IMPACT OF WATER POLLUTION ON RURAL DWELLERS IN [GBAKO LOCAL GOVERNMENT]

BY

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BEING

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CERTIFICATION

I hereby certify that this work has been supervised, read and approved as meeting part of the requirement for the award of PGD Environmental Management of the Federal University of technology Minna, Niger State.

26/03/2007

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DEDICATION

I am dedicating this page to my wife **AMINA YISA**, my daughter **LARAI, FATIMA (I) FATIMA(II)** and to my Late parents **MALLAM SHEMAN MOH'D** and **MALLAMA FATIMA MOH'D** (May their souls rest in peace Amin).

ABSTRACT

This study is on the impact of water pollution on rural dweller, with emphasis on the rural dwellers of Gbako LGA. The variable covered in this study was in line with the aims and objectives of the study. These includes various sources of water, water-borne transmission mechanism, water and public health.

The instructions used during the research includes interview, observation and structured questionnaire. The structured questionnaire were administered on the sample population of about 160 respondents, though only 156 of them returned their questionnaire. Only 2 wards within the Gbako Local Govt. were focused on the course of the study. This covered the study area.

The major findings were the sources of water pollution, which is associated with ever increasing population. It was observed that most pollutants are from indiscriminate waste disposal and faecal materials and also indiscriminate use of water supply by the rural dweller, resulting of into water-borne disease like diarrhoe, dysentery, typhoid, gastro-ententis etc.

Another problem observes is the inability of the Local Govt. Council to supply portable water to rural dwellers, as most villages cannot boast

of adequate and qualitative water supply. And the awareness not impact on them by the health personnel's on the danger of poor water supply.

Based on the above problem identified, some recommendations were put forward for abatement on water pollution and the need to avoid or even eliminate water borne infection among rural dweller of Gbako LGA and Nigeria as a whole.

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CHAPTER ONE

1.1 INTRODUCTION

The closest associate of man is his immediate environment. Immensely various events have been affecting the air we breath, the water we drink and even the land in which man finds himself on. Problems that arises are mainly indiscriminate use of these available resources i.e, Land, air and water. It is on this background that united Nations Environmental Progamme (UNEP) and other related organizations have been playing important roles in developing knowledge on environmental problems and how to solve them.

Girling (1978) concluded that environment is a term applied to all conditions surrounding an individual which however are not part of the person, plant or animal itself. The physical environment encompass such things as geographical and chemical conditions, but the later mostly concern with composition of air, the food, water and many other factors.

Udoh (1990) asserted that any human society man is said to posses a two way relationship with environment he occupies, as he modifies the natural environment whether by interfering or in the course of his agricultural pursuit and some complex industrial activities. The environment, which is under the influence of man also exert the well-being of the population that occupies.

Its particular characteristic exposes and predisposes the human population to various forms of diseases and more so nutritional inadequacies.

On environmental health one concentrates on identifying the agents which predisposes an individual that constitute to its later response called the disease. In Nigeria like in all the developing countries of the world are more exposed to variety of infections and parasitic diseases and to certain extent severe form of Nutritional problems are the manifestes of a new disease that are related to environmental pollution as a result of rapid growth of industrialization in the urban areas and to rural area, human interference as a result of ignorance and negligence from the side of the dwellers. And these factors have been a challenge that threaten the application of modern medicine.

Water pollution being one of the environmental problem is currently worth noting as it affect the life of rural dwellers especially in the field of disease transmission. Lives of these rural dwellers are expose to various forms of water related diseases e.g Diarrhea, typhoid fever Gastro-ententis and helminthes disease which is matter of great concern as many lives are lost thereby affecting the socio-economic being of the affected areas. To this end, this study shall attempt to examine the situation within the scope of reach and measures to take in combating and averting situation arising from the polluted water sources.

Over the years it was reported that more than 60-80 million people especially children are affected with water related diseases in which large number of those affected die unabated. United Nations children education Fund (UNICEF) is however currently playing a very vital role in providing safe and portal water to rural dwellers as part of effort in combating the incidences of water borne infections. But that is not enough, as govt. and individuals need add more effort in realizing the goal of this organization especially in the area of water supply and environmental sanitation.

1.2 SOURCES OF WATER

Water is present as rain, through surface and in the underground. These three sources are related through hydrological cycle. Water however remain pure from these sources to a certain length, until human activities rendered it polluted.

The distribution of water in human environment varies greatly. For instance in coastal area water is abundant that it often causes great hazard such frequent flooding which leads to lost of lives and properties. But further away from coast like in Savannah and Saharan zones the availability of water is so scarce and to certain extent the available amount is exposed to pollution's which harbours different types of

pathogens, vectors and poisonous chemical especially in predominate agricultural zones of these areas.

In a nutshell, water is available either in river , stream, ponds, spring and as a rain ;and that forms the various source in which water get to the users.

1.3 BASIC NEEDS OF WATER

For normal physiological need or requirement every human being requires a minimum of about 1.5kg (1.5 litres) of water every day. It is needed for domestic, agricultural and industrial purposes. The quantity and quality of water needed varies for different purpose. For domestic needs such as drinking, cooking, the water should be portable and adequate in quality. It should be free from any form of pathogenic organism, poisonous chemicals and be attractive to the user.

1.4 WATER-BORNE DISEASE TRANSMISSION MECHANISM

In Nigeria, infection due water pollution ranked high among the routes of infection and consequently the common causes of death in the country. Statistic has shown that in Gbako Local Government Area which is my study area, cases of water related infection is predominant especially among rural dwellers.

Water-borne infection occurs when pathogen in water is consumed by man, ultimately he became infected. Potentially water borne infection does not only includes the classical infections notably cholera and typhoid, but also a wide range of other diseases such as hepatitis diarrhea and dysentery.

The term water borne disease has been and still being greatly abused so that the term has become synonymous with water related diseases. It is essential to use the term water-borne in the strict term already outlined.

On the other hand, because a disease is labeled water borne infection does not describe it usual, or even its only means of transmission.

However it must be noted that all water borne can also be transmitted by any other route which permit fecal material to pass to the mouth, thus gastro-ententis may be transmitted by faeco-oral route for instance via food.

1.5 WATER AND PUBLIC HEALTH

Water and sanitation are so married together that each of this entity cannot do without the need of the other. In essence water cannot do without sanitation. The world encyclopaedia Britannica (vol. 17 1973) define sanitation as a field public health which involve man's effort to

control his environment, thus prevention and control of diseases. Sanitation also includes cleanliness, which gives protection against diseases.

Therefore to enhance safe and portable water for human consumption it be protected with cognizance to its physical chemical, biological and bacteriological characteristic (Oluwande 1983).

Physical water appears to be colourless, odourless, and more so tasteless. However ,. Water from certain sources that are not sanitarily satisfied may contain brownish or reddish colour due to organic matters dissolved into it.

Odour may be present due to excessive amount of certain or inorganic matters. The nature or kind of odours depend largely on the substances present.

Taste in water may be cause by algae, excessive organic and inorganic matters. And at public health point of view the turbidity of water also signifies presence of suspended particles or colloids. The presence of turbidity in well or spring indicates inadequate protection and possible bacterial contamination.

Therefore one can observe now why water and sanitation needs to go hand-in-hand to enhance adequate and pollute-free consumption.

1.6 STATEMENT OF THE PROBLEMS

The prevalence of water pollution in rural areas with particular reference to Gbako Local Government Area of Niger State arises from Secondary data culled from health facilities and the insanitary habit of rural dwellers in regards to water usages. This gives me the interest to undertake the study, so as to find out what are responsible for the pollutants and water borne infections as suffered by the people.

1.7 SANITARY SURVEY ON POLLUTION IN WATER

A sanitary survey of existing water supply and water source was conducted, in which elements of pollution and defects were identified, putting in mind population and activities of the people surrounding the water source. Others includes inspection of well and its relation to surface run-off especially when it is not properly protected. See fig 1

It was discovered or observed that indiscriminate disposal of waste products from household and improper disposal of faecal material were the predominate sources of pollution of water source in the areas surveyed. (See fig 2) Since last two year precisely 1999 and 2000 it indicates incidence of about 120 patients and average death of 10 to 13 people as a result of water borne infection (monitoring and evaluation unit of Gbako Local Gov't Lemu (2000).

1.8 AIMS AND OBJECTIVES OF THE STUDY

The aims and objectives of this study is to evaluate the impact of water pollution in Gbako Local government area of Nigeria. This will be achieved through the following objectives

1- To assess various form of pollution in water source.

2- To assess the extent of water pollution on the rise in the water related diseases.

3- To assess the extent of donation in rural area and other measures of waste management among rural dweller.

4- To assess the current ways or method to prevent waters source from contamination or pollution.

1.9 SCOPE AND LIMITATION OF THE STUDY

The study covers the selected words and health centers in Gbako Local government. Only 2 wards were randomly used for study and through the health facilities available within these areas.

It is as a result of large number villages and limited time that I have to restrict my study to these selected places.

The period covers 2years i.e 1999 – 2000 . All sources and data emanates within the given period from various health centres and dispensaries in these two wards; and from questionnaire distributed to selected respondents.

g·1 shows Unprotected water source

fig 2 shows Indiscriminate dumping of Refuse and Faecal matte

1.10 DELIMITATION

The study was delimited to the followings

1. A sample of population by health workers and patients in 2 wards of the Local Government Area.
2. Various of population density, structural planning refuse and sewage disposal, air pollution and the attitude of rural in relation to the health of people.
3. Used of structured questionnaire, interview and schedule visit to the centre and dispensaries, the sanitary Inspector's office for administration of the questionnaire and collection of information on health records.
4. Use of descriptive statistic of (frequencies and percentages, and the non-parameter statistic.

1.11 THE STUDY AREA

Gbako Local Government Area which has her headquarters situated at Lemu is one of the 25 Local government areas in Nigeria. It was created in 1991 following the General Ibrahim Babangidas creations of additional states and local government areas. It was carved out from former Gbako Local government then headquarters at Bida. Gbako Local government lies in latitude 9^0 30^N and longitude 6^0 00^N on an undulating

plain and little traces of hills scattered all over the Local government area.

The climate and vegetation are transitional between humid forested area in the south and the continental semi and grassy plains of the North. Gbako Local government area experience district dry and wet seasons. The rainy season begins by April and terminates by October, which the dry season ran between November to April.

Gbako Local Government is predominantly occupied by Nupes' with other traces of other ethnic groups from various part of Nigeria.

The inhabitants are predominantly farmers that resides mainly in rural areas and little number of civil servants and businessmen.

Gbako Local Government is divided into 3 districts namely Lemu District, Etsu-Audu District and Edozhigi District, with about 28 village head-wards head by traditional rulers nominated by Etsu-Nupe.

The local government is bounded by North by Wushishi local government, by south lie Bida local government and East lies Katcha local government and West by Mokwa/Lavun local government areas. It has by West River Kaduna and by East River Gabko where the local derived its name. See fg 3

CHAPTER TWO

2.0 LITERATURE REVIEW.

2.1 CONCEPT OF WATER POLLUTION

The healthy living of an individual depends largely 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 (Yabagi 1996). The above statement was a point of view also agreed by (Udoh 1978) in which he stated that physical environment could have a far-reaching consequences of every aspect of human health if not properly managed and maintained. This draw the attention to the fact that rapidly growing quantities of wastes either solid or liquid gradually degraded the nature of environment which subsequently threaten the health inhabitants.

From this the incidences of water pollution in relation to water borne infection as it affect the lives of rural dweller, and which is the subject of the matter begins to arise.

2.2 WATER POLLUTION

In Africa large number of population are rural dwellers where poor living condition is matter of great concern. Most of this dwellers lack adequate water supply and where there is even available it is often obtained in poor situation; which make the consumer more expose to water borne infection. e.g cholera, dysentery malaria and other parasitic infection eg guinea worm, on choceraiasis Bilharziasis etc.

Many researchers and scientist has in recent time focus their attention towards finding out, or rather gives serious studies to this

subject. They have centered their study towards finding out the relationship between polluted water and health of man.

John Snow (1885) studied and confirmed the fact that cholera disease, which claimed lives of many people especially in rural area, is associated with polluted water. He further stated that faecal matter contained in polluted water, and which of course has vibro cholerae (organism that causes cholera disease) claimed lives of many people especially those that cannot afford to have portable water supply.

Ronald Ross (1923) stated that malaria parasite are harboured and breeded in polluted water that serves as breeding centre for mosquitoes that causes this disease. The above funding of Ronald shows that Malaria fever is of major concern to rural dweller especially during raining season when more of stagnant water is readily available for these vector to breed. Clinically, more cases of malaria are detected and treated than any other cases.

Absence of portable water or polluted water also encourages the outbreak of Typhoid fever a case similar to malaria fever. In recent times it has claimed lives of many people thereby reducing the socio-economic impact of rural dwellers William Budd (1886) made discovery to this deadly disease, in which he associated it with polluted water consumed by the people. Rural dweller suffers in silence unabated as results of this matter of polluted water.

In National concord July 16th 1991 page 8 was a report carried out as confirmed by world Health organization that about 35,000 cases of cholera has so far been noted in Africa, Nigeria inclusive. The fact behind this according to world health organization (WHO) was as a result of contaminated water and food. It furthers emphasis the fact that factor inhibiting the effort of WHO is as a result in sanitary habit of people.

Thereby making it impossible to reduce if not to even eradicate the menace of this deadly disease.

Above report given or released by WHO is manifestation of work of Ejunbobi (1985) where he stated the fact that" we must not under-estimate the role or habit and attitude of the people in keeping sanitary environment even if we provide all the necessary facilities, we will only expect minimum achievement if we do not change the attitude of the people".

2.3. SUMMARY OF RELATED LITERATURE REVIEW

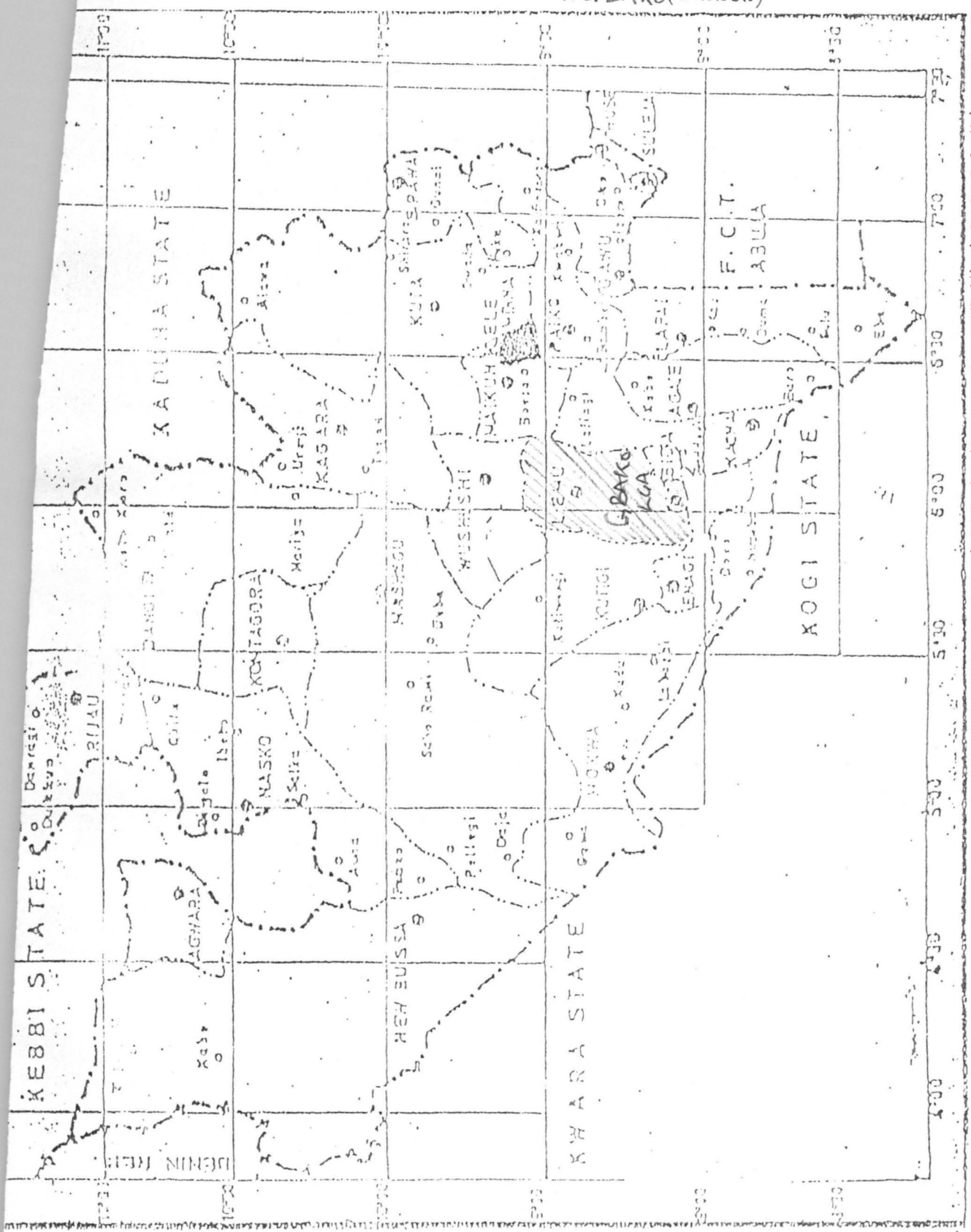
In reviewing related literature on the impact of water pollution on the life of rural dwellers with special focus on Gbako Local Government; It will be difficult to separate the environment with water and its pollutants. This shows why every environment is not worth reasonable enough until it is conducive to meet up all necessary need for human confortability.

In this direction therefore, the researcher has taken pain in finding out effort of some previous researcher on this subject matter especially as it affect environment generally and water in particular. The relationship between water and pollution, and what effect it has on life of people especially when related to water borne infection.

The research uses the work of Udoh (1978) as it effect environment and it's management taken in considering the incidences of water pollution.

Emphasis was placed on African rural society where the researcher has his study focused. He made use of works of previous scientists such as all the works of John Snow (1885) who confirmed the case of cholera in relationship to water pollution, Ross (1923) a research who discover malaria parasite in stagnant water; Typhoid fever as studies William Budd in 1886 and host of others.

Figure 2:- Map of Niger State showing GBAKO (Shaded) LGA Shaded



SKETCH MAP OF NIGER STATE SHOWING MAP OF GBAKO LGA (SHADED)

The study also made use of report release by World Health Organization, a body entrusted with general well-being of everyone all over the world.

CHAPTER THREE

3.0 DATA AND COMPUTATION METHOD

This research was carrived out to find out the impact of water pollution on rural dwellers Gbako Local government. For systematic collection and analysis of necessary data towards the study the following procedure were employed.

3.1 DESCRIPTION OF DATA

In effort to obtain data about study questionnaire was used. As all inhabitants of the Local government cannot be reached only 160 respondents were randomly selected from two selected wards within the Local government area. Out of these questionnaire distributed only 156 were returned.

The questionnaire were structured in such a way that respondents can easily responds by ticking from alternatives given to each question items.

During the course of the study data were also received from selected clinic and health dispensaries and also from Sanitary Inspectorate Unit of the Primary Health Care Department of the Local Government. Though it is included in this write, but serve as guide to easy my work.

3.2 COMPUTATIONAL METHOD

On the return of questionnaire it was break for easy analysis. TABLE were drawn for percentages and frequencies and analysis were given below each table for easy clarification.

3.3 DATA ANALYSIS

For easy analysis two-dimensional approach drawn to assemble data. The table was meant for completed questionnaire form received from respondent. The responses were coded and fed into the table. The disruptive frequency and percentage were used for final analysis/.

Thus, the statistical methods used in the analysis therefore includes;

(i) Frequency court or number distribution along the alternatives provided to choose forms.

(ii) The frequency distribution summarized into table were converted into percentage for easy usage in the analysis.

CHAPTER FOUR

4.0 DATA ANALYSIS AND PRESENTATION

The study is concern with impact of Water Pollution on rural dwellers in Gbako Local Government.

This chapter deals with the result, analysis and discussion of finding. The questionnaire was structured in line with the objectives of the study.

Section A of the questionnaire is on personal data of the respondents while B covers the questionnaire that has direct bearing on the aim and objectives of the study.

A total of 160 questionnaire were distributed for administering on the respondents and only 156 were successfully attempted and returned. In analysis of data, a simple frequency and percentage were used in the presentation.

4.1 PERSONAL DATA

OCCUPATION	FREQUENCY DISTRIBUTION	PERCENTAGE
CIVIL SERVANT	22	14.1%
FARMER	74	47.4%
HOUSE WIFE	43	27.6%
PRIVATELY EMPLOYED	7	4.5%
OTHERS	10	6.4%
TOTAL	**156**	**100%**

The above table presents information on the occupation of respondents. From the table it shows that 14.1% are civil servants against 47.4% that were farmers. While 27.6% are housewives while only 4.5% are self-employed. 6.4% are non productive class or have nothing doing or where not or were not ready to disclose their occupation.

4.2 POSITION IN THE HOUSEHOLD

POSITION	FREQUENCY DISTRIBUTION	PERCENTAGE
HEAD	80	51.2%
HOUSE WIFE	53	34.1%
OTHER	23	14.7%
TOTAL	**156**	**100%**

Though the questionnaire we meant for head of houses 01 their relation and those that adequately give information on the findings the researcher intends to carry out. The table however represents the position of respondents in their various households.

According to the finding 80 respondents representing 51.2% were heads of households, while 53 respondent representing 34.1% were house wives and the remaining 23 out 156 that returned their questionnaires were made up of other categories of respondent. The importance of this information lies on the fact that the research need adequate and truth about his finding, so that casual visitor could not be mistaken, as he may not be able to give proper information about the researcher's requirement since he is not a permanent resident of that area.

4.3 SOURCES OF WATER SUPPLY: This section shall deals with sources of water supply and water pollution.

SOURCE	FREQUENCY DISTRIBUTION	PERCENTAGE
BOREHOLE	25	16.0%
WELL	50	32.1%
STREAM	40	25.6%
RIVER	15	9.6%
ANY AVAILABLE	26	16.7%
TOTAL	156	100%

The research decided to include this question to verify the major sources of water available among the rural dwellers where the questions were passed. From the finding 25 respondent says they use borehole representing 16.0% of the respondents. 50 respondents claimed they use well as their source of water supply, this represents 32.1%. Others claimed they use stream, precisely 40 respondents claimed to use stream representing 25.6%, and 15 respondent says they use river as their source of water supply, representing 9.6% while 26 respondents says they are force any available source as the case may be, this represents 16.7%. The finding has made the researcher with observations of John Snow (1885), William Budd (1886) and Ross (1923) where they all confirmed that inadequate or improper or polluted water could claimed lives of

many, as the findings by this researcher, observed that only few enjoy protected water of borehole.

4.4 Do the respondent enjoyed the source available all the year round.?

Yes	33	21.1%
No	123	78.9%
TOTAL	**156**	**100%**

From above table statistic shows that inadequate is one of the factor is making the rural dweller to use little available polluted water since they can even enjoy adequate water supply throughout the season. From the response of the respondents it's only few number of the people claimed to enjoy adequate water supply all the year round precisely 23 respondents representing 21.1%, while 123 respondents claimed not enjoy water supply throughout the year representing 78.9% which automatically shows that they (rural dwellers) are forced to use the polluted water, which later results into water borne infection.

4.5 How do you dispose your fecal matter

Household latrine	2	1.3%
Communal latrine	10	6.4%
Bush defecation	144	92.3%
TOTAL	**156**	**100%**

Above table made the researcher to Enquirer on the provision of faecal disposal, since the assumption is that it is the major source Water Pollution in Rural Area. And from the finding only 2 respondent made provision for a latrine in their house representing 1.3%, 10 respondents uses communal latrine repenting 6.4% and bush defecation weight higher since 144 respondent practices this representing 92.3. This shows that major pollutant of water among the rural dweller is of faecal matter which causes major charrhoea, dysentry and gastro-ententies disease.

4.6 Does inadequate provision for refuse disposal and other wastes cause water pollution.

OPTION	FREQUENCY DISTRIBUTION	%
STRONG AGREE	12	7.7
AGREE	6	3.8
STRONG DISAGREE	80	51.3
DISAGREE	58	37.2
TOTAL	**156**	**100%**

From the research undertaken, the table above indicate that 7.7% strongly agreed and 3.8% agreed that inadequate disposal facility constitute major problem of water pollution. But 51.3% strongly disagreed to that, while 37.2% disagreed. From the finding, it is of opinion of the researcher that the available disposal may be grossly

inadequate. For waste materials that pollutes water. This grossly affects the little unprotected water, which in turn results in outbreak of faecal or water borne disease which are used ignorantly.

4.7 Responses of the respondent in relation to water related disease.

Have you suffered any of under mentioned diseases within past 2 years.

WATER RELATED DISEASE	FREQUENCY DISTRUBTION	PERCENTAGE
Diarrhoae	63	40.4
Gastro-enteritis	50	32.0
Typhoid Fever	12	7.7
Malaria Fever	31	19.9
None	NIL	NIL
TOTAL	-	**100%**

From the table the research is able to ascertain that major cases of water borne infection are what is suffered most among the rural dwellers where the research was carried out. 40.4% of respondent suffers the case of Diarrhoea disease, 32.0% claimed to have suffer from Gastroenteritis, while 7.7% suffers from Typhoid Fever and only 19.9 suffers from Malaria Fever. This shows how far the water borne diseases are been suffered cenbated.

4.8 Poor knowledge on the use of dumpsite

OPTIONS	FREQUENCY DISTRUBTION	PERCENTAGE
Agree	136	87.2
Disagree	20	12.8
TOTAL	156	100%

The above table is to ascertain influence of knowledge or education on the use of dumpsite as it affect water pollution. From the table it shows that 87.2% of the respondents agreed that water pollution use is due to inadequate knowledge on the proper refuse disposal facilities. This may account to poor water quality use. 12.8% of them did not agree along that line hence they disagree on the issue. This finding agreed with Egunbobi (1985) observation that we must not underestimate the role of habit and attitude of the people, hence the need for awareness. To this end the researcher is of view that ignorance and habit and attitude of the people account to water pollution in rural dwellers in Gbako Local Government.

Have you ever being enlighten on danger of water pollution?

OPTION	FREQUENCY DISTRIBUTION	%
Yes	30	19.2
No	126	80.8
	156	100%

The table above shows that in adequate awareness has been raise on the danger of water pollution as they still belief on the old tradition. The finding shows only 30 respondent out 156 representing 19.2% knows about danger of water pollution while 126 of the respondents representing 80.8% do not accept that water pollution could be of any danger to their health

Do health personnel visit or inspect your water source frequently

OPTION	FREQUENCY DIST.	%
Often	10	6.4
Not often	89	57.1
Never	57	36.5
TOTAL	156	100%

Above statistic shows that health personnel needs to intensify more effort toward reviving their profession by embarking on vigorous inspection of water supply especially in the rural area. Because according to research undertaken, it show that only 10 respondent testified to frequent inspection is being carried out to their place which represent 6.4% of the total respondents. 89 out of the total number 156 claimed that health official do not regularly come to inspect their water source this figure represents 57.1% and 57 respondents admits that the health official

do not even come at all which the figure of this group represents 36.5%. Therefore, the health officials need to redouble their effort meet up with Ejunbobi (1985) where said we must not under estimate habit and attitude of the people in keeping sanitary environment.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION.

5.1 SUMMARY OF FINDINGS.

From the study and analysis of data collected, it shows that a number if factor usually determines the extent, characteristic and composition of water pollution in Gbako Local Government area especially among the rural dwellers. Such factor includes lack of adequate water supply, and where it is available it is not all year round. It was also observed that the methods of waste disposal and need to imbibed on use of latrine is not strictly complied, this has to lead to water borne infection. Adequate mobilization from the health personnel entrusted to this situation was observed to fall below there responsibility to play their mobility or awareness role.

As a result of this ignorance, many respondents still fail to notice that inadequate and improper dumping facility could result into water pollution. The people also still nurse the idea of old tradition of bust defaecation will is detriment to the health of the community as most of this faecal could be washed back to unprotected water source available.

During survey undertaken by researcher the health personnel especially the sanitary inspectorate unit have not adequately pay attention towards making any provision to safeguard against the water polllution as

in the rural area, since they might have fail to understand it is their primary responsibility.

5.2 CONCLUSION AND RECOMMENDATION

Base on the finding it is observed that issue of refuse disposal, faecal disposal, and adequate protection of water source need to be properly addressed. More health personnel should to intensity more effort toward giving adequate importance to water protection by making the dwellers to inculcate the habit protection their water source and to adequately protect the available ones. Information on the dangers associated with polluted water.

5.3 RECOMMENDATION

Finally, the researcher wish to give recommendations to his finding to avoid the dangers related to water borne infections.

The rural dwellers should understand the current trend on global environmental problems, by ensuring sustainable development. This could be done by adequately provide proper protection to their sources of water avoid dangers and loss of lives as of result of water borne infection.

The use of latrine should be given maximum importance as this will to along way in reducing the faecal transmissible diseases, as they will be adequately disposed to avoid it been a pollutants.

They should adequately patronize health facilities provide to cure most of this water borne infection and avoid staying home to prevent them being the reservoir of infection.

Gbako Local Government council should provide more portable water supply to her citizen especial the drilling of more borehole, to boost adequate and safe water supply, since only few village now enjoy adequate and safe water supply.

Intensive awareness should be carried out to rural area on the danger indiscriminate dumping of wastes, as it may pollutes the unprotected water supply available. This is the assignment sanitary inspectors who are wholly entrusted to this, and should even apply law where necessary, for strict compliance.

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APPENDIX 1

DEPARTMENT OF GEOGRAPY

FEDERAL UNIVERSITY OF TECHNOLOGY,

MINNA.

Dear Respondent,

RESEARCH QUESTIONAIRE

IMPACT OF WATER POLLUTION ON RURAL DWELLERS IN GBAKO LOCAL GOVERNMENT.

You are please requested to complete this research questionnaire on above title. Your response should be independent and personal and please ensure honesty, as all response shall be treated with utmost confidentiality. More so, the questionnaires are designed purely for academic exercise.

Thanks for your anticipated co-operation.

INSTRUCTION

Please complete the questionnaire carefully by filling in the space provided or TICK in appropriate box.

SECTION A PERSONAL DATE

1. What is your occupation?

   (a) Civil servant please tick _____

(b) Farmer _____

(c) House wife _____

(d) Privately employed _____

(e) Others _____

2. Position held in the household

(a) Head _____

(b) House wife _____

(c) Others (specify..... _____

ASSOCIATED WITH WATER SECTION 'B' PROBLEMS OF POLLUTION

(3) What is your source of water supply?

(a) Borehole _____

(b) Well _____

(c) Stream _____

(d) River _____

(e) Any available _____

(4) Do you enjoy the source all year round

YES _____

NO _____

(5) How do you dispose your faecal matter (excreta)

(a) Household Latrine _____

(b) Communal Latrine _____

(c) Bush defaecation _____

(6) Does inadequate provision of Refuse disposal and other waste cause water pollution.

(a) Option _____

(b) Strongly agree _____

(c) Disagree _____

(d) Strongly disagree _____

(e) Disagree _____

(7) Have you suffered any under mention disease within past 2 years

(a) Diarrhoae. _____

(b) Gastro - entencis

(c) Malaria _____

(d) None _____

(8) Poor knowledge on the use of dump site

(a) Agree _____

(b) Disagree _____

(9) Do you know the danger associated with water pollution

YES _____

NO _____

(10) How often do health official visit your area for inspections of your water source.

OFTEN _____

NOT OFTEN _____

NEVER _____

DEFINITION OF TERMS

Enviroment: Relating to natural conditions e.g Land, Air and Water in which person or animals live.

Pathogens: An agents that causes diseases.

Vectors: An insect that carries a particular disease or infection.

Helminth: That has to do with parasite worms in human body.

Gastro-entirties: An illness in which the stomach and intestines are swollen.

Faecal material: Waste matters that is passed from body through the bowel.

Refuse: Rubbish

Water borneInfection: Disease spread by water e.g cholera.