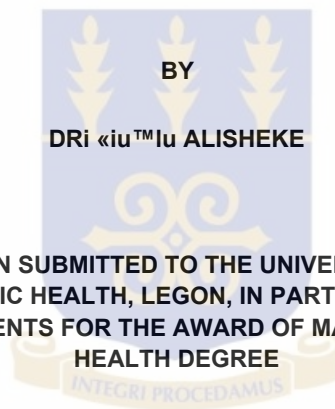


**WHAT ARE THE HEALTH SERVICE FACTORS  
CONTRIBUTING TO PERSISTENT LOW  
IMMUNIZATION COVERAGE IN THE  
VOLTA REGION: THE CASE OF  
NKWANTA DISTRICT**



**A DISSERTATION SUBMITTED TO THE UNIVERSITY OF GHANA,  
SCHOOL OF PUBLIC HEALTH, LEGON, IN PARTIAL FULFILMENT OF  
THE REQUIREMENTS FOR THE AWARD OF MASTER OF PUBLIC  
HEALTH DEGREE**

**SEPTEMBER 1998**

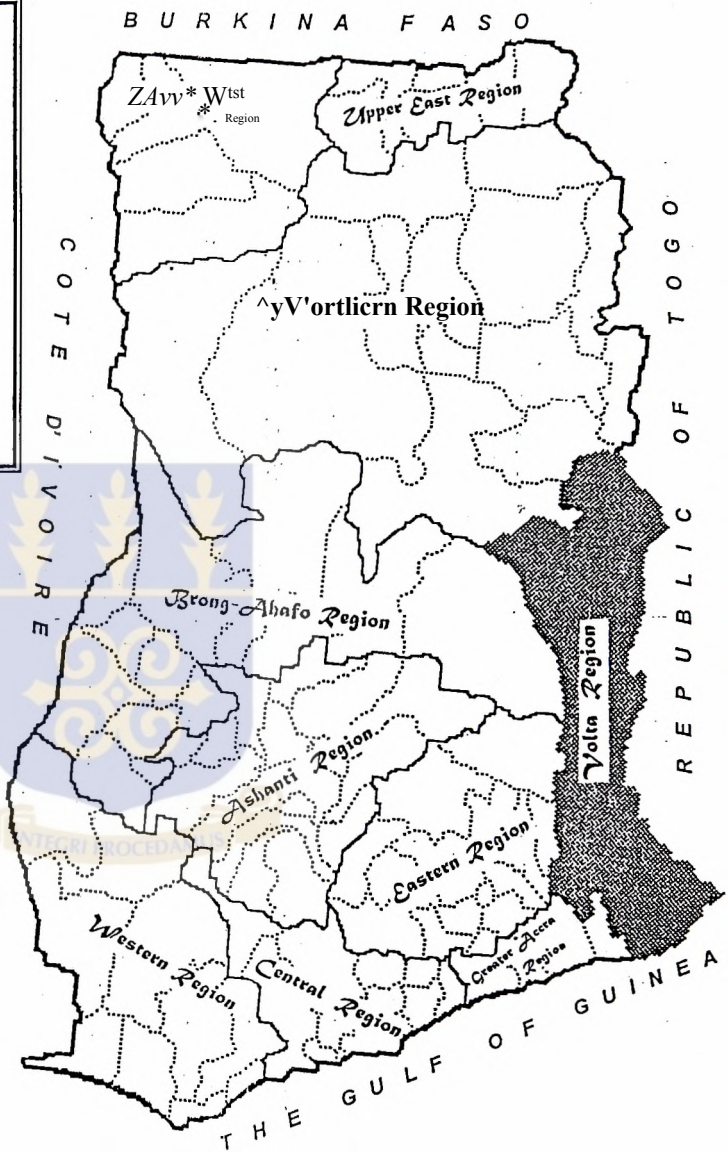
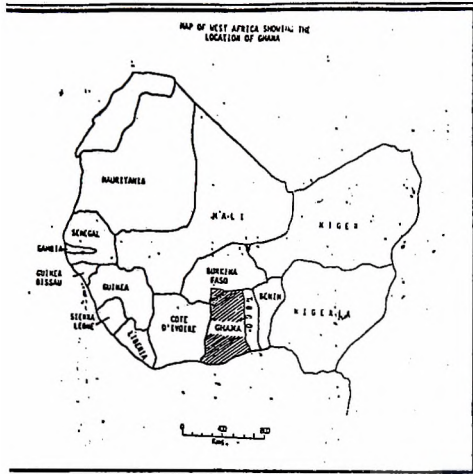


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Figure 1. Map of Ghana Showing the Volta Region.

INSET



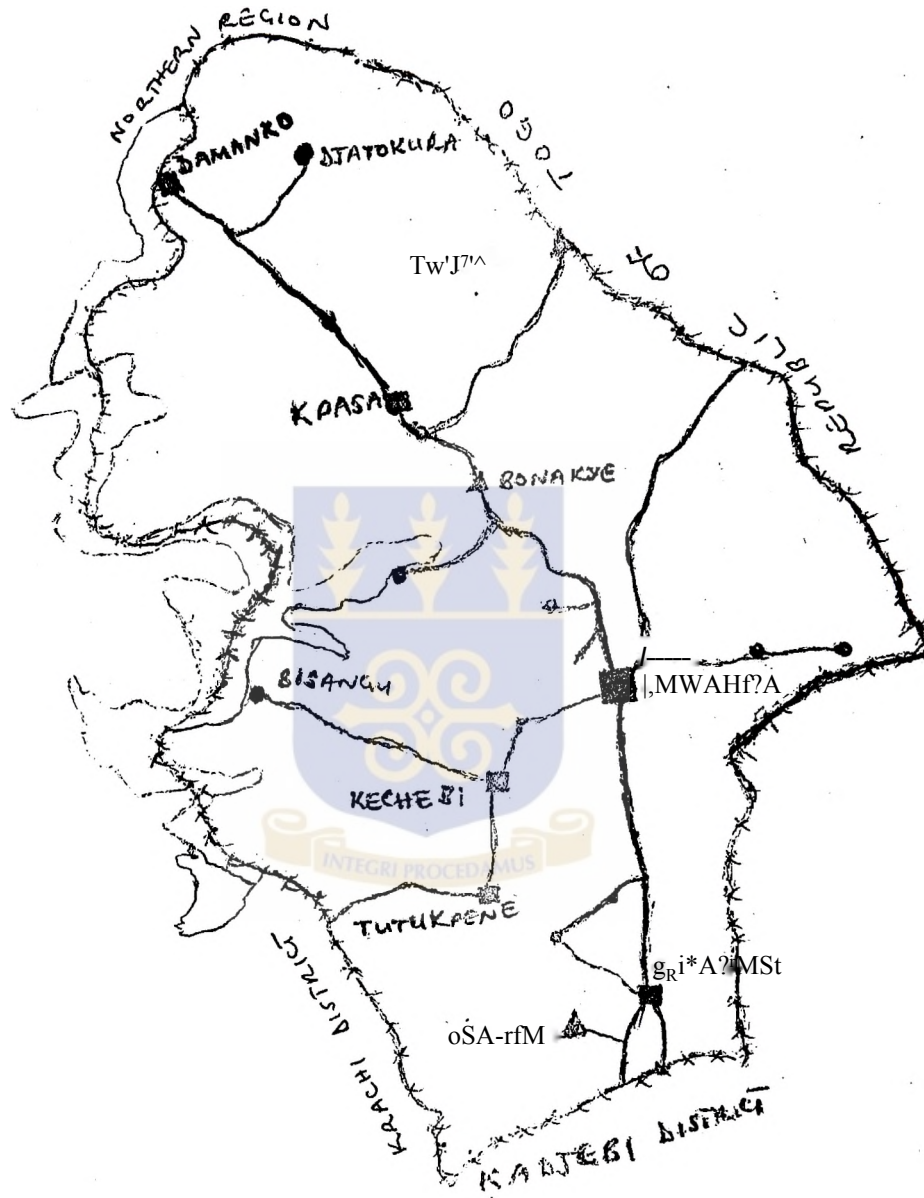
LEGEND

\* VOLTA REGION

○ District boundaries

○ District boundaries

MAP OF NKWANTA DISTRICT



**KEY:**

- HEALTH CENTRE
- MCH/FP CLINIC
- DISTRICT BOUNDARY
- VOLTA LAKE

## DECLARATION

I declare that this dissertation has been the result of my own field research, except where specific references have been made; and that it has not been submitted towards any degree, nor is it being submitted concurrently in candidature for any other degree.

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DR. PHYLLIS ANTWI



Dir FRANK BONSU

## **DEDICATION**

This work is dedicated to my lovely wife Likando and my three daughters Mundia, Nawa and Lutangu, who have endured my absence from home for the past year.

### **A TKNOWT JUDGEMENTS**

I would like to thank the members of staff of the School of Public Health Legon, for imparting me with Public Health knowledge.

I would also like to thank my sponsors WHO for financial support they have given me towards the production of this dissertation. The Regional Director of Health Services (Volta Region), and the staff of Nkwanta District deserve my thanks and appreciation for the help they rendered me during my research period with them.

My special thanks go to two academic supervisors Dr. Frank Bonsu and Dr. Phyllis Antwi who have been tirelessly guiding me throughout my research work.

I would also like to thank the secretary Henrietta Agyei for being so patient with me during the write up of this dissertation.

**LIST OF ABBREVIATIONS**

B.C.G	-	Bacillus Calmette Guerin
C.H.N.	-	Community Health Nurse
C.S.M	-	Cerebro- spinal meningitis
D.D.H.S.	-	District Director of Medical Services
DHMT	-	District Health Management Team
DPT	-	Diphtheria Polio and Tetanus
EPI	-	Expanded Programme on Immunization
FP	-	Family Planning
GOG	-	Government of Ghana
MCH	-	Maternal and Child Health
MOH	-	Ministry of Health
OPD	-	Out patients department
OPV	-	Oral Polio Vaccine
PHC	-	Primary Health Care
RDHS	-	Regional Director of Health Services
RHA	-	Regional Health Administration
RHMT	-	Regional Health Management Team
SDHT	-	Sub-district Health Team
TBA	-	Traditional Birth Attendant
UNICEF	-	United Nations Children's Fund
VOREP	-	Volta Regional Agricultural Development Project
WM	-	Vial Vaccine Monitor
WHO	-	World Health Organization
WIFA	-	Women In Fertile Age

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## ABSTRACT

The programme of immunization against polio, diphtheria, whooping cough, tetanus, tuberculosis, and measles has reached all the sub-districts of Nkwanta district, but it has not yet had a demonstrable effect on low EPI coverage. The study looked at the possible health service factors leading to persistent low EPI coverage in the district particularly on the adequacy of EPI supplies to the periphery and the strategies used in EPI in the district. Data were collected from all the Community Health Nurses (CHNs) and from heads of health facilities using structured questionnaires and checklist. It was established that among the health service factors hindering high achievement of EPI coverage were lack of team spirit among health workers and maldistribution of CHNs resulting in some areas without EPI services. Inability to resolve administrative and managerial issues had also influenced EPI uptake in the district. But failure to adequately supply the periphery with EPI logistic supplies and non-adherence to Ministry of Health's recommended EPI strategies for low coverage areas were perhaps the greatest shortcomings.

The main recommendations were that just as much as the Ministry of Health headquarters were to make available enough EPI materials to the RHMT for onward distribution to the district, the DHMT should also try to supplement its existing strategies (static and out-reach) with occasional mini-mass campaigns to improve coverage and that the DHMT should resolve its administrative and managerial problems in the sub-districts.

## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 STUDY AREA

##### 1.1.1 Geography And Boundaries:

Nkwanta District is one of the 12 administrative districts in Volta Region. It is located in the northern part of Volta Region. It is bounded by the Northern region in the north, by the Volta Lake and Krachi District in the west, by Kadjebi district in the south and by the Republic of Togo in the east. Its surface area is 5,500 sq. km and therefore covers about 27% of the total regional surface, making it by far the largest district in the region.

The physical features of the district are dominated by two mountain ranges in the south and by vast Savannah plains stretching out in the north-west. In the east there is the northern extension of the Akwapim-Togo ranges reaching heights up to 880 metres above sea level, and in the central-south, the Togo-Atakora ranges which reach comparable heights of about 790 metres above sea level.

##### 1.1.2 Climate and Vegetation

The district is situated in the semi-equatorial climate region. The climate is characterized by a rainy season with warm moistly southern winds from May to September, and a dry season from November to February with its cool dry northern winds that bring a hazy dust from the Sahara desert, the Harmattan season.

The annual rainfall varies from 1,500 - 1,750 mm, in the south to 1,250-1,500 mm in the north. The average temperature varies from 28°C in March and April to 28°C in July with a daily variation of +10°C.

The original vegetation consists of moist semi-deciduous rain forest on the mountain slopes of the south, gradually changing into Guinea Savannah woodland in the lower areas of the north. Due to shifting cultivation and regular bush-fires, most of the primary forest has changed into secondary forest and farm bush.

### 1.1.3 Demography and Settlements

The district has a population of 137,407 inhabitants (this is based on 1984 national population census) making it the third most populated district in the region. It has an annual growth rate of 1.8%. Population density is 25 inhabitants per square kilometre but the distribution is not even.

The following is the service Target population for the district:-

Total population	-	137,407
Children 0-11 months (4%)	-	5,595
Children 0-23 months (8%)	-	11,190
Children 0-5 years (20%)	-	27,976
Women (WIFA) (15-49yrs) (20%)	-	27,976
Expected Pregnancies (4%)	-	5,595

Annual Population growth rate 1.8%

There are 337 settlements in the district as illustrated in the diagram below:

Table 1: Settlements By Size of Village Population in the District.

VILLAGE POPULATION	NO. OF VILLAGES	POPULATION	% OF TOTAL POPULATION
Less than 100	163	8,107.01	5.90%
100 - 500	125	30,586.79	22.26%
500 - 2,500	41	58,178.12	42.34%
more than 2,500	8	40,535.06	29.50%
<b>TOTAL</b>	<b>337</b>	<b>137,407</b>	<b>100.00%</b>

100% of the entire population live in rural area. The adult literary rate of the district is much less than the region's 49%.

#### 1.1.4 Economic Structure

Agriculture and trade are the main activities of the people in the district. 75% of the population is involved in farming activities. Most farmers are subsistence farmers, but the district is also an important production area for cash crops like yam, sheanuts and groundnuts. Small scale cocoa and coffee farming is done on the mountain slopes.

There are no large scale industries in the district. Home industries or small scale industries like basket weaving, baking, soap manufacturing, etc. are mainly found in the larger centres. Shop-keeping is entirely in private hands and the main commercial activities pass through the market women.

#### 1.1.5 Local Government

The District Assembly is the highest political organ in the district. The legislative instrument No. 1496 of 10th March, 1989 under PNDC Law 207 established the Assembly in Nkwanta as the administrative capital.

The district assembly manages the programming and implementation of projects, and smooth and effective functioning of all departments. The composition of the District Assembly is as follows:-

**0** District Chief Executive

D Presiding Member - **Chairman**

D District Co-ordinating Director

D Assistant Coordinating Director - Secretary

D District Finance Officer

D Heads of Government departments including the District Director of Health Services as ex-officio members.

**0** Assemblymen

Following Government policy to demarcate all districts into sub-districts for better coverage in service delivery, Nkwanta district was divided into five (5) sub-districts in 1992.

The table below shows the name and population of the sub-districts.

Table 2: Population by Sub-District

No.	Sub-District	Population	% of Total Population
1	Nkwanta Sub-District	31,946	23.24%
2.	Tutukpene sub-district	13,788	10.03%
3.	Brewaniase sub-district	21,341	15.54%
4.	Kpasa sub-district	43,158	31.41%
5.	Damanko sub-district	27,174	19.7%
	<b>TOTAL</b>	<b>137,407</b>	<b>100%</b>

#### 1.1.6 Transport and Communication

The district has three trunk dust roads. The first one runs between Abrubrawa in the south through Nkwanta and Damanko in the north. It is an important north-south link, connecting the food processing areas in the north-east of Ghana with the urban centres in the south. The second important north-south link is the road that passes from Hohoe through Worawora to Dambai through Tutukpene to Nkwanta. The third main road connect the important market centres of Nkwanta and Dambai and creates an alternative route when one of the two north-south routes is not motorable.

Despite the deplorable condition of the roads Omnibus Services and Tata bus company have extended their services to the district. State Transport Corporation (STC) stopped their services from Nkwanta to Accra due to poor roads.

There is no telephone system in the district. The mail was transported formerly by STC buses but now it is done by any reliable Hohoe vehicle once in a week, but this systems seems not to be reliable.

Most of the departments like VORADEP (Volta Regional Agricultural Development Project), Police, Ghana Commercial Bank, Ghana Education service, District Finance

office and of lately the District Health Administration all in the district capital Nkwanta are connected with the Regional capital with Radio communication system,

### 1.1.7 Education

Below is a table describing the type and number of schools as well as number of teachers and school enrolment for the year 1996.

Table 3: Number of Schools by Type Showing Teacher Population and School enrolment for 1996

SCHOOL TYPE	NUMBER	NO. OF TEACHERS	NO. OF PUPILS
Kindergarten	25	45	1,409
Primary School	85	322	10,663
Junior Sec. School (JSS)]	43	178	3,465
Senior Sec. School (SSS)	3	47	850
<b>Total</b>	<b>156</b>	<b>592</b>	<b>16,387</b>

Despite these educational facilities in the district, the adult literary rate is below 49%.

### 1.1.8 HEALTH SITUATION OF THE DISTRICT

#### 1.1.8.1 Health Service System

The health services are administered by a District Health Management Team based at District Capital , Nkwanta. The Ministry of Health, Ghana is currently undertaking Health Sector reforms which aims at decentralising resources and authority to the periphery. Within this changing management environment the commitment to primary health care remains the cornerstone of reforms. Health services in the District are based on the 3-tier Primary Health Care (PHC) concept. The DHMT aims, as much as possible, at providing adequate curative, preventive and promotive health services which will be accessible, acceptable and affordable to the communities through:-

1. Medical Care
2. Maternal and Child Health Care Services including Family Planning

3 Health Education and Community participation.

4. Disease Control and Surveillance
5. Nutrition Survey and Counselling
6. Environmental Sanitation

#### **Level A Health Services**

These are carried out by Community Health Workers who have been trained as Health Educators and compilers of community registers, they assist the MOH workers in educating the communities on health promotion and disease prevention. Services at this level are also provided by Traditional Birth Attendants (TBA's), most of whom have been trained by the DHMT.

#### **Level B Health Services**

Health Centres and Health Posts provide services at Level B. At this level, minor ailments are treated and serious/complicated cases are referred to higher levels. The following programmes are carried out at Level B facilities.

- Immunization programmes
- 0** Health Education
- D Counselling including Family Planning.
- 0** Disease Control
- D Supervision of Level A workers
- D Maternity Services
- D Medical Care

#### **Level C Health Services**

This constitutes the highest first referral health facility in PHC. It is usually the District Hospital where emergencies in Surgery, Obstetric and Gynaecology as well as in medicine are handled. Complicated cases which need specialist treatment are referred to a higher level.

**1.1.8.2 Health Facilities/Providers**

There are twelve (12) health facilities in the district out of which 50% are Government run and the other 50% mission and privately run.

**Government run Health Facilities.**

1. Nkwanta Government Health Post
2. Tutukpene Government Health Post
3. Kecheibi Government Health Post
4. Brewaniase Government Health Post
5. Kpasa Health Centre
6. Damanko Health Centre

**Mission and Private run clinics**

- |    |                            |         |
|----|----------------------------|---------|
| 1. | St. Joseph R.C. Clinic     | Nkwanta |
| 2. | Church of Pentecost clinic | Kpasa   |
| 3. | Private Maternity home     | Kpasa   |
| 4. | Private Maternity home     | Sibi    |
| 5. | FAME clinic                | Obanda  |
| 6. | E. P. clinic               | Pusupu  |

**1.1.8.3 Access to Health Care**

Generally there is limited access to health care in the district in terms of location, service provision and financial ability to pay.

**1.1.8.3.1 Geographical Access**

A large number of communities do not have access to health care. Although the district has 12 health institutions of which 50% are government-run and the rest private, these are not enough to cover the 337 towns and villages, and cater for a population of 137,407 inhabitants in the district. In addition, the existing health facilities are not evenly distributed. The district has numerous mountains and most of the roads are impassible during rainy season.

#### **1.1.8.3.2 Access to Basic Services**

Many health care services are unavailable at most of the government health facilities due to shortage of staff; and in private health facilities due to type of services being offered (eg. maternity homes do not offer general health care). The number of qualified staff although overstretched does not cover all the facilities. Consequently, services in most of the health centres/post are delivered by auxiliary staff. Most health facilities do not even offer simple laboratory services.

#### **1.1.8.3.3 Financial Access**

Ability to pay for service charges of the people is very low due to the economic performance of the district. The district is the most deprived district in the Volta Region in terms of socio-economic status. Agriculture is the major economic activity of the people in the district. This forms over 75% of daily activities, Mean Annual household income and mean annual per capita income for the Volta region are 379,000 cedis and 85,000 cedis respectively. (Ghana Living Standard Survey (GSS) March 1995 pp.60). Compiled with the low income of the people in the district is the high user fees charged by private health institutions.

#### **1.1.8.4 Health Status**

Malaria remains the most common disease reported at the health institutions. It accounts for about 40% of total out-patient morbidity cases in the district. Diarrhoeal diseases are also prevalent. Infant mortality due to preventable Childhood diseases is very high due to extreme persistent low immunization coverage for all antigens. Water based diseases like bilharzia and guinea worm are still endemic in the district. Malnutrition among mothers and children and other nutritional disorders in the district is high. Moderately and severely malnourished children form about 25% of all children under 5 years of age in the district.

#### **1.1.8.5 Health Service Utilization**

The utilisation pattern has been very low for both OPD attendance's at the health institutions and preventive services. The immunization coverage rate has been rather

low despite the establishment of more out-reach clinics and health education campaigns in the communities. The immunization coverage for 1996 and 1997 are 18.9% and 18.4% respectively for the district.

#### **1.1.8.6 Manpower**

The district has a critical shortage of all categories of staff and is far below the national average in staff distribution. There is only one Medical doctor for the district population of 137,407. It may be clear that with the present staff situation it would be impossible to meet the goals set by the government in quantitative as well in a qualitative way. Table 4 shows the main categories of staff per district in the Volta Region.

**TABLE 4: HEALTH MANPOWER DISTRIBUTION BY DISTRICTS**

Category	no MS*	iiiiiiiiii	SCPASTGO	mmmm W&T, *	K&Attn BUST,	mm mi<	K&Attn fil&mcr	TMST	DISTRICT	WMmtm	mmst	mmstjact	w&mcx	M	fe&A,	liill
MEDICAL OFFICERS	2	8	3	5	2	5	3	2	4	■	2	1	14	3	56	
DENTAL OFFICERS		1		2				5							8	
ADMINISTRATION	14	18	2	6	5	4	4	5	2	3	8	3	7	33	114	
OPTOMETRIST									1						1	
DISEASE CONTROL	23	32	6	4	7	5	8	5	5		5	5	2	22	134	
NUTRITION	24	27	11	16	10	2	1	2		1	12	2	16	1	125	
HEALTH STATISTICS	21	32	20	19	6	6	7	6	5	%	18	4	14	9	169	
PHARMACY	4	12	4	10	5	3	3	2	3	3	10	2	20	4	85	
LABORATORY	2	20	6	10	4	2	3	2	1	•2	9	2	11		74	
X-RAY		3	1	3	1				1		3		3		15	
OCCUPATIONAL THERAPY															0	
PHYSIOTHERAPY													4		4	
HEALTH EDUCATION															0	
NURSING (includes MAs)	136	226	124	153	60	46	35	40	36	27	112	30	178	6	1209	
COMMON SERVICES	123	113	99	89	72	36	30	41	16		101	21	78	58	892	
SUPPLY	2	5	2	2	3	1	1	1		i	2	1	3	11	35	
GRAND TOTAL	351	497	278	319	175	110	95	111	74		282	71	346	151	2921	
Regional Population	247,083	97,825	134,635	139,298	89,251	190,984	101,607	88,243	113,457	a? nr	119,254	95,176			1,554,220	
Overall MOHStaff: Pop. Ratio	703.9	196.8	484.3	436.7	510.0	1,736.2	1,069.5	795.0	1,533.2		422.9	1,340.5			532.1	
Nurse: Population Ratio	1,816.8	432.9	1,085.8	910.4	1,487.5	4,151.8	2,903.1	2,206.1	3,151.6		1,064.8	3,172.5			1,285.5	
Physician, Pop. Ratio	123,541.5	12,228.1	44,878.3	27,859.6	44,625.5	38,196.8	33,869.0	44,121.5	28,364.3		59,627.0	95,176.0			27,753.9	
Total Institutions	35	26	18	13	14	9	4	8	9	S	18	7			167	
Inst: StaffRatio	10.0	19.1	15.4	24.5	12.5	12.2	23.8	13.9	8.2		15.7	10.1			173	
Private Physicians	2	2	2	0	0	5	0	0	0	1	2	2			15	
Private Nurses and Midwives	7	4	10	7	1	15	4	2	5	.....4 1	5	4			68	

## 1.2 OVERVIEW OF EXPANDED PROGRAMME ON<sup>1</sup> IMMUNIZATION WORLDWIDE

In 1974 with the world-wide eradication of small-pox in sight, the World Health Organization (WHO) launched an Expanded Programme on Immunization (EPI). In 1997 the Thirtieth World Health Assembly decided that the main social goal of governments and WHO in the coming decades should be the attainment by all the people of the world by the year 2000 of a level of health that would permit them to lead a socially and economically productive life. This goal is commonly known as “health for all by the year 2000”. Health for all does not mean that in the year 2000 doctors and nurses will provide medical care for everybody in the world for all existing ailments and that nobody will be sick or disabled (WHO, 1984). It does mean that health begins and is fostered or endangered at home, in school and factories, where people live and work. People will use better approaches than they do now for preventing diseases and alleviating unavoidable illness and disability, and have better ways of growing up, growing old and dying in dignity (WHO, 1984). WHO defined Health as “a state of complete physical, mental and social well-being and not only the absence of disease or infirmity” [WHO, 1977], In 1977, WHO adopted the specific goal of providing immunization for all children of the world by 1990 (referred to as UCI/1990). In September, 1978, the International Conference on Primary Health Care meeting (sponsored by WHO and UNICEF) in Alma-Ata in the then Soviet Union adopted Primary Health Care (PHC) as a cornerstone of essential health care [WHO/UNICEF, 1978], Eight specific elements of PHC were identified at the conference. These were:

promotion of Nutrition

provision of adequate supply of safe water,

provision of basic sanitation

maternal and child care, including Family **Planning**

Immunization against the major infectious diseases.

Education concerning the prevalent endemic diseases, problems and the methods of their prevention and control.

Appropriate treatment for common diseases and injuries [WHO/UNICEF, 1978],

Countries have adopted PHC as a strategy to achieve Health for all by the year 2000. International and national involvement's in attempts to achieve these specific elements of PHC have spent large amounts of money on them and the majority of this has been directed to child survival or child health programmes. [Sukumar S. , 1997], In 1982, UNICEF proposed the concept of a 'Child Survival and Development Revolution' (CSDR) as a response to the need for low-cost, high impact of the early 1980s. This was adopted by UNICEF and the United Nations in 1983. Immunization took a lead in this strategy. In 1984, several countries, with UNICEF support, embarked on accelerated immunization programmes in pursuit of the goal of universal childhood Immunization by 1990 [ WHO, 1985], Immunization therefore as one of the specific elements of PHC has come a long way since English physician Edward Jenner 200 years ago used cowpox virus to protect people against smallpox and thereby discovered the first effective vaccine against a human disease. We now have vaccines against nearly 30 different diseases [CYI Forum, 1993], Immunization is vital because together six diseases - tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis and measles - kill an estimated four to five million children per year, a third of all child deaths. And, additionally, as a result of these diseases about four million children become physically or mentally handicapped yearly in developing countries [Grant, J. P. 1983], It is in recognition of this pivotal role immunization plays that the World Health Organization introduced the Expanded Programme on Immunization [EPI] in 1974 to target six (6) childhood diseases.

### **1.3 Overview of EPI in Ghana**

Ghana was one of the first countries in the Sub-Saharan Africa to adopt Expanded Programme on Immunization (EPI) in 1974. The main objective was to control the six target diseases by raising the coverage of the immunization in infants. Several strategies have evolved since then. In 1987 the country relaunched the EPI with mass immunization using the measles vaccine alone. In the 1980's mass immunization campaigns were very popular in Ghana. These were usually held three or four times per year and had the single aim of immunization. They generally lasted between one and two weeks per campaign.

Today immunizations are carried out at all the static and outreach child welfare clinics. A lot of both donor and government resources had been spent on EPI activities in the view to increase coverage. Despite these developments, the **immunization** coverage has not been as expected. In 1992 a committee on the “Strategies To Implement EPI” was set up by the Ministry of Health to look into the issue of coverage in the country [MOH 1992], On realizing how crucial the health service factors played in EPI, the committee’s findings were based only on health service factors contributing to low immunization coverage in Ghana and several recommendations were made to address the situation.

In trying to meet the EPI challenges, a draft of Ghana EPI policy document was formulated in 1997. (Unpublished Ghana EPI Policy 1997). The document explains both broadly and specifically the Government of Ghana’s intentions (objectives) and expectations (targets) aimed at improving the EPI coverage. The Ghana EPI policy schedule requires that each child receives one dose of BCG, three doses of DPT, at least four doses of OPV, one dose of measles and one dose of yellow fever before the first birthday. The EPI schedule is as shown below:

Table 5: Ghana Expanded Programme On Immunization (Epi) Schedule

VACCINE	AGEFOR FIRST DOSE	NO. OF DOSES	INTERVAL BETWEEN DOSES	DOSAGE	ROUTE OF ADMINISTRATION REMARKS
B.C.G.	AT BIRTH	1	NONE	0.05ML 0.1ML	INTRADERMAL ON THE RIGHT SHOULDER
D.P.T.	FROM 6 WEEKS	3	AT LEAST 4 WEEKS	0.5ML	SUBCUTANEOUS OR INTRAMUSCULAR ON THE THIGHS/BUTTOCKS
ORAL POLIO	FROM 6 WEEKS	3(4)	-DO -	2 DROPS BY MEANS OF A DROPPER	ADDITIONAL DOSE TO BE GIVEN BETWEEN BIRTH AND 6 WEEKS WHEN POSSIBLE
MEASLES	FROM 9 MONTHS	1	NONE	0.5ML	SUBCUTANEOUS OR INTRAMUSCULAR ON THE

VACCINE	AGE FOR FIRST DOSE	NO. OF DOSES	INTERVAL BETWEEN DOSES	DOSAGE	ROUTE OF ADMINISTRATION REMARKS
					LEFT ARM
TETANUS TOXOID	1. WOMEN OF CHILD BEARING AGE (12-44 YEARS) 2. PREGNANT WOMEN	2	AT LEAST 4 WEEKS	0.5ML	IF PREGNANT: 1 <sup>ST</sup> DOSE AFTER THE FIRST TRIMESTER.  5 DOSES ARE ENOUGH TO GIVE PROTECTION FOR LIFE
YEIXOW FEVER	FROM 9 MONTHS	1	BOOSTER EVERY 10 YEARS	0.5ML	SUBCUTANEOUS OR INTRAMUSCULAR ON THE ARM
C.S.M	2 YEARS+	1	BOOSTER EVERY 5 YEARS	0.5ML	SUBCUTANEOUS OR INTRAMUSCULAR ON THE ARM

The Ghana EPI policy document [MOH, Ghana, 1997 yet to be published] has set the Ghana EPI goals as follows:

- Control of measles by the year 2000
- Elimination of Neonatal Tetanus by the year 2000.
- Eradication of Poliomyelitis by the year 2000
- (Control of hepatitis by the year 2000)
- Control of Yellow Fever by the year 2000.

In order to meet these demands the MOH has set specific objectives for each of the goals mentioned above. These include:

- Reduction of measles morbidity rate in Ghana by 90% of pre-vaccination levels i.e. from 40,000 cases per year in 1998 to 10,000 cases per year by the year 2000.
- Realization of neonatal tetanus incidence rate in every district of less than 1 case per 1,000 live births.
- Realization of no cases of clinical poliomyelitis associated with wild polio virus.
- And Yellow fever vaccination coverage of 90%.

#### 1.4 Problem Statement

Low immunization coverage as a problem in Volta Region particularly in Nkwanta district is well-known. Available data from the Volta Region Annual reports indicate that the region's performance has persistently been below the targeted 80 % coverage. Refer to the table below:

Table 6: Trend of Immunization Coverage In The Volta Region (1993-1997)\*

YEAR	1993	1994	1995	1996	1997
Coverage in percentage (%)	45.4	40.4	40.3	44.5	49.1

*\*This is from Regional Annual Immunisation Returns and not from coverage survey for children aged between 0- 11 months.*

The rationale for 80% target is explained in the following quotation from a UNICEF document:

“In EPI programmes, an 80% average rate is often taken as a working minimal level for all the vaccines. Such a coverage rate might produce an adequate level of herd immunity for most of the diseases, depending on the various parameters described above (size, composition and density of the population; birth rate, morbidity), with the exception of measles, which probably requires over 90% coverage in most communities”. (Ofosu Amaah and Shal 1985).

However, this does not necessarily mean that all the 12 districts in the region have been performing poorly with regard to total immunization coverage. Analysis of regional data has indicated that Nkwanta district has been the worst district in terms of immunization coverage compared to other districts in the regions as illustrated in the table below.

Table 7: Trends of Immunization Coverage by District (1993-1997)\*

DISTRICT/ YEAR	1993 %	1994 %	1995 %	1996 %	1997 %
KRACHI	49.1	41.9	70.5	73.3	72.2
NKWANTA	15.5	10.8	14.4	18.9	18.4
KADJEBI	22.4	24	27.9	28.0	36.3
JASIKAN	50.5	53.7	48.3	48.5	47.9
HOHOE	95.5	60.8	76.9	71.0	90.0
KPANDO	61.1	45.4	34.8	52.6	43.1
HO	53.5	46.7	36.2	60.4	61.6
N. TONGU	40.2	42.3	36.1	36.9	42.9
S. TONGU	26.2	29.3	24.3	28.4	33.5
AKATSI	23.0	34.1	39.7	30.4	67.1
KETU	38.5	39.2	32.8	34.0	37.5
KETA	61.2	49.8	42.3	46.1	47.9

*\*This is from Regional Annual Immunisation Returns and not from coverage survey /or children aged between 0 - 11 months.*

Many reasons have been advanced to explain the problem, most invariably, communities' lack of interest and community related factors had been overemphasised in explaining the low coverage.

To what extent the health services are contributing to the problem is not well established.

Something can be done about the problems emanating from the health service more readily than other factors which may require the involvement of the other sectors.

Nkwanta district is one of the most deprived areas in Volta Region and not much can be done by the health service about it either than advocacy. Are the health workers implementing guidelines/strategies for carrying out EPI as recommended by the Ministry of Health in its earlier reports like that of “Report To Implement EPI” (1992)? Is there enough logistic support to the peripheral centres? 1

### **1.5 JUSTIFICATION FOR THE STUDY**

Volta Region in spite of involvement in EPI activities continues to have an increase in reported cases of measles (1993-3017: 1994- 3790; 1995-4351). In a study of assessment of the mid decade goals (1995) conducted by the Ministry of Health (Ghana) and UNICEF, Volta Region had 58% **immunization** coverage and was ranked third from bottom of all the other regions in the country.

In the Health Sector Five -Year programme of Work, immunization through EPI is identified as one of the priority health service interventions. Therefore, the Volta Regional health Administration is keen to identify the reasons for the persistent low coverage of immunization so that the necessary remedial measures are taken to improve coverage and to reduce the incidence of vaccine preventable diseases.

Analysis of the regional data has established that Nkwanta district has the lowest **immunization** coverage. It would have been desirable to study all the reasons for persistent low coverage throughout the region. However, resource constraints and time limitation would not permit this to be done. Thus the Regional Health Administration requested the resident to concentrate only on health service factors leading to persistent low immunization coverage in Nkwanta district.

## **1.6 LIMITATIONS OF THE STUDY**

Due to logistics and time constraints the study was limited to health service factors contributing to persistent low immunization coverage in the most affected district: Nkwanta.

Therefore the findings and recommendations in this study cannot be representative of the broad spectrum of all the factors contributing to low immunization coverage, neither are they representative of all the districts in the Volta Region of Ghana. However, it is hoped that other districts in Volta Region or in Ghana will find some of the results and recommendations of the study useful. The recommendations can be used by Nkwanta district.

## CHAPTER TWO

### 4.0 THEORETICAL BASIS OF THE STUDY

This chapter will review some of the work that has been done on immunization coverage in other parts of the world. Factors identified as influencing immunization coverage will be discussed. The chapter will also specify the objectives of this study.

### 4.1 LITERATURE REVIEW

Full immunization coverage is the percentage of children in a given year who were fully immunized against each disease or group of diseases by age one. The recommended series of immunization are BCG, DPT1, DPT2, DPT3, OPV1, OPV2, OPV3 and measles. The vaccination schedule recommended by WHO which is used to measure full immunization is as follows (World Bank Report 1994):-

- i. Tuberculosis: one injection of BCG vaccine (Bacterium Calmette - Guerin) which can be given at the time of birth.
- ii. Diphtheria, Pertussis, Tetanus: Three injections with DPT vaccine (DPT3) before age one; the first is recommended six weeks after birth followed by two more at 4 weeks intervals.
- iii. Polio: at least three doses of oral polio vaccine (OPV3) before age one; given 4 weeks apart. In areas where polio is endemic the first dose is recommended at the time of birth, followed by three more doses at the same time as the DPT injections.
- iv. Measles: one injection of measles vaccine given after nine months of age.

#### 4.1.1 HEALTH SERVICE RELATED FACTORS

##### 1 Missed Opportunities for Immunization.

An opportunity for immunization is missed when a person who is eligible for immunization and who has no contra-indication to immunization visits a health service

and does not receive all the needed vaccines.

Missed opportunities for immunization occur in two major settings:

1. During visits for immunization and other preventive services such as growth **monitoring** nutrition assessments, and oral rehydration training sessions, and
2. During visits for curative services. In both settings, eliminating missed opportunities will raise the overall immunization coverage in a population, particularly when the availability and use of health services are high. [WHO Bulletin, 1992],

Some of the reasons for missed opportunities are as follows:-

Logistical problems with immunization delivery, negative health worker attitudes, failure to administer immunization simultaneously, false contra-indications, and parental refusal [Hutchins S.S. et al 1993].

**This** was also confirmed in a study carried out in Ghana (Brugha R and Kevary J. 1995), It was found that missed opportunities during curative visits stood at 21.4%, This was due to logistical problems at the local hospital, a shortage of Community Health Nurses to administer vaccines and the application of false contra-indications by some hospital workers. In another study, Sommerfelt E. et al (1997) have indicated that the missed opportunities for measles vaccination in Ghana was 11.3% among children aged 12-23 months. Missed opportunities are particularly unfortunate when a child received one needed vaccination but, at the same time, is not given another vaccination for which he or she is eligible.

## **2. Home Visiting**

Maximizing immunization coverage through home visits is one of the strategies in which one could achieve higher levels of coverage. A home visiting strategy is more effective in a town or community with low coverage where there is greater potential for improvement. Studies done in Ghana indicate that coverage in the intervention group rose by 26.5% to 86% compared with a 6.0% rise in the control group during the same period [Amgha R. F. & Kevany J. P. 1996], This is supported by studies done earlier on

in Egypt where a house-to-house delivery strategy achieved a universal vaccine coverage of 100% as compared to 86% for fixed site delivery strategy { Linkins R. J. et al 1995}

### 3. **Logistical problems**

The 1993 Annual report of the MCH/FP Unit of MOH (Ghana), observed numerous program constraints that effected of the child health services at its service delivery points. [MOH, MCH/FP annual Report 1993], There were insufficient supplies and equipment for daily integrated services at static and outreach points. Hutchins S. et al (1993) observed that logistical problems with immunization delivery such as vaccine shortage, poor clinic organisation and inefficient clinic scheduling was one of the major reasons which affected immunization coverage. In their study they found that the medium prevalence of missed opportunities for children and women due to logistical problems was 10% (range, 1-24%).

### 4. **Manpower**

Shortage of staff to administer the vaccines had been identified by studies as one of the main problem facing EPI services in the Third World. Brugha and Kevary (1995) noted that shortage of CHNs to administer vaccines was one of the reasons contributing to low EPI up-take in Ghana.

Lack of a defined manpower development strategy for MCH/FP has been identified as one of the major problems affecting MCH/FP programme in the country {MOH: MCH/FP Annual report 1993}. The report stressed the need to have a manpower policy which should include clear guidelines on staff posting and transfers and that these guidelines must be introduced during pre-service training and strictly enforced.

### 5. **FalseContra-Indications**

There are few absolute contra-indication to the EPI vaccines. However, false contra-indications have denied children to receive the vaccines thus contributing to low coverage. Many immunization programmes have long lists of contra-indications,

most of which are inappropriate. Studies done in the USA (ACIP 1994) indicated a long list of conditions which were not actually contraindications to immunization but were practised by health workers.

## 6. **Operational Strategies**

The most routine and common EPI strategies used in most Third World countries are static and out-reach ones. However, in developing countries where coverage has been low, other strategies could be used to increase the EPI up-take. Though expensive house to house vaccination strategy is very effective in increasing coverage.

In a study conducted in Mozambique by Monteiro (1987), a 90% **immunization** coverage was achieved when house to house vaccinations were conducted. Mini-mass and mass campaign are also some of the strategies used to increase coverage. [Strategies to Implement EPI, 1992],

## 4.2 **OBJECTIVES:**

### 4.2.1 **General Objective:**

To determine the health service factors which account for persistent low immunization coverage in Nkwanta district and to make recommendations to the DHMT for improvement.

### 4.2.2 **Specific Objectives**

1. To assess the logistics support and management for EPI activities in the district.
2. To review the operational strategies currently being used for EPI in the district.
3. To determine other health service related barriers hindering immunization uptake.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 STUDY TYPE**

The study type was exploratory and descriptive because little was known about the specific health service factors leading to persistent low immunization coverage in the district.

#### **3.1 SOURCE OF INFORMATION**

Information was collected from a cross-section of the following category of health providers:-

1. District Director of Health Services.
2. Public Health Nurse in the district.
3. Community Health Nurses in the district.
4. Heads of health facilities.
5. Review of available logistical records at the institutions.

#### **3.2 DATA COLLECTION TECHNIQUES AND TOOLS**

Structured questionnaires and checklists were used to collect the data.

#### **3.3 STUDY AREA**

The study was conducted in Nkwanta District. The study covered , all government run health facilities in all the subdistricts.

#### **3.4 STUDY POPULATION**

All the health workers dealing with EPI activities in the district were interviewed.

#### **3.5 DATA PROCESSING AND ANALYSIS**

Data were processed and analysed manually. This involved:

- (i) Collection and analysis of questionnaires and checklists.
- (ii) Description of findings.

- (iii) Explanations.
- (iv) Interpretations to arrive at implications of findings.

### **3.6 PLAN FOR DATA COLLECTION**

4 Research Assistants were identified and trained for two days with the assistance of the DHMT in data collection using the questionnaires and checklists. Data were collected in 8 days.

### **3.7 PRE-TEST**

Pre-testing of the questionnaires and the checklists were done at Tsito and Akrofii-Xeviewofe Health Centres in Ho district.

### **3.8 ETHICAL ISSUES**

- (ii) The Districts authorities (DHMT and the District Assembly) were informed before starting the study.
- (iii) There was no invasive interventions on human beings.
- (iv) All documents were confidential and no names were mentioned in the final report.
- (v) The findings were discussed with the DHMT before dissemination.

## CHAPTER FOUR.

### 4.0 STUDY FINDINGS

As indicated in the methodology chapter (3), data were collected using questionnaires administered to Community Health Nurses (CHNs), heads of health facilities and the District Public Health Nurse in - charge of EPI activities in the district. Data was also collected through check lists for cold chain equipment for health facilities, adequacy of staff check list and through a checklist for logistic supplies for EPI activities in Nkwanta District. This chapter presents the findings from all the data sources.

### 4.1 FINDINGS FROM THE QUESTIONNAIRE FOR CHNs.

The major purpose for administering the CHNs questionnaire was to examine and determine the health service factors contributing to immunization coverage in the district as seen by the actual field operational managers themselves in their catchment areas.

#### 4.1.1 Distribution of CHNs

One (20%) out of five sub-districts had no CHNs at all. In addition to this one out of the two health centres in Tutukpene - Kecheibi sub-district had no CHNs at the time of the study. Kpassa sub-district had five (5) CHNs.

The table below shows the distribution of CHN in the district.

**Table 8: Distribution of CHNs by Sub-district and by Health Centre in Nkwanta District**

Name of Sub-district	Name of Health Centre	Number of Community Health Nurses
Kpassa	Kpassa	5
Damanko	Damanko	0
Tukupene-Kecheibi	Tutukpene	0
	Kecheibi	3
Brewaniase	Brewaniase	2
Nkwanta	Nkwanta	6

**4.1.2 OPERATIONAL STRATEGIES**

The study established that static and out-reach strategies were practised as the only strategies for EPI in all the sub-districts. Other strategies such as Mini-Mass campaigns and house to house vaccinations were not utilised by the sub-districts.

Below is the table showing strategies used by health centres.

**Table: 9 Strategies used by health centres**

Name of Health Centre	Static	Out-reach	House to house	Mass immunization campaigns
Damanko	0	0	0	Done twice a year for Polio vaccine only
Tutukpene	0	0	0	- do -
Kecheibi	1	1	0	- do -
Nkwanta	1	1	0	- do -
Brewaniase	1	1	0	- do -
Kpassa	1	1	0	- do -

O: Strategy not carried out at the centre

I: Strategy carried out at the centre

#### 4.1.3 SITPPTTES

All the respondents acknowledge that they had on several occasions cancelled planned static or out-reach sessions due to lack of supplies i.e. vaccines, syringes, needles and cards.

The table below shows the number of times vaccination sessions had been cancelled in 1998 due to shortage of vaccines, syringes needles and vaccines at various health centres.

**Table 10: Number of Times Vaccination Sessions have been Cancelled at each Health Centre due to Shortage of Logistics Supplies**

<b>Health Centre</b>	<b>Out-reach</b>	<b>Static</b>
Damanko	N/A	N/A
Tutukpene	N/A	N/A
Brewaniase	4X	2X
Kecheibi	2X	2X
Nkwanta	2X	IX
Kpassa	3X	3X

All the four (4) health facilities offering EPI services in the district had a functional motorbike at the time of the study. One health facility (Nkwanta) had a four-wheel drive vehicle specifically for MCH programmes in addition to a motorbike.

**Table: 11 Available transport at Health centres in Nkwanta District (1998)**

Name of Health Centre	Available functional transport at the centre
Kpasse	One motorbike
Nkwanta	One motorbike One Vehicle
Brewaniase	One Motorbike
Kechiebi	One Motorbike

All the respondents (CHNs) from all the health facilities offering EPI services in the district confirmed that they were not given enough fuel for the motorbikes and on several occasions had to use their own money to purchase of fuel which was to be refunded later by the DHMT. 46% of the CHNs in the district pointed out that they had at least cancelled two out-reach sessions due to shortage of fuel.

There was also evidence of poor transport management, 23% of the respondents pointed out that they had cancelled some out-reach sessions in 1998 because the vehicle which was supposed to take them to out-reach sessions was at the same time scheduled for the other programmes.

In some cases the vehicle did not start off for out-reach sites as early as possible and this had resulted in staff reaching late at far away EPI out-reach places.

At one health centre (Kecheibi) the CHN who knew how to ride the motorbike was on sick leave for three weeks but the other CHN (working at the centre) did not know how to ride a motorbike. Hence, all the out-reach sessions scheduled for those three weeks were cancelled.

#### **4.1.4 STAFF MORALE**

All the respondents mentioned that there was always a delay in the payment of claims which arose from either usage of personal money on fuel for the motorbikes or from the usage of public transport for EPI outreach travel. Many of them mentioned that they had stopped the practice at the expense of EPI out-reach services because of non payment of T & T allowances. The study also established that CHNs were not happy about frequent shortages of materials for EPI. Many of them felt that this had undermined their status as CHNs as they were often blamed by the community for disruption of EPI services. The CHNs also complained that there was no reward for hard work.

#### **4.1.5 MOTIVATING FACTORS**

84% of the CHNs said that they regularly received feed back from their supervisors on how they were performing in comparison with other health facilities in the district as well as with other districts in the region. All the CHNs were happy that at least all of them had gone for in-service training in the first quarter of 1998.

#### **4.1.6 ACCESSIBILITY**

The majority of the out-reach sites were inaccessible by a motorbike due to impassable roads during the rainy season or soon after a heavy rainfall. The research team had to cancel its day's data collection trip because one of the areas on the road leading to Damanko health centre was flooded soon after a heavy rainfall. Some areas were also inaccessible by a motorbike or a vehicle due to numerous high mountains. One area in Nkwanta sub-district (called chillinga) near the border with Togo had been difficult to reach. The Nkwanta sub-district CHNs mentioned that in order to reach Chillinga, one had to leave his/her motorbike or vehicle at the root of the mountains and complete the remaining distance on foot.

#### **4.1.7 AFFORDABILITY**

100% of all the CHNs in the district mentioned that they used to charge for EPI services in the past. But the practice was stopped two months before. However, the respondents acknowledged that some of the mothers were not able to pay the fees. The respondents at each health facility showed the researcher two separate letters; one from the District Director of Health Services (DDHS) and one (a photo-copy) from the Regional Director of Health services (RDHS), ordering them to stop the illegal practice.

#### **4.1.8 CONVENIENCE OF SITE**

The study also found that there was poor selection of out-reach sites. Some out-reach sites were located in cocoa farm buildings and therefore were changed to other locations during cocoa harvesting time when the farm buildings were busy. The Brewaniase community influenced the health staff and changed the EPI site from Brewaniase Health Centre to more convenient sites for the community.

#### **4.1.9 ADMINISTRATIVE PROBLEMS**

The study revealed that Damanko Health Centre had not provided EPI services since April 1998. The three (3) CHNs who were providing EPI services at the centre were all transferred by the DHMT to other places within the district. This happened following the misunderstanding between the Medical Assistant (MA) in-charge and the CHNs.

#### **4.1.10 KNOWLEDGE OF TARGET POPULATION**

Twelve (92%) of the 13 CHNs could not recall that their target population of children was between the ages 0-11 months.

#### **4.1.11 ADVICE FROM CHNs**

All the respondents were referred to as EPI operational managers and therefore knew the problems of EPI on the ground better than anyone else. The respondents mentioned the under listed as the major problems affecting the immunization coverage and mentioned that if these could be improved upon, then coverage would also improve:

1. Inadequate supply of needles and syringes.
2. Shortage of vaccines.
3. Language barriers.
4. Low community participation in EPI
5. Shortage of staff.
6. Inadequate fuel allocation.
7. Too few government health facilities in the district.

#### **4.2 FINDINGS FROM THE QUESTIONNAIRE FOR HEADS OF HEALTH FACILITIES**

##### **4.2.1 PROVISION OF EPI SERVICES**

The study found that only four (66.7%) of the six government health Centres in the district provide EPI services. The other two (Damanko and Tutukpene) health centres provided curative services only. 100% of the private health sector in the district did not offer EPI Services. The private health sector comprised 50% of all the health facilities in the district.

##### **4.2.2 SUPERVISION**

2 (50%) of the four heads of facilities from the centres providing EPI services did not know the number of out-reach sites covered by their CHNs. The study also revealed that 50% of the heads of facilities had never escorted the CHNs to out-reach sessions and therefore did not know the out-sites physically. It was also found that 50% of the heads of facilities supervising the CHNs had no public health background at all.

The background of the heads of facilities supervising the CHNs is illustrated in the table below.

**Table 12: Head Of Facilities' Rank And Speciality**

NAME OF HEALTH FACILITY	RANK OF HEAD OF FACILITY	SPECIALITY
KPASSA	NURSING OFFICER	PUBLIC HEALTH
NKWANTA (MCH)	NURSING OFFICER	PUBLIC HEALTH
KECHEIBI	SENIOR ENROLLED NURSE	GENERAL NURSING
BREWANIASE	SENIOR ENROLLED NURSE	GENERAL NURSING

**4 2 3 KNOWLEDGE OF CATCHMENT AREA AND TARGET POPULATION**

Knowledge of catchment area was lacking in three (75%) of the four heads of facilities.

The three could not produce the map for their catchment areas neither did they show evidence of the list of communities for their respective catchment areas.

The study also revealed that one (25%) of the respondents did not know the number or percentage of children between the ages of 0 - 11 months in her catchment area.

**4 2 4 MISSED OPPORTUNITIES**

The study found out that none of the health facilities had strategies to reduce missed opportunities. All the respondents acknowledged that their Health centre staff conducted home visits. However, no vaccinations were conducted during home visits.

#### 4.3 FINDINGS FROM THE QUESTIONNAIRE FOR THE DISTRICT DIRECTOR OF HEALTH SERVICES

##### 4.3.1 HEALTH FACILITIES

It was established from the interviews that there were twelve (12) Health facilities (both public and private) involved in the provision of Health services in the district, out of this number 50% (6) were government owned. Each sub-district has at least one government health facility.

The respondent said that only 66.7% (4) of the six government owned health facilities offer EPI services. No EPI services were provided by the private health sector.

##### 4.3.2. STAFFING

The respondent mentioned that there were only sixteen (16) CHNs in the district. The respondent acknowledged that the CHNs were not evenly distributed. Kpassa sub-district for example had five (5) CHNs whilst Damanko sub-district had none.

##### 4.3.3 MONITORING OF EPI COVERAGE

It was established that the District Health Office had no Immunization Monitoring graphs or charts for each sub-district.

##### 4.3.4 SUPERVISION

There was a supervisory schedule at the District Health Office indicating when the sub-districts were to be visited by the DHMT. On the schedule, each sub-district was to be visited once per month. It was however found that the schedule was not implemented as planned because of other competing programmes.

#### 4.4 FINDING FROM THE CHECKLIST FOR COLD CHAIN EQUIPMENT FOR EPI IN NKWANTA DISTRICT.

Below is the table showing the number of EPI refrigerators and source of energy used to operate the cold chain at each health facility.

**Table 13: Checklist For Cold Chain Equipment For EPI Activities In Nkwanta District**

NAME OF SUB-DISTRICT	NAME OF HEALTH FACILITY	NUMBER OF EPI REFRIGERATORS AT FACILITY	SOURCE OF ENERGY USED TO OPERATE COLD CHAIN EQUIP.	SOURCE OF ENERGY FOR THE CENTRE	ATTENDANT	COMMENTS ON PERFORMANCE OF EQUIPMENT. (Working, if not working for how long)
Kpassa	Kpassa	2	Kerosine Solar	-	CHN	Solar Ref. not working one-year
Damanko	Damanko	0	0	-	-	N/A
Tutukpene Kecheibi	Kecheibi	0	0	-	-	N/A
Tutukpene Kecheibi	Tutukpene	0	0	-	-	N/A
Brewaniase	Brewaniase	1	Kerosine	-	CHN	Working properly
Nkwanta	Nkwanta	3	1 Solar 1 Electricity 1 Kerosine/Elect.	Hydro Electricity	T. 0.	All in good working condition

Three (50%) of the six (6) health centres (Damanko, Kecheibi and Tutukpene) had no EPI refrigerators at their centres. Kpassa Health Centre had two (2) refrigerators: one using solar energy and the other using kerosine. The solar ran refrigerator was not working at the time of the study. Brewaniase Health Centre had one working kerosine-powered refrigerator at the time of the study.

Nkwanta District Health Administration had three (3) refrigerators: one solar, one electricity and the other both electricity and kerosine powered. All the three (3) were in good working condition at the time of the study.

## CHAPTER FIVE

### DISCUSSIONS AND RECOMMENDATIONS

#### 5.1 Supplies

The study established that shortage of vaccines, needles and syringes had been the common cause of low EPI coverage in the sub-districts. Most of the CHNs in the district confirmed experiencing shortage of needles and syringes whilst all the respondents acknowledged to experiencing shortage of vaccines. When there are no tools to use one cannot achieve his/her intended objective at all, no matter how well qualified the staff might be. Adequacy of logistics must be matched to demand. The DHMT must consider this as a very serious issue which is actually the most important problem faced in the delivery of EPI services. The study revealed that the distribution of vaccines, needles and syringes by the district stores was done haphazardly. There was no clear procurement policy governing the distribution of supplies. Health Centres simply ordered their requirements without referring to minimum stock levels for their centres. In fact none of the health centres knew their minimum stock levels for each of the items i.e. BCG, DPT, OPV, TT, measles vaccine, syringes, etc. Under such circumstances there is always a danger of over-supply versus under-supply to the health centres. For example, Kpasa Health Centre canceled one outreach session at the time the researcher visited the centre because there was a shortage of DPT vaccine and cards whilst Brewaniase on the other hand had DPT which could last them for almost a month and a half. The forecasting of vaccines and other EPI logistics supplies, the distribution system of vaccines and supplies at all levels and stock

control mechanisms should be addressed by the DHMT. District EPI co-ordination team members and all the CHNs should be re-trained in procurement procedures and in the management of stock.

## **5.2 Operational Strategies**

The study revealed that about 25% of the population in the district was not covered by any type of immunization strategy due to non availability of EPI services in their areas (Damanko sub-district and part of Tutukpene sub-district).

This proportion of the total population for the district would continue to pull down the overall EPI coverage performance for the district by a block margin of 25%. Efforts to bring the EPI services back to the people of the affected areas would not only benefit the people of those areas alone but would also improve on the total acceptance rate for the whole district.

The only four(4) health facilities providing EPI services in the district use static and out-reach services as the only strategies for EPI. Mass immunisation campaigns were stopped more than 5 years ago due to high running costs that went with them. House-to-house vaccination session had never been carried out or practiced in the district before. Mini-immunisation campaigns were only done for CSM vaccinations. The National Immunisation Days (N.I.Ds) currently being undertaken in the country only addresses Polio Vaccine. The Ministry of Health report of a committee on **strategies to implement EPI in Ghana** (1992) recommended that in order to achieve high coverage immunisation rates a combination of all the immunisation delivery strategies i.e.static, out-reach and extended out-reach must be used by health institutions. The report also

recommended that mass campaigns would be conducted in the districts with difficulties, limited manpower, persistent low coverage and scattered population.

### **5.3 Missed Opportunities**

The study also established that there were no strategies put in place to deal with missed opportunities. Nkwanta District is one of the most under privileged districts in the country in terms of the numbers and even distribution of health facilities and therefore might not escape from missed opportunities. Therefore Nkwanta DHMT must put in place strategies for capturing missed opportunities. Children who come for curative services should be screened and those found to have missed their previous vaccinations given the vaccines on the spot. The DHMT should also take advantage of the Polio National Immunisation Days currently taking place in the country for the other vaccines as well.

### **5.4 Policy On Vial Opening**

Several reasons were given by the community health nurses as to whether they should open or not open a vial for only one child seeking vaccination. Many CHNs cited wastage as the main reason for not opening a vial for only one child. Most of them were not aware of Ghana's EPI policy. The **Ghana's EPI policy** (1997) on opening vials says that opened vials of OPV, DPT, TT, and Hepatitis B vaccines can be used beyond one vaccination session provided that:

- D a VVM is attached.
- D the expiry date has not been exceeded
- D the WM has not changed color

Multiple dose vaccines (OPV, DPT, TT, and Hepatitis B) could therefore be carried along during home visiting and vaccinate the children who missed the previous vaccines and the remainder kept for the next vaccination session. This will help reduce the drop out rate.

### **5.5 Transport**

It has frequently been reported in other previous papers that lack of transport was the main reason for the interruption of out-reach strategy immunisation services (**EPI cold chain and logistics survey, 1995**). In 1992 a DReport of a committee on the **strategies to implement EPF** in Ghana noted that the introduced Bravo motorcycles to support out-reach activities were found to be unsuitable for what they were intended for as they frequently broke down. Contrary to the above findings this study established that all the health facilities providing EPI services in the district had enough transport at their disposal and that the Yamaha motorbikes used by the health facilities were quite suitable for the local conditions. However, the study registered cancellation of some of the out-reach sessions due to inadequate allocation of fuel to run the motorbikes. The study also found that some out-reach sessions were canceled because the only staff who knew how to ride the motorcycle at the centre was either on leave or unwell. In this regard the DHMT must increase the allocation of fuel for EPI activities and also train all the CHNs at each health centre on how to ride a motorcycle.

### **5.6 Knowledge And Size Of Catchment Area**

Nkwanta districts area is geographically a large one. The number of health facilities operating EPI services were very few (only 4) and that they were far apart from each other. The catchment areas for the health facilities were too big. It is possible that proximity to EPI service facilities is an influential factor towards coverage uptake. **Letsa Y., et al (1992)** unpublished) noted that the smaller the catchment area the more frequent the health staff-community contact would be. Therefore, increasing the number of health facilities in the district would boost the frequency of staff-community contact and ultimately increase EPI uptake. It was also established in this study that most of the heads of facilities did not know their catchment areas. To be able to organise out-reach activities well, the health worker needs some basic knowledge of his/her catchment area other wise the staff-community contact would be widened even further. Each sub-district should therefore have a map of its catchment area indicating the location of all the communities so that no one community should be left out of the EPI out-reach coverage in the subdistrict. This was also noted by the Ministry of Health's Report of a committee on **the strategies to implement EPI in Ghana (1992)**, that for effective monitoring and defaulter tracing each health area must know its catchment.

### **5.7 Staffing**

Performance of CHNs in Nkwanta District seem to be incapacitated by their inability to cope with the large population in large catchment areas composed of numerous scattered villages. **Brugha R. et al (1995)** established that **21.4%** of

missed opportunities during curative visits were due mainly to shortage of Community Health Nurses to administer vaccines and the application of false contra-indications. Boosting the CHN; population ratio would increase staff-community contact and this will ultimately boost the performance of CHNs in EPI activities. **The MOH, EPI report (1992)** also recommended that if all the health workers, irrespective of category could participate in one form or the other in the immunisation programme, coverage could improve. There should also be even distribution of CHNs in the district. This must be done according to the population density of the sub-district.

### **5.8 Cold Chain**

The study established that three(50%) of the health facilities (Damanko, Tutukpene and Kecheibi) in the district did not have EPI refrigerators; and that out of the health facilities providing EPI services in the district one (25%) (Kecheibi) operated without a refrigerator. The health centre (Kechebi) had to travel to the District capital several times in a month to collect vaccines and other supplies which need refrigeration for its static and out-reach sessions. This had proved to be quite costly because again and again the centre had run out of fuel to run the motorbike as their fuel allocation was depleted by several trips made to collect vaccines from the District capital, and were left with none to conduct the out-reach vaccination sessions. Therefore equipping all the health centres with functional EPI refrigerators would improve on the availability of the vaccines at the health centre and this will spare fuel for the actual travel to out-react sites. Availability of spare parts must also be a priority in the maintenance of the

refrigerators as interruption of services due to persistent refrigerator break-downs would affect vaccine storage and consequently affect the coverage. The **1995 EPI cold chain and equipment survey** in Ghana had shown that lack of spare parts affected 70% of the stores at the regional level, 50% at the district level and 30% of facilities were in need of additional spare parts at health facility level.

### **5.9 Administrative & Managerial Problems**

Lack of team spirit has resulted in some areas without services. The DHMT must institute measures to enable health workers live up to their responsibilities. These may include, re-training, regular supervision and disciplinary measures. Staff transfers should be done in an orderly manner. Staff should be replaced as soon as they are transferred and should not be made to disrupt services.

In this study it was also found that some health centre staff canceled EPI out-reach sessions solely due to clashing of programme. This portrays some problems in management skills in relation to organisation of EPI activities and other programme. Cancellation of EPI out-reach sessions is likely to have an influence on EPI acceptance rate because mothers would lose faith in health workers' promises and fail to turn up for the next sessions. The **MOH, EPI Ghana report (1992)** recommended that there was a need to re-train and impart management skills to Community Health Nurses so as to enhance their capacity to manage EPI services well.

### **5.10 Accessibility**

Geographical accessibility is one of the most important factors seem to influence EPI coverage in Nkwanta District. Health Centres in the district are located only in towns along the main road; yet the majority of the people live in the country side. The health centres are also situated quite far apart: at an average distance of 30 km apart. In a study done in Senegal by **du Lou et al (1994)** it was established that geographical location of villages had considerable variations in coverage: 71% of children were completely vaccinated in villages less than 10 km from the centre, whereas in remote villages only 10% of children had been completely vaccinated. Alakija W. (1987) also found that another reason why immunization had not covered 100% of the target population in developing world, particularly in Nigeria had been lack of access to immunization centres. There is the need therefore to move EPI services as close as possible to the people living in remote areas by establishing more health centres and out-reach sites.

### **5.11 False Contra-indications**

In this study most of the CHNs indicated that they would not vaccinate children who were sick. The main reasons given by the CHNs as to why they would not give vaccinations to sick children were:-

D the vaccine would worsen the already raised body temperature,

D for fear of adverse reactions believed to be more common with sick children.

This is supported by a study conducted by the Italian vaccine coverage working group (**WHO 1994**) who also found that the commonest reasons for non-

vaccination of children were that the child was sick and that the mothers had been advised against it by the health personnel. The WHO also established that there has been a traditional reluctance on the part of health personnel to immunize sick children (**WHO, EPI 1983**). Studies also done in USA (ACIP 1994) have indicated that health workers had long lists of false contraindications.

This finding suggest that coverage can also be influenced by contra-indications falsely applied by health personnel. Additional education of CHNs is needed concerning the true contra-indications for vaccinations.

### **CONCLUSION**

This study has established that inadequate logistics supplies and non-adherence to Ministry of Health's recommended strategies for low EPI coverage areas were the major causes of low coverage in the district.

There were also some administrative and managerial problems hindering the immunization uptake in the district and these problems could be solved by the DHMT with the support from the RHMT.

### **RECOMMENDATIONS**

#### **DHMT:**

1. Mini-mass campaigns should be organized to supplement the existing strategies (static and out-reach) to improve coverage. The DHMT must budget for this activity.
2. The DHMT must set aside funds to train if possible all the CHNs on how to ride motorbikes, to ensure that out-reach services are efficiently carried out.
3. The DHMT must increase the allocation of fuel in its budget for EPI activities. The current allocation of fuel to Health Centres is not enough.
4. The DHMT must ensure that the EPI services which were disrupted at Damanko and Tutukpene Health Centres should resume immediately.
5. The DHMT must give additional education to CHNs concerning the true contra-medications for vaccinations.
6. The DHMT must train CHNs on logistic management, forecasting and procurement procedures.
7. The DHMT must regularly supervise the EPI activities at the lower levels.
8. The DHMT must conduct a study on the community related factors contributing to low EPI up-take in the district.

#### **SDHT**

1. To be able to organize EPI out-reach activities well, the health worker needs some basic knowledge of his/her catchment area. Each health facility should have a map of

its catchment area indicating the location of all the communities so that no one community is left out of the EPI out-reach coverage in the sub-district.

2. The SDHTs must take EPI services as close to the people as possible by establishing more EPI out-reach sites in remote areas.

#### **RHMT/MOH**

1. The Volta Regional Administration should post more CHNs to Nkwanta District.
2. The Ministry of Health headquarters should at all times make available enough logistic supplies i.e. vaccines, needles, syringes and cards to the Regional health Administration for onward distribution to the districts.
3. The Ministry of Health should equip all the health Centres in Nkwanta district with the Cold chain equipment.

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**APPENDIX 1****QUESTIONNAIRE FOR EPI ACTIVITIES NKWANTA DISTRICT  
QUESTIONNAIRE FOR CHNs**

Date of visit \_\_\_\_\_ Station .  
 Sub-District \_\_\_\_\_ District  
 Name of CHN.....  
 Name of Research Assistant:.....

**OPERATIONAL STRATEGIES**

1. How often do you conduct static vaccination sessions in a month at your station?
  - a) Once in a month
  - b) Once in a week
  - c) Daily
  - d) Twice in a month
  - e) Other specify.....
2. During the static sessions you usually conduct (as per answer in Q1) are there a lot of people who attend these clinics?
  - a) Yes
  - b) No
3. Do you at times (due to a lot of attendants) close your vaccination sessions very late at static clinics?
  - a) Yes
  - b) No
4. Do you conduct out-reach EPI activities?
  - a) Yes
  - b) No
5. Are most of your out-reach sessions very busy?
  - a) Yes
  - b) No
6. If yes for Q5, why is it so?.....
7. What methods do you use to find non-immunized children?.....
8. How far is your farthest out-reach station from your station?
9. How do you usually get there?.....
10. If it is by means of a motorbike are you given enough fuel for your EPI activities?
  - a) Yes
  - b) No

Have you ever cancelled out a clinic due to shortage of Fuel?.....

Have you ever cancelled out an out-reach session because your motor-bite broke down?

- a) Yes            b) No

If it is by means of a DHMT vehicle, does it always come on time to collect you for out-reach sessions as per schedule?

- a) Yes            b) No

Have you ever cancelled out an out-reach session because the DHMT vehicle did not come to collect you at all?

- a) Yes            b) No

If yes how many times had it happened?

### **STAFF MORALE**

If it is by means of Public Transport, are you paid transport claims regularly?

- a) Yes            b) No

Are you happy with the amount of vaccines, needles and syringes supplied to you?

- a) Yes            b) No

Do you know of any CHN in your district or sub-district who has received an award or who had been rewarded because of hard work?

- a) Yes            b) No

Do you usually get feedback from your supervisors on how best you are performing in comparison with other districts in the region?.....

When did you last go for in-service training or attend a workshop on EPI?

### **ACCESSIBILITY**

Are some of the out-reach sites in accessible after the rain or in the rainy season?

- a) Yes            b)No

Are some out-reach sites located too far from some of the villages in your catchment area?

- a) Yes            b)No

Do you know of some villages which are not yet reached or covered by your team in your catchment area due to other reasons?

- a) Yes            b)No

### **AVAILABILITY**

Have you ever experienced some children not being vaccinated as per your schedule because either vaccines or syringes ran out?

- a) Yes            b)No

Would you open a new BCG vial for only one child and throw away the remainder?

- a) Yes            b)No

**AFFORDABILITY**

26. Do mothers appreciate your work by paying token fees?  
a) Yes                      b) No
27. Do some mothers fail to pay token fees?  
a) Yes                      b) No
28. What do you do to those mothers who fail to pay token fees?

**ACCEPTABILITY**

29. Are there large turn-outs during vaccination sessions these days as compared to the past?  
a) Yes                      b)No
30. Do you speak the local language?  
a) Yes                      b)No
31. Do you vaccinate sick children?  
a) Yes                      b)No

**CONVENIENCE OF SITE**

32. Do you have some out-reach sites in cocoa farm buildings?  
a) Yes                      b)No
33. What happens during harvest times?.....
34. Do you know of any out-reach site which is difficult to reach by the communities?  
a) Yes                      b) No

**KNOWLEDGE OF TARGET POPULATION**

35. How many children were you supposed to vaccinate against tuberculosis in a year in your catchment area?
36. As the operational manager in offering EPI services what will you advise the DHMT to improve upon so that the immunization coverage could improve in your catchment area?

- 1 6.  
2..... 7.  
3..... 8.  
4..... 9.  
5..... 10.

**APPENDIX 2****QUESTIONNAIRE FOR EPI ACTIVITIES IN  
NKWANTA DISTRICT****QUESTIONNAIRE FOR HEADS OF HEALTH FACILITIES**

DATE OF VISIT:..... NAME OF HEALTH FACILITY:.....

NAME OF HEAD OF HEALTH FACILITY:.....

RANK:..... SUB-DISTRICT:.....

DISTRICT:.....

NAME OF RESEARCH ASSISTANT:.....

**OPERATIONAL STRATEGIES FOR EPI**

1. How often do you offer vaccination sessions at your static health facility in a week?
  1. Daily
  2. 4 x /week
  3. 3 x /week
  4. 2 x /week
  5. Once per week
  6. Once per month.

(If not daily what are the reasons for not conducting them?)

List reasons:

2. Have you ever cancelled at least one static session before?

1. Yes
- b. No

3. If yes how many times have you done so?

4. What were the reasons for cancellation?

List them:

- 1.
- 2.
- 3.
- 4.
- 5.

5. How many outreach sites do you have for this health facility?

- a. None
2. 1 - 5
3. 6-10
4. 11-15
5. >15

6. How is the attendance on market days.

- a. Poor
- b. Good
- c. Excellent

7. Do you offer outreach vaccination services at market places?  
a. Yes b. No
8. How many vaccination sessions do you conduct per outreach site per month using outreach strategy?  
1. 0  
2. 1  
3. 2  
4. 3  
5. 4  
6. More than 5
- Are there cancellation of outreach sessions at times.  
1. Yes b. No
10. If yes for number 4, what are the main reasons for this? List them.  
a.  
b.  
c.  
d.
11. Do you conduct home visits?  
a. Yes b. No.
12. If yes to questions 11, do you vaccinate children as well during home visits?  
a. Yes b. No.
13. How long ago have you last conducted a mini mass immunization campaign for your catchment area?  
1. One year  
2. 2-5 years  
3. Never had one  
4. Can't remember

#### KNOWLEDGE OF CATCHMENT AREA AND TARGET POPULATION

14. Do you have a map of your catchment area?  
a. Yes b. No.  
(If yes inspect)
15. Do you have a list of communities in your area?  
a. Yes b. No.  
(If yes how many)
16. What is your target population for child immunization?  
Specify:.....

#### COMMUNITY PARTICIPATION

17. Do you have an Institute Management Committee?  
a. Yes b. No.
- Do you have a list of its members? a. Yes b. No.  
(Inspect composition of membership)





**APPENDIX 3****QUESTIONNAIRE FOR EPI ACTIVITIES IN NKWANTA DISTRICT.****QUESTIONNAIRE FOR THE DISTRICT DIRECTOR OF HEALTH SERVICES.****ADEQUACY OF HEALTH FACILITIES.**

1 ■ How many health facilities do you have in your district? [both public and private]

2. Out of the number of health facilities in Q1 how many offer EPI activities ?

3. How many government health facilities do you have in your district?

4. Do all government health facilities offer EPI services?

If No, why not?

5. How far apart (on average) are government Health facilities?

6. In your own opinion what are the main reason for non-provision of EPI services by the  
private sector?:

7. Have interested and potential private clinics (if any) approached you for them to offer EPI activities at the premises.....

**STAFFADEQUACY**

8. What is the total number of staff in your district?.....

9. What is the actual numbers of CHN's in your district:.....

10. Do all health facilities have CHN's:.....

11. Is it only CHN's offering EPI activities or other staff also do it.

12. Did you offer in-service training for non-CHN's offering EPI services?

13. Have you ever received reports cancellation of EPI sessions due staff being  
either on leave, sick or has gone to collect salary from:.....



**APPENDIX 4****CHECKLIST FOR LOGISTIC SUPPLIES FROM JAN - JUNE 1998  
FOR EPI ACTIVITIES IN NKWANTA DISTRICT**

DATE:..... STATION:..... SUB-DISTRICT:..... DISTRICT:

RESEARCH ASSISTANT:.....

ITEM		CLOSING STOCK LEVEL						MINIMUM STOCK LEVEL PER ITEM	COMMENTS
		JAN	FEB	MAR.	APRIL	MAY	JUN		
VACCINES	BCG								
	DPT								
	OVP								
	MEASLES								
NEEDLES									
SYRINGES									
ROAD TO HEALTH CARDS									

**APPENDIX 5****CHECKLIST FOR COLD CHAIN EQUIPMENT  
FOR EPI ACTIVITIES IN NKWANTA DISTRICT**

DATE OF VISIT	NAME OF SUB-DISTRICT	NAME OF HEALTH FACILITY	NUMBER OF EPI REFRIGERATORS AT FACILITY	SOURCE OF ENERGY USED TO OPERATE COLD CHAIN EQUIP.	SOURCE OF ENERGY FOR THE CENTRE	MST	COMMENTS ON PERFORMANCE OF EQUIPMENT. (Working, if not working for how long)