

**THE GUINEA WORM
ERADICATION PROGRAMME**

IN

THE ATEBUBU DISTRICT

By:

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**This Dissertation Is Submitted To The School Of Public
Health, University Of Ghana, Legon, In Partial Fulfillment
Of The Requirement For The Award Of Master Of
Public Health (MPH) Degree**

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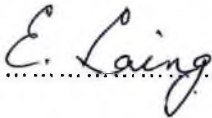
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DECLARATION

I hereby declare that I, Anastasia Atiogbe, undertook this research while a student at the University of Ghana, Legon under the supervision of Prof. Emeritus Ebenezer Laing, Dr. Rex Asante of University of Ghana, Legon and Dr. Kofi Asemanyi –Mensah District Director of Health Services (DDHS) Atebubu District.



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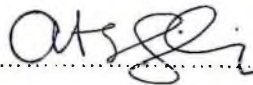
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DEDICATION

Dedicated to Almighty God for giving me the special grace to do this study.

ACKNOWLEDGEMENT

I am indebted to a number of people for various forms of help, assistance and advice given during the course of this study.

First, I give thanks to the Almighty God who gave me the favour, zeal and wisdom to go this far.

My sincere and most profound gratitude goes to my academic supervisors, Prof. Emeritus Ebenezer Laing and Dr. Rex Asante for the invaluable support and constructive criticism, which has helped to shape this dissertation immensely.

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To my uncle, Mr. Franklin Adotevi, CSIR for editing the work and also showing keen interest in the entire course and this study in particular.

LIST OF ABBREVIATIONS

APPLE	-	Association with People for Practical Life Education
ADP	-	Area Development Programme
DHMT	-	District Health Management Team
DDHS	-	District Director of Health Service
GHS	-	Ghana Health Service
FGD	-	Focus Group Discussion
GWEP	-	Guinea Worm Eradication Programme
GGWEP	-	Ghana Guinea Worm Eradication Programme
IDI		In-depth Interview
NGO	-	Non Governmental Organization
SPSS	-	Statistical Package for the Social Sciences
VIP	-	Ventilated Improved Pit
WVG		World Vision Ghana
WHO	-	World Health Organization

ABSTRACT

Guinea worm disease, otherwise known as *Dracunculiasis Medinensis* is a disabling disease in over 70 countries globally. Ghana ranks second to Sudan in the whole world. The Carter Center Foundation Global 2000 and the World Health Organization (WHO) embarked on a global eradicating campaign to eradicate the disease in the 1980s.

The strategy recommended by WHO was based on a three-fold approach, interruptions of transmission, surveillance and certification. In Ghana the Guinea Worm Eradication Programme (GWEP) started in 1989 with a national case search and recorded 179,556 cases from 6,515 endemic communities. The GWEP had success stories in the first five years after it experienced stagnation leading to the postponement of deadlines for eradicating guinea worm.

The study sought to study the GWEP in Atebubu District by assessing the effectiveness of programme interventions to break transmission of guinea worm .It was conducted in three sub-districts, which were classified according to levels of endemicity as far as guinea worm is concerned. These districts are: Prang (High Prevalence); Atebubu sub district (Low Prevalence); Amanten sub district (Non-endemic). Both qualitative and quantitative data collection techniques such as observation, indepth interviews, Focus Group Discussions (FGDs), administration of a structured questionnaire and record reviews were used. The data was analysed employing a soft ware programme, Statistical Package for the Social Sciences (SPSS).

The study found out that records on programme interventions were accurate and information from the field when compared with reports tallied. However, the documentation lacked very important information like achievements, challenges, best practices and lessons learnt. The GWEP is well managed in the sense that the GWEP team conducts weekly meetings to review its objectives and activities. There are continuous monthly meetings with the zonal coordinators, and village volunteers in endemic areas to update their knowledge about the programme. A large proportion of

respondents interviewed in the sub-districts are illiterates and farm for a living. There are equal numbers of males and females. More than half (50%) are above 45 years. The households are very knowledgeable about guinea worm as a disease, its prevention and are also aware of the GWEP.

It was also discovered in all the three sub-districts, that more males than females filtered their drinking water. Of those who filtered their water about half (51%) of them demonstrated the process very well. Almost all (99%) respondents drink cold food drinks, which were prepared with unfiltered water. Most of the communities did not have in place any guinea worm eradication programme. The GWEP activities are rife in the highly endemic areas. Respondents in the non-endemic areas are well informed about the programme because these areas were previously endemic.

Records on activities in high and low prevalence areas are lacking in certain details such as challenges faced in the field, best practices and lessons learnt. However, for non-endemic areas, records are non-existent. There tends to be a lot of focus on programmes in high and low prevalence communities, some passive surveillance is needed in the non-endemic areas. There were no records on supervisory visits by the District Coordinator even though village volunteers and zonal coordinators confirmed that they were visited at least twice a month. They also organized monthly meetings with village volunteers and zonal coordinators to review their activities. The GWEP team meets every week to review programme activities but do not document such important meetings. Records of NGO and other stockholders involvement were present.

The study, therefore, recommends that records of weekly and monthly GWEP review meetings must indicate challenges, lessons learnt and best practices in the field; programme activities should be extended to non-endemic areas to prevent outbreaks of the disease in new communities. To this end, it is imperative that village volunteers and zonal coordinators in the low and non-endemic areas should attend quarterly meetings to involve them in the GWEP activities; Hospital nurses should also be involved in the GWEP activities. Records of supervisory visits and check lists should be kept and

updated; It is important that health education messages should be given in the various local languages particularly Konkomba, Busanga and Dagarti, since they form the majority; the DHMT should focus on all aspects of GWEP activities and also cultural practices. An example is hygienic methods of food preparation particularly, cold drinks/ foods, and the use of borehole water or filtered water where necessary.

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GHANA MAP FIG 1

SHOWING ATEBUBU DISTRICT

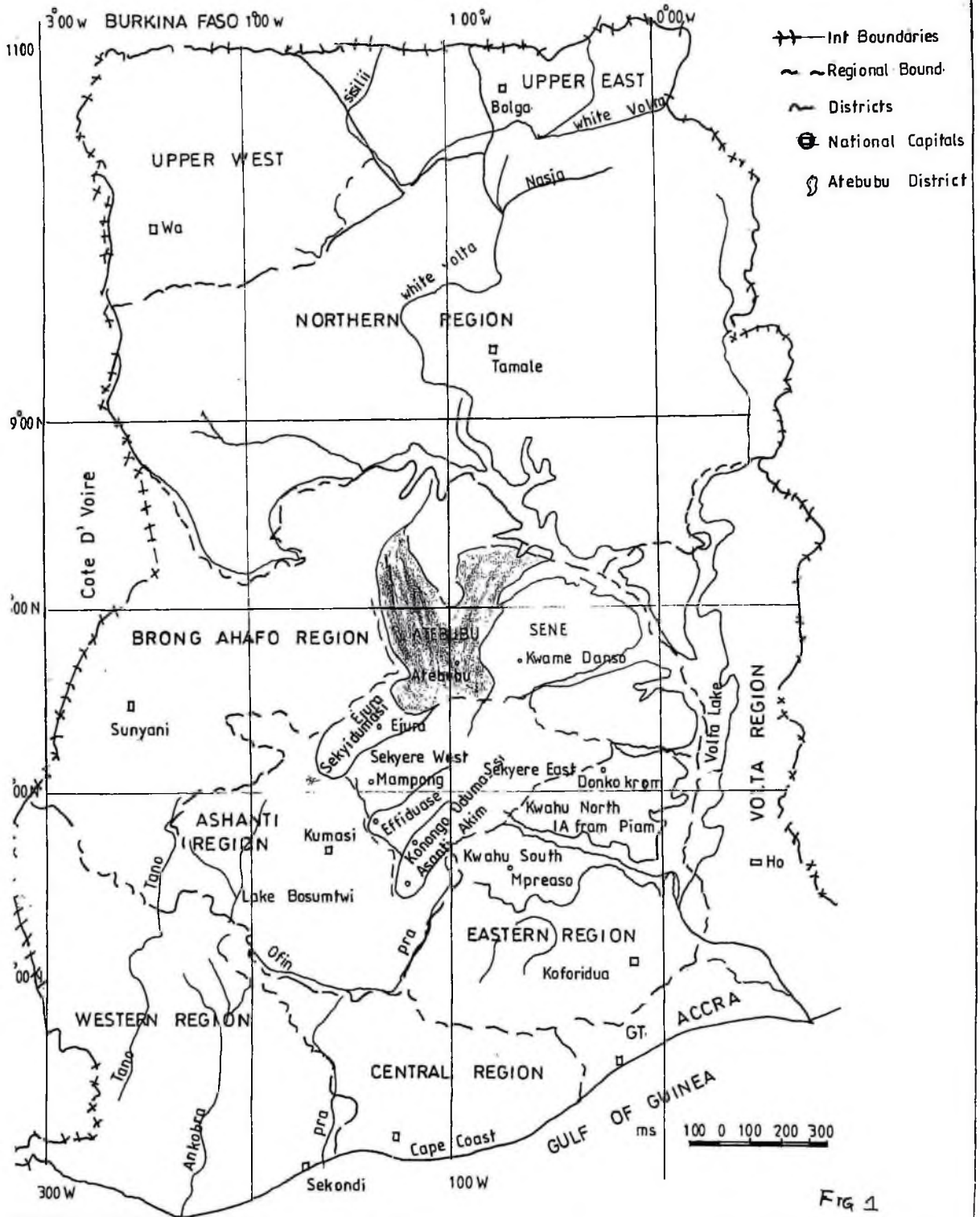


FIG 1

BRONG AHAFO REGION

Fig 2

SHOWING ATEBUBU DISTRICT




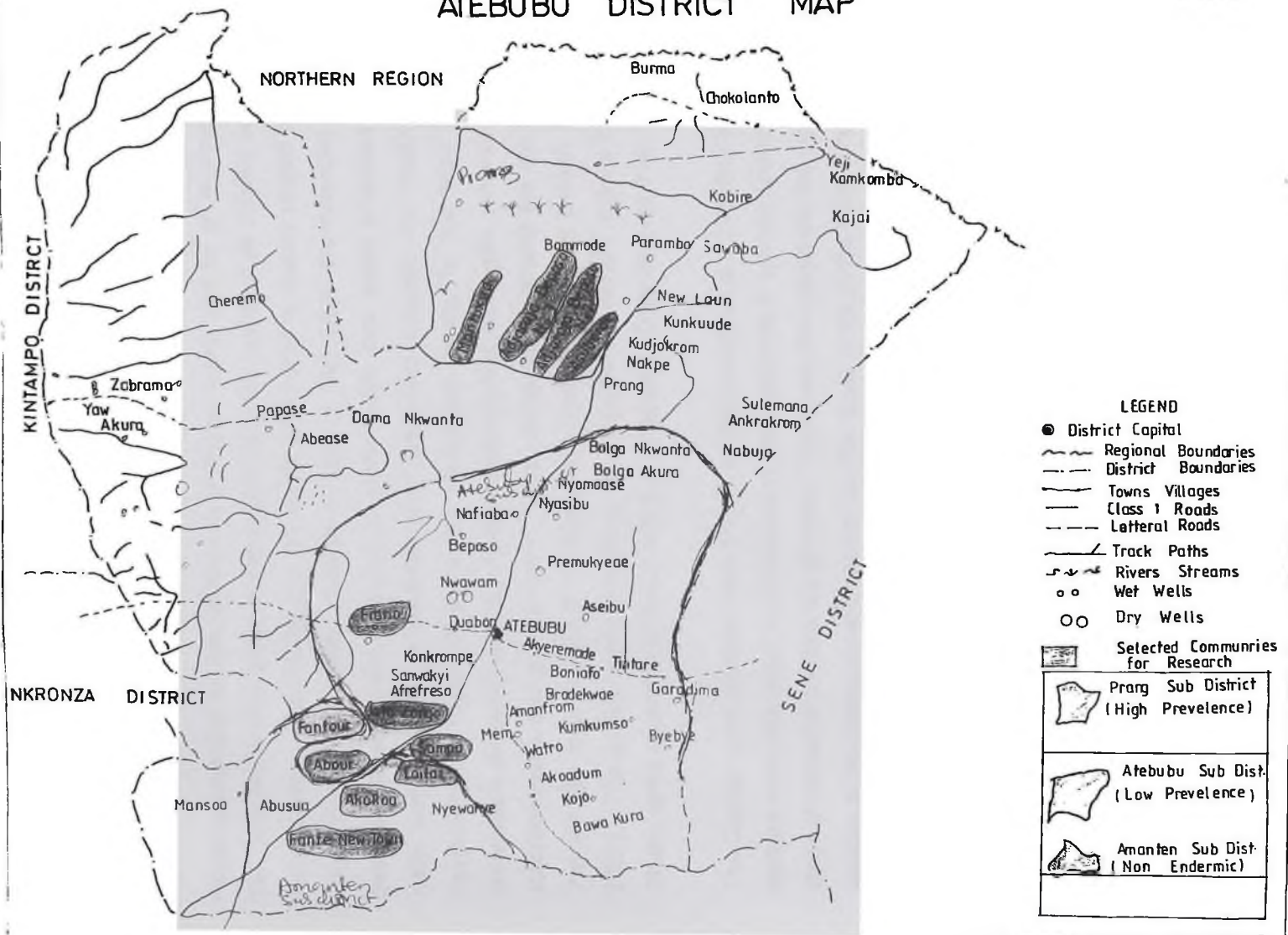
-  Brong Ahafo Region
-  Atebubu District
-  Sunyani (Regional Capital)



Fig 3

ATEBUBU DISTRICT MAP



CHAPTER ONE

1.0 INTRODUCTION

Health is essential for the satisfaction of human needs and for an improved quality of life. The health of a nation is dependent upon the health of its citizens especially the working force. This means that the health of a nation is closely related to its wealth. Since 1970s, the health situation in Ghana had been characterized by lack of geographical and financial access to quality health care, social amenities like potable water and the poor collaboration and partnership between the health sector and communities. These inadequacies contributed greatly to the high incidence of preventable diseases such as cholera, cerebrospinal meningitis, malaria, malnutrition, schistosomiasis and guinea worm. These diseases are among the top ten diseases that are the main causes of morbidity and mortality in Ghana (Health of the nation 2002). The guinea worm disease is very prevalent in certain regions in Ghana and Ghana ranks second to Sudan in terms of caseloads, (Daily Graphic: Feb. 2003)

The Guinea worm disease, often known as *Dracunculiasis* is a disabling disease. Only persons who drink water contaminated by tiny copepods or cyclops containing the larval stage of the worm contract the disease. The larvae then penetrate the gut mucosa and wander in the subcutaneous tissues into the lower limbs of the body. The worm finally emerges through the skin causing a painful swelling, consequently forming a blister and then an ulcer. Most endemic communities believe that in order to relieve the terrible burning sensation caused by the emerging worm, the patient would have to step into the local source of drinking water. This belief has serious health implications because upon contact with the water the emerging female worm would expel hundreds of thousands of the embryos into the water. Cyclops, the intermediate host, then ingests these embryos and the life cycle of the worm begins. Neither the emergence of the worm nor the healing of the patients protects them against the reoccurrence of the disease. Studies have proved that people could get infected repeatedly (WHO:1993, Webber :1996)

Life - Cycle of the Guinea Worm

The larvae of the parasite enters the body when a person drinks water contaminated by a water crustacean which contains dracunculus larvae. Once ingested, the Cyclops are killed by gastric juice. However, the larvae released from the Cyclops penetrate the stomach wall into the connective tissue of the human abdomen and thorax where they remain until they mature and mates three months later. While the larvae are in deep tissue surrounding the lymph glands, they generally do not present a problem to the patient. One year after the initial ingestion, the male worms even die and are reabsorbed. However it is the fertilized female that are infective as they migrate, usually to the lowest limbs where they form a blister and emerge, pressing their way through the human skin. The worm emerging through the skin causes painful swelling. Upon contact with water the emerging female worm will expel hundreds of thousands of the embryos into the pool. Cyclops the intermediate host then ingest these embryos and the life cycle begins again.

Clinical Manifestation

The worm has debilitating effects on the victim as it travels down the body. It causes pain especially around the joints. The intense pain is often accompanied by fever, nausea, and vomiting. Partial or total disability can last several months with some victims becoming permanently crippled. Typically, a worm emerging from the sole of the foot will prevent the affected person from putting his foot to the ground.

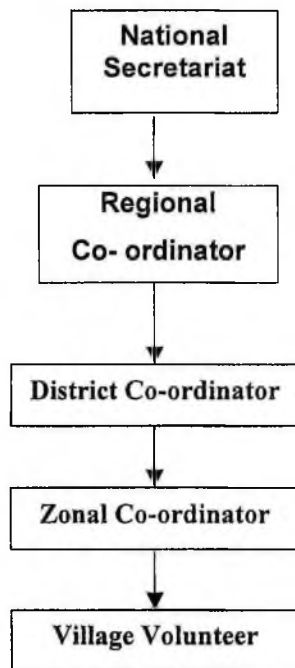
Secondary bacteria infection of the open wound, through which the worm emerges, is also a common and severe complication. As a result, farmers are prevented from working and from growing and harvesting their crops, women from collecting water and children from going to school (WHO: 1998, Webber *ibid*).

1.2 BACKGROUND INFORMATION

1.2.1 Background of The Guinea Worm Eradication Programme Organization And Management

The organizational structure is made up of the guinea worm secretariat at the national level and regional co-ordinators at the regional level with the regional directors. The district and zonal co-ordinators are at the district level with the DHMT who supervises the activities of the village volunteer. Refer to figure 4.

Figure 4: Organogram of the GWEP



There is a national secretariat in Accra, which prepares the national plan of action providing detailed guidelines for managing all programme activities. It also compiles report on surveillance and other operations like logistic support. The regional co-ordinators also support and compile reports from the district. At the district level, district

coordinators are assisted by zonal coordinators at the sub district level to plan and manage district programmes. They also provide training, supervision, monitoring and logistic support for peripheral activities. They collect, collate and transmit monthly reports to the national secretariat through the regional co-ordinator.

The village volunteer is a field personnel who resides in the community and is required to perform the following functions.

- (1) To detect and record cases
- (2) To perform bandaging of wounds
- (3) To carry out health education
- (4) To distribute filters and supervise their utilization
- (5) To protect water sources
- (6) To refer patient to appropriate treatment centres.

The Goal Of the GWEP

Eradication of Guinea worm disease in Ghana.

General Objective of the GWEP

To accelerate guinea worm eradication in Ghana.

Specific Objectives of the GWEP

- (i) To maintain efficient community based surveillance of guinea worm in all endemic communities, including previously endemic ones, in the most endemic regions by the end of 2002.
- (ii) To increase case containment rate from 80 percent to 100 percent by the end of 2002.

- (iii) To increase average monthly abate application of treatable water sources in endemic communities from 83 percent to 100 percent by the end 2002 and maintain it thereafter.
- (iii) To increase household filter coverage of endemic communities from 70 percent to 100 percent by the end year of 2002.
- (iv) To promote the provision of portable water in all endemic communities by the end of 2006.

Strategies of the GWEP

The above objectives were to be achieved through the following strategies:

- (i) Community – based surveillance of guinea worm.
- (ii) Case containment, including the management of imported cases.
- (iii) Promotion of correct use of filters.
- (iv) Vector control.
- (v) Collaboration with water supply agencies to make safe water available to endemic communities.
- (vi) Capacity building and information sharing.
- (vii) Co-ordination with partners and stakeholders.

Specific activities of the GWEP

Surveillance

1 Community based surveillance for guinea worm disease

- House to house visits by village volunteers to find cases.
- Follow up and investigation of suspected cases.

- Monthly notification of guinea worm cases.

2. Case Containment

- Daily dressing of emerged worm until completely expelled.
- Education of patients on preventive measures and on the need to stay out of water until worm completely emerges and wound is completely healed.
- Visits by supervisor to verify contained cases.

3. Promotion of the correct usage of filters.

- Estimation of the number of households in endemic communities
- Filter distribution to households and the retrieval of torn ones.
- Education on the correct use and care of filters including communal filters.

4. Mass Education: General public and affected communities using appropriate IEC methodology.

- Radio talks and discussions
- Video shows
- Mass education using car – mounted speakers
- Community durbars, meetings
- Posters
- Drama

5 Vector Control

- Identification (active) of unsafe water sources.
- Chemical treatment of treatable water.

6. Promotion of safe water sources in endemic communities

- Regular monitoring of water status in endemic communities
- Monitoring and maintenance of water systems
- Identification and collaboration with water agencies to provide new sources of water including:
 - Hydro – geological studies and drilling supervision.
 - Drilling of bore holes/rehabilitation of broken down ones.
 - Construction of hand-dug wells
 - Erection of overhead tanks with distribution networks
 - Installation of hand pumps/mechanization of boreholes
 - Training of water and sanitation (WATSAN) committee.
 - Orientation of areas mechanics
 - Health and hygiene education
 - Programme support including supervision, co-ordination, monitoring and evaluation.

7. Capacity and information sharing

- Training
- Monitoring and supervision
- Review meeting and feedback.

8 Coordinating with partners and stakeholders especially District Assemblies

- Organize regular meetings with partners and stakeholders.

Expected Results of the GWEP

- Establishment and functioning of community based surveillance in all endemic communities by the end of 2002.

- Improvement and quality of all interventions including containment of guinea worm, abate treatment of water source, filter coverage and use.
- Interruption of indigenous transmission of guinea worm disease by the end of 2002 in Ghana.
- Improvement in the supply of safe water to guinea worm endemic communities.
- Full implementation of pre-certification activities countrywide by 2005.

Outcome Indicators of the GWEP

- I. Percentage of endemic communities submitting reports on guinea worm disease every month.
- II. Percentage of reported cases that are contained.
- III. Percentage of endemic communities with 100 percent household filter use.
- IV. The percentage of treatable water source that receives abate treatment every month.
- V. Number of volunteers trained at least once during the year.
- VI. Percentage of endemic communities with safe source of drinking water.
- VII. Reduction of guinea worm cases.
- VIII. Percentage of endemic areas rendered free of guinea worm.

A global eradication campaign to eradicate *Dracunculiasis* started in the early 1980s. This was due to the high prevalence of the disease in over seventy 70 countries globally, both developing and industrial. In 1991, WHO and the World Health Assembly endorsed the effort to eradicate the disease. The strategy recommended by WHO is based on a three-fold approach, interruption of transmission, continued surveillance and certification (WHO:1991). In Africa, *Dracunculiasis* was endemic in mainly West and Eastern Africa with sporadic cases in the Northern parts.

In Ghana, the Guinea Worm Eradication Program began with a national case search in 1989 with a strong technical and financial support from Global 2000, in response to the World Health Assemblies' resolution in 1986 to eradicate guinea worm. This case search recorded 179, 556 cases from 6515 endemic communities. There was a significant reduction in reported cases from 179, 556 in 6515 endemic communities in 1989 to 8,894 in 1,057 communities in 1995, a reduction of 95 percent freeing 5458 communities from the scourge of the disease during the first six years of inception of the programme (Anemana *et al*: 1997 unpublished report).

These gains were however reversed in 1999. For example, in 1999 Ghana recorded 9,027 guinea worm cases. According to the National Co-ordinator of the Guinea Worm Eradication Programme (GWEP), Dr. A.S. Korkor, Ghana is ranked the second most endemic country in the world after Sudan. Some of the reasons given to the decline and stagnation include breakdown in water supply, surveillance and health service delivery (Health of the Nation: 2001). Currently Northern, Brong Ahafo and Volta Regions are the most endemic regions in Ghana.

1.2.2. BACKGROUND OF THE STUDY

STUDY AREA

Introduction

This section gives the profile of the study area, Atebubu District, in order to understand the background from which the study respondents hail and, therefore, provide a platform for appreciating their world view.

Geographical Location

Atebubu District is one of the thirteenth 13 districts in the Brong Ahafo Region. It lies in the northern part of the Brong Ahafo Region and covers an area of 6,020 sq km. The

District shares boundaries with four other districts, which are Nkoranza in the south – west, Ejura Sekyeredumasi in the south, Sene in the east and Kintampo in the north. The district is located between latitude 7° 24' N and 8° 22' N and longitude 0 30' W and 1° 26' W.

There are six (6) Paramouncies in the Atebubu Traditional Council, namely;

1. Abease
2. Amanten
3. Atebubu
4. Prang
5. Konkomba
6. Yeji

The Atebubu District is the third largest district in the Region and is sub-divided into seven (7) sub-districts for health services delivery as shown in table 1

Table 1: Population of the sub-districts, Atebubu District

Sub- District	2000	2001	2002	2003
Abease	16,413	16,416	16,842	17,059
Amanten	7,858	7,858	13,184	13,362
Atebubu	63,325	12,675	59,147	60,342
Kumfia	14,852	14,852	15,149	15,298
Parembo	10,202	10,202	10,467	10,549
Prang	15,004	15,004	15,394	15,654
Yeji	42,074	42,126	43,221	43,627
Total	169,728	169,834	173,404	175,891

Source: Regional Health Directorate, Brong Ahafo Region.

Topography

Lowlands dominate the geology of the district. The land is basically flat with an average height of 500 feet above sea level. Major rivers in the district are the Black Volta, which flows into the Volta Lake and lies on the northeastern part of the district, and the Pru and Sene rivers cover the central belt of the Abease and Prang Sub-districts thus separating the boundaries of Amanten and Atebubu Sub-districts. These water bodies are of economic importance and fishing is a major occupation of the people, and this predisposes them to several water related diseases such as schistosomiasis, malaria and guinea worm.

Climate and Vegetation

Atebubu District is in the transitional zone between the two major climatic regions in Ghana with two main rainy seasons (May-June and September-October). The dry season is characterized by dusty harmattan winds, drying up of rivers and, consequently, water shortage in most areas of the district spans across the period of November to March. Owing to the drying up of rivers and scarcity of water, individuals and families are compelled to drink from unsafe water sources such as ponds, stagnant water and dams especially in the rural and remote areas. Recently, in 2002, there had been construction of water pipe from the Pru River, with treated water. This was from the kind support of the European Union (EU) in collaboration with the Atebubu District Assembly.

Religion

About 62.2 percent of the total population are Christians mainly Anglicans, Seventh Day Adventists, Presbyterians, Catholics, Methodists and Pentecostals. There are a few divine healers (0.2%). Muslims form a significant proportion of 29.6 percent of the total population. Traditional religion still has a place and is practiced by 8 percent of the people of the district. (Atebubu DHMT 2002 Report unpublished).

Economic Activities

Agriculture supports about 70 percent of the economically active population in the district through farming and distribution of farm produce. A few settlers from the Volta Region also engage in fishing and selling of fish at Yeji. There are few civil servants who work in the government departments and some artisans also like fitting mechanics, blacksmith and building construction workers.

Social Infrastructure

Health

There are two major hospitals in the Atebubu District. Atebubu District Hospital in the Atebubu sub- district and St. Mathias Catholic Hospital in Yeji sub-district. There are two health centres, which are located in the urban areas, and three rural clinics scattered in the district in Jato Zongo, Parembo and Kumfia. Most of the very remote communities are unable to access health care due to distance. Apart from these there are three private clinics at Yeji. There is an area known as the over bank, which comprises 40 Islands that are completely cut off from the district without any health facilities. There are five community clinics, two in Abease and three in Atebubu town. There are five private maternity homes and six private clinics, which are also located in the urban areas.

These facilities complement the effort of the DHMT since access and, consequently, coverage of the population is poor owing to the poor condition of roads and the scarcity of transport. Most communities are quite far from the health centres. Therefore access to health care is a major problem in the district. The majority of the people depend on local herbs for treatment as a first line of action.

There are few herbalists and a renowned bone setter at Old Konkrompe, a community in Atebubu sub-district. Since the District Hospital has no X-ray facility, most community members rather consult the bone setter when they are faced with problems relating to

the bone instead of reporting to the Hospital. World Vision Atebubu in collaboration with the DHMT had started running a mobile clinic in some of the rural communities to increase access to health care.

Schools

There is one Teacher Training College in Atebubu town, four Senior Secondary Schools, 39 Junior Secondary Schools , 146 Primary Schools and 57 Nurseries in the Atebubu District.

Roads

A first class major trunk road from Kumasi and Yeji passes through Atebubu District but there are untarred roads connecting community to community and to other districts, which become unmotorable in the rainy season. Majority of the people use bicycles as a means of transport.

Water

Some communities lack access to safe drinking water and as such depend on ponds, dams and streams. There are about 300 boreholes and a few hand-dug wells in the district, which serve communities with water for drinking. It is interesting to note that some local people prefer to drink non-portable water from ponds and streams with the reason that water drawn from bore holes is not palatable and is salty. It is worth mentioning here that several of these boreholes and hand-dug wells were provided by the kind assistance of NGOs such as World Vision International (234 boreholes) and Sasakawa Global 2000. Recently the Government of Ghana with assistance from the European Union provided the Atebubu Township with pipe borne water.

Toilet Facilities

Out of the 400 communities in the district less than 100 have VIP toilets. These toilets were built with the assistance of World Vision International and other NGOs, some are broken down due to lack of maintenance. There are two Public toilets. A few government bungalows and hotels have water closets. Where VIP latrines and water closets are absent especially in the remote villages, people defecate in communal pits or in the bush. Households are being encouraged to build private latrines. This is an attempt to improve the health status of the people. There are some households who have their own private VIP toilet with the assistance from World Vision Atebubu Office. Most people do not see private toilet as a need and as such had not accepted this opportunity to ask for help.

Conclusion

Atebubu District is a very big district. Its inhabitants, mostly Bonos and settler farmers are from the three northern regions. A few are from the other regions of Ghana especially Volta region and fish in the Black Volta. During the dry season some of the people trade in non-agricultural produce to make a living. Lack of potable water in the remote villages has been the cause of Guinea worm infection in the District. Drilling of 234 boreholes by World Vision International and a few by Sasakawa Global 2000, and the provision of pipe borne water with the assistance from the European Union (EU) had improved the situation considerably. There are cultural and behaviour problems that need to be tackled to increase the break of the transmission of the disease and help the GWEP to totally eradicate the guinea worm scourge from the district once and for all.

1.3 Statement of Problem

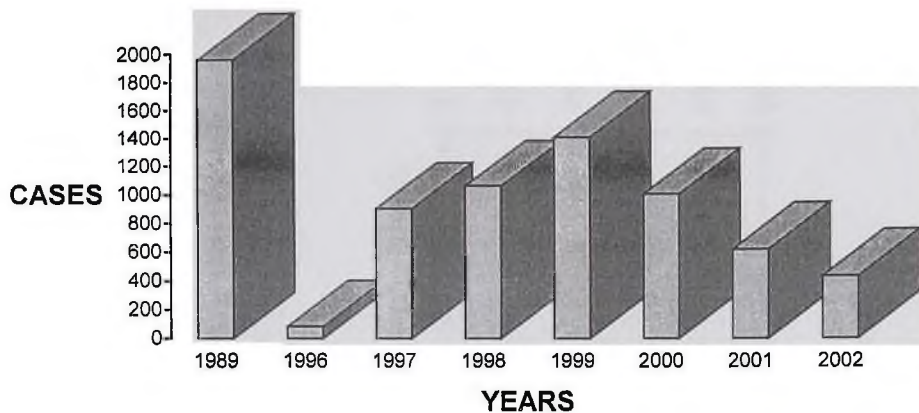
The Guinea Worm Eradication Programme was started in Ghana in 1989 with 179, 556 reported cases. The programme objective was to eradicate guinea worm by 1994. According to the 6th Africa Review Meeting, (Lome / Togo report (unpublished) in 2001),

the number of reported guinea worm cases went down to 8,433 in 1995. The programme was extended for another two years in 2000 in order to achieve its set objectives but without much progress. The programme however has experienced certain set backs and therefore programme targets and deadlines had been extended for another two years in 2000 to 2002, in order to achieve its set objectives . As a result of this, at the end of 1999 Ghana reported 9027 cases, an increase of 65percent over 1998 figures of 5473. Owing to this, the Strategic Plan for Eradication of Guinea Worm Disease in Ghana was launched in 2000, to give a new impetus to the programme and to meet challenges in decreasing the disease. Among the three guinea worm endemic districts in the Brong Ahafo Region, Atebubu District is the most affected. (Refer Figure 8: on next page) Reported cases for 1989, 1996, 1997, 1998, 1999, 2000, 2001, 2002 were 1961, 83, 904, 1061, 1409, 1006, 620, 432 respectively (refer figure 5) even though these figures indicate a decrease in the number of reported cases there has been an oscillation in the trend, and also there is an emergence of the disease in new communities.

Fourteen years after the inception of the GWEP in the Atebubu district, guinea worm continues to affect the people despite the efforts of the various stakeholders such as the provision of safe drinking water through the drilling of boreholes by Global 2000 and World Vision International (WVI). The District Health Management Team (DHMT) has also intensified its surveillance system to eradicate the disease. Despite all these interventions, the decrease in the number of cases is accompanied by an emergence and increase of cases in new communities.

These observations require a study of the GWEP to ascertain the effectiveness of the programme. It is against this background that this study was carried out.

Figure 5:



Source: Atebubu DHMT, 2002

1.4 Rational of the study

This study will provide information from which informed decision can be taken to improve programme strategies. It will also reveal some of the best practices of both health workers and community members, which can be reinforced to eradicate guinea worm.

Apart from these, people working in the programmes need to evaluate their work to see whether they are making a difference. This will motivate them to work. It will also create an opportunity to share information and learn from each other and enable the DHMT to decide to modify the way surveillance and other programme activities are carried out. Another important fact is that for any health programme to be successful there must be community involvement and participation. Further more one most important aspect of this evaluation is to bring out how communities perceive GWEP and their expectation of how they expect to benefit from it as stated by WHO resolution at the Alma Ata Conference declaration on Primary Health Care (WHO/UNICEF: 1978).

1.5 AIMS AND OBJECTIVES

General Objective of the Study

To study the Guinea Worm Eradication Programme (GWEP) in three sub – districts in the Atebubu District.

This study seeks to find out whether the G.W.E.P was able to accomplish its set strategies and ascertain reasons for its successes and failures.

Specific Objectives of the Study

1. To assess the effectiveness of programme interventions in selected communities in order to break the transmission of guinea worm, specifically, the following:
 - a) To assess the sensitivity and accuracy of case surveillance.
 - b) To determine the status of case containment.
 - c) To assess the level of health education.
 - d) To determine filter distribution and usage
2. To assess the management of the GWEP specifically:
 - (a) Monitoring and supervision
 - (b) To describe human relation issues
 - (c) To describe capacity building initiatives
 - (d) To determine the level of collaboration with stakeholders.
 - (e) To assess the perception of the hospital nurses
3. To describe community's knowledge and practices about guinea worm disease and its prevention.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

The GWEP has a national secretariat in Accra under the Global 2000 Carter Centre, which manages all programmes assisted by the District Health Management Team (DHMT), and Village Volunteers at the periphery. In managing the programme, they collect, collate and transmit reports monthly. Though rarely fatal, guinea worm disease takes a tremendous toll in terms of morbidity, particularly among agricultural workers. These call for the intensification of programme activities to eradicate the worm. It also requires intense local surveillance; containment of identified cases, on going health educational activities, distribution and use of cloth filters capable of screening out the guinea worm and vector control through abating of dams and ponds to reduce the copepods population. The programme management is very important to follow programme guidelines to achieve set targets. Knowledge and practices of households in the programme area is also an important factor in evaluating the programme.

During a search it was realized that there had been two major evaluations of the GWEP in some of the regions of Ghana, which were very useful, and a few other studies on onchocerciasis and schistosomiasis and from other countries.

2.1 Effectiveness of Programme Intervention

Surveillance

The surveillance of Guinea worm disease is now part of the Community Based Surveillance System, which includes Cerebro-Spinal Meningitis (CSM), Measles, Acute Flaccid Paralysis (AFP), Neonatal tetanus and others. Active surveillance involves village volunteers going from house to house to look for cases and record the number of

cases to give a true picture of what is happening for appropriate action to be taken. (Annual report, 2002, Atebubu DHMT).

To enhance the sensitivity of case detection, public awareness of GWEP must be high and there must be rewards for reporting cases. Surveillance of other diseases or health and development activities must be incorporated into the surveillance system for guinea worm and vice-versa (WHO: 1996).

In a study conducted in Gushegu / Karaga by (Reubush *et al* 1995) on GWEP, it was revealed that some village volunteers used their pages of monthly summary booklets to roll cigarettes instead of filling them with the information needed. In a similar evaluation study on GWEP in Zabzugu, it was revealed that records of guinea worm were submitted for villages only for a few months, absence of local documentation led to discrepancies between the reports from the village volunteers and the zonal coordinators.

In another evaluation study on GWEP in Saboba / Chereponi district by (Reubush *et al* 1995) it was revealed that inconsistencies existed between the information supplied by the Zonal Coordinator and District Coordinator or surveillance. In a study on GWEP in West Gonja district by the same team none of the village volunteers had any records for cases detected. Only one sub-district had its records well organized.

In the West Akim district of the eastern region of Ghana, an evaluation study by (Reubush *et al* 1995) on GWEP revealed that no written records were kept on Surveillance by village volunteers and zonal coordinators, however the volunteers verified that the zonal coordinators visited the village several times a month to look for cases of guinea worm disease. The district coordinator keeps summary records of guinea worm cases detected and also met village volunteers and zonal coordinators several times a month on surveillance.

In the Afram Plains of Ghana an evaluation study into the GWEP by (Reubush *et al* 1995) revealed that village volunteers were very knowledgeable about their work and also kept accurate records of guinea worm cases detected except that they were not dated.

An evaluation report on GWEP on Atebubu of the Brong Ahafo Region of Ghana by (Reubush *et al* 1995) revealed that zonal coordinators and village volunteers had all completed the zonal monthly summary booklets, which showed that there was proper record keeping and surveillance. In another evaluation study into GWEP in the Yendi district of the Northern Region of Ghana by (Reubush *et al* 1995) it was revealed that seven out of the eight village volunteers had no written records. In another evaluation study of GWEP by (Anemana *et al* 1997), it was revealed that 75 percent of the cases were detected and recorded by village volunteers.

Case Containment

The overall strategy of the national GWEP includes three operational phases, one of which is case containment (Hopkins: 1991). Case containment strategy has been applied in Pakistan from the beginning of 1990 at the center for disease control, update on Dracunculiasis eradication and was found to be very effective and was adopted by many other countries (Brieger, W.R. *et al*: 1991).

Case containment is very important and includes daily dressing of wounds until emerging worms are completely expelled. It also includes education of the individual patient on preventive measures on the need to stay out of water. The patient is supposed to be visited by the zonal coordinator or district coordinator to verify the disease (Anemana *et al*: 1997). Evaluation study in the Yendi district in the Northern Region of Ghana by (Reubush *et al*: op. cit.), it was revealed that women leaders in most villages visited had no materials for case containment.

In a similar evaluation study of GWEP by (Reubush *et al*: 1995) in Zabzugu Tatale district, the respondent gave a history of seeking the village volunteer to have their lesions properly bandaged, most of the village volunteers interviewed were found to be adequately trained but less than half of them did not have materials to treat guinea worm cases.

In Saboba/Chereponi district almost all the respondents interviewed did not know the primary method for case management by village volunteers. The team also found it difficult to correlate the names of patients on the case containment forms reported by the village volunteer and the cases in the villages in the Northern Region.

Health Education

Health education is a very important tool, which creates greater awareness of a disease, the need to eradicate the disease and methods used to achieve eradication. All health education and community mobilization programme should be emphasized as priorities because they are the least costly of the intervention available and are necessary base for the other interventions (Anonymity:1990).

A study conducted by (Glanz *et al* 1990) on the control of schistosomiasis revealed that incorporating social and human science into the methodology of intervention is very important if control could be achieved. This is because the programme focused on vector control and drugs for human treatment only. This programme however, has not been sustained. (Huans and Menderson 1995) and Kloos 1995) have also reported that most of the experiments to control schistosomiasis failed since the beliefs, attitudes, behaviour patterns, knowledge and misconceptions of the population were not taken into consideration. (Kloos *ibid.*) also revealed that ethnic groups tend to follow treatment of schistosomiasis at home by using various medicinal plants and do not resort to medical treatment, so health education was tailored to people's belief about the disease using different health education models. This led to the success of the programme. In another study in Brazil on the control of schistosomiasis by (Schall *et al* 1995), it was

discovered that people from rural endemic areas showed disbelief in the clinical explanation of the activity of the worm, which penetrates the skin even when they did not drink the infected water but stepped into the water. Health education however changed their beliefs about the disease. A follow up survey among school children in a health education programme in Tanzania revealed that there was significant positive change in knowledge and behaviour. (Lansdown *et al.*: 2002)

In an evaluation study of GWEP in the West Akim District of the Eastern Region of Ghana, by Reubush *et al (op.cit.)* revelations were that the village volunteers tend to emphasis on health education more than case management, this also tend to reduce the disease in the long run. In a similar study by (Reubush *et al op.cit*) in the Akatsi District of the Volta Region, it was revealed that the villagers understood the health education messages about filtering and keeping infected persons away from the ponds more than other interventions. These also enhanced the programme performance. Another study by (Ming *et al* 1976) on effectiveness of health education on a health programme revealed that 30 parents out of 38 brought their children for health care on their own after a health education programme.

In a study in the Northern Region of Ghana (Tayer *et al.* 1996) on the impact of health education to promote cloth filter use to prevent guinea worm disease, it was revealed that face-to-face health education was successful in persuading 56 percent of households to buy filters. There was also a slight reduction in the prevalence of the disease from 10.6 to 7.4 percent. Ownership of at least one filter cloth for every 10 people in a household was associated with the reduction of 20 percent in the risk of guinea worm disease.

Filter Distribution and Use

In a study conducted in Nigeria, field investigators revealed that a large majority of people favoured the introduction of user-friendly plastic funnels filter developed in India than others (Kale *et al:* 1997). In another study of GWEP in the Northern Region of

Ghana majority of respondents found that polyester drinking water filters were superior to nylon filter with regard to strength, filtering time, and the ease with which the filter could be cleaned.

In an evaluation study of the GWEP in Saboba Cheriponi district of Ghana, It was revealed that more than 90 percent of the respondents interviewed had cloth filters and reported using them. This was however tempered by the fact that over one and half of the filters inspected were damaged and needed replacement. One third of families interviewed in eight other villages without borehole revealed that they had no filters, not even torn ones (Reubush *et al*:1995)..

In another GWEP evaluation study in West Akim in the Eastern Region of Ghana, revelations were that filter usage was between 80-83 percent in endemic villages in comparison to 0 – 33 percent in non endemic villages; one half of the villages did not have filters (Reubush *et al* :1995). Another evaluation study of GWEP in the Volta Region of Ghana revealed that a total of 49 out of the 57 respondents interviewed mentioned filtering their water to prevent guinea worm infection (Olsen *et al*: 1990).

Vector Control through Abating of Dams and Ponds

Abating of ponds and dams is carried out to destroy the intermediate host carrying the larvae. An evaluation study of the GWEP in the Northern Region of Ghana revealed that both village volunteers and zonal coordinators were using techniques that do not conform to programme guidelines. In a similar study by (Reubush *et al*: 1995) in the Eastern Region of Ghana, it was revealed that the regional office received reports that fish die in the river or pond after abating. Ponds in the endemic villages as well as those within 5 km radius were also abated as a practice. In the Volta Region of Ghana, the study by (Reubush *et al*: 1995) revealed that abate application appeared to have been made more frequently by the village volunteers than the district coordinator. The region however has an Abate application team which travels to each district to provide

training to staff, village volunteer and zonal coordinator at least once a year and also maintains records of application and dispersion of suppliers (Reubush *et al*: 1995).

2.2 Management of the GWEP

The managerial capacity of health providers is very important if the health programme is to succeed (Bermejo and Bekui: 1993).

Monitoring and Supervision

For any health programme to have the desired impact, programme guidelines must be followed at all levels. This demands proper monitoring and supervision at all levels to achieve set target.

In an evaluation study of GWEP in the Northern Region of Ghana by (Anemana *et al* 1997) it was revealed that programme guidelines were not followed at the local level. It was reported in some of the districts the district coordinator did not involve the zonal coordinator, but supervised the village volunteer directly. This weakened the sensitivity of surveillance, however the use of checklist for monitoring was the practice.

In a similar study by (Anemana *et al ibid*) in the Volta Region of Ghana, it was revealed that when the Reproductive Health Team (MCH) conducts outreach services, it also collects information on guinea worm.

In a similar study by the same team in the Ashanti Region it was revealed that` guinea worm eradication was on the agenda of the monthly meetings of the disease control officers (Anemana *et al:ibid*).

Capacity Building Initiatives

A GWEP evaluation study in Saboba Cheriponi in the Northern Region of Ghana by (Reubush et al 1995) it was shown that the village volunteers received training on the job whilst working with the district coordinator. In a similar study by (Reubush *et al* 1995) in the Eastern Region village volunteers were trained once a year.

Level of Collaboration with Stakeholders

The success of health programmes is dependent on the cooperation of communities, government and developmental agencies. Experience has shown that communities are best able to organize themselves to identify their needs, whilst governments are most often successful in facilitating development projects (WHO: 2003)

A study in Nigeria on the implementation and sustainability of community directed treatment of onchocerciasis with ivermectin by Anonymity (1990) revealed that several Non Governmental Organization and Community Based Organizations were identified as being capable and willing to support the programme Community Directed Treatment of ivermectin. In a GWEP evaluation study at Sene by (Reubush *et al* 1995) it was revealed that most of the guinea worm endemic villages in the four endemic regions, Northern, Brong Ahafo, Volta and Eastern Regions had boreholes and handdug wells provided by World Vision International, UNICEF, Global 2000 and a few others. Reports from Atebubu district also revealed that the Red Cross Society of Ghana and Global 2000 in collaboration with the Atebubu DHMT had formed 26 mothers clubs to educate women on the prevention of guinea worm.

2.3 Knowledge and practices

Most households who were infected with guinea worm disease reported at the clinic since they do not have a village volunteer. In a study in the Volta Region by (Reubush *et al op.cit*), it was revealed that knowledge of guinea worm prevention techniques and

awareness of village volunteer identity was high but knowledge about requirement for case management, reporting of cases to village volunteer was quite low.

In the Sene district, (Reubush *et al op.cit*) studied the GWEP and revelations were that most households did not know the identity of the village volunteers although they knew about guinea worm disease and how to prevent it. Nearly all the respondents said they would report the guinea worm disease to the health centre, not to the village volunteer.

In a study in Saboba Chereponi district by (Reubush *et al op.cit*) it was revealed that 90 percent of households interviewed reported that they filter their drinking water to prevent the guinea worm disease.

In a similar study in West Gonja District in the Northern Region by (Reubush *et al op.cit*) one third of the household interviewed said they filter their water before drinking. A study conducted by the same team in West Akim District revealed that filter usage was 80 – 83 percent in the endemic villages as compared to 30 percent in the non-endemic.

In a similar study by (Reubush *et al op.cit*) in the Volta Region of Ghana, it was revealed that about 80 percent filter their drinking water and said that they would seek help from the health centre. The only respondent who sought treatment from the village volunteer was a member of his household.

In another study at Seneso in the Sene district by (Reubush *et al op.cit*) it was revealed that the major obstacle to the prevention of the disease was that respondent drank unfiltered water whilst working on the farms.

CHAPTER THREE

METHODOLOGY

3.0 Methodology

3.1 Study Design

This study was cross sectional and descriptive in nature and hence employed the use of both quantitative and qualitative data collection tools.

3.2 Study Population

The study was made up of males and females fifteen years and above.

3.3 Sampling Technique

A cluster sampling technique was used. Communities were categorized along the following lines:

- High prevalence – Prang sub-district communities that reported three or more cases of guinea worm in a month.
- Low prevalence - Atebubu sub-district communities that reported zero (0) to one case of guinea worm in a month.
- Non-endemic – Amanten sub-district communities that reported zero (0) cases of guinea worm.

Names of all the communities from each category or cluster were written on separate sheets of paper of equal size. These sheets were folded and placed in a can with a lid. Four communities were selected at random from each category of endemicity by the principal investigator in the presence of the research team. After each selection, the container was shaken vigorously to ensure reshuffling of names. This procedure was repeated until the twelve communities were selected in all the categories.

The following are the communities selected

High Prevalence – Prang sub-district

- Asubende
- Mantukwa
- Adjaraja No. 2
- Adjaraja No. 3

Low prevalence – Atebubu sub-district.

- Jato Zongo
- Sampa
- Abour
- Fiano

Non – endemic – Amanten sub-district.

- Fanti New Town
- Akokoa
- Lailai
- Fan four

3.4 Sample Size

For the structured questionnaire, the sample size (N) for a single proportion of population is given as

$$N = P (100 - P) / E^2 = Z^2 P (1 - P) / D^2$$

Where P is the filter use level in the population estimated to be 50% for a base line study.

Z is the confident interval at 95 1.96

D is the level of significance

E is the margin of error $5\%/2 = 2.5\%$

N is then denoted by

$$N = 50 (100-50)/2, 52 = 322.$$

If a 10% non-response rate is added, the total is 354.

For purposes of time limitation and financial constraints a sample size of 300 respondents was conveniently chosen for data collection using the questionnaires.

3.5 Data Collection Techniques

Five main data collection techniques were employed in this study.

- a. Review of available data
- b. Observation
- c. In-depth Interviews
- d. Focus Group Discussion
- e. Structured Interview

Table 2, on the next page, below shows a matrix of factors, indicators and data collection tools used in the study.

Table 2: Matrix Showing Factors, Indicators and Data Collection Tools

FACTORS	INDICATORS	DATA COLLECTION TOOL	SOURCE OF INFORMATION
• Case surveillance	• Number of cases reported	• Records Review • In-depth interview	• D.C • Reports
• Case containment	• Number of cases reported • Percent of cases contained	• Record Review • In-depth Interview	• D.C • Reports
• Health Education	• Number of educational activities organized	• Record Review • In-depth Interview • Questionnaire	• D.C • Record • Households
• Supply and distribution of filter cloths	• Availability of filter in households • State of filters % of households with filters	• Questionnaire • Record review • In-depth review	• Households • Reports • Village Volunteers (VV)
• Vector control through abating	• Supply of abate in a year	• In-depth interview • Record review	• D.C • Reports
• Monitoring and supervision	• Number of supervisory visit of ZC and VV	• In-depth interview • Questionnaire	• D.C • Z.C • VV
• Human relations	• Number of conflicts solved in GWEP in each sub-district	• In-depth interview	• D.C • Z.C • VV
• Capacity building initiative	• Number of training workshops DC, ZC and VV	• In-depth interview • Record review	• D.C • Reports
• Knowledge and practices of community members on guinea worm disease and it prevention	• Level of knowledge ➤ % of respondents who have knowledge about guinea worm. ➤ % of people who filter water properly ➤ % of people who filter their drinking water	• Questionnaire • F.G.D	• Households

3.6 Training of Research Assistants

Five research assistants were recruited for the study. A day of convenience for all of them was selected for training. A detailed explanation of the aims and objectives of the study was discussed. Other ethics to be observed by the research team such as refraining from getting responses against the person's will, to respect the views of the respondents and to assure them of utmost confidence were stressed. Method of selection of respondents, translation of the questionnaire in the Bono, Konkomba and other languages and back to English to ensure consistency and avoid ambiguity were also carried out.

3.7 Pre-Test of Survey Instrument

The questionnaire was pre-tested in an endemic community Kunkunde that was not selected for the study. The result of the pre-test provided useful information on the responses anticipated and specific areas of the questionnaire that required modification were changed.

The FGD guide was also pre-tested and modified accordingly. So was the in-depth interview guides for the village volunteers.

3.8 Data Collection

(a) The review of available information involved the following

- Records of supervisory visits to village volunteers and zonal co-ordinators
Records of supply of abate and filters
- Records on abating of dams (number of dams and ponds abated)
- Records on old and new cases
- Records of training and retraining of zonal coordinators and village volunteers
- Record keeping by village volunteers, regularity and promptness to higher level

- Records of monthly and annual reports and field reports were also collected and analyzed.

(b) Observation

In the course of the household interview, respondents were asked to demonstrate the filtration process with their own filters. The technique of filtration was observed for any mistakes and the filters examined for defects.

(c) In-depth Interview

The following people were also interviewed, using an interview guide:

- District Disease Control Officer, DHMT
- Technical Assistant for Global 2000
- Village Volunteers
- Zonal Coordinators
- Hospital nurses

(d) Focus Group Discussions (FGDs)

Nine Focus Group Discussions (FGDs) were conducted. Two FGDs were conducted for males and females, and one for Junior Secondary School Pupils in each sub-district. There were six participants in each group. The adults, both males and females, were between 25 – 45 years, whilst the J.S.S. school children were between 13 – 18 years.

(e) Questionnaire

Three hundred respondents (300) made up of males and females fifteen (15) years and above, were interviewed using a structured questionnaire (see appendix A) the number of respondents from each community was estimated based on the population. Hence

large communities like Jato Zongo and Adjaraja Beposo No – 2, which were estimated (by health personnel) to have an average population of 500 each, were assigned forty (40) respondents each, Whilst the rest of the communities, which had population, ranges from 250 to 450 were assigned twenty five (25) respondents each. Small communities with populations of about 116 – 120 were also assigned twelve (12) respondents. The research team decided to select from every other house beginning from the chief's palace clockwise. On entering a house, the oldest adult was identified and interviewed. To ensure fair representation of females and males, each sex was selected alternatively. At the end of each day the principal researcher collected the filled questionnaires from the research assistants and edited them. The data collection process was reviewed and mistakes were discussed. In all, three hundred (300) questionnaires were administered in twelve selected communities in three sub-districts. The break down is as shown in table 3.

Table 3: Distribution of Respondents by Sub-Districts and Communities in the Atebubu District

SUB DISTRICT	COMMUNITY	POPULATION	NUMBER OF RESPONDENTS
Prang (high prevalence)			
	Asubende	120	12
	Matukwa	116	12
	Adjaraja No.2	506	40
	Adjaraja No. 3	500	36
Atebubu (low prevalence)			
	Jato Zongo	500	40
	Sampa	200	13
	Abour	238	25
	Fiano	306	22
Amanten (Non Endemic)			
	Fante New Town	300	25
	Akoko	450	25
	Lilai	235	25
	Fan four	250	25

Source – Survey data, 2003.

3.9 Data Processing and Analysis

Questionnaires

Data was sorted out manually and coded manually after going through all the three hundred (300) questionnaires. The questionnaires were then coded manually and entered into the computer using statistical package for the Social Sciences (SPSS), version 10 for windows. Frequency tables were produced using the SPSS. Pie charts and histograms were constructed based on the data by using the application Microsoft Graph 2000 Chart in Microsoft word.

3.10 Quality Control Measures

A number of teachers were screened and potential research team members were selected and trained for the work. They were monitored daily whilst in the field.

There was retraining in the field and mistakes were discussed and corrected each day at the end of the team's work.

3.11 Ethical Considerations

Before the onset of the study, permission was sought from the following during the briefing on the study:

- The District Chief Executive
- Regional Director of Health Service (RDHS)
- District Director of Health Service (DDHS)
- District Health Management Team (DHMT), Atebubu
- Sub- District Health Management Teams.

Permission was sought from the chief of each selected community or an elder in the absence of the chief after briefing on the study. Consent was sought from members of the community before they were involved in the FGDs and interviews. They were also ensured of confidentiality and allowed to participate in the study voluntarily.

3.12 Limitations of the Study

1. The main limitation to this study was the period in which it was conducted. This was the rainy season, a busy time for respondents most of whom were farmers. In order to meet them for interview, data collection had to start as early as 6:00 a.m. before they set off for the farm. The same applied for the FGDs.
2. The respondents were of diverse ethnic groups. However the research assistants were fluent in the various languages even though there could be some differences in the understanding of the question.
3. In some communities, households were scattered in colonies, which were far apart.
4. Some of the communities were inaccessible and rough roads leading to them were unmotorable. Research assistants had to access these communities by bicycle.

CHAPTER FOUR

FINDINGS

4.0 Introduction

This chapter presents data from the field, which centres on the main and specific objectives of the study. These include in-depth interviews with District coordinators, technical assistants, zonal coordinators, village volunteers and the record review about the following:

a. Assess the effectiveness of the Programme interventions

- Surveillance
- Case containment
- Health education
- Filter cloth distribution
- Vector control

b. Assess the management of the guinea worm eradication Programme

- Monitoring and supervision
- Human relations capacity building issues
- Level of collaboration
- Knowledge of hospital nurses

c. Findings from questionnaires administered to households to describe the

- Knowledge and practice of community members about guinea worm disease and its prevention .

4.1 Assessment of Effectiveness of Programme Interventions

Record keeping at the zonal and village levels were limited or non-existent in the non endemic and low prevalence areas. The only village volunteers and zonal coordinators records available were in the high prevalence areas which included community based surveillance books, filled case containment forms, visitors, book and community registers.

Records available at the district level include records on supply of abate, filters, abating of dams, number of reported guinea worm cases and percentage contained on monthly bases. The numbers of boreholes in the communities, those which are yielding water and those that are dry were recorded. Records were well organized and complete except for a village known as Kunkunde which did not report of any guinea worm case but suddenly reported 74 cases in the month of June 2002.

There were records of health education activities that included community durbars, visits, talks, and drama in communities in the high prevalence areas. Vector control through abating of dams was also recorded. It was realized that programme activities were focused on high prevalence areas and not much has been done in the non-endemic areas. Most of the information collected from the village volunteers and zonal coordinators confirmed what was recorded at the district level. The district coordinator said that he does more work than he records. A critical analysis of his records showed only figures and were without challenges faced in the course of the work, best practices and achievements of the GWEP.

There was correspondence on guinea worm eradication programme from other countries and organizations.

4.2 Management of Guinea Worm Eradication Programme in Atebubu

It was revealed that all the key people in the DHMT are quiet new. There had been changes in the personnel at the DHMT since the inception of the GWEP. For example, the DDHS, District Disease Control Officer (DDCO), the Public Health Nurse (PHN) and the District Nutrition Officer (DNO). There were no records on number of supervisory visits conducted by the DDCO. However, information from village volunteer and zonal coordinator confirmed that they were visited by the district coordinator at least twice a month. There was no record on human relations problem neither were there any significant complaints by village volunteers or zonal coordinators among themselves or others.

The capacity building initiative recorded includes monthly meetings with all village volunteers and zonal coordinators from the high prevalence areas to review GWEP activities. Records show that there will be a major training programme for all village volunteers and zonal coordinators who constitute network of community-based surveillance system in the Atebubu District. This will be assisted by the District Assembly.

Available records revealed that GWEP is being managed in collaboration with some NGOs, which include:

- a. World Vision International, Ghana - Drilling of bore holes and training of water and sanitation Committees.
- b. Ghana Red Cross Society (GRCS) - Formation of mother clubs to educate women on the prevention of guinea worm.
- c. Global 2000 - Technical and financial assistance to the GWEP.

- | | | |
|-------------------------|---|--|
| d. Visiting Peace Corps | - | Join in the celebration of worm week activities. |
| e. District Assemblies | - | Assist in community durbars, provision of boreholes. |
| f. Local groups CBO | | Women and men groups- in health education. |
| g. ADRA | - | Drilling of boreholes. |
| h. UNICEF | - | Drilling of boreholes. |

There were no records on involvement of the hospital staff in guinea worm activities, however, the hospital nurses have informal relationship with the Programme staff and are quite knowledgeable about the GWEP.

4.3 Community’s knowledge and practices regarding guinea worm disease and prevention.

Socio-Demographic Characteristics of Respondents

This section presents the socio-demographic characteristics of the respondents for the three study areas: High prevalence, low prevalence and non-endemic, in this order. One hundred respondents were sampled from each of these study areas. Tables 4.1 – 4.3 present statistics on the above.

Table 4.1a: Socio-demographic characteristics of Respondents in High Prevalence Areas (Age, Sex, Marital Status and Level of Education)

CHARACTERISTICS	FREQUENCY	PERCENTAGE
Age (Yrs)		
15 – 24	7	7
25 – 34	13	13
35 – 44	21	21
45 – and above	59	59
Total	100	100
Sex		
Male	50	50
Female	50	50
Total	100	100
Marital Status		
Single	6	6
Married	90	90
Divorced	2	2
Widowed	2	2
Total	100	100
Level of Education		
None	73	73
Primary School	17	17
JSS/MSLC	9	9
Non-Formal	1	1
TOTAL	100	100

Source: Survey Data, 2003.

Table 4.1b: Socio-demographic characteristics of Respondents in High Prevalence Areas (Ethnicity, Religion and Occupation)

CHARACTERISTICS	FREQUENCY	PERCENT
Ethnicity		
Ewe	7	7
Bono	6	6
Northern ethnic groups	89	89
Total	100	100
Religion		
Christianity	65	65
Islam	4	4
Traditional	26	26
None	5	5
Total	100	100
Occupation		
Farmer	93	93
Trader	1	1
Fisherman	1	1
Traditional healer	1	1
Unemployed	1	1
Food vendor	1	1
Hair Dresser	2	2
Total	100	100

Source: Survey data, 2003.

Socio-demographic Characteristics of High Prevalence Areas

Tables 4.1a and 4.1b present findings on the demographic characteristics of communities in the high prevalence areas.

Age

Majority (59%) are above 45 years, followed by 21% between 35-44 years, 13% between 25 – 34 years and 7% between 15- 24 years (refer table 4.1a).

Sex

Fifty percent (50%) of respondents were males and other 50% were females. (refer Table 4.1a).

Marital Status

Among the respondents interviewed, 6% were singles whilst the majority (90%) were married. There were 2% widows and other 2% divorcees (refer Table 4.1a).

Level of education

Majority (73%) of the respondents have no formal education whilst 17% had Primary School Education, nine 9% have completed JSS or Elementary School and only 2% have completed Secondary School (refer Table 4.1a).

Ethnicity

Majority (89%) of respondents are from the three northern regions. Only 6% were Bonos and 7% Ewes (refer Table 4.1b).

Religion

Majority (65%) of the respondents were Christians only 4% were Muslims. As high as 26% practiced traditional religion. Seven percent however did not belong to any form of religion (refer Table 4.1b).

Occupation

Almost all (93%) of respondents interviewed were farmers 1% was a trader, 1% fisherman, 1% a traditional healer and 2% unemployed (refer Table 4.1b).

Table 4.2a: Socio-demographic characteristics of Respondents in Low Prevalence Areas (Age, Sex, Marital Status, Level of Education)

CHARACTERISTICS	FREQUENCY	PERCENT
Age		
15-24	3	3
25-34	22	22
35-44	28	28
45 and above	47	47
Total	100	100
Sex		
Male	54	54
Female	46	46
Total	100	100
Marital Status		
Single	6	6
Married	86	86
Widowed	8	8
Total	100	100
Level of Education		
None	61	61
Primary School	17	17
MSLC/JSS	22	22
Total	100	100

Source: Survey data, 2003

Table 4.2b: Socio-demographic characteristics of Respondents in Low Prevalence Areas (Ethnicity, Occupation and Religion)

CHARACTERISTICS	FREQUENCY	PERCENT
Ethnicity		
Ewe	3	3
Bono	20	20
Northern ethnic groups	77	77
Total	100	100
Occupation		
Farmer	82	82
Trader	4	4
Fishing	1	1
Traditional Healer	1	1
Civil Servant	2	2
Other	5	5
Unemployed	5	5
Total	100	100
Religion		
Christianity	66	66
Islam	23	23
Traditional Religion	8	8
None	3	3
Total	100	100

Source: Survey data, 2003

Socio-demographic Characteristics of Low Prevalence Areas

Tables 4.2a and 4.2b present findings on the demographic characteristics of communities in the low prevalence areas.

Age

Majority (47%) of the respondents were 45 years and above, 28% were between 35- 44 years, 22% were between 25 – 34 years and 3% were between 15-24 years (refer, Table 4.2a).

Sex

Fifty four (54%) of the respondents were males and forty six (46%) were females (refer, table 4.2a).

Marital Status

Majority eighty-six (86%) of respondents were married (8%) were widows while six (6%) of them were single (refer, table 4.2a).

Level of Education

Majority sixty-one (61%) had no formal education seventeen (17%) have had primary education twenty-two (22%) have either completed Junior Secondary School (JSS) or Middle school (refer, table 4.2a).

Ethnicity

The majority, seventy-seven (77%) of the respondents are the northern (Konkomba, Busanga and Dagarti) ethnic groups whiles twenty (20%) of respondent are Bonos, only three are Ewes (refer, table 4.2b).

Occupation

Majority (82%) are farmers only four (4%) are traders five (5%) are unemployed as two (2%) are civil servants. Another five (5%) had no specific work but do all kinds of work for a living (refer, table 4.2b).

Religion

Majority sixty-six (66%) are Christians twenty three (23%) are Moslems and eight (8%) are traditionalists. Three (3%) do not belong to any form of religion (refer, table 3.2b).

Socio-demographic Characteristics of Non endemic Areas.

Tables 4.3a and 4.3b on the next page, present findings on the demographic characteristics of communities in the non endemic areas.

Table 4.3a: Socio-demographic characteristics of Respondents in **Non Endemic** areas (Age, Sex, Marital Status, Level of Education)

CHARACTERSITICS	FREQUENCY	PERCENT
Age		
15-24	56	56
25-34	16	16
35-44	29	26
45 and above	50	50
Total	100	100
Sex		
Male	51	51
Female	49	49
Total	100	100
Marital Status		
Single	10	10
Married	77	77
Widowed	10	10
Total	100	100

Source: Survey data, 2003.

Table 4.3b: Socio-demographic characteristics of Respondents in **Non Endemic** areas (Level of Education, Ethnicity, Occupation and Religion)

CHARACTERSITICS	FREQUENCY	PERCENT
Level of Education		
None	59	59
Primary School	15	15
MSLC/JSS	14	14
SSS	5	5
Post Secondary	3	3
Total	100	100
Ethnicity		
Ewe	5	5
Bono	20	20
Northern ethnic groups	69	69
Akans	6	6
Total	100	100
Occupation		
Farmer	67	67
Trader	9	9
Fishing	1	1
Civil Servant	7	7
Others	5	5
Total	100	100
Religion		
Christianity	36	36
Islam	48	48
Traditional Religion	11	11
None	3	3
Total	100	100

Source – Survey data, 2003

Age

Fifty (50%) were 45 years above and above, 29% between 34-44 years, 16% between 25-34 years and the rest (5%) between 20-24 years. (refer Table 4.3 a).

Sex

Fifty-one (51%) of respondents are males whiles forty-nine (49%) are females (refer, Table 4.3 a).

Marital Status

Majority (77%) are married 10% are single, another 10% widowed and 3% are divorced (refer Table 4.3 a).

Level of Education

Approximately half of the respondents (59%) did not have any form of education 15% completed Primary School, 14% completed JSS or middle school, 5% completed secondary school 3% are post secondary graduates and 4% have non-formal education, (refer Table 4.3 b).

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Ethnicity

Majorities (69%) of the respondents are from the three northern regions. Eighteen (18%) are Bonos, six (6%) are Akans and six (6%) are Ewes (refer Table 4.3 b).

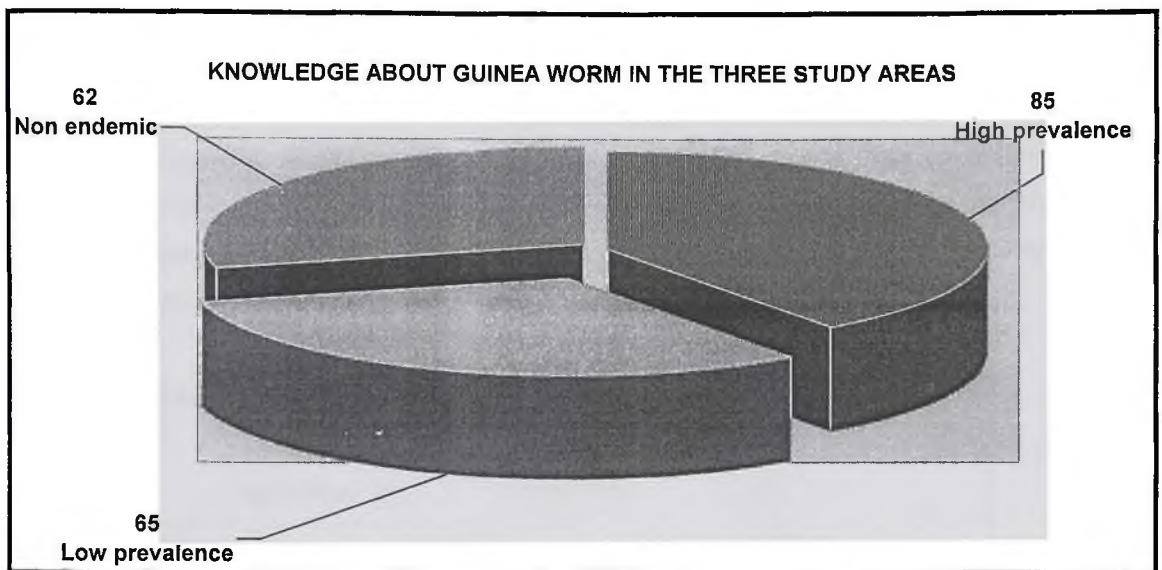
Religion

Majority (48%) are Moslems followed by 36% Christians. Eleven (11%) belong to the traditional religion and five (5%) did not practice any form of worship (refer Table 4.3 b).

Occupation

Majority (67%) are farmers. Nine (9%) are traders, seven (7%) civil servants, six (6%) unemployed two (2%) charcoal burners each of the remaining seven respondents as to palm wine tapper, driver, mason, food vender, hair dresser, artisan or fisherman (refer, Table 4.3 b).

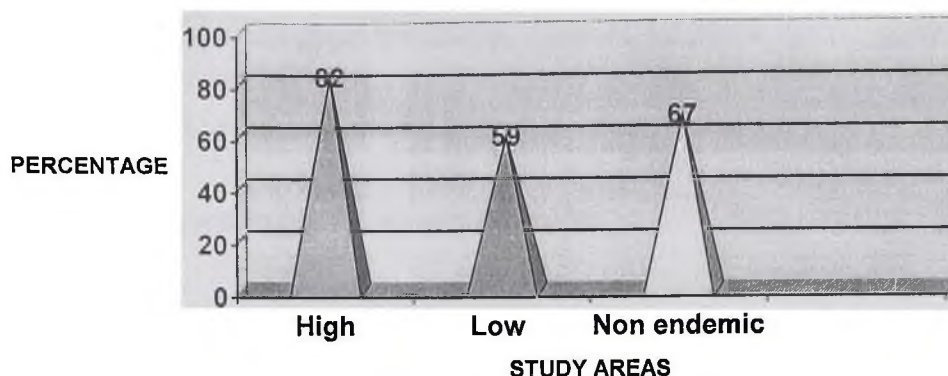
Figure 7: Knowledge about guinea worm and the GWEP



Source: Survey data, 2003

Figure 7 above, portrays knowledge about the guinea worm disease in the three study areas. Majority (85%) of respondents interviewed in the high prevalence areas knew about guinea worm. Sixty-five (65%) knew in the low prevalence areas and sixty-two (62%) in the non-endemic areas.

Figure 8: Awareness of the GWEP



Source: Survey data, 2003.

According to figure 8 above, majority, (82%) of respondents in the high prevalence areas knew about GWEP. Fifty-nine (59%) knew about the programme in the low prevalence areas. Sixty-seven (67%) of the respondents interviewed in the non endemic areas also knew about the programme.

Table 5: How did you know about guinea worm?

endemicity	Health education activities (%)	Respondent as a victim (%)	Total (%)
High prevalence	96	4	100
Low prevalence	99	1	100
Non endemic	95	5	100

Source: Survey data, 2003.

In the high prevalence areas 96 percent of respondents knew about the GWEP through health education activities such as dramas, health talks, radio programmes, just to mention a few, and also have seen guinea worm patients before. Four (4%) respondents knew about the disease when they fell victim. This picture is somewhat

similar for the low prevalence and non-endemic areas. About 99 respondents in the low prevalence areas (99%) knew about the disease through health education activities and one respondent got to know about the disease because he was a victim. In the non endemic areas 95 respondents (95%) heard about the disease through health education activities and five (5%) experienced the disease. (see Table 5 above).

4.4 Practices regarding guinea worm prevention

Table 6: Respondents who treat their drinking water

Endemicity													
High prevalence N=100				Low prevalence N=100				Non endemic N=100				Total N = 300	
Yes		No		Yes		No		Yes		No			
Freq.	Per.	Freq.	Per.	Freq.	Per.	Freq.	Per.	Freq.	Per.	Freq.	Perc.	Freq.	Per.
73	73	27	27	4	4	96	96	34	34	66	66	300	100%

Source: Survey data, 2003

Majority (73%) of respondents in the high prevalence areas treat their water before they drink. Only four (4%) treat their water in the low prevalence areas whilst thirty-four (34%) do so in the non-endemic areas.

Table 7: Level of Filter Use

GUINEA WORM ENDEMICITY	USE		NO USE	TOTAL
	Always	Sometimes		
High prevalence	50	24	26	100
Low prevalence	23	3	74	100
Non endemic	22	10	68	100
Total	95	37	168	300

Source: Survey data, 2003

Table 7 above shows frequencies for the level of filter use in the three study areas. For the high prevalence areas of 74 used filters. Of this number, 50 respondents reported to have filtered their drinking water always, 24 filtered sometimes and 26 never filtered their water before drinking. About 23 respondents from the low prevalence areas said they filtered their drinking water always, three respondents filtered their water sometimes and 74. The statistics for non-endemic areas is as follows: Always, 22, sometimes, 10, and, (68) did not filter at all.

Almost all the respondents interviewed in the three prevalence areas often took certain local preparations, which is referred to in this study as cold food/cold drinks. These are often prepared with unpotable water especially in communities where there are no boreholes. The cold food/cold drinks recorded in this study are: Fula¹, iced kenkey², zonkom³, mashed tuo –zafi⁴, mashed fufu⁵, mashed dawadawa⁶ and ginger drink.

Apart from the GWEP activities carried out by the village volunteers in the communities, communities did not have any self-initiated programmes as regards guinea worm eradication or prevention. A few 2-3% and 3 (3%) said they weeded and swept around sources of water in the high and low prevalence areas respectively. Four (4%) said they organized to put logs near streams or ponds to prevent people from stepping into the water and also educate people to refrain from stepping into the water.

A local drink made from millet

A local drink made from maize preparation

A local drink prepared from millet

A cereal pap

A preparation from cooked cassava and plantain, pounded together

A preparation from fermented seeds of a tropical plant

CHAPTER FIVE

DISCUSSIONS

5.0 Introduction

This chapter presents discussions from the findings from the data collected from the field. It centers on the main and specific objectives. The effectiveness of the GWEP activities, specifically surveillance, case containment, filter distribution and use, health education, management of GWEP, knowledge about the disease and awareness of the GWEP, practices like filtration of drinking water and preparation of cold food and drinks, and community involvement are also captured.

5.1 Programme Activities

Surveillance

Surveillance indicators in eradication programme use highly sensitive and sniffing system by having a case definition (Eshetu: 2002). In the GWEP one reported case in a community means the whole community is at risk of being infected. This is because one person can infect the drinking water source. Reporting of cases on monthly bases has been an essential tool for surveillance. Record keeping at the zonal and village level was non-existent in the non-endemic areas. This indicates that since the people no longer suffer from guinea worm disease the zonal coordinators and village volunteers have relaxed in the case search. However, in the high prevalence areas, village volunteers and zonal coordinators are very enthusiastic about the programme and do proper documentation on reported cases. This confirms a study done in other regions of Ghana (Anemana *et al.*: 1997) that most village volunteers in non-endemic areas have relapsed in their efforts to carry out active case searches.

Records on surveillance at the DHMT tallied with those of the village volunteers. However, observations revealed that some village volunteers gave higher figures to

some donors who visited the community. Probably this is done for certain reasons: to give the impression that they are hardworking, draw the attention of Donors to the communities and invoke Donor sympathy. There was no evidence to show that village volunteers and zonal coordinators were not working even though there were occasional out breaks in new communities.

Case Containment

Village volunteers and zonal coordinators seemed to be well informed about case containment. In the high prevalence areas some respondents knew the right thing to do when infected with guinea worm. A few, however, said they would treat their sore with herbs when the worm emerges. At the district DHMT, there were records to show the percentage of guinea worm cases contained for each month. These case containments range between 80-100 percent.

Filter Distribution and Use

There were records on filter supply and distribution to communities. However, village volunteers reported that each person would like to own a filter instead of households having one filter each. This is because it is difficult to use the household filter if there is discord among its members. Secondly, some of them farm in different locations and therefore drink unfiltered water from rivers and streams. This confirms the findings from other studies (Reubush *et al*: 1995, Anemana *et al*: 1997).

Health Education

Health education activities in high prevalence areas are normally community meetings and durbars with small groups of people, especially on one-to-one basis. This is purported to be very effective and less costly as stated in other studies (. Hopkins *et al*.: 1990, Glanz *et al*.: 1990 and Munday *et al*.: 1976). Since most of the communities are very large, with a few remote ones, one would have thought that health education

activities would have been programmed to coincide with other health activities during outreach clinics.

5.2 Management of the GWEP

There were no records on number of supervisory visits conducted by the District Guinea Wom Coordinator. However, information from village volunteer and zonal coordinator confirmed that they were visited by the district coordinator at least twice a month. There were no records on human relations problem, neither were there any significant complaints by village volunteers or zonal coordinators among themselves or others.

The capacity building initiative recorded includes monthly meetings with all village volunteers and zonal coordinators from the high prevalence areas to review GWEP activities. Records show that there will be a major training Programme for all village volunteers and zonal coordinators who constitute a network of community based surveillance system in the Atebubu District, which will be assisted by the District Assembly.

Records also revealed that the GWEP is being managed in collaboration with some NGOs.

5.3 Knowledge and Practices about Guinea Worm Disease and its Prevention

This section presents discussions on knowledge about guinea worm, awareness of GWEP, practices like treatment of drinking water, filtering of water, demonstration of the filtering process, filter replacement, consumption of cold food/cold drinks and community involvement.

Knowledge

The findings reveal that majority (62-85%) of respondents knew about guinea worm disease and also 12-34% was aware of the GWEP in all the three prevalence areas. This confirms other studies (Reubush *et al.*: 1995, Anemana *et al.*: 1997).

What was disturbing though is that a third (30-31%) of respondents said they would apply herbs to the emerging worm while another third (31-31%) said they would report to the health centers. This was common to all the study areas. For the non-endemic areas this phenomenon could be attributed to the fact that the village volunteers in these areas were not active because the disease is under control. This fact corroborates a similar study conducted in the Volta Region in 1995 by Reubush *et al.* (unpublished).

Most of the respondents knew about guinea worm prevention through health education activities conducted mostly by the village volunteers as in other studies (WHO: 1998).

Practices

Majority (74%) of respondents in the high prevalence areas filtered their water. These people are above 45 years, have little or no education and are farmers. Lack of education maybe a cause of the spread of the disease. It was also discovered in these areas that more males than females filtered their water. An FGD with JSS students in a high prevalence community revealed that women found it difficult to filter water for their husbands to drink because they are pre-occupied with household chores.

As stated by one JSS boy:

“The women think they are too busy so they don’t want to filter water for their husbands, what they must know is that, a sick husband who is infected with

guinea worm cannot do anything or even earn money to support the family. The woman and her children will be the sufferers. They must know this.

Filter usage in high prevalence areas are high as found in other studies, (Olsen *et al.*: 1990, Reubush *et al.*: 1995) confirms studies in the Volta region (unpublished reports Volta Region). Also in the Volta Region, the village volunteer distributes filters supplied by MOH to people in only few villages (Diamenu and Nyarko: 1998)

A few (10) of the respondents interviewed in the low prevalence areas filtered their water. Findings from FGDs held in these areas revealed that there was no need to filter their drinking water because nearly every community had at least one borehole and the inhabitants drank water from them. A few who drank from ponds and dams did so on the farm since they were away from home where there were no boreholes. This also explains assertions made by some village volunteers that all farmers should be given filters so that they could carry them along to their farms. This has been documented in other studies (Anemana *et al.*: 1997). More males filtered their water as compared to females. This implies that males are used to the processes of filtering their water more than the females. They must be encouraged and acknowledged for that. This would help to strengthen the GWEP. Presently the Ghana Red Cross Society (GRCS), in collaboration with the Atebubu DHMT, have formed 26 Mother Clubs to educate women on the preventive measures in guinea worm eradication. The men can also be organized in another form to enforce their effort to eradicate the worm. The Northern tribes, illiterates and farmers should be educated on the filtration of their drinking water.

Almost all respondents interviewed in the three sub-districts take one form of drink, which is prepared with unfiltered water. These drinks are gari and water, fula, ice kenkey, zonkom, mashed tuo-zafi, mashed dawadawa, mashed fufu and ginger drink which are prepared in the home or bought from food vendors. This could be a source of infection.

According to (Roduel: 1995) there are many reasons for adopting the concept of community participation in health programme. Tone (1995) hints that although the main reason is to empower communities thus prepare them to assume control over the program, absolute freedom of choice does not exist in the world.

Apart from the activities carried out by the village volunteers in the communities, the communities themselves have no programme or did not practice any thing to prevent the spread of the disease even though opinion leaders are involved in the programme. The GWEP has set standards for the community to follow but the communities are also supposed to contribute to the programme by taking new initiatives to eradicate the disease. Yet they still look up to health workers about what must be done. Health promotion ideals require all people to gain understanding of the programme, take control over decisions and actions to ensure their health. (Tones:1994, Rissel :1994 and Asthana: 1994). (Rifkin and Walt 1986) attribute the failure of some community projects to the non favourable political, social and culture atmosphere, that does not encourage community participation. In most of the communities studied, the impression given by the people were that health authorities have all the answers and resources. FGDs with adult males and females supported this assertion.

“ As you have come to find out our problems we know it will all be solved. You are the people who know what is wrong with us and know what must be done. We are poor and cannot help ourselves”

(male respondent)

In Atebubu, the multicultural diversity of the people has influence on the programme and majority of them are migrant farmers from different cultures; this makes it difficult for effective community participation. “Cultural orientation in a rural populace is a limitation to participation in health projects which are sponsored by health authorities who are mostly outsiders in the communities' perspective” (Oakley:1989 and Manderson: 1992).

Even though there has been much involvement of opinion leaders and communities in the GWEP activities most people are not enthusiastic about the programme, however the participation of the District Assemblies and the DHMT since the onset of the GWEP has not waned. This may suggest that there is programme fatigue. They therefore no longer need lectures, talks as explanation from health authorities but must be given the opportunity to decide what they want to do with their health. Probably the bureaucratic mechanism of most health programmes is a disincentive to participation by communities (Smithies and Adams: 1993, Mathbor :1997).

CHAPTER SIX

CONCLUSIONS

Summary of findings

To conclude, the author would like to present the major findings of the study.

- Records on activities in high and low prevalence areas are lacking in certain details such as challenges faced in the field, best practices and lessons learnt. However, for non-endemic areas, records are non-existent.
- There tends to be a lot of focus on programmes in high and low prevalence communities some passive surveillance is needed in the non-endemic areas.
- There were no records on supervisory visits by the District Coordinator even though village volunteers and zonal coordinators confirmed that they were visited at least twice a month. They also organized monthly meetings with village volunteers and zonal coordinators to review their activities. The GWEP team meets every week to review programme activities but do not document such important meetings. Records of NGO and other stockholders involvement were present.
- The most dominant ethnic groups in the three study areas are from the three northern (Konkomba, Dargati and Busanga) regions of Ghana, they have no formal education and are mostly farmers. These farmers use ponds and dams for irrigation and also as drinking water.
- Majority of the respondents are very knowledgeable about the guinea worm disease and its prevention as well as the GWEP.
- Filter usage and proper filtration process are common with more than half of people interviewed in the high prevalence areas. Approximately a quarter of the people in the low prevalence areas filter their water. Many of them have access to boreholes. In non-endemic areas, some area people continue to filter their water.
- In all the study areas, majority of people who filter their water are males.

- Almost all the people drink cold food/cold drinks prepared with unfiltered water.
- Communities are involved in the GWEP but they did little on their own to prevent the spread of the guinea worm.
- The GWEP is doing well in Atebubu District. The staff are committed, community members are enthusiastic about the programme but lack new initiatives. There seems to be programme fatigue, encouragement and supervision from Regional and National teams will be beneficial.

CHAPTER SEVEN

RECOMMENDATIONS

Against this background of findings the following recommendations are made.

- Records of weekly and monthly GWEP review meetings must be documented and should indicate challenges, lessons learnt and best practices in the field.
- Programme activities should be extended to non-endemic areas to prevent outbreaks of the disease in new communities. To this end, it is imperative that village volunteers and zonal coordinators in the non-endemic areas should attend quarterly meetings in order to be involved in the GWEP.
- Hospital nurses should also be involved in the GWEP activities.
- Records of supervisory visits and checklists should be kept and updated.
- It is important that health education messages should be given in the various local languages particularly Konkonba, Busanga and Dagarti, since they form the majority.
- The DHMT should focus on all aspects of GWEP activities and also cultural practices. An example is hygienic methods of food preparation particularly, cold drinks/cold foods, using borehole water or filtered water where necessary.
- Males should be acknowledged for championing filtration of drinking water and must be encouraged to intensify it.
- Communities should be given the opportunity to express their views and also contribute to the methods and plans to fight the disease.

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APPENDICES / ANNEXES

APPENDIX A: INTERVIEW GUIDES

Evaluation of Guinea Worm Eradication Programme in Atebubu District, Brong Ahafo Region

Interview Guide: District coordinator

Serial No.

1A Surveillance

How is surveillance carried out in this district? (Promptness in case detection, active/passive case search, during NIDs etc.)

.....

1B Case Containment

1. How many cases of guinea worm cases were reported last year?.....
2. How many were contained?.....
3. How many imported cases did you have this year?.....

1C Health Education

4. Also list how many times and methods used in health education this year?

.....

1D Filter supply and Distribution

5. Do you run short of filters?.....
6. How do you do the distribution?
 - a. Everybody get one
 - b. Every household get one

1E. Abate/Vector control

- 7. Do you run short of Abate?.....
- 8. What is the ideal frequency of abating a dam in year?.....
.....
- 9. Did you abate all dams as expected last year?.....

2A. Management and Supervision

- 10. How many supervisory visit did you conduct this year?.....
- 11. What reports do you write?.....
- 12. What measures have you put in place at all levels to properly document all GWEP activities?.....
- 13. Do you have a checklist for monitoring and supervision?.....
.....

- 14. Do you also report back to the Zonal coordinator and community volunteer on the reports they bring you?.....
- 15. Are you computer literate?.....
- 16. Do you have access to a computer?.....
- 17. What information do you collect from WHO?.....
.....

2B. Human and Ethical Issues

- 18. Do the zonal coordinators or communities volunteers ever get peeved over any problem among themselves or others?
.....
- 19. If yes, explain.....
- 20. Do they have language or ethnic barriers in carrying out your work?
.....
- 21. Any other comment :.....

.....
.....
.....

2C. Training

- 22. How many training workshops did you attend this year?.....
- 23. How many training workshops did you organize for zonal coordinators and
community volunteers this year?
.....
- 24. What was the total training workshop expected this year?
.....

2D Intersectional Collaboration

- 25. Have you had any meeting with representative from the District Hospital, Ministry
of Education, Ghana Water Company and NGO's concerning
GWEP?.....
- 26. What role did each play in the GWEP?.....

INTERVIEW GUIDE TWO

An Evaluation of Guinea Worm Eradication Programme, Atebubu District of Brong Ahafo Region

Interview Guide: Zonal Coordinator

Sub district: Community:
Serial No.

1A Case Containment

1. How many cases of guinea worm did you report last year?.....
2. How many were contained?.....
3. How many cases of guinea worm did you report this year?.....
4. How many were contained?.....

1B Health Education

5. Do you have health education programmes in your zone?.....
6. List the number of times and methods used in each for this year?
.....

1C Abating of Dams/Ponds

7. What is the frequency of abating water sources?.....
8. Did you abate all dams as expected?.....
- 8a. If no, why?.....

2A. Supervision

9. How many communities are under your zone?
10. How many community volunteers are under your zone?

- 11. How many supervisory visits did you conduct last year?
- 12. How many years?
- 13. How many supervisory visits have you had from the district coordinator?
.....

2B Human and Ethical issues

- 14. Do the community volunteers ever get peeved over any problem among themselves or others?.....
- 15. If yes, explain.....
- 16. Do you have language or ethnic barriers in your work?.....
- 17. If yes, explain.....
- 18. What are some of your difficulties?.....
.....
- 19. How do you see the future of GWEP?
-
- 20. Any other comments:.....
.....
.....

2C Training

- 21. How many training workshop did you attend this year?.....
- 22. Did you organize any training for community volunteers?.....
- 23. If yes, specify and explain?.....
- 2D Community Participation
- 24. Have you had meetings with any group in the community? Yes [] No []
- 25a. If yes, list them
- 25b. What was discussed?
-

INTERVIEW GUIDE THREE

Evaluation of Guinea Worm Eradication Programme Atebubu District, Brong Ahafo Region

Interview guide for other health workers

Serial No.

- 1) Do you know about Guinea Worm Eradication Programme?
.....
- 2) What activities are carried out in the programme?
.....
- 3) Have these activities influenced the health service you deliver?.....
- 4) In what ways do you think communities are benefiting from the GWEP activities?.....
- 5) Given the opportunity, what ways do you think you can help in GWEP?
.....
- 6) Any other comments:.....
.....
.....

INTERVIEW GUIDE FOUR

In-depth Interview for Village Volunteers

General Outline

Surveillance

1. What is your role in surveillance?
2. How do you detect guinea worm cases in the community?

Case Containment

3. How do you educate the people to prevent them getting the disease?

Vector Control

4. How is abating done?

Supervision and Monitoring

5. How many times a re you visited by the District Coordinator and Zonal Coordinator?
6. How do chiefs, elders and community members help to eradicate the disease.

Thank you

INTERVIEW GUIDE FIVE

Focus Group Discussions for Men, Women and JSS Students.

1. Why do you think we are seeing more cases of guinea worm in this country?
2. What do you think is the cause of guinea worm disease?
3. What do you do to prevent the disease?
4. How do you obtain filters?
5. How are the filters used?
6. How do those who get the disease obtain treatment (extraction, occlusion, bandaging before the blister opens etc.)
7. What are some of the difficulties you face in treatment?
8. How do the village volunteers perform their work?
9. Do you have any special contribution you want to share with us?

Thank you

APPENDIX B: STRUCTURED QUESTIONNAIRE

Evaluation of Guinea Worm Eradication Programme (GWEP) Atebubu District, Brong Ahafo Region

Structured Questionnaire

Introduction

The purpose of this questionnaire is to solicit information on your knowledge about the GWEP and your perception about the programme. Your candid responses will therefore be most appreciated. Be assured that all responses would be treated with utmost confidentiality. Thank you.

Name of Community..... Interviewer:

Section A

Knowledge about the disease, GWEP surveillance and case containment

1. Do you think guinea worm is a health problem? Yes [] No []

1a. Please give reasons

.....
.....

2. Are you aware of any programme that seeks to eradicate Guinea worm?
Yes [] No. []

2a. If yes to question 2, please indicate some of the activities in this programme which are targeted at preventing guinea worm.

a. Filtration of water with intact filters []

- b. Avoidance of water source if you are infected []
- c. Boil water before drinking []
- d. Treatment of dams and ponds []
- e. Drink water from boreholes or wells if available []
- f. Prompt dressing and bandaging of wounds []

3. What are the names of the village volunteers in this community?

a.

b.

4. How many times do they visit this household each month?

a. once [] twice [] thrice [] four times []

none []. Other, specify

5. What activities do the village volunteers carry out when they visit?

a. Look for people who are infected with guinea worm and write their names []

b. Dress and bandage guinea worm wounds []

c. Educate people on the prevention of guinea worm and the need to stay out of water until wound is completely healed. []

Section B: Case Containment

6. When a person has guinea worm emerging from the skin, what must he do within 24 hours

a. Inform the village volunteer []

b. Go to the health centre []

c. Apply herbs []

d. Other, specify

.....

7. How is the emerging worm treated by the village volunteer for the first 24 hours?

a. He/she dresses the wound []

Extracts the worm or refers the person to another facility for extraction

- b. The person is educated along the following lines:
- i. Not to step into sources of drinking water until the worm completely emerges []
 - ii. Not to step into sources of drinking water until the worm is removed []
 - iii. Not to step into sources of drinking water until the wound is healed []
 - iv. Others, please specify

Section C: Health Education

8. How did you learn about guinea worm? Please indicate your response(s) by ticking the appropriate box (es)
- a. Radio programmes (talks, discussions) []
 - b. Video shows by health workers, zonal coordinators, village volunteers []
 - c. Publicity in the community through the health van []
 - d. Community durbars []
 - e. Posters []
 - f. Dramas []
 - g. Others, specify, []

Section D: Use of Filter Cloths

9. What is your source of drinking water?
- a. Boreholes []
 - b. Handdug wells []
 - c. Rivers and streams []
 - d. Ponds and dams []
 - e. Others, please specify

10. Do you treat your water before you drink? Yes [] No []
- 10a. Please give reasons for your answer
-
-
- 10b. If yes to question 10, how do you treat the water?
- a. Boiling []
- b. Filtering []
- c. Others,
11. If water is filtered how often is it done?
- a. Sometimes []
- b. Always []
12. Do you have a filter? Yes [] No []
13. Can I have a look at the filter?
- Rating
- a. Torn [] b. Not torn []
14. If yes to question 12, please demonstrate how you filter your water ?
- Rating:
- a. Very good [] b. Good [] c. Fair [] d. Poor []
15. In case your filters get torn is it easy to obtain a replacement?
- Yes [] No []
16. If no to question 15, what do you do?
- a. Continue to use torn filters []
- b. Stop filtering water []
- c. Boil water []
- d. Put chemicals in water (name of chemical (s) []

Section E: Vector Control

17. How is your source of drinking water treated to prevent guinea worm infection?
- a. treated with chemicals in the dry season only []
 - b. treated with chemicals in the wet season only []
 - c. treated with chemicals in both the wet and dry seasons []
 - d. no treatment []
- Other, specify

Section F: Promotion of Safe Water

18. How is your source of drinking water protected?
- a. Educating people to refrain from stepping in the water []
 - b. Weeding around water sources (boreholes/wells/ponds) []
 - c. Formation and training of WATSAN committees []

Section G: Community Practice/Perception

19. Name the types of cold food drinks that you prepare for the home/for sale?
- a. Fula []
 - b. Zonkom []
 - c. Iced Kenkey []
 - d. Others, please specify
20. How do you treat the water for the preparation of the above?
- a. Boiling []
 - b. Filtering []
 - c. No treatment []
 - d. Others, please specify

21. How do you treat water offered to you from ponds and rivers? (outside the home i.e funerals, farm, social gatherings)?
- a. Filtered with water filter []
 - b. Filtered with handkerchiefs, scarfs etc. []
 - c. Drink without filtering []
 - d. Refuse to drink []
 - e. Other, specify

22. Do you think guinea worm can be eradicated? Yes [] No []

23. Please give reasons for your answer

.....

.....

.....

24. Is the community involved in a guinea worm eradication programme?
 Yes [] No []

25. Give reasons for your answer

.....

.....

.....

SECTION H: Background of Respondents

26. Age: 27 Sex: Male [] Female []

28. Marital Status :

Single [] married [] Divorced [] Widowed []

29. Level of education

None [] Prim. Sch. [] JSS/MSLC [] SSS/Sec. Sch []
Post Secondary []

30. Ethnicity

Akan [] Ga [] Adangbe [] Ewe [] Brong []
Northern tribe (specify)

31. Religion

Chistianity [] Moslem []
Traditional Religion [] None [] Other

32. Occupation:

Farmer [] trader [] Civil servant []
Fishing [] Traditional healer [] unemployed []
Other

APPENDIX C

DEFINITION OF TERMS

1. **GWEP** Guinea Worm Eradication Programme
2. **Evaluation** A way of measuring whether programmes are doing what they are supposed to do by collecting information about the programme effectiveness and then comparing expected to actual results.
3. **Community Based Surveillance**
 - House to house visit by community volunteers to find cases.
 - Follow-up and investigation of suspected cases.
 - Monthly notification of Guinea worm cases.
4. **Case Containment**
 - Daily dressing of emerged worms until completely expelled.
 - Extraction of pre-emergent worms
 - Education of individuals patient on preventive measures and on the need to stay out of water until worm completely emerged and wound completely healed.
 - Visit by supervisor to verify contained cases.
5. **Promotion of the Correct Use of Filters**
 - Estimation of number of households in endemic community.
 - Filter Distribution to households including retrieving torn ones;
 - Education on the correct use and care of filters, including communal filter.
6. **Health Education of the general public and the affected communities using appropriate IEC methodologies**
 - Radio talks/ discussion
 - Video shows
 - Mass education using car-mounted speakers
 - Community durbars, meetings

- Use of posters
- Drama

7. Vector Control

- Identification (active) of unsafe water sources
- Chemical treatment of treatable sources
- Regular monitoring for treatment
- Education

8. Promotion of safe water sources in endemic communities

- Regular monitoring of water status in endemic communities
- Monitoring of maintenance of water systems



APPENDIX D

Table : 8 Number of Guinea Worm Cases in Atebubu District in the Brong Ahafo Region of Ghana.

Year	National	Brong Ahafo Region	Atebubu District
1989	179,556	-	1961
1990	123,793	-	-
1991	66,597	-	-
1992	33,464	-	-
1993	17,918	-	-
1994	8,894	-	-
1995	4,877	-	-
1996	8,921	-	83
1997	5,473	-	904
1998	8,965	1,727	1,061
1999	7,402	1,330	1,409
2000	4,644	-	1,006
2001	-	-	620
2002	-	-	443