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FACTORS ACCOUNTING FOR THE FAILURE TO ACHIEVE ERADICATION OF GUINEA WORM IN THE TAMALE MUNICIPALITY

BY

REGINALD E. N-O. ARYEE

PRESENTED TO THE SCHOOL OF PUBLIC HEALTH
UNIVERSITY OF GHANA, LEGON,
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DECLARATION

I declare that this dissertation is the result of my own research and no one else can be held accountable for the ideas and arguments presented. All sources cited have, however, been dully acknowledged. Further, this dissertation has not been presented in whole or in part to any educational institution for a degree.

Signed:

Reginald E. N-O. Aryee

(Student)

Dr. Eric Amuah

(Academic Supervisor)

Mr. Noye Nortey

(Academic Supervisor)

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DEDICATION

This work is dedicated to my Creator for His love and all the great things that have happened to me. Also my son, Donald Nii Ayitey Aryee for his companionship and to all family members who encouraged me supported both in good and difficult times.

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LIST OF ABBREVIATIONS

CHNS	-	Community Health Nurse
DCD		District Coordinating Director
DCE	-	District Chief Executive
GWEP	-	Guinea Worm Eradication Programme
JSS		Junior Secondary School
KAPB	-	Knowledge, Attitude, Practices and Beliefs
MDHS	-	Municipal Director of Health Services
MHMT	-	Municipal Health Management Team
MOH	-	Ministry Of Health
RHMT		Regional Health Management Team
SPH		School of Public Health
SSS	-	Senior Secondary School
UNICEF		United Nations International Children's Fund

TECHNICAL TERMS

1. Dracunculus Medinensis: the guinea worm
2. The Cyclops: the intermediate host of the guinea worm
3. Abate or Temephos: insecticide effective against the Cyclops – the intermediate host

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ABSTRACT

Factors Accounting For The Failure To Achieve Eradication Of Guinea Worm In The Tamale Municipality.

The Guinea Worm Eradication Programme (GWEP) began in Tamale Municipality 1989 with the objective of eradicating the disease in five years or by 1994. This could not be achieved. Further extension of the program for 2 years was disrupted by an ethnic conflict. Even further extension to the end of the millennium, year 2000, failed to yield the desired results. The problem of prevalence / endemicity of the disease persisted.

The objective of the study, which was descriptive, was to probe for factors responsible for the persistence of the disease and make recommendations aimed at improving the programme strategy in order to achieve eradication.

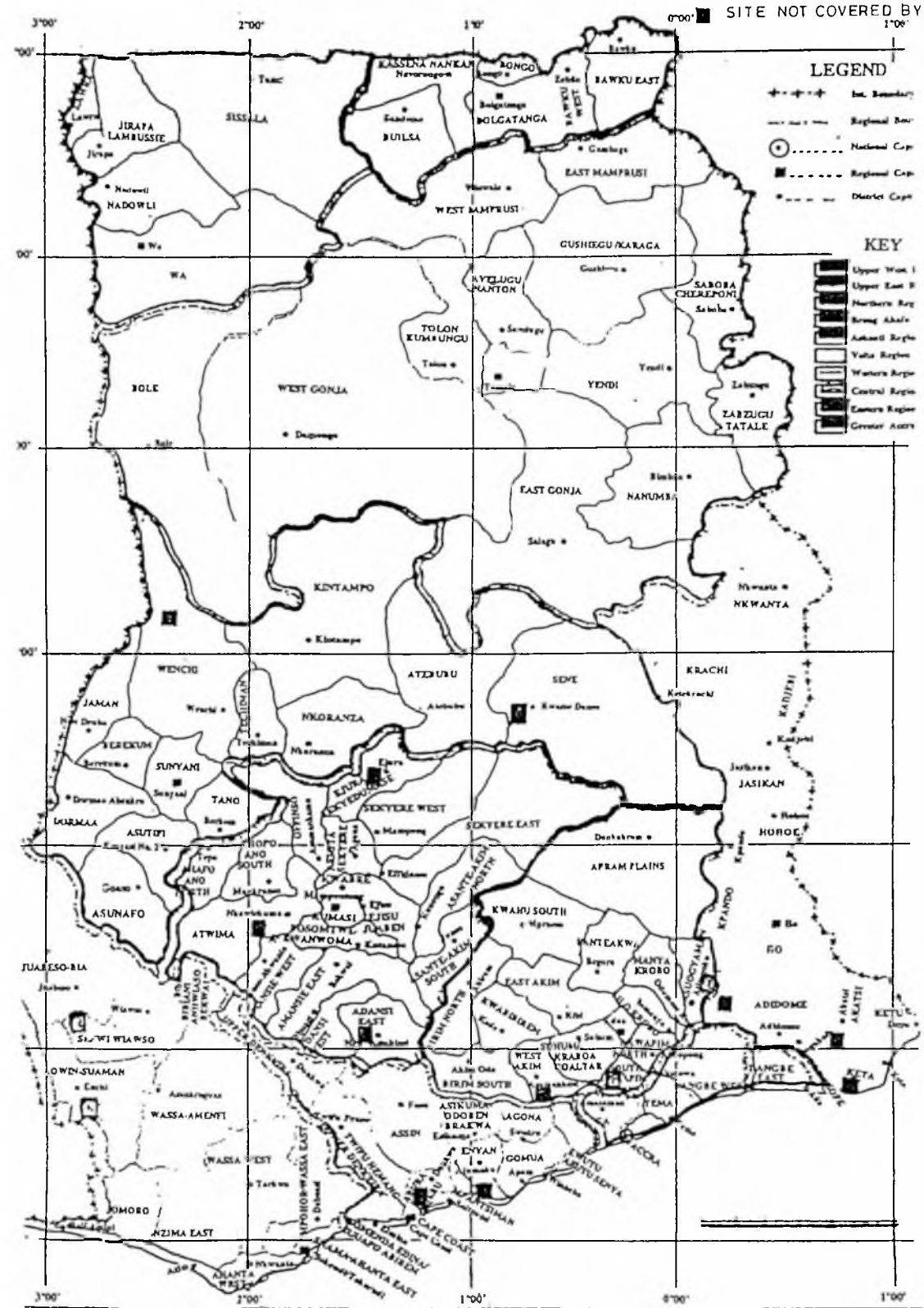
Data collection method included the use of existing records, structured interviews, focus group discussions, and key informant interview.

Major findings were: poor programme strategy because the programme was not foolproof. Treatment of dams with Abate were done only in endemic communities; there were no mechanisms in place to identify new and even old but previously unidentified dams; filter coverage was not 100% in all the communities more so in larger communities; monitoring of dams for the presence or absence of Cyclops – the intermediate host –was only by sampling. Resources committed to the programme were inadequate, including dressing materials for containment and filters for households and farms. Volunteers were dissatisfied with incentives given them and promises made by program managers and politicians that could not be kept. Community members appear to be tired of filtering their drinking

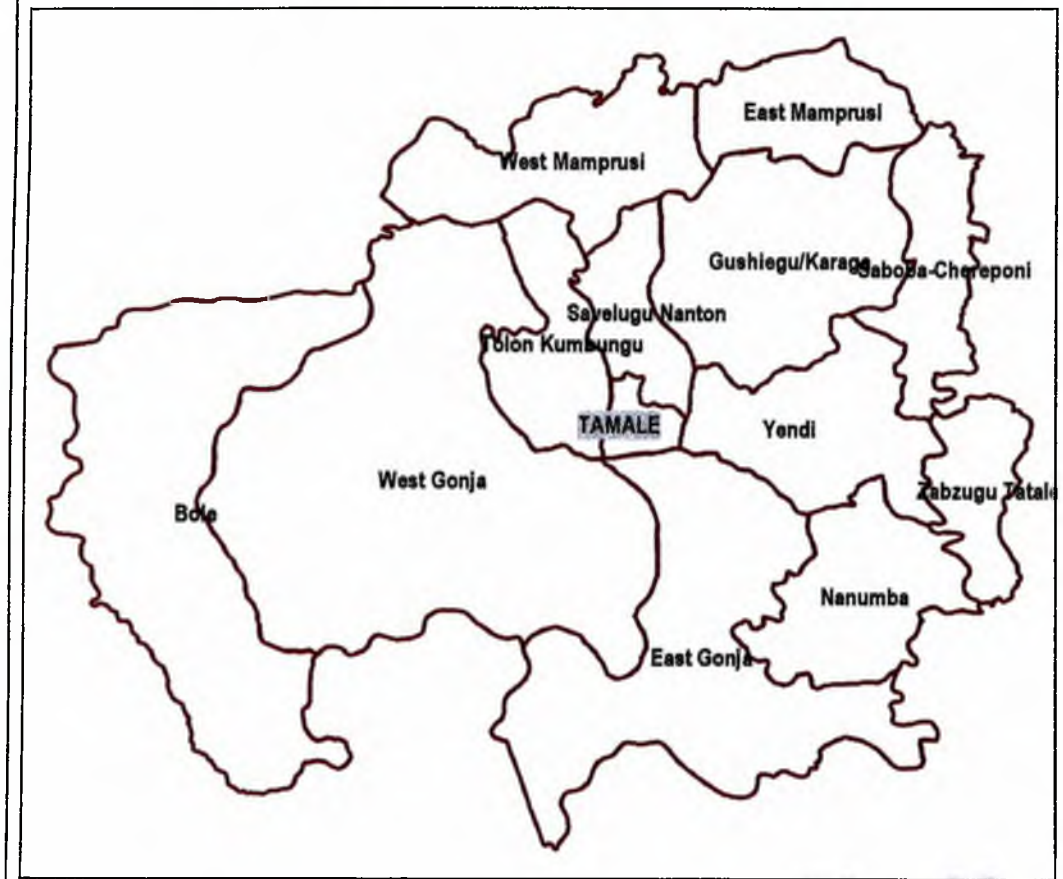
water for over a decade. The initial momentum of the programme is lost despite the high level of awareness of the GWEP and activities of the programme.

There is the need to replace the programme strategy with one independent of the activities of the people – filtration and early reporting for wound dressing bandaging. Comprehensive dam treatment with Abate and monitoring of all dams for Cyclops regularly could be the answer. Mechanisms to detect new and old dams must be in place and resources required must be available at all times. Filtration of water and wound bandaging should be considered adjunct to this strategy.

DISTRICT MAP OF GHANA



MAP OF NORTHERN REGION OF GHANA SHOWING TAMALE MUNICIPALITY AND OTHER DISTRICTS



Layers

- Region
- Districts

KM

0 50

CHAPTER ONE

INTRODUCTION:

1.1 BACKGROUND INFORMATION:

Guinea worm is a disabling waterborne, helminthic disease targeted for eradication globally.

In the life cycle of the Guinea worm - *Dracumculus Medinensis*, the larvae is discharged into water sources when the blister formed by the worm usually at the which are roughly the size of a dust particle, known as the Cyclops or copepod ingest the larvae which undergoes development into the infective form in about two weeks while in the Cyclops.

When swallowed in drinking water the copepod is killed and the larva is liberated. It penetrates the stomach wall into connective tissues of the human abdomen and thorax where they remain and mature and mate three months later.

The male worm dies and it is resorbed in about a year. However, the female worm migrates usually to the lower extremities to form a blister, ready to discharge its larvae when the blister bursts open on contact with water.

Besides skin ulcer, which may be secondarily infected, the worm can have debilitating effects as it travels down the victims body causing pain especially around joints accompanied by fever nausea and vomiting. Partial or total disability may last several months as the worm perforates the skin.

The disease is now confined to rural communities in countries of Africa and Asia, including Ghana, Sudan, Togo, Nigeria, Ethiopia, Burkina Faso and Yemen. In 1998, Pakistan, Kenya and Senegal reported zero cases.

1.2 ORGANISATION AND MANAGEMENT OF THE PROGRAMME.

The organisational structure of the GWEP is made up of the Guinea Worm Secretariat at the national level, the Regional Coordinators under the Regional Directors of Health Services at the regional level, and the District and Zonal coordinators under the District Director of Health Services and the District Health Management Team whose members are expected to supervise the activities of the Village/Field Volunteers at peripheral level.

The village volunteers who reside in the communities are required to perform the following functions:

1. To detect and record cases.
2. To perform occlusive bandaging of the Guinea worm wounds.
3. To carry out health education of the patient and the villagers.
4. To distribute filters and supervise their utilisation.
5. To protect water sources, and
6. To refer patients to appropriate treatment centers.

The district coordinators, with the assistance of the Zonal Coordinators at the sub-district level, plan and manage the district programmes. They also provide training, supervision, monitoring, evaluation and logistic support for the peripheral activities. They collect, collate and transmit the monthly data to the National Secretariat through the Regional Coordinators.

At the regional level, the regional coordinators are responsible for training, supervision, monitoring, evaluation and the provision of support to the district programmes.

The National Secretariat, which prepared the national Plan of Action, provides detailed guidelines for the management of all program activities. It compiles and reports on surveillance and other operational information. The Secretariat also provides logistic support to the regional programmes as well as funds directly to the regional and district programmes before the implementation of the Government's decentralisation policy. Funding of the programme is now provided indirectly through spending officers of the Municipal / District Health Management Team. Usually, the Municipal / District Director of Health Services.

1.3 PROGRAMME STRATEGIES AND ACTIVITIES.

The programme employs the following strategies aimed of eradicating the disease.

1.3.1 **Health education**:

- Creating greater awareness of the disease, the social impact, the need to eradicate the disease and the methods used to achieve eradication

1.3.2 **Vector Control:**

- Filtration of dam water for household use by the provision and utilisation of monofilament filters.
- Abating of dam with the resultant destruction of the vector carrying larvae.

1.3.3 **Advocacy for improved water supply**

- Protection of dams from getting infested with eggs from open sores.

- Provision of bore holes and hand-dug wells with pumps.

1.3.4 **Case containment**

- Early dressing and bandaging of open cases and surgical extraction of the worm.

1.3.5 **Surveillance.**

- The surveillance of Guinea worm is part of community Based Surveillance System, which include other diseases like measles, cerebro-spinal meningitis, acute flaccid paralysis, neonatal tetanus among others. Provision of money incentive for:
    i. Those who report cases which are eventually treated
    ii. Those who report themselves for treatment have their transport expenses reimbursed.
    iii. Those who treat cases are given money incentive for the procedure e.g. surgical extraction or dressing.

CHAPTER TWO

2.1 LITERATURE REVIEW:

Guinea worm eradication effort can learn from programmes aimed at small pox and malaria. Small pox eradication differed from that of guinea because one proven and relatively inexpensive prevention technology, immunisation, was the intervention to achieve eradication. The cyclops, the intermediate host of guinea worm is not as ubiquitous and mobile as the mosquito of malaria, the insect vector-the cyclops- is limited to ponds and drinking water, but like malaria there are several intervention strategies, none of which may be perfect for every situation.

Aside technical lessons, previous disease control programmes have shown the need to understand and account for the human behavioural aspect of disease transmission, prevention and treatment. It is often the behaviour, not only of the consumer but also the provider of services that is responsible for programme lapses. *(9)* This is the major focus of this study - factors responsible for the failure to achieve eradication of guinea worm in the Tamale Municipality despite over a decade of eradication programme activities.

Multi strategy approach

Experiences in rural Nigeria have shown that a multi-strategy approach is necessary to account for differences in geographical settlement problems, local culture and beliefs, geology of the area, economy to the villages and leadership. In the same study, it was concluded that generally low standard of living exacerbated

by scattered outlying settlements made self-help difficult. Programme planners must involve consumers in diagnosing community characteristics and in planning supervision, and maintaining the resultant project. The multi-strategy approach will help avoid wasted resources and false expectation that arise when project staff impose their plans to solve a complex problem. *(9)*

Operational research in GWEP

In order to achieve global eradication of guinea worm in the 1990's, it is of paramount importance for guinea worm endemic countries to immediately identify and solve the existing deficiencies and inconsistencies in GWEP. This is possible only through concurrent evaluation and operational research. *(11)*

Eradication and control programmes

It may be necessary, at this point, to distinguish between eradication and a control programme in order to bring out what an eradication programme entails. A communicable disease can be controlled or eradicated. In control of a disease transmission rate is kept low in communities to render the disease no longer of public health importance. Eradication, however, is the complete elimination of the disease. The difference between them is tabulated below in Table 1. *(7)*

Table 1. Operational differences between disease control and eradication.

	Control	Eradication
Objective	Minimal incidence	Complete elimination
Duration	Indefinitely	Limited
Coverage	Areas of high incidence	Entire area

Method	Effective	Perfect
Reservoir	Animal or environmental	Human only
Organisation	Good	Perfect
Cost	Moderate for long term	High for limited period
Complications	Acceptable	Extremely serious
Imported cases	Not important	Very important
Surveillance	Reasonable	Very good

Effectiveness of Abate (temephos) application

Abate the common name of temephos is used in the treatment of dams / ponds to destroy the intermediate host, the Cyclops, of the guinea worm (Dracunculus Medinensis). Examination of drinking water stored at the household level for the presence of Cyclops with or without Dracunculus larvae can provide some information on the efficacy of the multi-strategy approach besides serving as an inter-personal health education to the communities.

In 1991, observations carried out in two villages in India revealed that while in one village the complete absence of Cyclops in stored water containers was attributable to the use of Abate and filtration of water in the village, the other village which employed the use of only filters without Abate application had 15.6 percent of containers with varying numbers of Cyclops in them. Therefore, Abate when applied appropriately is highly efficacious. *(8)*

In Ghana, the Guinea Worm Eradication Programme (GWEP) was initiated by Global 2000 of the Carter Center – a Non Governmental Organisation (NGO) in

1989 with an initial national case count of 180,000. The programme gained support from several aid agencies and organisations as it gathered momentum, including USAID, UNICEF, ODA (Overseas Development Agency) now Department for International Development (DfID), Actionaid, Rotary Club of Ghana, Danish Bilhaziar Laboratory, American Cyanamid, Government of Japan and Ministry of Health of Ghana.

2.2 THE TAMALE MUNICIPALITY PROFILE:

- **General Information:**

The distribution of population, communities, health facilities in the sub-districts and sources of water supply, valid for 1999. (See table 2) *(2)*

Table 2.

ITEM	SUBDISTRICT						
	Tamale central	Bulpella	Kamina /Taha	Sagnerigu	Choggu	Vittin	Total (District)
Population	148,863	47,742	35,353	33,843	21,757	14,602	302,160
% Dist pop.	49.1	15.8	11.7	11.2	7.2	4.8	100
Area (km^2)							1,101
# communities	32	29	31	24	19	35	170*
# health facilities	3	1	3	3	2	2	14
# school							365
Major water source	pipe	dam	pipe	pipe	pipe	dam	
Major industry	trading	farming	farming	farming	farming	farming	Trade/ farming

The Tamale, regional capital of the Northern Region, is situated in the savanna zone, north-east of Ghana. It has a population of 302160. The people are predominantly Muslims and of the Dagomba tribe. Dagbani is the main language spoken. The majority of the people live in small communities outside Tamale

municipality where the main occupation is farming. Food crops cultivated include yam, maize, rice and groundnuts.

The Study Communities:

Most of the communities outside the Tamale township proper - and yet part of the municipality - rely on dam/pond for their water supply, including the study areas of Wamale and Kotingly with populations of 126 and 1,615 respectively, in the Vittin sub-district. Kudula and Kakpagyili with populations of 3,500 and 10,500 respectively, in the Bulpella sub-district. Some areas of Kakpagyili had pipe-borne water supply recently which is, however, irregular. Wamale is a new community located on the outskirts of Tamale comprising of indigenous Dagomba refugees of the 1994 ethnic conflict between the Dagombas and the Konkonbas.

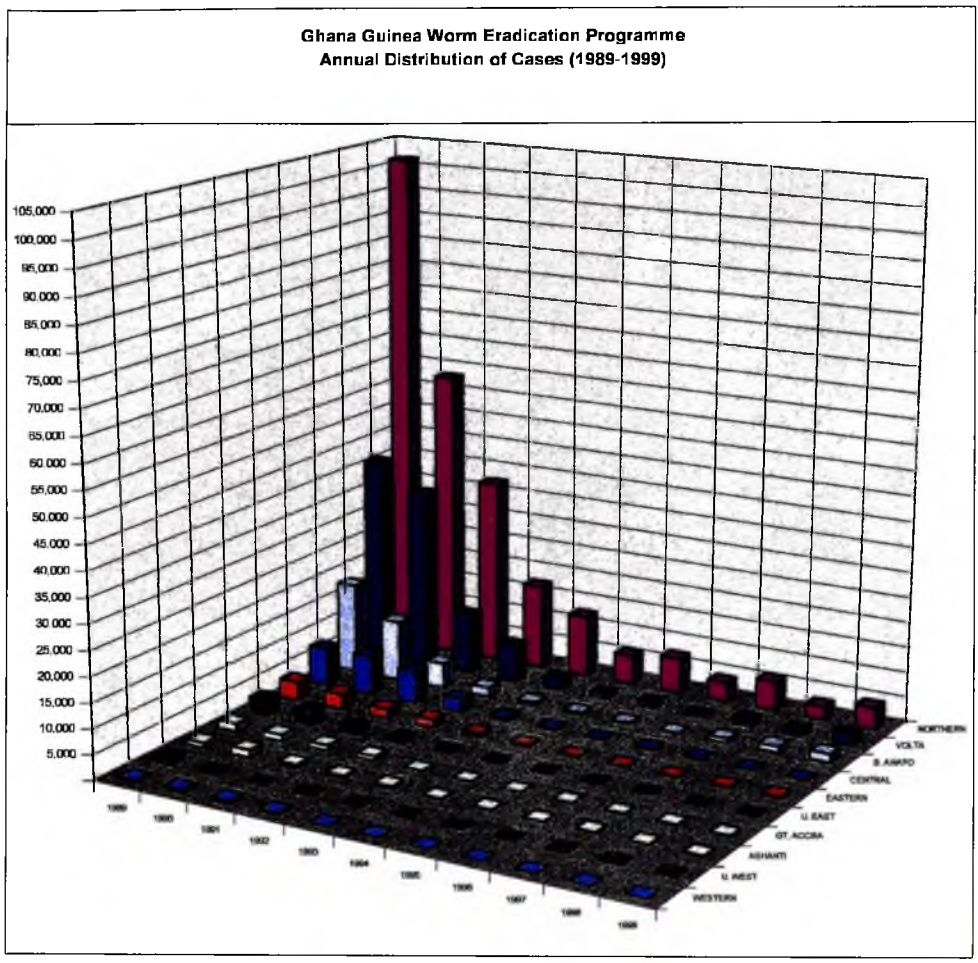
2.3 PROBLEM STATEMENT.

The Guinea worm eradication programme was started in 1989 in Ghana with an initial case count of approximately 180,000. The programme had the objective of eradicating the disease in 5 years of programme activities.

By 1994, five years after the inception of the programme, the number of cases nationwide was down to 8,432. The Northern Region contributed a substantial number of 5,852 cases to the national total. It was found necessary to extend the programme another 2 years in order to achieve the set objectives. But no sooner had this started than the ethnic conflict began in the Northern Region. The GWEP was thus, disrupted for nearly 2 years in the Northern Region including the

Tamale Municipality. By 1997 the total national case count had risen to 8,921, the Northern Region contributing 5,989 cases as a result. See figure 1 below.

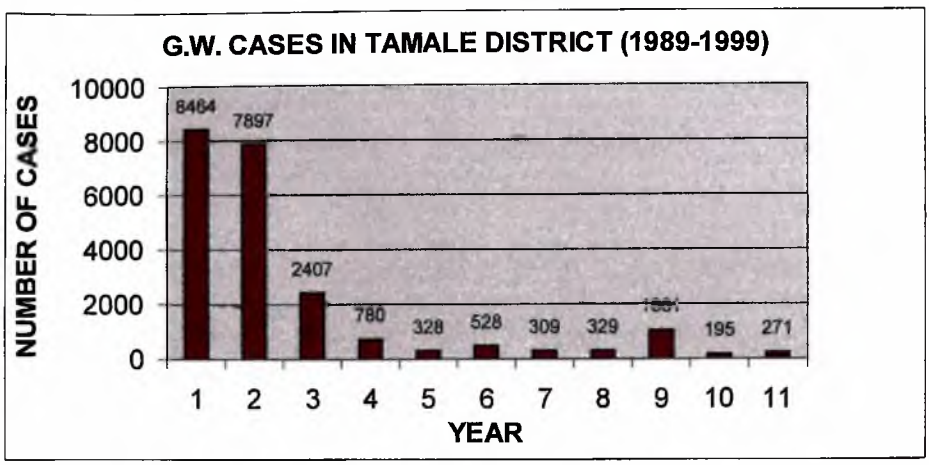
Figure 1.



The problem regions were the Northern in particular, the Brong Ahafo and Volta.

In Tamale the pattern of guinea worm prevalence over the years (1989- 1999) was quite similar to that of the Northern Region as a whole. (Figure. 2 below).

Figure 2



The number of guinea worm cases recorded in 1998 more than doubled in 1999. The relative percentage of cases contained fell from 50.7% to 27.1% in 1998 and1999 respectively, an indication of a recent poor performance of programme activities that should engage the attention of programme managers and interested parties. (See Table 3).

Table 3. Guinea worm case surveillance report *(10)*

Item	1998	1998 (%)	1999	1999 (%)	Remarks
Infected communities	56		-		
Cases recorded	211	100	590	100	Repeat counting
Cases extracted	107	50.7			
Cases bandaged	104	49.3			
Total cases contained	107	50.7	160	27.1	
Cases not contained	104	49.3	430	72.9	More public education & more scouting needed

At a national review meeting in February 1998, Regional Ministers and District Chief Executives pledged to achieve eradication in their respective areas by the end of the millennium or soon afterwards, but this has not been realised. In fact, in December 1999 there were 759 new cases in the Northern Region, 41 of them from 49 endemic communities in the Tamale Municipality.

More than 10 years after the inception of the GWEP, in the Tamale Municipality, Guinea worm continues to afflict the people. It has not been eradicated.

Out of the 6 sub-districts of the Tamale Municipality, 5 are mainly farming communities. With the exception of two sub-districts, Bulpella and Vittin, which depend on dams as water supply source, the remaining four sub-districts depend mainly on pipe borne water, bore-hole or hand-dug wells with pumps for their water needs.

There were 58 guinea worm endemic communities in the municipality by January 2000. Almost all of them were in areas using dams for their water needs.

The beliefs of the people regarding the etiology of Guinea worm could present difficulties in changing behaviour during the programme period. The beliefs that:

1. Eating half an egg instead a full size egg is the cause of Guinea worm infection.
2. Taking soup made of Baobab leaves may cause the infection,
3. Jumping over a coiled rope on a footpath may cause the infection.

4. Drinking water from dams is not the cause of Guinea worm because all members of the community drink the dam water but not all of them get the disease.
5. The disease is in the blood or from the earth.
6. A disease given to them by the gods as punishment.

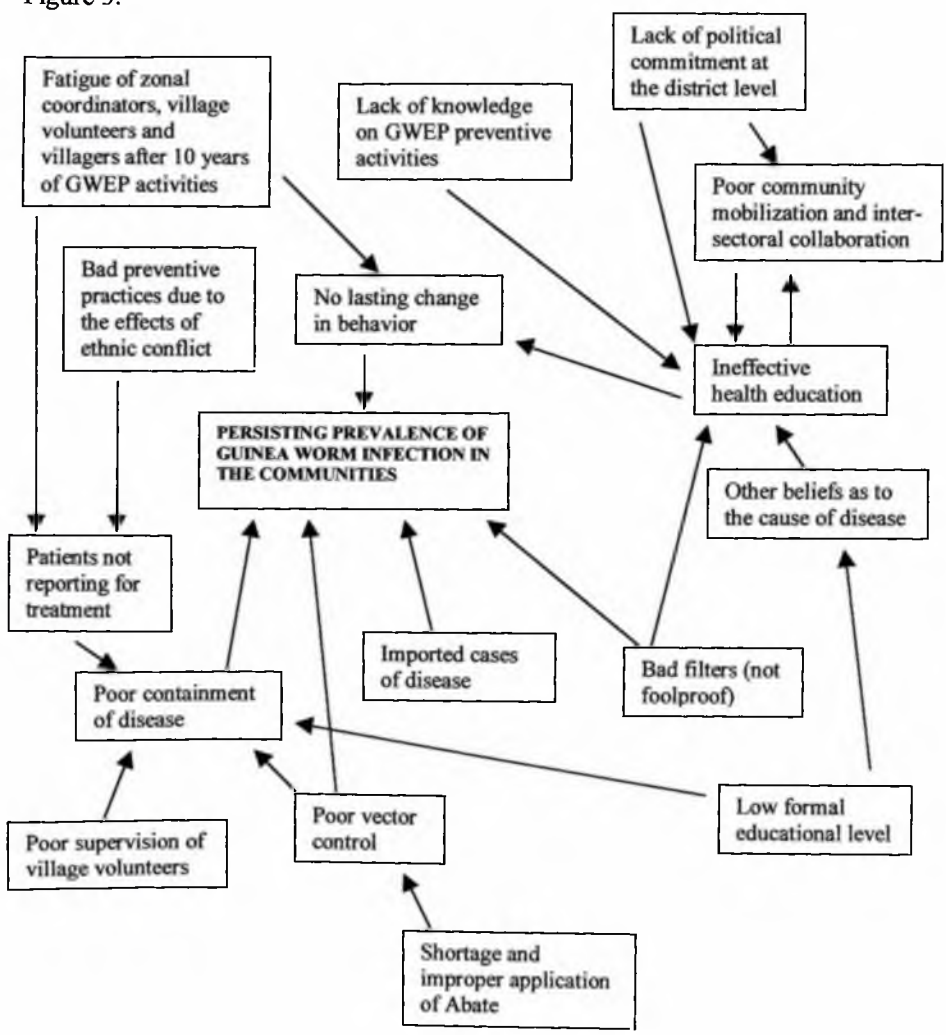
The major problem, therefore, is the persistence of the Guinea worm disease despite over a decade of programme activities.

2.4 PROBLEM ANALYSIS

Analysis Diagram

The diagram depicts the inter-relationship of factors contributing to the core problem – persistence of guinea worm infection in the communities.

Figure 3.



2.5 OBJECTIVES OF THE STUDY

- **Broad Objective**

To determine the factors accounting for the failure to achieve eradication of guinea worm in the Tamale Municipality

- **Specific Objectives**

i. To ascertain whether there is a gap between the knowledge of the people on Guinea worm prevention and their practices

ii. To determine whether the beliefs of the people regarding the aetiology of the disease have influenced their practices negatively, in the prevention of the disease.

iii. To determine the contribution of imported cases to the persistence of guinea worm in the Municipality.

iv. To ascertain whether there is 100% filter coverage.

v. To verify whether the people filter their water at all times before drinking.

vi. To verify whether the filtration process is foolproof.

vii. To determine whether Abating of dams are done efficiently and effectively.

viii. To establish the effect of the ethnic conflict on the GWEP.

ix. To verify whether the people are showing signs of fatigue after 10 years of GWEP

x. To make recommendations based on the research findings.

CHAPTER THREE

3.0 METHODOLOGY:

3.1 TYPE OF STUDY:

The study is descriptive, involving the use of existing records, non-participant observation, interviewing with questionnaire, focus group discussion and key informant interview. Presentation of findings is expected to give a clear picture of the situation regarding factors responsible for the failure to achieve eradication of guinea worm in the Tamale Municipality.

3.2 VARIABLES:

Operational definition of factors contributing to the prevalence of guinea worm. (See table 4 below).

Table 4.

Factors.	Variables:
Lack of knowledge on preventive activities of the GWEP.	Knowledge on preventive activities
Poor supervision of village volunteers and zonal coordinators	Number of supervisory visits.
Poor case containment	Number of cases reported Number of cases contained
Shortage of Abate and poor application of Abate.	Supplies of Abate in a year. Number of times of Abating dams/ponds in a year.
Lack of regular retraining of programme workers and poorly motivated workers.	Number of retraining in a year.
Bad preventive practices as a result of the ethnic conflict.	Wartime preventive practices.
Ineffective health education	Number of health educational talks organised
Impediments due to beliefs regarding disease causation.	

Low level of education.	Level of education.
Bad filters.	State of filters.
Shortage of filters.	Availability of filters.
Lack of political commitment at the district level.	Number of meetings with the district administrators DCE, DCD, on GWEP in a year.
Poor inter-sectoral collaboration.	Number of meetings with Agricultural and Educational ministries, and Ghana Water Company representatives.
Increase in number of imported cases.	Number of imported cases.
Poor community mobilisation	Number of community durburs in a year.
Fatigue(loss of initial enthusiasm) after 10 years of GWEP	Initial enthusiasm (before the war) Enthusiasm (after the war)

3.3 DATA COLLECTION TECHNIQUE.

3.3.1 The review of available data:

1. Records on supply of Abate and filters.

2. Records on supervisory visits to zonal coordinators and village volunteers.

3. Records on Abating of dams.

Is this done regularly and effectively (right concentration). Is there monitoring for vector presence or absence in the dams?

4. Records on old and new cases.

Is case containment being done efficiently and effectively?

5. Records on retraining of zonal coordinators and village volunteers.

Is retraining being done regularly to sustain their interest and commitment to the programme?

3.3.2 Non-participant observation:

During household interviews respondents were made to demonstrate the filtration process with their own filters or veil as the case may be. The techniques of filtration were observed for any flaws and filters examined for defects.

3.3.3 Interviewing using questionnaire (Structured interview):

This was aimed at gaining insight into the knowledge, attitude, practices and beliefs (KAPB) of the respondents in relation to the expectations of the eradication programme. Questions probed into the activities of village volunteers, district and zonal coordinators in the areas of health education, distribution and inspection of filters. Beliefs and their influence on behavior with respect to activities of the eradication programme were explored. Questions were structured to elucidate whether there has been adequate community mobilisation as well as political commitment.

3.3.4 Focus group discussion:

Two focus group discussions were conducted one for males and one for females. The male group was composed of mainly village health workers, including village volunteers and members of Village Health Committees. The female group was composed of housewives both young and old. The discussions were conducted in the local language.

3.3.5 Key Informant interview.

The key informant was the Regional Guinea worm Coordinator. The interview was conducted in his office and recorded on a voice-operated tape recorder. There was the advantage of checking guinea worm records on computer

(Database) during the interview. A floppy diskette copy of guinea worm data on Tamale Municipality was collected after the interview.

3.4 SAMPLING METHOD:

Two sub-districts were selected because they were the only two districts not served by pipe-borne water. They depended largely on dam water. Four communities were selected, two from each sub-district. They were selected because there was a rise in incidence of guinea worm cases in the communities. Houses were selected at random by spinning a bottle in the middle of the community and the direction of the open end is taken. The first house in that direction was selected. The first household was picked at random and every other household was interviewed. Houses were picked in one direction and when exhausted continued in the opposite direction.

3.5 STUDY UNIT:

My study unit was the female adult- 15years and above - in the households.

3.6 SAMPLE SIZE:

Sample size calculation:

The margin of error is given by ± 2 times the size of the standard error (e) if precision of 95% (Confidence interval) is required.

Sample size for a single proportion of population (n) is given by:

$$n = p\,(100\text{-}p) / e^2$$

where "p" is the proportion of cases estimated in the population.

In 1999 approximately 50% of the national case count of guinea worm was from the Northern Region. Total number of cases nationwide was 8,965. Total number of cases in the Northern Region was 4,324.

If a confidence interval of 45% and 55% is expected at 95%, then

$\pm 2e = 5$ where 5 is the 'margin of error.' Therefore, $e = 5/2 = 2.5$

Sample size (n) = $\underline{50(100-50)} / (2.5)^2 = 400$.

A sample size of 200 was selected instead of the statistically calculated 400 due to limited resources.

3.7 DATA ANALYSIS.

Computer data entry and analysis was done using Epi-info (epi 6).

CHAPTER FOUR

4.0 FINDINGS:

4.1 INTERVIEWS WITH QUESTIONNAIRE (STRUCTURED INTERVIEW)

4.1.1 CHARACTERISTICS OF RESPONDENTS.

All respondents were females between the ages of 15 to 70 who were responsible or involved in household water provision.

Distribution of respondents by age and occupation

35 to 39 years age group constituted the highest number of respondents - 22.4%, followed by the age group of 25 to 29 with 18.2%. The least number of respondents were in the age group of 60 to 69, comprising 1% of the total number of respondents. (See Table 5)

Table 5. Distribution of respondents by age group in all four communities under study.

Age group	Number of respondents	Percentage (%)
15 - 19	9	4.7
20 - 24	22	11.5
25 - 29	35	18.2
30 - 34	22	11.5
35 - 39	43	22.4
40 - 44	22	11.5
45 - 49	15	7.8
50 - 54	11	5.7
55 - 59	6	3.1
60 - 64	5	2.6
65 - 69	2	1.0
Total	192	100

Table 6 shows the distribution of respondents by their occupation. Traders comprised 44.6% of respondents followed by housewives comprising 32.8%.

Shea nut processing workers and farmers comprised 13.3% and 6.1% respectively.

Table 6. Distribution of respondents by occupation

Occupation	Number of respondents	Percentage (%)
Housewife	64	32.8
Trader	87	44.6
Sheanut processing	26	13.3
Cotton spinning	3	1.5
Farming	12	6.1
Apprenticeship	2	1.0
Charcoal making	1	0.5
Total	195	100

4.1.2 COMMUNITY MOBILISATION.

Questions sought to find the level of awareness of guinea worm as a public health problem and level of awareness of the ongoing GWEP and therefore, the extent of health education thus far.

195 (97.5%) of 200 respondents identified Guinea worm as a health problem.

182 (93.8%) of 194 respondents were aware of the Guinea Worm Eradication Programme (GWEP).

156 (80%) of 195 respondents attended at least one community durbar on guinea worm last year (1999). (See table 7 for details)

Distribution of respondents by the number of durbars attended on guinea worm. (See table 7)

Table 7.

Number of community durbars	Number of attendants	Percentage of attendants
0	39 (did not attend at all)	20 (% that did not attend)
1	82	42.1
2	44	22.6
3	26	13.3
4	4	2.1
Total	195	100

66 (33.9%) of 195 respondents attended at least one film show. 66.2% did not attend any by the middle of June 2000. (Refer to the Table 8).

The mobilization of the people entailed the health education methods of film shows, drama and interactive discussions with village volunteers among others. Tables 9 11 show the level of involvement of the people in the mobilization process.

Table 8. Distribution of respondents by the number of film shows attended.

Number of film shows.	Number of attendants	Percentage of attendants
0	129	66.2
1	53	27.2
2	13	6.7
Total	195	

159 (81.1%) of 196 respondents attended at least one drama by the middle of June 2000. See table 9 below.

Table 9. Distribution of respondents by the number of drama attended.

Number of drama	Number of attendants	Percentage of attendants.
0	37	18.9
1	145	74.0
2	13	6.6
3	1	0.5
Total	196	100

124 (63.6%) of 196 respondents had at least one interactive discussion with a village volunteer or a health worker on guinea worm by the middle of June 2000. See table 10 below for details.

Table 10. Distribution of respondents by the number of interactive discussions with Village Volunteers.

Number of interactive discussions	Number of people who had the opportunity.	Percentage of people.
0	71	36.4
1	93	47.7
2	23	11.8
3	4	2.1
4	3	1.5
5	1	0.5
Total	195	100

4.1.3 HEALTH EDUCATION.

Health education is one of the major strategies of the programme and this is done by village volunteers through interactive discussions during their visits to households.

In the first half of this year, 2000, 131 (70.4%) of 186 respondents had at least one visit by a village volunteer. 55 (29%) had no visit. (See table 12 for details)

Distribution of respondents by frequency of visits to households by Village Volunteers. (See table 11)

Table 11.

Number of visits	Frequency of visits	Percentage (%)
0	55	29.6
1	20	10.8
2	56	30.1
3	41	22.0
4	11	5.9
5	3	1.6
Total	186	100

134 (72%) of 186 respondents had health education during the visits. This is usually not only on Guinea worm but also environmental sanitation and domestic hygiene.

Only 31 (16.7%) of 186 respondents had their filters inspected for any defects or damages. 19 (10.2%) of them were made to demonstrate the filtration process in order to correct any flaws.

4.1.4 KNOWLEDGE ON PREVENTIVE ACTIVITIES OF THE PROGRAMME.

Respondent were asked to volunteer information on preventive activities of the programme rather than being asked whether they knew specified activity as a preventive measure.

192 (96%) of all respondents knew filtration of water as a preventive measure of Guinea worm. 51(25.5%) mentioned dam/pond water treatment, 28 (14%)

mentioned avoidance of water source if one had the infection and 26 (13%) mentioned provision of pipe-borne water as a preventive measure. Only 2 (1%) mentioned occlusive dressing of the wound as a preventive measure A few others mentioned boiling of water, which the programme does not prescribe.

Distribution of respondents and their awareness of preventive activity specified. (See table 12)

Table 12

Preventive measure	# / % of 200 respondents
Dam water treatment	51 (25.5%)
Filtration	192 (96.5%)
Avoidance of water source (dam) if infected	28 (14.0%)
Provision of pipe-borne water	26 (13.0%)
Surgical extraction	4 (2.0%)
Occlusive dressing	2 (1.0%)

4.1.5 STATE OF FILTERS AND PRACTICES.

123 (84.8%) of 145 filters examined were in good condition, 22 (15.2%) were bad or defective. 55 (27.5%) of 200 respondents did not have filters at all. The majority of them were, however from Kakpagyili (The largest of all the communities).

Filtration process was acceptable or good in 134 (92.4%) of 145 filtration processes observed.

98 (51.3%) of 191 respondents did not have reserved filters to change when the one in use got damaged. 29 (29.6%) of those who did not have filters to

replace damaged ones (98) stopped using filters; 48 (49%) resorted to the use of veils often bought from secondhand clothing dealers. The remaining 21 (21.4%) either continued to use damaged filters or used a newly installed public standpipe when water flowed (i.e. in Kakpagyili) or bought water supplied by tankers or used dam/pond water. (See table 13)

Table 13. Distribution of respondents and their behaviour where filters were lacking

Practices	Number of respondents	Percentage of respondents (%)
Stopped using filters	29	29.6
Use of veil	48	49
Use of dam or pipe-borne water	21	21.4
Total	98	100

4.1.6 FATIGUE (LOSS OF INITIAL MOMENTUM OF THE PROGRAMME AND INITIAL ENTHUSIASM OF THE PEOPLE).

Respondents were made to state their commitment to the preventive measure of filtration of water at the beginning of the programme and their current commitment to filtration.

155 (79.5%) out of 195 respondents were fully committed to filtration at the beginning of the programme. This level of commitment has fallen to 124

(65.2%) of 190 respondents more than 10 years of the GWEP. The percentage of those who did filter sometimes or not at all at the beginning of the programme was 20.5% (40/195) and has now risen to 34.7% (66/190).

4.1.7 EFFECT OF BELIEFS ON THE GWEP.

Traditional beliefs about the cause of guinea worm might be so entrenched that it could continue to affect behaviour despite the high level of awareness of the actual cause.

185 (93.4%) of 198 respondents were illiterates. 21 (10.8%) of 194 respondents had beliefs other than scientifically known factors leading to cause of disease. 5 (23.8%) of them were influenced by the beliefs to an extent that their filtration behaviour was affected negatively (5 out of 21 people). They constitute only 2.6% of the total respondents (194).

4.1.8 PRACTICES DURING ETHNIC CONFLICT.

Movement and displacement of people in time of war affect normal practices and behavior of the people and so were GWEP activities affected by the Northern conflict.

130 (65.7%) of 198 respondents were in their present communities during the ethnic conflict. 118 (91.5%) out of 129 of respondents in the communities filtered their water at the time. 157 (83.1%) of 189 respondents had their water supply from sources other than pipe-borne, well or borehole during the conflict. 89.3% of those in this category filtered their water.

133 (69.3%) of 192 respondents affirmed that village volunteers were working or visited them during the war.

4.2 FOCUS GROUP DISSCUSSION.

The first focus group was composed of eight village volunteers and zonal coordinators, some of them teachers. The second focus group was composed of women, all of them housewives and involved in household water provision.

4.2.1 FILTERS:

It came out clearly that filters were in abundance at the beginning of the programme but as at June 2000, there were not enough filters to go round every household. The difference in result between the two situations is that, whereas "cases reduced drastically at the beginning of the GWEP, now however, for the lack of filters guinea worm cases have increased."

4.2.2 PROTECTION OF DAMS.

This is very difficult because volunteers cannot guard dams 24 hours a day.

4.2.3 TREATMENT OF DAMS WITH ABATE

This is not done regularly. "Some dams have never been Abated on grounds that they are too large to be treated with Abate, e.g. Lahagu, Duunyin, Pagazaa and Tugu zone dams".

4.2.4 REWARD SYSTEM.

There was a high level of awareness of the reward system but it was not reliable. Some village volunteers had problems with patients they accompany to sub-district health facilities for containment. The patients accused village volunteers of collecting and keeping money meant for patients as rewards when, in fact, no money would have been collected due to unavailability of reward funds. When containment cannot be done at the village level for lack of supplies (bandage and tamale oil), volunteers are often, not interested in accompanying patient to health facilities for containment, because of the accusations leveled against them and the fact that they, the volunteers, do not get the reward due them as escorts. "There was a time when every volunteer had adequate supplies for containment, now these cannot be obtained easily."

4.2.5 INADEQUATE INCENTIVES, UNFULFILLED PROMISES AND EXPECTATIONS OF VOLUNTEERS.

Village volunteers and zonal coordinators lamented about the lack or inadequate incentives. Some of their concerns include paying for their health care as health workers when that is free for other volunteers in the adjacent district of Savlugu-Nanton. Promises made by programme managers and politicians have not been fulfilled despite the strife of village volunteers to attain the targets that attract the promised rewards. These include some reward for zero record of cases in a community for a year; a grinding mill for the volunteer and a borehole for the community, if a community record of cases remains zero for six consecutive years.

"Sometimes we just relax in our efforts and no one will want to take over our work as volunteers because there are no benefits. I used to go to the dam with a Ministry of Health (MOH) worker from 5.30am to 7pm and what I get is a bottle of mineral. Village volunteers are the bedrock of the GWEP we spend more time on guinea worm programme activities than on ourselves".

Expectations of volunteers including zonal coordinators, of being employed after several years of voluntary service never materialised. Having worked for well over a decade, some of them lamented, "We have families to feed. We need support". They expressed their desire to be placed on salaries.

Their frustration was, however, expressed thus: "We are here because of Vitamin A programme, if it were about guinea worm we will not have come." (NB the FGD took place after training on Vitamin A dosing)

4.2.6 BELIEFS ABOUT AETIOLOGY AGAINST GWEP RESULTS.

Traditional beliefs regarding the cause of guinea worm were proven wrong by the GWEP.

" Some people argue that in a village everybody drinks from the dam and yet some individuals get the guinea worm disease others do not, (Therefore guinea worm may not originate from water). I feel guinea worm is from water. When the GWEP was launched in Tugu, there were numerous cases due to ignorance, at that time, every input needed for the programme was available. I used to suffer from it but now no more because we were educated on how to prevent it."

4.2.7 NEGLECT OF RURAL TAMALE.

Many NGO's do not provide rural Tamale with bore-holes or wells with hand pump because Tamale is designated urban. They therefore, "have their preferences, they support some villages leaving others."

4.2.8 POOR TRAINING OF VOLUNTEERS.

Some volunteers have difficulty in identifying a case of guinea worm before the worm emerges and therefore insists on seeing the worm break through the skin before giving any attention to patients.

4.2.9 ETHNIC CONFLICT AND IMPORTED CASES.

During the ethnic conflict "guinea worm cases increased due to the influx of refugees, even villages which had no guinea worm started recording cases. Those that had no cases had no refugees. The problems we faced during the conflict were numerous, there was no food, diseases were many so we could not carry out educational programmes as expected because we were worried"

4.3 KEY INFORMANT INTERVIEW.

The key informant, here, was the regional guinea worm coordinator.

4.3.1 TRAINING.

Last year (1999) two training sessions were organised for district coordinators and one each for village volunteers and the sub-district staff. Training is a normal yearly programme. So far, this year (June 2000), one has been

organised. It is timed to coincide with the peak transmission period to prepare and renew the commitment of village volunteers for work.

Total number of new cases from January to June this year for Tamale was 263. Average containment as at June 2000 was 70%. Last year the average was 65%. The following criteria are met before any case is declared contained:

1. Bandaging not later than 24 hours of worm emergence.
2. Patient must confirm that he/she has not entered any dam/pond since the blister opened.
3. The patient must be followed up from the day of bandaging till the worm is fully expelled.
4. He/she must be given health education.

4.3.2 THE USE OF INSECTICIDE "ABATE".

This is done only in endemic communities. In communities where guinea worm is not endemic dams are not treated with Abate. There are 52 endemic communities out of 162. Dam / Pond treatment with Abate normally begins within 10 days of first reported case from a community and ends a month after the last reported case. Abating schedule depends on the size of the dam. Dams bigger than 2,500 cubic meters are treated once every three weeks and those less than that are treated monthly (every 28 days).

Underdosing of the dam with Abate may occur when the volume of water is difficult to determine often due to irregular shape of the dam. Monitoring for the presence of the cyclops in the water reveal high population as a result.

Coordinators and volunteers have no problem Abating circular and rectangular dams.

Monitoring for Cyclops population is by sampling, therefore, not all dams are checked for the presence of the Cyclops.

There are chances of not Abating a dam. Recently, in the latter part of 1999, a village in Tamale called Fukuo has consistently been endemic in the last three years. It was widely known to use a particular dam but, unknowingly, there was another dam in a narrow location of the village, which was discovered to be the source of endemicity in the village. A more common feature is unidentified farm ponds as reservoirs of infection. Advocacy for the use of farm filters has not caught on well, probably, because there are not enough filters to go round household, let alone farms.

4.3.3 FILTERS.

Household filter coverage for this year (2000) is approximately 78%. That is 78% of communities have 100% filter coverage, and 22% do not have 100% coverage. There is prioritisation in the distribution of filters due to shortage and the criteria used in the process include:

1. Endemicity, from most endemic to the least endemic community.
2. Proximity to potable water source. The closer a community is to borehole or pipe-borne water supply the less likely of it getting full filter coverage.
3. Populations beyond 5,000 are not fully covered with filters.

Last year filter coverage was 50%.

4.3.4 INCENTIVES AND REWARD SYSTEM.

Incentives for village volunteers come during yearly training sessions in the form of T-shirts, lunch allowance and mosquito nets as well as cash incentive for containment.

Decentralisation of the GWEP under the MOH reform programme is responsible for the collapse of the reward system, where funds for the programme are placed in a common pool and disbursed at the district level. The spending officers could also attribute shortfalls in programme funding to budget cuts and delays in receiving budget allocation.

4.3.5 POLITICAL COMMITMENT.

Politicians have pledged to get involved in the mobilisation of the people but there has been only one occasion when a politician addressed a community durbar and talked about guinea worm. Their initiatives have remained at the planning stage. They have not been translated into action. "I will rate political involvement in Tamale the last of all the districts of the Northern Region."

4.3.6 COLLABORATORS.

The Ministry of Health, through its school health programme, targeted school children for health education on guinea worm in the Tamale Municipality. In 1998 a meeting was held with regional Ministers, District Chief Executives and other collaborators to explore and specify areas in which each stakeholder could contribute. This was intended to continue every year but could not take place in 1999. Ghana Water Company has the responsibility for urban water

supply but it is incapable of funding installation of water supply systems to needy areas of rural Tamale due to lack of funds.

4.3.7 IMPORTED CASES.

In Tamale town proper, where water supply is pipe-borne, up to 80% of cases are imported from the outskirts and neighbouring districts, namely savlugu-Nanton, Gushegu-Salaga and Bimbila.

4.3.8 ETHNIC CONFLICT.

Between 1994 and 1995 the first rise in new cases was recorded. The increase in transmission was in the east of Northern Region where the conflict was intense. The west was relatively free. The GWEP was disorganised because of movement and displacement of people at the time.

4.3.9 LACK OF SUPPLIES.

Under the decentralisation programme of MOH, inputs for containment of guinea worm are to be supplied by Health Centres which, almost invariably, do not have enough for their own use.

4.3.10 UNFULFILLED PROMISES.

The regional guinea worm coordinator acknowledged that promises made to village volunteers at the beginning of the programme have not been honoured, including the provision of corn mill and boreholes if no cases were recorded in a community for six years.

CHAPTER FIVE

5.0 DISCUSSION AND RECOMMENDATIONS.

5.1 COMMUNITY MOBILISATION AND KNOWLEDGE ON PREVENTIVE ACTIVITIES:

Community mobilisation has been adequate considering the high level of awareness of the GWEP and the involvement of the people regarding patronage of drama in particular (81.6% of respondents attended at least one drama by June 2000) and also film shows and community durbars. This has been so despite the unimpressive contributions by politicians in the municipality.

70.4% of 186 respondents had at least a visit by a village volunteer, the first half of the year 2000. The cumulative effect of these visits in the last 10 years of GWEP must have yielded the high level of awareness of guinea worm as a problem in the ongoing eradication programme.

Thus, knowledge on the preventive activities particularly filtration of water is indeed high (96% of respondents).

5.2 FACTORS RESPONSIBLE FOR THE FAILURE TO ACHIEVE ERADICATION IN THE TAMALE MUNICIPALITY:

There is a combination of factors responsible for the failure to achieve the objectives of the GEWP the Tamale Municipality. They are as follows:

- Lack of adequate filters for every household and for use on the farms.
- Unsatisfactory programme of monitoring to ensure that dam/pond water is free of the cyclops.
- Failure to treat all dams with Abate and unidentified dams and farm ponds.
- Lack of containment supplies and failure of the reward system.
- Unfulfilled promises made to volunteers and expectations of the volunteers.
- Neglect of rural areas of Tamale by stakeholders and interested parties.
- Fatigue (Loss of initial momentum and enthusiasm).

5.3 LACK OF FILTERS:

Filters were not in adequate quantities to ensure 100% coverage for all communities and farms and also, to provide additional filter to keep in reserve for replacement as was stated by the key informant, the Regional Guinea worm Coordinator. In any eradication programme there should be no room for flaws like shortage of filters as seen in the GWEP. With shortages, people are forced to drink unfiltered water. In principle a problem like this, if anticipated, should forestall the onset of the programme unless a solution is found. *(7)* Therefore, there should be enough filters to cover households and farms.

The use of veils as a substitute for monofilament filters is questionable, since veils from different manufactures may have different sizes of hole in them (mesh sizes). The effectiveness of veils in separating the cyclops from water

through filtration should be carefully examined, if the use of veils is to be promoted as an alternative to monofilament filters.

5.4 UNSATISFACTORY MONITORING OF DAMS:

The programme as at now, samples dams for monitoring for the presence or absence of cyclops. It may be prudent to monitor all dam/pond water sources for cyclops. This is achievable if the parasitology department of a district hospital is charged with the responsibility of examining all water samples for cyclops. Reports from the laboratory should reach the district and regional programme managers regularly to ensure prompt intervention where Abating has not been effective.

To achieve global guinea worm eradication, it is paramount for guinea worm endemic countries to immediately identify and solve existing deficiencies and inconsistencies in the GWEP. This is possible only through concurrent evaluation and operational research. *(11)*

5.5 FAILURE TO TREAT ALL DAMS WITH ABATE AND UNIDENTIFIED DAMS AND FARM PONDS:

In this programme, dam treatment with Abate is limited only to endemic communities, which is not acceptable if guinea worm is to be eradicated. It is mandatory to make any eradication programme foolproof and therefore all dams must be treated with Abate.

The effectiveness of Abate is impressive if properly applied. In 1999 in India, observations in two villages revealed that while in one village the complete absence of Cyclops from stored water containers was attributable to the use of Abate (Temephos) and filtration of drinking water, in the other village with no Abate application, 15.6% of containers contained varying numbers of Cyclops in them. *(8)*

From the afore discussion, a comprehensive mapping out of all dams in the district and regular application of Abate in the right quantities with regular monitoring of all dams for Cyclops could be enough to eradicate the disease in one or two years, even if the people show signs of fatigue in their filtration habits.

Dams that have not been identified constitute a grave threat to achieving eradication. A mechanism must be put in place that will detect any dams that have not been identified including new ones in every community by using village volunteers and zonal coordinators.

A surveillance system that makes inquiries about sources of water supply for work places and residences should reveal any unidentified dams/ponds.

5.6 LACK OF SUPPLIES AND FAILURE OF THE REWARD SYSTEM

Lack of supplies from Health Centers and the failure of the reward system have been well noted by the programme managers. This is the result of MOH reforms including the decentralisation policy, which allows spending officers (Often District Directors of Health Services) to release funds for various projects. Management lapses result in deficiencies in supplies.

Programmes budgeted for are not fully financed by government and often districts / Municipalities have to wait till the end of first or second quarter before funds are made available. The implication for the GWEP is undesirable – shortages. The Municipal Director of Health Services was quoted as having said "I will spend all my money on GWEP if I were to adequately fund it".

It might, therefore, be appropriate to reintroduce the vertical supply system, exclusively for this eradication programme to ensure regular and uninterrupted supply of inputs as it was at the beginning of the programme and before the MOH decentralization reforms.

5.7 UNFULFILLED PROMISES AND EXPECTATIONS OF VOLUNTEERS:

Promises made by programme managers and politicians to village volunteers at the beginning of the programme have not been fulfilled. This includes the provision of corn mill and boreholes, if a community records zero cases for six years in succession. Some of them worked hard to achieve the set goal in order to get the promised rewards, which never came. As a result, many of the

volunteers are demoralised. The problem is compounded by the fact that they are not satisfied with the yearly incentive of training and good lunch. Some lamented about spending the greater part of their time on GWEP than on themselves without any befitting benefits and threatened to give up the work.

Expectations of volunteers including the prospect of being employed permanently after several years of voluntary work did not materialize. There must be a limit to the period of voluntary service. It is true that at the beginning of the programme the implications of being a volunteer were explained to them, that there would be no salaries but incentives in the form of a workshop in a cosy hotel with good lunch, and donations like bicycles and T-shirts. Little did they know that the programme would stretch beyond 5 years to over a decade! The expectation of the Village Volunteers and Zonal Coordinaors was that, by their voluntary service, they were laying the foundation for a more permanent employment as community health workers of MOH, which has obviously eluded them. There was no change in their status as volunteers.

A review of the status of volunteers might be necessary to sustain their commitment to the work. For now, their interest in the work and commitment to it are questionable because they would prefer to attend to any other call, like one for training in Vitamin A dosing, than that for a guinea worm programme. They would rather not accompany a guinea worm patient to a health facility for extraction because cash incentive offered by the programme

for the patient and the escort might not be given, raising the suspicion that the volunteer has kept the amount.

A review of the package of incentives has become necessary in view of the widespread dissatisfaction among the village volunteers. Incentives should be directed at addressing some of their concerns, for example, free medical care for the volunteer, a spouse and a limited number of children. This offer cannot be too much for any district health facility to absorb. Alternatively, the health facility may be reimbursed by government similar to what pertains for the aged and expectant mothers.

5.8 NEGLECT OF RURAL TAMALE:

Rural areas of Tamale may remain without potable water supply for a protracted period, if Ghana Water Company (GWC) is to provide them with water. The company is beset with problems. It cannot regularly supply many areas of Tamale with fully installed water pipe lines, sometimes for months, and residents have to rely on tanker water supply. Shunting of water from one area to another to even out water distribution is common. There is therefore, little hope for rural Tamale getting water supply in the near future. Even if they do, villagers may have to go back to their dams at one time or another with the present irregularity in water supply. Boreholes may provide a much better answer to guinea worm eradication in rural Tamale since there will be no water supply interruptions.

To deepen the plight of Tamale rural dwellers, aid agencies e.g. Actionaid and UNICEF are not interested in helping Tamale with potable water in the guinea

worm eradication effort for the reason that it is a municipality with all the advantages over other areas. Tamale is however, not entirely urban. The rural folks of Tamale see other rural areas of adjacent districts benefit from NGO's who provide boreholes with hand pumps to their neighbours while they remain helpless.

5.9 FATIGUE (LOSS OF INITIAL MOMENTUM AND ENTHUSIASM).

Commitment to filtration fell from 79.5% of adult female respondents at the beginning of the GWEP to 65% by June 2000 and those who did not filter or filter occasionally rose from 20.5% of respondents to 34.7% during the same period. This may be an indication of fatigue, on the part of the women, due to over 10 years of daily filtration of drinking water. Village health workers and zonal coordinators gave that indication during the focus group discussion. "We will soon come out and appeal for support because we are tired, so that the work will be transferred to health personnel"

This calls for a new strategy of eradicating guinea worm with filtration only as an adjunct to the eradication effort. The comprehensive mapping and treatment of all dams with Abate insecticide, suggested previously, may be the answer.

5.10 CONCLUSION AND RECOMMENDATIONS

The GWEP in the Tamale Municipality is more of a control programme than eradication programme. Eradication programmes are comprehensive, covering entire areas. Resources needed must be readily available including filters, dressing materials, Temephos (Abate), the requisite manpower, cash for the incentives, vehicles including bicycles e.t.c.

Inadequacies are not acceptable in any eradication programme. Organization of the programme must be perfect and entire area covered as opposed to areas of high incidence in control programmes. A concurrent operations research is extremely useful to enable programme managers to track progress and make modifications to improve efficiency and effectiveness. These attributes of an eradication programme make it expensive and, therefore, when resources are lacking, control programmes are a better option.

There is the need to strengthen the programme management to ensure regular and timely supply of filters and dressing materials including Tamale oil. Similarly, the reward system must be made to work by improving management. This may require reorientation of spending officers or the reintroduction of the vertical programme.

Lapses in the eradication programme must be avoided by making it foolproof as a matter of principle. All dams should be regularly and adequately treated with Abate. All dams should be monitored for the presence or absence of the

cyclops to enable timely corrective intervention if any dam is found to contain any cyclops.

There is the need to address some of the concerns of the village volunteers resulting in widespread dissatisfaction among them, since they play a pivotal role in the eradication programme.

It may be prudent not to make any promises at all than to make them and fail to fulfill them. Village volunteers, by their achievements, have looked forward to promises made by programme managers and politicians who have failed to honour them. They are demoralised by this.

Boreholes with hand pumps may be the most reliable source of potable water for rural areas of Tamale rather than irregular supply of pipe-borne water for the municipality. This will ensure that rural dwellers do not go back to the use of ponds/dams when there is water supply failure.

NGO's must give some attention to rural Tamale, as the situation in these areas is no different from their preferred areas. Their absence in rural Tamale may unnecessarily prolong the period of them getting potable water.

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APPENDIX I

QUESTIONNAIRES

QUESTIONAIRE WOMEN IN HOUSEHOLDS

FACTORS AFFECTING GUINEA WORM ERADICATION PROGRAMME IN THE TAMALE MUNICIPALITY

Time interview started _____ Date _____Interviewer ID_____

Name of respondent: _____ Age _____ Occupation: _____ Sub-district _____

Community:_____

Number of children: ☐ Marital status: Married ☐ Single ☐

Size of household: ☐ Address:_____

1. Do you think Guinea worm is a health problem here? Yes. ☐ No. ☐
2. Are you aware of any programme to eradicate guinea worm? Yes. ☐ No ☐
3. What are the things done to prevent guinea worm infections? (Please tick.)
   - i. Filtration of water. ☐
   - ii. Avoidance of water source if one is infected. ☐
   - iii. Dam/Pond treatment. ☐
   - iv. Occlusive dressing of wound. ☐
   - v. Surgical extraction of wound. ☐
   - vi. Cash incentive for reporters/diseased ☐
   - vii. Provision of pipe-borne water. ☐
   - viii. Other (Specify). _____

Wartime practices

4. Were you in this community during the war? Yes. ☐ No ☐
5. If yes, did you filter your water before drinking during that period?
   No. ☐ Sometimes. ☐ Always. ☐
6. If no, where were you? _____
7. What was your source of water supply where you were? Pipe-borne water ☐

Dam /Pond. ☐ Well without pump. ☐

Well/Bore hole with pump ☐ River /Stream. ☐

8. If river, stream, dam or pond, did you filter your water before drinking?

Yes. ☐ No. ☐

9. Were the village volunteers /field workers working during the war?

Yes. ☐ No. ☐

Ineffective health education:

10. How many visits have you had by a village volunteer this year? Number. ☐

11. What did he do during the visit?

i. Health education on guinea worm. ☐

ii. Inspection of filters. ☐

iii. Observation/Demonstration of filtration process. ☐

iv. Others _____

12. Have you been to school before? Yes. ☐ No. ☐

How far did you go? Primary. ☐ Middle ☐

Secondary. ☐ Tertiary. ☐

JSS. ☐ SSS. ☐

Others (e.g. Non-formal education)

_____

Beliefs about aetiology

13. What do you think is the cause of the disease?

i. Drinking untreated pond/dam water

ii. Drinking unfiltered water.

iii. Other(s). Explain.

_____

14. Do you know any belief as the cause of GW disease? Yes. ☐ No. ☐

15. Explain that belief.

_____

_____

16. Does that belief of the cause of the disease affect your filtration behaviour?

Yes. ☐ No. ☐

If yes, explain.

_____

_____

State of Filters

17. May I have a look at the filter you use currently? State of filter: Good. ☐ Bad. ☐

18. Observation of filtration process. (Respondent should demonstrate the filtration process)

Good. ☐ Bad. ☐

Shortage of filters:

19. Do you always have filters to change when it gets damaged or torn? Yes. ☐ No. ☐

If no, what do you do?

i. Continue to use the damaged filter. ☐

ii. Stop using filters. ☐

iii. Other (Specify). _____

Community mobilization:

20. How many community durbars have you had about guinea worm this year? Number. ☐

21. How many film shows on guinea worm have you had this year, if any? ☐

22. How many drama this year on guinea worm, if any? ☐

23. How many interactive discussions with a health worker/village volunteer this year? ☐

24. Have you seen a Cyclops/copepod before? Yes. ☐ No. ☐

Fatigue (loss of initial enthusiasm) after 10 years of GWEP.

25. How was your commitment to the filtration of water at the beginning of the GWEP?

i. Filtration was done always. ☐

ii. Filtration was done sometimes. ☐

iii. Filtration was not done at all. ☐

26. How is your commitment to filtration now?

i. Filtration of drinking water is done always. ☐

ii. Filtration of drinking water is done sometimes. ☐

iv. Filtration of drinking water is not done at all. ☐

Time interview ended._____

Prepared by Reginald Aryee.

APPENDIX II

QUESTIONAIRE FOR ZONAL COORDINATORS

Time interview started. _____ Date. _____ Interviewer ID. _____

Supervision:

1. How many supervisory visits to zonal coordinators were there last year? (Check records if available). ☐

2. Training:

   i. How many workshops or training sessions did you have for zonal /field coordinators ☐?

   ii. What is the total number of training/workshops expected for last year? ☐

   iii. How many workshops /training sessions are to be done this year? ☐

   iv. How many workshops/training sessions have you had so far this year? ☐

   Case containment:

   i. How many cases were reported last year? (Check records). ☐

   ii. How many of them were contained last year? (Bandaging /extraction) ☐

   iii. How many cases of guinea worm have been reported so far this year? ☐

   iv. Of the cases this year, how many were contained? ☐

4. Did you run short of Abate (Tomaphos) ? Yes. ☐ No. ☐

5. What is the ideal frequency of Abating a dam in a year?

6. i. Did you abate all dams as expected last year? Yes ☐ No. ☐ (Check records)

   ii. If no, why? (Explain _____

7. I. Did you use the correct quantities of Abate for each dam at all times?

   Yes. ☐ No. ☐

   ii. If no, why?

_____

Motivation.

8. i. Are there any incentives for zonal and village volunteers? Yes. ☐ No. ☐

ii. If yes, what are they?

_____

iii. Are they regular? Explain.

_____

Political commitment.

i. Have you had any meetings with the presence of the District Chief Executive or the District Coordinating Secretary? Yes. ☐ No. ☐

ii. If yes, How many last year? ☐

iii. How many this year? ☐

iv. Does the DCE, Regional Minister, or District Coordination Secretary take advantage of any fora to talk about guinea worm? Yes. ☐ No. ☐

Inter-sectoral collaboration.

i. Have you had any meetings with representatives from the Ministry of Agriculture, Ministry of Education, the Ghana Water Company (formerly Ghana water and Sewage cooperation) or NGOs?

Yes. ☐ No. ☐ Check records (minutes).

ii. What role has each sector played in the GWEP

_____

_____

_____

_____

_____

Imported cases.

i. How many imported cases of Guinea worm were there last year? ☐ (Check records)

ii. How many imported cases of Guinea worm were there this year? ☐

Time interview ended. _____

Prepared by Reginald Aryee.

APPENDIX III

FOCUS GROUP DISCUSSION GUIDE

INCREASING NUMBER OF NEW CASES OF GUINEA WORM IN THE TAMALE MUNICIPALITY.

General question: why are we not successful in the eradication effort?

Health education.

- Knowledge of the people about GW and the eradication effort. To what extent is it? – Discuss.

  NB. Adults and children, Cause of disease, programme prescribed preventive measures – filtration, abating of dams, case containment (bandaging, surgical extraction, cash incentives).

Beliefs.

- There are some beliefs regarding the cause of the disease. What are some of them. Discuss each?

  NB. E.g. It is in the blood, in the soil, given to us by God.

- Do the beliefs affect people's preventive behaviour and practices? Discuss.

  NB. Reporting for treatment, local treatment, filtration of dam water etc.

Effect of the war:

- What role has the ethnic conflict played in the eradication of guinea worm?

  NB. Work of the willage volunteers and zonal coordinators, Abating of dams, case reporting, case containment, health education, imported cases of guinea worm, health education etc.

Political commitment.

- Are the politicians DCE, DCS, district assembly involved? In what ways? – discuss.

  What do you expect of them?

Fatigue (loss of initial zeal)

- Has the duration of the programme (over 10 years) had any effect? – Discuss.

  NB. Are the expectations of the people contributory.

Filters.

- Any problem with that? – Discuss.

  NB. Supply, replacement, size, sale of filters, use of Vail etc.

Case containment (bandaging before blister opens. or within 24 hours of worm emergence of the worm).

- Does it take place in all cases? – Discuss.

  NB. What are some of the difficulties, role of children, supplies (bandage and Tamale oil surgical equipment), early reporting, cash incentive etc.

Imported cases.

- To what extent is the problem? – Discuss.

Village volunteers and field workers.

- Performance in the different communities

  Health education, supply of filters (? Sale of filters), replacement of filters etc.

- What are some of the difficulties the face.

Zonal coordinators / district coordinators

- Supervision of village volunteers.
- Supplies: filters, Abate, cash reward etc.

Is there any other reason for failure to achieve eradication?