mortality in the tropics, it has a world wide occurrences, severe vomiting and diverse leading to dehydration are the cardinal features, the incubation period is usually from 1 to 5 days.



### **1.1.2 BACTERIOLOGY:**

Although gastroenteritis in children can be due to a variety of causes the build of infection in infants have been attributed to four groups of the disease agent known as escherichia coli. The four groups of E. Coli which have been recognised as important diarrhea pathogens are enterotoxigenic E. Coli (ETEC) which produce enterotoxins, while enteropathogenic and enteroadherent E. Coli (EPEC) which have been responsible for frequent outbreaks of diarrhea in many parts of the world (Cucas et al (1973)).

Poverty, dust fly infestation and lack of elementary hygiene are especially responsible for the maintenance and spread of the disease. Gastroenteritis is much less common among infants who are breast fed. The unfortunate newly acquired habit of early cessation of breast feeding now gaining ground in the tropics and its substitution by bottle feeding has contributed to an increase of the diseases.

Transmission is by air, water, food, flies enhanced by general poor personal hygiene (Cucas and Gilles (1973)).

### **1.2 STATEMENT OF THE PROBLEM:**

The prevalence, and endemicity of the disease gastroenteritis in Agaie Local Government Area of Niger State arising from the secondary data collected from the Rural Hospital Agaie aroused my interest to undertake a study of this all important

disease trend, and to find the factors that are responsible for the rise in both mortality and morbidity rates which are so alarming and disturbing.

### **1.3. THE GEOGRAPHIC SPREAD OF GASTROENTERITIS (EPIDEMIOLOGY):**

Infant gastroenteritis has a world wide, distribution but is especially common in the tropics, it has been estimated that 500 million episodes of diarrhoea occurred annually among people of all ages in Asia, African, and Latin America with more than 5 million death the peak incidence occurred between 6 and 24 months.

In Nigeria gastroenteritis is ranked heavily among the killer disease and also increases in the report of gastroenteritis in Agaie Local Government. Since the last two years 1998 and 1999 it indicates a monthly incidence of about 120 patients and an average death of 10 - 13 person the commutative number of gastroenteritis for the year 1998 was about 14,000 patients with 172 death while for the year 1999 cumulative number of incidence of gastroenteritis rose, sharply to about 15. 2001 person with 187 death, (Statistical department of the Agaie Rural Hospital).

### **1.4 AIM OF THE STUDY:**

The study is aimed at evaluating the impact of environmental sanitation on the incidences of gastroenteritis in Agaie. This will be achieved through the following objectives.

- 1) To assess the extent of general poor sanitation on the incidence of gastroenteritis in the study area.
- 2) To assess to current preventive method.
- 3) To proffer plausible recommendations and the control of gastroenteritis.

### **1.6 SCOPE & LIMITATION:**

The study covers selected wards and health centres in Agaie Local Government Areas. Out of wards in Agaie only was randomly use for the study and their health facilities. This is as a result of limited time and resources to cover all wards in Agaie.

The period of study covers 2 years i.e. 1998 physical year and 1999. All source of data emanated from the Rural Hospital Agaie mainly and various health facilities used.

### **1.7 LIMITATIONS:**

- 1) Some questionnaires forms were rejected due to the incorrect completion while some were not returned, though just very few.
- 2) Other limitations like respondents false or an nonest responses that cropped up were however averted as the respondent were assured of their confidentiality that the responses. And that their responses would just be used for research purposes which have no reflection on their persons.

- 3) Some staff lose skeptical of the whole exercise for fear that their unit or departments inadequacy would give maculate informations.

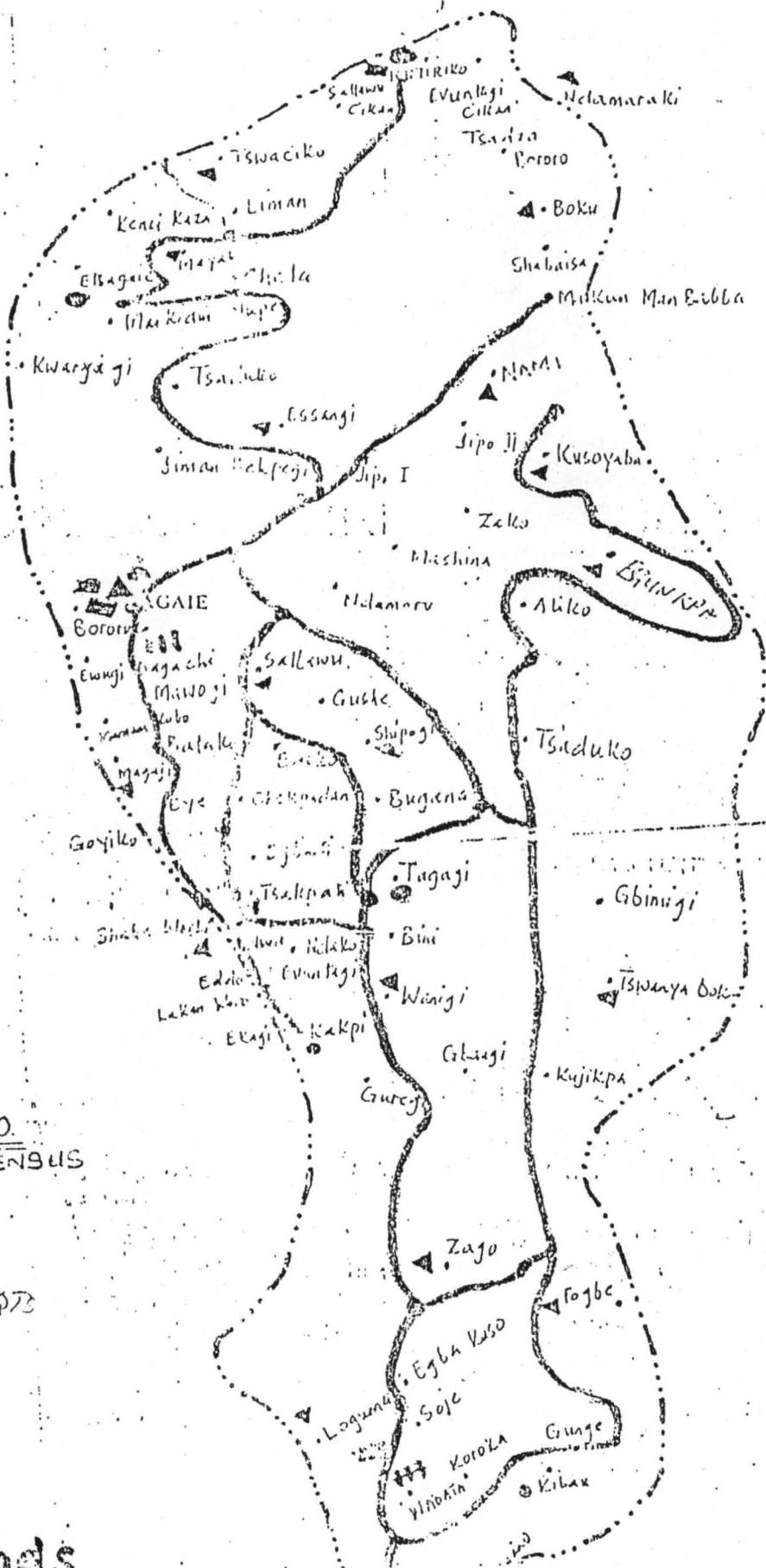
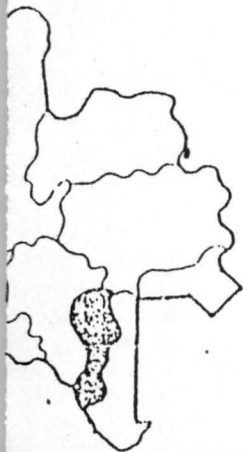
## **1.8 STUDY AREA:**

Agaie has between latitude  $6^{\circ}20'$  and  $7.15'$  North of the equator and latitude  $5^{\circ}40'$   $6^{\circ}33'$  east of the Green which meridian. This geographically places the area by sharing boundaries with Lapai Local Government by the north Bida Local Government to the South Katcha to the West and Shiroro Local Government area to the east the estimated population of the various ethnic groups in Agaie accounted to about 1.2. million people, major tribes are Nupe, Hausa, Gwari, Ibo, Yoruba and the smaller communities of languages.

The duration of sunshine ranges from 7 to 9 hours per day from January through April and May. In months of July and August it drop to a mean of 4 hours per day to increase in cloud cover and as the decreases to September it rises again, Agaie experience dry and rainy seasons ever year.

The dry seasons is between November and March with harmattan dust haze around November to January while rainy seasons from March to October. The highest temperature is recorded in the months of February and March at  $38^{\circ}\text{C}$  during the dry seasonal the vegetation in Agaie is predominantly quinoa Savannah rainy forest word Savannah park and shrub Savannah. The soil is of tropical ferriage onus soil which is clayish and ashy in colour.

# ARUA MURU STATE



POPULATION 85,280  
1991 CENSUS

CMC / LGA HQS  
MENSARIE  
TH OFFICE  
NTAINS  
od roads  
- paved roads

## **CHAPTER TWO.**

### **2.0 LITERATURE REVIEW:**

#### **2.1.1 COCEPT OF ENVIRONMENTAL SANITATION:**

The healthy living of an individual depends solely on aesthetic and healthy nature of the environment the individual lives in because of the influence it has on the individual physical social and emotional health. A good sanitary environment ensures emotional well being, beautiful scenery clean and orderly society.

The term environmental sanitation consist of two distinct words environment referring to the external influences that affect the individuals physical needs for good health such as fresh air water, shelter food, sleep, rest and protection against disease attacks. On the other hand sanitation refers to the tendency to reacts towards the promotion and maintenance of good health from the above assertions and view sit was deduced that the problems of the environment are multidimensional. In both the rural and urban areas today solid wastes are produced by individuals and institutions. These solid waste are generated as an object becomes obsoletes or un-usable and these include municipal wastes (combination of residential wastes and commercial wastes). They are discards of homes offices, motor parks, markets, streets, stores etc our attitude of throw away worsens the situations which now crane for an urgent action to averty the impending catastrophe.

Udoh (1978) opined that 'the physical environment are known to have very far reaching consequences fact,,' that rapidly growing quantities of wastes both soled and

liquid gradually degrade the aesthetic nature of our environment which now pose threats to human health and the environment itself. Such arisen situation in Agai calls for urgent alertness to incidences of gastroenteric disorder illness among the people.

The worsening transformation of the environment bears the responsibility of man himself. The clean up exercise of drainages along roads and houses are responsibilities of both government officials and the community, it is either done unsatisfactorily or totally refusing to do it by dodging, since adequate supervision is lacking, alongside. Anto Chechor (1979) has this to say that, man has been blessed with good sense of reasoning the power to create so that he can add to what he is given. But alas he has not been a creator only a destroyer forests keep disappearing rivers drying up, wild life become extinct the climate is changing and the land grows poorer and uglier every day so bringing environmental standards up to scratch should be a task to be accomplished for the stakes are high and time may be running out.

## **2.2 WATER POLLUTION:**

Some impurities in tap water are inevitable these are derived both from the different sources of prime importance. The traditional water source in towns and cities are more vulnerable to fecal pollution. Domestic water is extracted from ground water reservoirs or from streams and rivers depending on settlement areas of the people.

Ground water in agricultural areas is at increased risk of contamination as nitrate base fertilizer and pesticides applied on crops can reach into water supply.

Agaie Local Government area main source of water supply are at risk. The Agaie water works managed by the state water board and from where water is pumped to the treatment plant could be seen taken its source of water from where also observed that water pumped through pipe networks for public consumption around (May - June 1999) was contaminated, arising from the coarsens of pipes laid inside gutters there by allowing wastes water silage to virus hours for use, water borne transmission occurs when the pathogens is in water which if drunk by a person or animals which may then become infected potentially water borne disease include the classified infections, notable cholera and typhoid but also includes a wide range of other disease such as infections hepatitis, diarrhea, dysentery, all spread through fecal - oral routes.

One cannot qualify the fecal diseases but improvement in water quality will reduce their incidence. Freeman (1975) stated that water is a compound of two parts of hydrogen to one of oxygen boils at  $100^{\circ}\text{C}$  ( $212^{\circ}\text{F}$ ) and harmful if they contain pathogenic (disease producing) bacteria. The bacteria includes those of typhoid and para-typhoid, dysentery and cholera.

### **2.3 FOOD POISONING:**

There are dangers bacterial food poison which occurs when cooked or uncooked food, stuffs are left contaminated by certain kinds of spores forming



bacteria carried on or within the human or animal body from literatures tropes of bacteria are identified to contaminate food. These are disease producing bacteria which use the food as a valiance in which to enter the body they can be transmitted by way of excreta of a patients unwashed hands handling food and other unhygienic manners. The second types is the food poisoning bacteria that produce their toxins in the food which may alter its fasted and appearance Gilbert and Roberts (1977) reported that food poisoning produces an acute gastroenteritis which is usually short and self limiting. That is between 3000 and 12000 cases one un-reported it was reported that there are between 20 and 50 deaths each year resulting from severe dehydration and loss of electrolytes use deaths occurs amongst both young and adult people.

Truswell (1979) state that some types of food poisoning bacteria are identified to be lauding poisoning in food, these are salmonella extremely the large group of the organisms from rats nice, and duck eggs to the food. Their inféction can cause acute gastroenteritis, that is serious nominating and diarrhea just we are experiencing in Agaie. Ingestion of contaminated food may be followed very quickly, by vomiting and diarrhea which may be sever and accompanied by collapse due to dehydration. Others includes dostridium batution and clostridium which both organisms are spread by air borne spores.

## 2.4 FOOD PRESERVATION:

There are five notable methods of keeping food in a condition fit to be eaten at any time, it is required these include cooling heating use of preservatives substances - drying and air conditioning Daniel F. (1974) Health Science and physiology for tropical schools.

Cooling where food may be chilled that is kept at a temperature just above for or frozen below  $0^{\circ}\text{C}$ . Food kept in household refrigeration given very deep freezing while fresh are noticed to retain their vitamins, nourishment and flavor value to the full.

Heating boiling is not always a guarantee of sterility at ordinary temperature except boiling oil or sugar are used in frying or boiling tract, which reaches a much higher temperature. Bacteria are killed above  $160^{\circ}\text{F}$  in most cases preservative substance curing or smoking, through age long methods of preserving food still stand on challenge of the modern period. The meat or fish is held over wood smoke for a few days where the creosote fumes. Kill the bacteria and gives a wordy taste to the food. Salting is another method which involves having some fresh in brine with other flavouring until ready to be used.

Drying - through old, built also stands challenges on the time this simply involves the removal of too much moisture needed for bacteria growth. Vegetable is and some other, food stuffs are preserved and stored over indefinite period of times through the use of this method.

Oxygen and carbondioxide is carefully controlled so that even meet can noro be taken to a long distant area arrives fresh with its flavour un-affered. Daiuel F (1974) Health science and physiology for tropuals schools.

## **2.5 FOOD SANITATION:**

Serious attention must be paid to article consumed by human beings as food, food Hawker and food vendors are today seen on our streets advertising their foods dermas un-covered take for instance the meet we buy room batteries in our markets it is disheartening it the basic for slaughtering of animals are lacking. Slaughter after daunts are virtually absent lack of water supply at times, non certification of animals health by health workers before being slaughtered. After slaughtering of these animals. The meat are nakedly conveyed in open wheel - barrows tattered vehicles even on motors bikes to market stalls for sales "Glaringly making the neat unwholes one.

This something goes to other food items, young girls and boys hawking cakes uncovered, customers who call to buy dip their bare hands into the all to pick for his/her choice since provision for tongs to be used in picking is not uncovered are beans cake (Akara), millet cakes (Ma'assa) ground nutss cakes (Kulikuli) fried potatoes, fired yams roasted meat, roasted and fried plateins (dodo) and the rest dike situations like this natures gives room for contamination, hence pollution which eventually may lead to gastroenteritional problems among consumers. Out local food

canteens, hotles, inns and cafeteria are uninspected. The sanitary laws are not silent about all these but adequate and efficient personnel are Newnan (1902) in an official report gave six fundamental needs for health as suitable food, fresh air and sunlight, warmth exercise rest and cleanliness and it is obvious that this are not to be got out of bottle of medicine but depend on a balanced habit of life.

## **2.6 SANITARY HABITS AND ATTITUDES:**

Egun Jobi (1985) stated that we must not under estimate the role of habits and attitude of the people in keeping a sanitary environment. Even if nee provided all necessary facilities were will only realise a minimum achievement we do change the attitude of the people. First of all we have to study the attitude of people in areas of refuse dumping indiscriminately so that effective striates for the health education will consequently evoke a change in attitude.

Habit once formed and inhibited are hard to change unless with gradual positive attitudinal process that will out weight the earlier one.

It is along age practice, seeing young children even instead of using the latrines, urine malnutrition is also be notice that waste soled as well as liquid waste from gutters and sewage are disposed of very close to residential houses, the land fells sited a little four way from communities are ignored for selfish reason.

## **2.7 REFUSE DISPOSAL**

Refuse in tropical countries usually contain such dump vegetables matter that decay rapidly at such high temperature producing an unpleasant odour or smells. It also serves as breeding place for rate and flies, it must be disposed of quickly out of people. Anderson (1973) State that the source of the community waste recreational waste and industrial waste respectively. These occurs as gaborge sewage waste manufacturing and mountainous stock pile. He added that if each year waste accumulates in a period of two years a community would be buried by its own waste products.

Badly manage refuse can promote water pollution by rain washing debris out of piles of refuse and into surface ground water, pollution may also occur. In addition pillage of refuse present a fire risk. They smell and aesthetically unpleasant in the urban environment.

## **2.8 SEWAGE DISPOSAL**

Sewage is wet waste, possibly infections and hard to get rid of it is a triumph skill and engineering to rid a large town of its sewage . To purify it on obtrusively and without polluting the towns, water supply, some houses uses water closet ell others have the squat-pan where feces together with all waste water from washing and cooking flow through drain pipes called sewers to sewage disposal work plant.

Any time latrine need good maintenance and will become fouled and offensive without it. If this is allowed to happen the latrine will either not be used or will become a major health hazard in itself.

## **2.9 DRAINAGE SYSTEM**

This entails the collection and disposal of sewage through water carrier system. The drainage system in Agaie which is built by the multi-national company Julius Berger Nigerian Limited it cut across the length and breath of the town, each house hold has its sub-connection to those bigger drains. Other area with badly structural planned areas and building provision were made for dry soak-way pits temporarily stored waste water and which is periodically evacuated due to lack of proper treatment, in the aspect of germicidal and insecticides application to those soak-way pits, it thus causes fouling water unpleasant odour and subsequently becomes a breeding place for flies and mosquitoes. Unsaki (1990)in a paper titled (The role of health education in the achievement of health for all by the year 2000.and beyond) was of the view that Nigeria as a whole has a multitude of health problems. These problems includes poor

personals and environmental health infections disease, malnutrition polluted water and environment.

Superstitions beliefs, taboos, ignorance and illiteracy hall(1975) had asserted that the advent of industrial revolution in Europe toward the end of the 19th century cities (as centers of innovations and indeed as centres where the impact of industrial revolutions were initially felt.)began to show signs of environment decay due to limited water supply, untreated sewage inadequate arrangement for waste disposal, dense concentration of people closely surrounded by filthy matters of all kinds.

As a matter of concern to the Nigerian community the Federal Government of Nigeria should established the Federal Environmental Protection Agency (FEPA) decree 58 of 1988 as an autonomous body charge with the overall responsibility of protecting the Nigerian Environment marked the delightful turning point in the checkered history and mode of environmental protection in this country. Roderick (1975) pointed out that for most environmental problems four interested parties must understand themselves and co-operates, these according to him are the public, the labour unions, industries and Government. Thus the overall approach should be participatory where the activities of any given group complements those of others in the context of achieving goals and objectives that bring about a sustainable environment.

## **2.10 POPULATION DENSITY AND UNPLANNED STRUCTURAL PREMISES.**

The federal task force on research planning in environment health science had a great role in mans health ----- rapid technological change, increase population in urban centres are compounding problems of maintaining the environment at a health level.

Okpara (1990) added that housing policy which over looks the housing needs of the poor living in existing slum while others creates slums in other urban neighbour hoods will actually perpetuate our problems of questionnaires non better infrastructure as far as housing is concerned.

Along side with the above, Ologbolo (1994) drew attention to the fact that ----- slums in Nigeria cities are associated with some parasitic intestinal worms which ravage the health of the residences of such slums. In another assertion as contained in British medical journal No 6964 Vol. 309 of Saturday 12 November 1994" the cost of houses are often sai by the Government to be enormous, but the cost of doing nothing are unthinkable ----- we have to improve housing now and no amount of jogging and low fat Yogurt hurt will compensate. It could be noted at this point that such squalor slums existed in Agaie in area like Marnayi. Efu Yelwa & Ekowugi, people can be seen to be sleeping in over crowded rooms aiding the swift spread of communicable diseases. Therefore modern provisions of good planning must come to play during construction.



## 2.11 GASTROENTERITIS

Gastroenteritis occur in types namely, the infantile gastroenteritis, the weaning diarrhea and the travellers diarrhea. Black 100 et al (1972) Acute infections non-bacterial gastroenteritis. In adolescents symptoms often centres on the abdominal and the gastrointestinal track symptoms includes vague abdominal cramping not related to the unitary or reproductive system heartburn excessive burning meals epicastrics discomfort intestinal, cramping following meals excessive flatulence constipation and loose stools. Another common disorder too is the acute gastritis, this may be associated with gastroenteritis infection and hyperacidity may also be a factor.

Davidson (1979) reported that to what extent viruses are responsible for attacks of acute gastroenteritis is uncertain, it is usually mild and self limiting but if severe or prolonged the losses of water may so reduce the blood content or volume as to what cause circulatory collapse with marked fall in blood pressure oligoemic shock.

Another types of gastroenteritis is the non-specific gastroenteritis which is an illness that beings rather abruptly with anorexics nausea, vomiting and diarrhels, stools tends to be loose but do not contain pus blood or mucus. Acute infectious disease of the gastrointestinal tract account for most of the non-specific episode of vomiting and diarrheas in part of the world particularly the tropics reported by felons and Dolic {1972}

Also poverty, diet fly infestation and ignorance of elementary hygiene are responsible for the maintenance and spread of the disease, gastroenteritis is such less common among infects who are breast feed. The unfortunate newly acquire habit of

early cessation of breast feeding now garbing ground in the tropic and its substitution by bottle feeding has contributed to an increase of the disease, transmission are largely by milk, water food flies, and general poor sanitation and personal hygiene, the source of water pollution carried in to our homes via corded pipes submerged inside the sewage or public waste draw are seriously of concerned as to how to control, present and ensure pure and good drinking water safely get to our homes Fedson and Dohn(1992)

## **2.12 SUMMARY OF RELATED LITERATURE REVIEW**

In reviewing related literature on the impact of environmental sanitation on the incidence of gastroenteritis amongst inhabitants of Agaie local government area of Niger state the research highlighted the following variables, air pollution, water pollution, food poisoning, food preservation for sanitation sanitary habits and attitudes of an individual refuse, disposal sewage disposal drainage system. Population density and complained structured designs as netted to incidence of gastroenteritis.

Effects of environment has been found to be multifarious and multidimensional. Both solid and liquid waste being generated in our communities tend to pose problems to our health as far as their management is concerned. Transportation have been identified as the chief source of air pollution for smokes from vehicles and fumes from industries pollute the atmosphere.

Water supply and its pollution continue to be a major problem in our societies. Variability in both supply and demand escalates distribution problems when demand

exceed supply then distribution to areas of need becomes a problems too coupled with adoption of appropriate strategies to cope with rising volume of demands. Therefore, its supply sources users and the need for clean and pure water for human consumption should be the top goal of every citizen.

Cases of incidences of food poisoning can be traced not only to our unsanitary environment but also due to our unhygienic habits and attitudes in handling these food items and stuffs food poisoning had been reported to be responsible for the incidence of diarrhea and vomiting in England and Wales as reported by Gilbert and Roberts in (9177).

Refuse disposal has been identified as one of important aspect of environmental sanitation in Nigeria. Refuse occur as garbages human discharge sewage waste, commercial waste etc from all indications , it is crystal clear that the sanitary facilities are grossly inadequate or totally absent as for the sewage various provision of latrine in our houses should made fit, clean and easily assessable for our uses at all times. Our drainages be given prominence in construction while clearance of sludge and other objects of obstruction be made at intervals.

Good housing with adequate planning has also been identified to contribute immensely towards promoting good health as such people should be discourage from slums for good planned structures that has prevision or healthy living and appealing to life conclusively.

From findings so far the gastroenteritis incidence in Agaie local Government has not been tag to any of the aforementioned variables but to a non bacterial origin though it is on records that food poisoning produces an acute gastroenteritis which is usually short and self limiting. It is my opinion to suggest that efforts be intensified to find out the origin and pathogeneses of these deadly gastroenteritis attack. On cases of this nature prompt actions should be paid on epidemiological reports for early treatment so as to drastically minimize the rate of the death.

## **CHAPTER THREE.**

### **3.0 METHODOLOGY.**

#### **Data collection:**

Data collection was based on both primary and secondary sources. Structured questionnaire was used for collecting viable and relevant information from all stakeholders. The use of relevant journals, textbooks and other materials that have direct bearing to the project work were consulted personnel interview and reconnaissance survey were carried out to give ample and cogent data for the project. In the course of data collection, previous papers that dwell extensively on the subject matter were used.

### **3.1 QUESTIONNAIRE.**

The authenticity and validity of questionnaire as a veritable tool for gathering information was responsible for the choice of the method. A structured questionnaire containingly explicate questions was designed and distributed randomly to stakeholders in the study area. Fixed response techniques was used in other to serve as a guide to the respondents. Options were provided for the respondents to choice from. The questionnaire proved a pertinent and adequate data sourcing method because, the technical response required were obtained. The time frame of the project affected the effective filling to the questionnaires. One hundred and sixty questionnaires were distributed but only one hundred and fifty six were filled and returned.

### **3.2 RECONNAISSANCE SURVEY:**

The rationale behind the use of reconnaissance survey was to ascertain in practical terms the real and actual problems peculiar to the study area. In order to acknowledge and appreciate the nature of the problem, a reconnaissance survey of the study area was undertaken. The visit covers areas of high cases of enteritis and this presented an opportunity of physically examining and determining the nature and extent of the problem.

### **3.3 PERSONAL INTERVIEW:**

Personal interview in form of inter active forum was done having in mind, the quest to unravel some of the circumstances responsible for the high incidence of enteritis in the study area. Probing questions were asked in order to collect more relevant questions. Some of the respondents provided a great opportunity of knowing some facts about the project.

### **3.4 OTHER SOURCES:**

Journals and textbooks were consulted in order to get more information. Journals and textbooks that have direct housing to the research work were consulted and relevant facts were extracted. Relevant research works abounds and a lot of literature on the research work were consulted.

### 3.5 SMAPLING TECHNIQUE.

Random sampling technique was used in the distribution of the questionnaire. All the towns in the study are had an equal and independent chance of been given, this reduced the problem of bias and it made the task easier. The seven randomly selected wards are:

- 1) Baro Ward
- 2) Kutitiko Ward
- 3) Etsu Agaie Ward
- 4) Goyiko Ward
- 5) Kuso yaba Ward
- 6) Tagagi Ward
- 7) Fogbe Ward

#### 3.5.1 HE SEVEN RANDOMLY SELECTED WARDS WITH RAW NUMBERS AND PERCENTAGE FIGURES OF THE RESPONDENTS ACCORDING TO UNTIS.

S/N	WARDS	FACILITY	NO OF RESPONDENT	%
1	Baro Ward	Basic H. Clinic		
2	Kutitiko Ward	Basic H. Clinic	36	22.5
3	Etsu Agaie Ward	Basic H. Clinic	19	11.88
4	Goyiko Ward	Dispensary	16	10
5	Kuso yaba Ward	Dispensary	59	36.87
6	Tagagi Ward	Basic H. Clinic		
7	Fogbe Ward	Dispensary	30	18.75
	<b>TOTAL</b>		<b>160</b>	<b>100</b>

Source: Survey data, 2001

The above table 3.1. shows the talkers of the respondents randomly selected according to the number of health facilities and health staff of the selected wards. The total number of the respondents selected stood at 160 represented by 100% for fair and convenience in distributions of the questionnaires forms.

### **3.6 DATA ANALYSIS:**

Data analysis was based on frequency percentage method and the use of pie-chart. Frequency percentage method is very simply, effective and adequate. The per chart shows at glance the idea needed. Some of questions asked were analysed.



## CHAPTER FOUR.

### 4.1 ANALYSIS AND RESULT:

This chapter deals with the result analysis and discussion of findings. This questions which tested the hypothesis formulated were itemised in 'B' part of the questionnaires form while the "A" parts I less the socio-demographic data of the respondents one hundred and sixty (160) questionnaire forms were distributed for a domineered on the respondent and one hundred and fifty six (156) useable ones have successfully returned and collected by the researchers.

In the proceeding paragraphs, information on the respondents demographic data were supplied in raw number and percentages, while the intemised sub-hypothesis were supplied in percentages.

**TABLE 4.1 SOCIO DEMOGRAPHIC INFORMATION:**

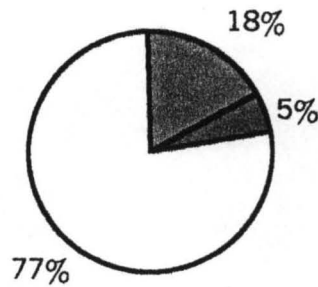
UNITS	NUMBER OF RESPONDENTS	PERCENTAGE
Rural Hospital	71	45.51
Basic Health Clinic	9	5.77
Primary Health Care centres	30	19.23
Dispensary	46	29.49
<b>TOTAL</b>	<b>156</b>	<b>100.00</b>

Source: Survey data, 2001.

The table below represent data of the respondents according to their units or departments of work in the table 4.1 above 45.51% of the respondents were from the only Agaie Rural Hospital while 5.777% of them were from the dispensaries within the local government area of Agaie. The percentage number of 19.23% were from the primary health care unit which included the sanitary inspectors while 29.49% representing 46 respondents were from the health centre totally 100%. Responses of the total number of 150 respondents.

#### **4.2 RESPONDENTS WORKING EXPERIENCE:**

Fig 4.1 below represent information of the respondents working experience as distributed on ranges of years from the chart, it shows that 76.92% (of the respondent have working experienced range within 1 - 5 years. This is reasonable for it reveals to the researcher what the respondents feel about the current trends of our modern society. The older experiences respondents also showed a reasonable percentage, for they compare what is obtained in the past and what is currently obtained now as per our community cleanliness and sudden out break of illnesses.



**Fig 4.2: Working Experience**

#### **4.3 THE EFFECT OF ENVIRONMENT FILTHINESS ON THE INCIDENCE OF GASTROENTERITIS.**

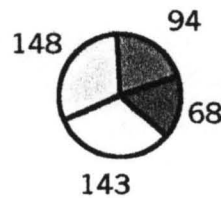
The pie charts above indicates that 50% of the subject whose responses were received positively agreed that environmental degradation refuse wastes and filthiness around our dwellings influences the incidences of gastroenteritis while 41% of responsiveness of the incidence in Agaie Local Government Area.

Along other assertions Nigeria environment like in all developing countries predispose their inhabitants to variety of infections and parasitic diseases and to certain severe forms of malnutrition (Udoh 1990).

It is agreed that filthiness bring about certain accurence of some diseases but there is no record to show the current link these may have with other incidence of gastroenteritis, the researchers is of the view that since the incidence of gastroenteritis

in Agaie was of abrupt in nature, it must have its origin to different agent apart from the filthy environment.

**Fig.4.3: Effect of Enviornmental filthiness on incidence of gastroenteritis**



**4.3 ENVIRONMENTAL FILTHINESS AS IT INFLUENCED THE INCIDENCE OF GASTROENTERITIS.**

RESPONSE	SA	A	D	SD	TOTAL
Number (FO)	42	64	29	21	156
Percentage	26	41	19	14	100
Number (FE)	39	39	39	39	156

Source: survey Data, 2001

Table 4.4 is to test the acceptance or rejection of hypothesis in this case the null hypothesis which states that there will be no significant difference from

fithness around dwelling and the incidence of gastroenteritis in Agaie Local Government area.

#### 4.5 RESPONSES OF THE RESPONDENTS AS PER RELATIONSHIP OF CONTAMINATED WATER WITH GASTROENTERITIS INCIDENCE:

Fig. 4.3 indicate that 48.17% of the respondents agreed that water contamination is capable of bringing about an incidence of gastroenteritis, while 9% of the respondents disagreed.

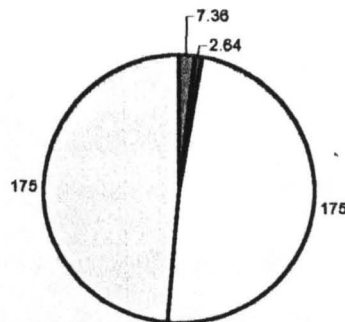


Fig. 4.5: Relationship of contaminated water with gastroenteritis incidence

#### **4.6 POPULATION DENSITY AND UNPLANNED STRUCTURAL BUILDING AS IT INFLUENCE GASTROENTERITIS INCIDENCE:**

Population density and unplanned building structures will have no significant influence on the incidence of gastroenteritis amongst inhabitant of Agaie Local Government Area.

Fig. 4.6: below is in line with finding of Deil (1978) who stated that the effects of overcrowding have been demonstrated by laboratory studies in which rates under conditions of experimental crowding failed to breed and started fighting and devouring one another.

Idiagbo (1984) was quoted as saying slums and gutters where the incubators of diseases and epidemics that pose a serious (danger); to human life ... Ologbo (1994) also stated that slums in Nigeria cities are associated with some intestinal parasites which ravaged the health of the residents of such slums. This is also testified by a higher percentage of respondent 39% who indicated their disagreement that population and unplanned structural buildings have no significant influence on the incidences of gastroenteritis in Agaie Local Government are of Niger State.

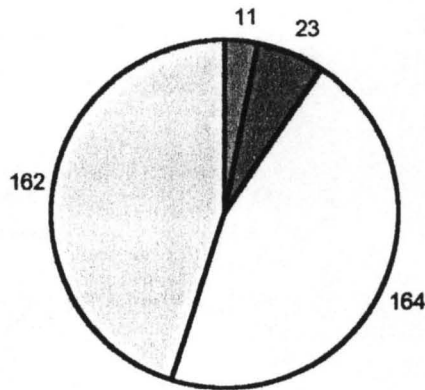


Fig. 4.7: The influence of habits and attitudes towards the incidence of gastroenteritis

#### 4.7 INADEQUATE FACILITIES AS IT INFLENCED THE INCIDENCES OF GASTRENTEOCITIS.

OPTIONS	AGREE	DISAGREE	TOTAL
Nos Fo	107	49	156
No FE	78	78	156
%	86.29	31.41	100%

Source: survey Data, 2001

In this case, the null hypothesis (Ho) which state that inadequate health personnel and facilities and absence of some facilities will have no significant influence on the incidence of gastroenteritis in Agaie Local Government Area of Niger State was rejected.

This assertions in line with some earlier finding Folarin (1980) and observed that frequency of occurrence of parasite infection and intestinal disease are due to non-provision of adequate toilet facilities and misuse of the few existing ones vital medical facilities and equipments are inadequate or totally absent from our health, centre, the General Hospital, making them a more consulting centres, observation by Usman (1998).

Situations of this nature normally give room or chance for wrong diagnosis and thereby worsening the case. The researchers is of the view that both our medical centres and referral centres be well equipped in terms of personnel and tools. A situation where lacking of or shortage of qualified staff and tools polarised a mild case may become dangerous in stead of ameliorating the situations with ease fast, and accurate diagnosis.



## **CHAPTER FIVE**

### **5.0 SUMMARY CONCLUSION AND RECOMMENDATIONS**

#### **5.1 SUMMARY**

These study was conducted in order to identify and ascertain the impact of environmental sanitation on the incidence of gastroenteritis amongst the in habitants of Agaie Local Government area of Niger State.

The hypothesis of the study were rallied round the variables of environmental degradations such as fetheness, water pollution, air pollution, refused and sewage collection undespossal, population and slums, habits and attitudes influence and lack or adequacy of facilities in terms of personnel and equipments.

The main hypothesis for this study was that the impacts of environmental sanitation, population density, improper refuse and sewage collection cum disposal, I am structures, inadequate facilities and attitudes level or complacency of the people as to how it will have significant influence on the attack of gastroenteritis within Agaie and the populations there in.

Chapter two this study deal with review of some related literatures, the correlation, relationship and difference or disagreements in part studies and this study were put at parallel comparison for assessable analogies, while chapter three was on the treatment and how sampled population was drawn from the total population as well as the collection of the data. The instrument used for data collection was self structured questionnaires.

Chapter four epitomized the analysis of the data interpretation and discussion of results. The data collected were coded built into frequencies and percentages for analysis.

## **5.2 CONCLUSION**

Form the study, it is evident that there are refuse and sewage collection and disposal problems in Agaie Local Government Area, especially that of irregular collection of wastes from the few existing communal depots or dumps and from the land fills which had become a heap-pile of unmaintained wastes. This residential area there by detrioriy and degrading the aesthetic scenery of the environment. Most of the homes in Agaie can be observed as having no concert system of wasted disposal generated domestically, there is lack of dust-bins for storing and packing of wasted of solid, or liquid nature. This poses serious health risk to the resident of the environmental quality in Agaie. Lack of refuse storage facilities for houses hold refuse encourage indiscriminate by guitar (Drainages) or close to road which causes a more devastating problem during rainy season for they causes to blockage dimmest running water.

It was observed also that contamination of portable drinking water from its source peculiar to must water works may not excluded. Some houses were there well a little proximity from latrines having no knowledge that the water source could be contaminated in the way and so there is that general awareness of the side effects of a filthy environment pollutions ability to enhance the spread of diseases.

It is there believe that when home were sanitized, it prevent the spread of disease, enhance the qualities of environment and there by controlling pollution.

### **5.3 RECOMMENDATION**

Based on the findings of this study which is to evaluate the impact of environmental sanitation on the sudden increase in the incidence of gastroenteritis. In Agaie local government area of Niger State, the researchers has the following recommendations to make in order to prevent future occurrence. All existing heap-pile refuse dumps around the residential houses must be cleared immediately to forestall health hazard and pollution, each house should arrange for adequate domestic waste disposal system so as to ensure proper sanitation and for easy collection by refuse collectors.

Dust-bins should be provided and properly covered to prevent the perching on wastes especially the wet ones and this will as well prevent animals from exposing them, lettering the environment. This will and go along way in enhancing the quality of the environmental sanitation and make for all efficient wastes management.

The Niger State government in conjunction with Agaie local government administration should provide adequate supply of facilities, human logistics and financial resources necessary for effective implementation of efficient waste management in our environment.

Lack of conceptual sewage system {UNDP-79} clearly indicates that human wastes disposal facilities are not sufficiently available its common therefore to find

human wastes disposed of very close to settlement areas, it is index disleatening to find human faces disposed indiscriminately because of inadequate provision for public toilets. And even if provided, maintenance decree to insufficient, supervision and lack of regularity in water, supply will turn to a nuisance. To ensure provision of such facilities Government should ensure regular water supply efficient wastes removal system, accessibility to public and maintenance personnel since children are mostly in charge of disposing wastes in to land fills or communal depots they must be properly instructed and supervised by older people to see that the wastes are not dump closer to the residence to avoid lettering of the environments waste management board should be abolished and charge with the responsibility of packing away assists using trucks or carts from various wards in the local government. The board can make a blanket charge on those who make house basis arrangement. This board should have a working legal enforcement department which oversee the general and punishment of defaulters. The present effort of the local government primary health care is well appreciated but should endeavor to increase the strength especially the refuse scavengers in charge of collection and disposal to allow for wider coverage and increased collection frequency.

Diseases of gastroenteritis are fugal-oval in nature and therefore its causative agent can be spread in water, in food, on lands, on eating and drinking utensils, by flies and by direst under fingernails. To prevents all these goods hygiene must be practiced in order to stop the germ from entering into our body. Every laudable programme must be accompanied with regulation enforcement and monitoring. The teeming population is characterized with endemic poverty, malnutrition, ignorance and disease, it should

be worth noting to the general populace that when an abrupt outbreak just as experience in Agaie local government area of gastroenteritis attack which almost claimed lives of the victims. Effort should not be related on rather to continue, researching into disease of this nature, its origin and combating factors.

People should be enlightened on personal and neighborhood hygiene.

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**APPENDIX "B"**

**DEPARTMENT OF ENVIRONMENTAL STUDIES FEDERAL UNIVERSITY  
OF TECHNOLOGY, MINNA.**

**RESEARCH QUESTIONNAIRE:**

**THE IMPACT OF ENVIRONMENTAL SANITATION ON THE INCIDENCE  
OF GASTROENTERITIS AMONGST INHABITANTS OF AGAIE LOCAL  
GOVERNMENT AREA, NIGER STATE.**

Dear Sir,

You are please requested to complete this research questionnaire on the above title.

Your presence should be made independent and personal as possible and ensure honesty. All response shall be treated with strict anonymity and confidentiality. There are no right not wrong answer. It is purely academic in Health education.

Thanks for your anticipated co-operation.

**Signed  
KAWU H. ABUBAKAR**

## INSTRUCTION:

Please complete the questionnaire carefully by filling in the space provided or tick (✓) in the appropriate boxes.

### SECTION A: PERSONNAL DATA.

- 1) Department
  - General Hospital
  - Health Centre
  - Sanitary Insp. Unit
  - Material & C.H.C.
  - Dispensary
- 2) Years of working experience

### SECTION B.

- KEY:** SA - Strongly agree  
A - Agree  
D - Disagree  
SD - Strongly disagree

Please read the questions carefully and answer there by ticking (✓) against each space using the above key scales.

S/N	QUESTION	SA	A	D	SD
1	Improper use of space (5) around the dwelling our feaces, urination and dumping causes the outbreak of gastroenteritis				
2.	The high breeding places for disease vectors of gastroenteritis.				
3.	Both bio-degradable and non bio-degradable objects and items like cellophane, bags cream containers, baby feeds containers, dried leaves waste papers cartons etc uttering the environment course the outbreak of gastroenteritis in Agaie Local Government				
<b>WATER CONTAMINATION</b>					
4.	Most of wells, bore hole wells, spring and stream being misused due to improper sitting of latrines and dirts washing area led to water source contamination thereby causing the attack of gastroenteritis				
5.	The outbreak of gastroenteritis was as result of the untreated water pumped from Tako-wasse water works for public can suption.				

<b>AIR POLLUTION:</b>				
6.	The pollution of air by among and smoker as responsible for the attack of gastroenteritis amongst inhabitant of Agaie Local Government Area.			
7.	Fould odows in the air and use of saw dust and kerosine stove emitting carbon monoxide into air cause the out break of gastroenteritis.			
<b>REFUSE DISPOSAL</b>				
8.	The gastroenteritis out break was as a result of heap-pile refuse around the dwelling in Agaie Local Government Area.			
9.	Irregularity and inefficiency on the part of contributes to the outbreak of gastroenteritis.			
10.	How level of knowledge on the proper use of the few communal depots for refuse disposal is responsible for the attack of gastroenteritis.			
<b>PUPALATION AND SLUMS.</b>				
11.	The population density and congestion are responsible factors for the out break of gastroenteritis in Agaie Local Government Area.			
12.	Improper structural planning that is the hits or slums			

	like buildings are responsible further attack of gastroenteritis in Agaie Local Government Area.				
	<b>SEWAGE DISPOSAL.</b>				
13.	The untreated liquid waste collection pits and open sewage and soak ways resulted to the outbreak of gastroenteritis.				
14.	Existence of many or enormous diseases vector breeding place of stagnant waters resulted to the outbreak of gastroenteritis.				
15.	The outbreak of gastroenteritis as a result of unhygienic habit and attitude of Agaie towards positive hygienic practice.				
16.	Lack of proper and well co-ordinated supervision in part of sanitary - inspectors immenecy contributed to the outbreak of gastroenteritis in Agaie Local Government Area.				
17.	Low level of health care services in Agaie lead to the recent outbreak of gastroenteritis amongst the people.				
	<b>FACILITY:</b>				
18.	Inadequate health personnel and medical facilities in Agaie Local Government Area, health centres and in				

	rural Hospitals contributed to gastroenteritis out break that led to mass killing of the victims.				
19.	Insufficient provision of dust bins communal depots and land fills for effective disposal of refuse cause the out break of gastroenteritis.				
20.	Few of virtually non-provision of public toilets by the government in corsages the indiscriminate use of spaces for faeces and dumps thereby resulting to the out break of gastroenteritis in Agaie Local Government Area of Niger State.				