BOLE DISTRICT ASSEMBLY
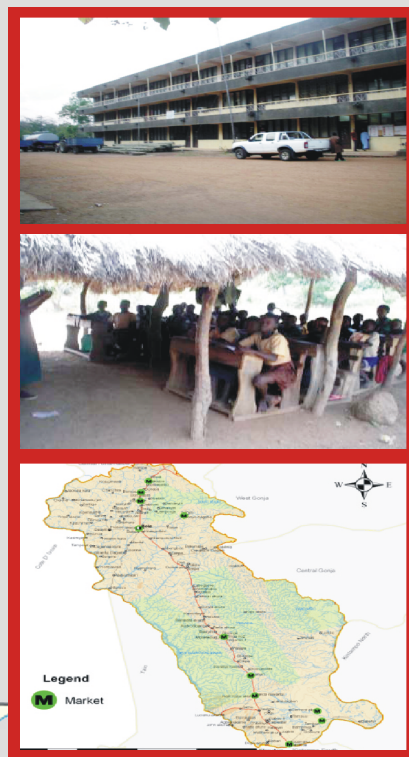
HUMAN DEVELOPMENT REPORT 2011

Resource Endowment, Investment Opportunities and the Attainment of MDGs

Legend
M Market

Government of Ghana

United Nations Development Programme Ghana Office Accra

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Foreword

Within the general framework of ensuring equity and overall development, the current set of the District Human Development Reports (DHDRs) cover a sample of 12 Metropolitan, Municipal and District Assemblies (MMDAs) in the three Northern Regions. This part of the country was selected as part of the grand strategy and intervention for the North, which feeds into the Government's Better Ghana Agenda and Savannah Accelerated Development Authority (SADA) framework. The selection of the MMDAs, which was done in consultation with the Regional Coordinating Councils, was based on equity for regional distribution and district characteristics.

The DHRs over the years serve as a catalyst through which MMDAs interpret their development agenda and focus. The reports tell the story of key human development indicators and MDGs status at the local levels. The impact and relevance of the District HDRs are evident in the shaping of the Medium-Term Development Plan of the districts and providing the districts with reliable and useful data, as well as providing information for policy making and further research. These set of twelve reports are no exception.

The main thrust of the report is to identify the resource endowments and investment opportunities of the selected MMDAs, and assess respective MDGs gaps to serve as basis for the preparation of Community Action Plans, informing the District Planning Process, and to serve as a baseline information for the evaluation of the policies and programs for the attainment of human development and the MDGs at the local levels.

The Local Government and Rural Development Ministry sees the reports as a means to achieving equity and balanced growth in the country. It our hope and aspiration that UNDP would continue to allocate more resources to the preparation of DHDRs, which to our minds and aspirations would be a rallying an d/or focal point for MMDAs and the Central Government to focus development agendas.

Since resources are limited to cover all MMDAs at a go, with the support of UNDP, we cover very few selected MMDAs in the country. The likelihood is that we may not come back to the covered MMDAs. It is, therefore, imperative for the covered MMDAs to take it up from here and ensure continued data gathering and preparation of the reports on their own. It is in this direction that UNDP again provides equipment to support these twelve MMDAs including the Regional Economic Planning Units of the three Northern Regions to create the capacity to manage the process.

It is refreshing to also note that within the general framework, UNDP is to support the National Development Planning Commission (NDPC) to prepare training manuals for training in data management, planning and budgeting for all MMDAs in Ghana. I fully support this forward looking phenomenon because it hands over tools to our MMDAs to continuously use in addressing their development challenges and needs.

I recommend to all MMDAs to take a reading tour of the reports, to familiarize with it and on their own initiative, start working on how best to replicate this laudable idea of data collection and management to inform planning processes in their own domain. Evidence-based planning is the way to go. Let us do the useful by doing things right for a BETTER GHANA.

HON. JOSEPH YIELEH CHIREH (MP)
Hon. Minister, Ministry of Local Government and Rural Development

The UNDP Ghana Country Office, in collaboration with stakeholders and other partners, has been facilitating the production and dissemination of Human Development Reports (HDRs) in Ghana since 1997. These reports aim to enrich policy and provide analytical basis to the Government of Ghana (GoG) and a wide range of development stakeholders in the an alysis of and response to key development issues. This cooperative effort has significantly enriched development dialogue and helped to shape policy action at all levels. The HDRs have so far been produced at two levels, national and district levels and currently a pilot regional report has been initiated.

The current set of the District HDRs cover 12 districts, namely, Karaga, Tamale Metro, Bole, East Mamprusi, Nanumba North, Zabzugu Tatale (in the Northern Region); Bolgatanga, Bawku West, Lawra (in the Upper East Region); and Sissala East, Wa Municipal, Kasena Na nkana (in the Upper West) on the theme " *Resource Endowment, Investment Opportunitie s and the Attainment of the MDGs* ". In the context of regional disparity, the choice of these districts is deliberate in order to analyze the human development situations and assess the progress of the district towards the realization of the MDGs. With barely five years to the deadline set to meet the MDG targets, the reports provide a unique opportunity to examine possible resource gaps that challenge local level efforts to meet and improve performance on the MDGs. The reports further discuss the resource endowments and investment opportunities in the districts and how these impinge on the attainment of

MDGs and improvement of human development at the local level.

The reports provide baseline district level data, information for policy making, and opportunity for further research for formulation and implementation of District Medium-Term Development Plans. It is the fervent aspiration and hope of UNDP that the findings of these reports would go a long way not only to inform the UNDP's Local Economic Development Programme in some selected districts in Northern Ghana but also provide insight to Government and other partners in their support at the decentralized level in these districts. These Human Development Reports should therefore lead to building of synergies and further improve programming to serve the needs of the people.

It is my hope that the District Human Development Reports (DHDRs) would serve as entry points for policy dialogue by serving as analytical tools fo r the Government of Ghana and other development stakeholders including investors in their responses to key development issues and investment opportunities at the grassroots level.

These reports are clear reference points for the development agenda of the Metropolitan, Municipal, and District Assemblies (MMDAs) covered and serve as building blocks as they formulate strategies of intervention to make an improvement in people's lives.

RUBY SANDHU-ROJON
UNDP Resident Representative

Acknowledgements

Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
APR	African Peer Review
ASIP	Agricultural Sector Improvement Project
BDA	Bole District Assembly
BECE	Basic Education Certificate Examination
CBO	Community Based Organizations
CBRDP	Community Based Rural Development Programme
CERSGIS	Centre for Remote Sensing and Geographic Information Services
CHIPS	Community-Based Health Improvement Planning and Services
CIFS	Community-Driven Initiatives on Food Security
CLS	Customary Land Secretariat
CWIQ	Core Welfare Indicators Questionnaire
DA	District Assembly
DACF	District Assembly Common Fund
DDHS	District Director of Health Services
DHDR	District Human Development Report
DRI	District Response Initiative
EA	Enumeration Area
GAC	Ghana AIDs Commission
GDHS	Ghana Demographic and Health Survey
GPI	Gender Parity Index
GDP	Gross Domestic Product
GER	Gross Enrolment Ratio
GHS	Ghana Health Services
GIS	Geographic Information System
GLSS	Ghana Living Standards Survey
GMH	Ghana Macroeconomic Health
GPRS	Ghana Poverty Reduction Strategy
GPS	Global Positioning System
GSS	Ghana Statistical Service
HDI	Human Development Index
HIV	Human Immune Virus
HPI	Human Poverty Index
ISSER	Institute of Statistical, Social and Economic Research
ITN	Insecticide Treated Nets
JHS	Junior High School
KVIP	Kumasi Ventilated Improved Pit
LAP	Land Administration Project
LUT	Land Utilization Types
MCH	Maternal and Child Health

MDA	Ministries, Departments and Agencies
MDGs	Millennium Development Goals
MOFA	Ministry of Food and Agriculture
MTDP	Medium Term Development Plan
NA	Not Applicable
NCCE	National Commission for Civic Education
NNDA	Nanumba North District Assembly
NDPC	National Development Planning Commission
NEPAD	New Partnership for African Development
NER	Net Enrolment Ratio
NGO	Non-Governmental Organization
NHIS	National Health Insurance Scheme
NORPREP	Northern Region Poverty Reduction Programme
OPD	Out-Patients Department
ORS	Oral Rehydration Salt
PPP	Purchasing Power Parity
SHEP	Self Help Electrification Project
SHS	Senior High School
SSI	Small-scale Industry
STME	Science Technology and Mathematics Education
TBA	Traditional Birth Attendants
TVET	Technical and Vocational Education and Training
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
VIP	Village Infrastructure Project
ZTDA	Zabzugu Tatale District Assembly

Contents

List of Tables

List of Illustrations

Executive Summary

Overview

Human development has often been equated with improvements in people's incomes. Although income constitutes a very important determinant of people's access to food, clothing and other basic necessities of life, the correlation between well-being and income levels is not perfect since an increase in incomes does not necessarily lead to improvements in people's well-being. It is in line with this that the United Nations Development Programme (UNDP) has extended the definition of the concept of human development beyond the narrow view of income to incorporate other dimensions of living or well-being. According to the UNDP, human development is a process of enlarging people's choices. The most critical of these choices are: the option to live a long and healthy life, to be knowledgeable and to enjoy a decent standard of living.

Over the years, UNDP has been working with government and other development agencies and stakeholders in promoting human development in Ghana. In line with this initiative, UNDP since 1990 has been providing a quantitative measure of human development through the production of the National Human Development Reports. The main objective of these reports is to offer guidance and policies required at various levels by different actors to keep development interventions within the country focused, coordinated and effective.

In line with the overall government development policy framework and decentralization objectives, UNDP Ghana, since 2004 has been preparing the Human Development Report at the district level. The District Human Development Reports (DHDRs) are mainly geared towards capturing developmental issues at the grassroots level in order to provide a detailed diagnostic analysis on key human development issues inform planning and resource allocation at the district level; and strengthen the link between national and district development planning frameworks (UNDP 2007).

The first round of DHDRs was prepared in 2004 in the districts of Tema, Atwima and Builsa in the Greater Accra, Ashanti and Upper East regions respectively on the theme "Vulnerability". The second set of DHDRs was prepared in 2007 in the districts of Ahanta West, Ofinso, and West Gonja in the Western, Ashanti and Northern Regions respectively on the theme "Vulnerability and the Attainment of the MDGs at the Local Level". The 2010 DHDRs, which constitutes the third set of DHDRs, has been prepared in the districts of Bole, Nanumba North, Zabzugu/Tatale, Tamale, Karaga and East Mamprusi all in the Northern region; Bolgatanga, Bawku West and Kassena Nankana in the Upper East region; and Wa, Lawra and Sissala East in the Upper West region. The theme for these reports is Resource Endowment, Investment Opportunities and the Attainment of the MDGs.

The Bole District report aims at achieving, among others, the following:
- Provide reliable data and information on the status of human development by investigating trends in the different components of human development.
- Provide detailed analytical situation analysis of the resource endowment and investment opportunities of the district

and how they impinge upon the attainment of the MDGs at the local levels in Ghana.

- Identify the different types of resources available to individuals, communities and group of persons for investment and human development.
- Identify and analyze the different ways that different entities use the resources to enhance their lots.
- Assess the impact of the resource endowment of the district on individuals, communities and the nation at large for investment opportunities.
- Assist decision makers in identifying priority issues and formulating strategies for the attainment of the MDGs, and
- Build the capacity of the district assembly to prepare its own subsequent plans.

Methodology

The team applied both quantitative and qualitative methods to gather data from three different sources for the preparation of this report. We obtained secondary data from various censuses conducted in Ghana, and extracted data from the district-based Core Welfare Indicators Questionnaire survey that was conducted in 2003. The team also conducted a socio-economic survey in the district in December 2008 and consulted various stakeholders to ensure that their interests were addressed and technical omissions minimized. Some aspects of the district's profile were obtained from documents that had been prepared by the district assembly for its programmes and the Medium Term District Development Plan prepared for the implementation of the Ghana Poverty Reduction Strategy. In addition, various departments of the district assembly provided information on their activities over the last five years. This gave the team insights into the economic and social conditions in the district and the strategies that have been adopted and implemented regarding issues of human development.

Data from the 2000 Population and Housing Census was extensively used to obtain district level information on population dynamics, housing characteristics, employment and education. We also sought assistance from the Ghana Statistical Service to get summary tables from CWIQ 2003.

Interviews conducted in the district involved qualitative and quantitative techniques, principally to gather information on various dimensions of the MDGs and also for the assessment of the resource endowment and investment opportunities component of the report. Two main questionnaires were used for this purpose; community (a check list of services and infrastructure available in addition to detail discussion on development issues) and household questionnaires. The community questionnaire was completed during group discussions with traditional leaders of the communities, members of the district assembly resident in a community and opinion leaders. The objective of the questionnaire was to obtain information about the socio-economic development of the communities we visited, land tenure arrangements, resources and investments within communities.

The household questionnaire is separated into different modules that are answered by different members of the household and was also done in such a way to address issues concerning different targets of the measurable MDGs at the district level. The questionnaire also covered information on the different types of resources available within the district, investments opportunities and how these variables are impacting on the well-being of households.

We also used a Global Positioning Systems (GPS) survey and district-level mapping of resources with Geographic Information Systems (GIS) which provided a valuable tool for natural and physical resource management. A complete GPS

survey and mapping of these resources within the project district provided information on the spatial distribution of resources and their inventory, as well as baseline data for district-level development planning.

For comparability with the CWIQ 2003 data, a two stage sampling procedure was employed with the objective of generating results that are representative enough. The approach was multi-stage probability sampling, clustered, and stratified with probability proportional to the size of the district's population.

We randomly selected well-defined enumeration areas (EAs) from the GSS database for the district. The enumeration areas were properly described by the cartography section of GSS and had well-defined boundaries, identified on maps, and were relatively of small sizes with a cluster of households. These clusters were demarcated along the lines of the proven process used by the GSS in its implementation of Ghana Living Standard Surveys (especially III, IV and V) and Core Welfare Indicators Questionnaire I and II. The selected EAs or communities were listed to know the total number of households that served as sampling frame from which an appropriate sample size was selected systematically for each stratum in the district.

We also employed the technique of stratification in the sample design to enhance precision and reliability of the estimates. The stratification of the frame for the survey was based on the size of the locality the enumeration area was chosen from: i.e. whether the locality is urban, semi-urban or rural. Sampling within each stratum was done independent of others and the approach of picking the number of enumeration areas in each stratum was proportional to the population size in each stratum. This was followed by systematic sample selection within each stratum. In all, a minimum of 200 households were chosen from 15 EAs in

the district. In addition to the administration of the household survey, focus group discussions were conducted in all fifteen enumeration areas in the district.

Findings

The following are the key findings from our study:

1. Evidence from the study shows the predominance of agriculture in the economy of households in the district. About 83.5 per cent of households are engaged in agriculture. However, a lot of problems confront the sector and reducing the problems will serve to secure the livelihoods of majority of households. Other jobs in the district include agro-processing, mining and artisanal activities. Formal jobs are very limited in the district. Bottlenecks in all these sectors need to be removed if poverty is to reduce.

2. The district's HPI-G of 72 per cent is higher than the constructed HPI for the country at 35 per cent (see details in Appendix).

3. There has been improvement in the education component of the human development index and the MDGs. Educational attainment is improving but not to the extent that will enhance technological adoption, and add significantly to sustained physical capital accumulation. Owing to policy initiatives such as the school feeding programme and capitation grant at the national level, enrolment has increased at all levels, and more for the basic level. However, there has not been a corresponding increase in school infrastructure, trained teachers etc to match up with the increased enrolment.

4. Gender parity index is high at the preschool level but reduces successively as one climbs the educational ladder. Adult

literacy doubled between the period 2003 and 2008. Adult literacy rate of 35 per cent is still low.

5. The District has made some progress in the attainment of the health component of the human development index and several of the MDGs. Maternal deaths has been on the decline since 2006 when the district recorded 6 maternal deaths. In 2008, only one maternal death was recorded. This is attributed to the introduction of the NHIS which increased maternal care in the areas of ANC and PNC coverage and supervised delivery. Information available indicates that infant mortality increased from 34 in 2003/2004 to 40 in 2004/2005. It however reduced to 38 deaths in 2005/2006.

6. The sixth MDG of combating malaria and other diseases is becoming difficult to achieve. Malaria continues to be the leading cause of outpatient visits, admissions, and death in the district. Even though a lot of households (42.8%) used treated mosquito nets, others used less effective preventive strategies like weeding around the house, and cleaning gutters to combat the disease.

7. With only one medical officer and superintendant at the District Hospital, the doctor to patient ratio is extremely high in the district. Some intervention by the Ghana Health Service would be required here.

8. Prospects for achieving the MDG that relates to access to water is bright. Due to the activities of development partners in water provision, the district has a high access to safe drinking water but not without wide disparity in the district. The Bamboi Area Council has the lowest coverage. Quite a number of the boreholes constructed in the area have low yield and households depend on

unsafe sources of water as a coping strategy.

9. Access to safe sanitation is very low. About 86.6 per cent of households do not have access to safe sanitation and this compels households to choose unorthodox means of human waste disposal such as defecating in the bush with its adverse impact on the environment and health. Compared to 2003 when only 9.7 per cent of households in the district had access to safe sanitation, the 2008 performance of 13.4 per cent is an improvement. A slightly higher percentage of households (18%) in the district use improved waste disposal methods. More households dump their waste indiscriminately while 24 per cent burn their waste. These have serious health implications on the people. It is, therefore, not surprising that diarrhoea ranks as third leading cause of outpatient visits.

10. Despite the numerous benefits derived from education in the area of technological adoption, more effective use of community resources and longer life expectancy, evidence from the district shows dismal educational attainment. More than 50 per cent of those who have ever attended school have not gone beyond primary school. This is not enough to equip people with the necessary knowledge and skills to adapt to the changing socio-economic conditions at district, national or international levels. Literacy rates are also low. A significant improvement in the number of trained teachers, classroom blocks to ease congestion, furniture, supply of exercise books etc. are required to enhance the quality of education.

11. In terms of natural resources, the district has a gently undulating topography which does not constitute a barrier to

agriculture and physical development. The district is also endowed with rivers including the Black Volta with numerous potentials. Soils in the district are suitable for several crops including sorghum, maize, yam, etc, and tree crops like cashew, mangoes and shea trees. The district is also blessed with mineral resources like gold. Some are already being mined by small scale miners.

12. The district has achieved some milestones in good governance. It has 10 decentralized and 10 non-decentralized departments which help the District Assembly to carry out its functions. In assessing access to governance institutions such as the District Assembly over the past 12 months, one third of people of voting age were satisfied with services rendered by the District Assembly. They are satisfied because of the development projects going on in the district.

13. In spite of the difficulties that the police service face in terms of logistical support, accommodation etc., 32.3 per cent of the respondents think that there has been improvement in access to security services. Regarding the protecttion of rights under the rule of law in the Bole District, just about one quarter (24.2%) of the respondents are of the view that there has been improvement in access to legal services in the last 12 months while 15 per cent said there is no change.

14. An overwhelming majority of households (88%) in the district have access to various resources. The resource that most households have access to is water followed by land and economic trees like shea trees. Constraints to the utilization of these resources are financial difficulty in marketing produce, high cost of inputs which limit

their use, erratic weather conditions among others.

15. Resource endowments of the District offer a lot of opportunities for investments. Land which is an important factor of production is abundant. Only about 6 per cent of the land is under cultivation. The soil is fertile and suitable for the cultivation of several crops including sorghum, yam, etc. Its open grassland constitutes pasture for livestock. A Customary Land Secretariat has been set up in the district and it is documenting lands acquired thereby improving land tenure and investment.

16. There are opportunities for agro-processing industries to add value to the tons of agricultural produce including cashew, mango, sheanuts, livestock, etc. Gold deposits and tourism sites all offer opportunities for investment. Bui Game Reserve, Sudanic Mosques, burial sites, etc are examples of some of the tourist attractions in the district.

17. Households have invested especially in agriculture and contributed to community development projects. Farmer households invested in agrochemicals such as field pesticides, weedicides, and storage pesticides to improve yields and increase income. Risk factors that militate against investment are flooding, windstorm, drought and bushfire. Coping strategies needed to be adopted to stem the deleterious effect of these particularly on the more vulnerable.

The Way Forward

It is clear that the district faces numerous constraints and development challenges. But there exist several opportunities that enhance the prospects of the district for sustained local economic growth and development. Obviously, the little progress made in

achieving the MDGs may have several implications for the way forward. The main ones are as follows:

1. Since agriculture is the bedrock of the economy of the district, problems that confront it should be reduced if not eliminated to reduce poverty and enhance the general quality of life. The district is highly dependent on the vagaries of the weather for its agriculture. With the many rivers that the district is endowed with, small multi-purpose dams could be constructed. These dams will provide water for livestock in the dry season, provide water for vegetable gardening and could also be stocked with fish to supplement the protein needs of the people.

2. There is the need to expand market access by promoting the production of industrial raw materials to enhance the integration between industry and agriculture, and the production of traditional and non-traditional exports. Also expanding infrastructure like roads will open up the producing villages in the district. Setting up agro-processing industries to add value to agricultural produce and reduce post-harvest losses is another way of guaranteeing market for farmers.

3. Our survey revealed that the biggest problem that confronts households in the district is access to funds. Funding is important to enable farmers buy improved seeds, adopt improved technology, storage facilities to reduce post harvest losses and guarantee stable prices etc. There is the need for timely financial products that meet the needs of the farmers since their work is seasonal instead of the standard financial products currently available. Instead of collateral security and increased cost of lending to individuals, financial institu-

tions could use group lending methodlogy which is also known for reducing default drastically.

4. There is an urgent need for the expansion of educational facilities in the district. The present situation where some classes are held under sheds, holding of multi-grade classes, lack of furniture etc, do not allow for effective learning. The number of schools especially at the JHS level should be increased to improve the percentage of pupils making the transition from primary to JHS. An incentive package should be instituted by the District Assembly for teachers who accept postings to some of the remotest parts of the district.

5. The increasing incidence of malaria in the District is worrying. If the trend continues, there is no way the district can meet the MDG target 9 that seeks to reverse the incidence of malaria and other major diseases. There is the need to pay more attention to sanitation as the district lacks access to safe sanitation. The district is in need of more health professionals especially medical doctors to improve health-care delivery.

6. Governmental and non-governmental support is required to develop the ecotourism potentials in the district. Government could pave the way by investing in major infrastructure to make the district more attractive to private investors and the district assembly to invest in ecotourism. Investment in tourism has knock-on effects on many other sectors. The District's Medium-Term Development Plan has outlined a number of activities to develop some of these tourist sites and must be supported by all. There is the need for promotional activities by the Regional Ghana Tourist Board on some of the sites using the internet, television and print media.

7. The district is inundated with a number of risk factors which impinge on development. These include floods, windstorms, drought and bushfires which all point to the fact that investment decision making must incorporate measures to mitigate their impact.

Introduction

Background

Human Development

Human development has often been equated with improvements in people's incomes. Although income constitutes a very important determinant of people's access to food, clothing and other basic necessities of life, the correlation between well-being and income levels is not perfect. An increase in incomes does not necessarily lead to improvements in people's well-being. This is because people in assessing their living circumstances do not focus only on the purchasing power of their incomes. There are other factors (family, social capital, peaceful atmosphere etc.), which contribute immensely in determining the well-being of people, especially among the poor and vulnerable. It is in line with this that the United Nations Development Programme (UNDP) has extended the definition of the concept of human development beyond the narrow view of income to incorporate other dimensions of living or well-being. According to the UNDP, human development is a process of enlarging people's choices. The most critical of these choices are: the option to live a long and healthy life, to be knowledgeable and to enjoy a decent standard of living.

Over the years, UNDP has been working with government and other development agencies and stakeholders in promoting human development in Ghana. In line with this initiative, UNDP since 1990 has been providing a quantitative measure of human development through the production of the National Human Development Reports. The main objective of these reports is to offer guidance and policies required at various levels by different actors to keep development interventions within the country focused, coordinated and effective. This is usually carried out by presenting a systematic account and assessment of social and economic developments in Ghana from sustainable human development point of view (UNDP 2007).

The quantitative measures of human development focus on the three dimensions identified as critical to enlarging people's choices (Box 1.1). Longevity is measured by life expectancy at birth. Knowledge is a composite of adult literacy and gross enrolment at the primary, secondary and tertiary levels. Standard of living is measured by income per capita in purchasing power parity dollars. The Human Development Index (HDI) is a composite of these three variables. Ghana's HDI is estimated to have risen from 0.515 in 1990 to 0.537 in 1995. The index rose again to 0.560 in 2000, 0.568 in 2002 before declining to 0.532 in 2004. In 2006, the index rose to 0.540.

These national aggregate figures do not give a clear picture of critical information at the regional and district levels and the variations. There is also lack of information on progress made, or the lack of it, by different groups in the country. To address these lapses, regional and district level

indicators of human development are needed to provide information critical for making decisions on how resources are to be allocated.

Box 1.1: Calculating the Human Development Index

The Human Development Index (HDI) is a summary measure of human development. It measures the average achievements in a country in three basic dimensions of human development:

- A long and healthy life, as measured by life expectancy at birth.
- Knowledge as measured by the adult literacy rate (two-thirds weight) and the combined primary, secondary and tertiary gross enrolment ratio (one-third weight).
- A decent standard of living as measured by GDP per capita (PPP US$).

Before the HDI is calculated, an index needs to be created for each of the dimensions. To calculate these dimension indices, minimum and maximum values (goalposts) are chosen for each underlying indicator.

Performance in each dimension is expressed as a value between 0 and 1, applying the following general formula:

$$Dimension = \frac{actual\ value\ -\ minimum\ value}{maximum\ value\ -\ minimum\ value}$$

The HDI is calculated as a simple average of the dimension indices

Goal Posts for calculating the HDI

Indicator	Maximum Value	Minimum Value
Life Expectancy at Birth	85	25
Adult Literacy Rate (%)	100	0
Combined Gross Enrolment Ratio (%)	100	0
Gross Domestic Product per capita (PPP US$)	40,000	100

Source: UNDP *Human Development Report, 2004,* New York.

In line with the overall government development policy framework and decentralization objectives, UNDP Ghana, since 2004 has been preparing the Human Development Report at the district level. The District Human Development Reports (DHDRs) are mainly geared towards capturing developmental issues at the grassroots level in order to provide a detailed diagnostic analysis on key human development issues, inform planning and resource allocation at the district level; and strengthen the link between national and district development planning frameworks (UNDP 2007).

The first round of DHDRs was prepared in 2004 in the districts of Tema, Atwima and Builsa in the Greater Accra, Ashanti and Upper East regions respectively on the theme "Vulnerability". The second set of DHDRs

was prepared in 2007 in the districts of Ahanta West, Offinso, and West Gonja in the Western, Ashanti and Northern Regions respectively on the theme "Vulnerability and the Attainment of the MDGs at the Local Level". The 2010 DHDRs, which constitutes the third set of DHDRs, have been prepared in the districts of Bole, Nanumba North, Zabzugu/Tatale, Tamale, Karaga and East Mamprusi all in the Northern region; Bolgatanga, Bawku West and Kasena-Nankana in the Upper East region; and Wa, Lawra and Sissala East in the Upper West region. The theme for these reports is Resource Endowment, Investment Opportunities and the Attainment of the MDGs.

What is a Resource?

The definition of resource has often been linked with "stock". Stock refers to the sum total of the living and non-living endowment of the earth. A stock does not become a resource until value has been placed on it and it can be exploited with the available technological and managerial skills in the satisfaction of human need (Jone, G. and G. Hollier 1997). This definition, however, and most other definitions, places too much emphasis on economic resources at the expense of the other dimensions of resource. The word resource is a dynamic term, which often cuts across aspects of economics, socio-culture and politics, which impact directly or indirectly in the well-being of people.

Bringing all these facets into consideration, the term resource can be defined as "anything or substance located within a particular locality, community or region that can be used to enhance or improve upon the living standards or well-being of people".

Classification of Resources

Five (5) broad categories of resources can be distinguished (Table 1.1). The first group involves natural/environmental resources and examples include minerals (gold, diamond, manganese, bauxite, iron ore, salt etc.); forest resources (quality of soil and vegetative cover, wildlife among others); water resources (sea, rivers/streams, lakes and ponds); and climatic conditions (adequacy and patterns of rainfall, wind, temperature and humidity). The second group is made up of physical resources. Examples of this group include transportation and communication infrastructure, irrigation facilities, energy infrastructure among others. The third group includes socio-economic resources and examples of these include financial capital, health infrastructure, social capital, state of technological advancement, educational infrastructure, settlements, regulatory framework among others. Political resources represent the fourth group of resources and examples of this group include governance at various levels, chieftaincy institution, political stability, peace and security. Finally, there are human resources. Examples include the size, demographic and age structure of the population and the quality of labour supply.

Table 1.1: Resource Classification

Resource Category	Examples
1. Natural/Environmental Resources	Minerals (gold, diamond, manganese, bauxite, iron ore, salt etc.)
	Forest (quality of soil and vegetative cover, wildlife)
	Water (sea, rivers/streams, lakes and ponds)
	Climatic conditions (adequacy and patterns of rainfall, wind, temperature and humidity)
2. Physical Resources	Transportation and communication infrastructure
	Irrigation facilities
3. Socio-economic Resources	Finance/Capital
	Health infrastructure (hospitals, clinics, health posts, etc.)
	Social capital
	Technology
	Educational infrastructure
	Regulatory & institutional framework
	Settlements
	Religious organizations
4. Political Resources	Governance at various levels

	Chieftaincy institutions
	Political stability
	Peace & security
5. Human Resources	Adequate supply of quality labour
	Size and structure of the population

Resources, Investment Opportunities and MDGs

The various categories of resources considered above (natural/environmental, physical, socio-economic, political, and human), and their availability and quality distinguish one particular locality, community or region from another. They have a direct impact on investment opportunities within the localities as resources tend to attract investments. An increase in investment within localities is likely to impact on the living conditions of people as jobs are likely to be created which would impact on people's incomes (Figure 1.1). Inversely, investment opportunities can impact on the quantity and quality of some of the endowed resources of a locality. For instance, an increase in investments in a locality is likely to impact on local resources such as infrastructure, revenue mobilization and skills acquisition at the local level.

The nature and quality of the investments can impact on the environment in either a positive or negative way. For example, investments in natural resource exploitation in a locality can lead to environmental degradation if environmental concerns are relegated to the background. All the linkages above ultimately influence the attainment of MDGs. For example, in localities or communities where resource endowments are lacking in terms of quantity and quality, investment opportunities are limited and this adversely affects the living conditions or life chances of people in the locality and ultimately the attainment of MDGs and *vice versa*.
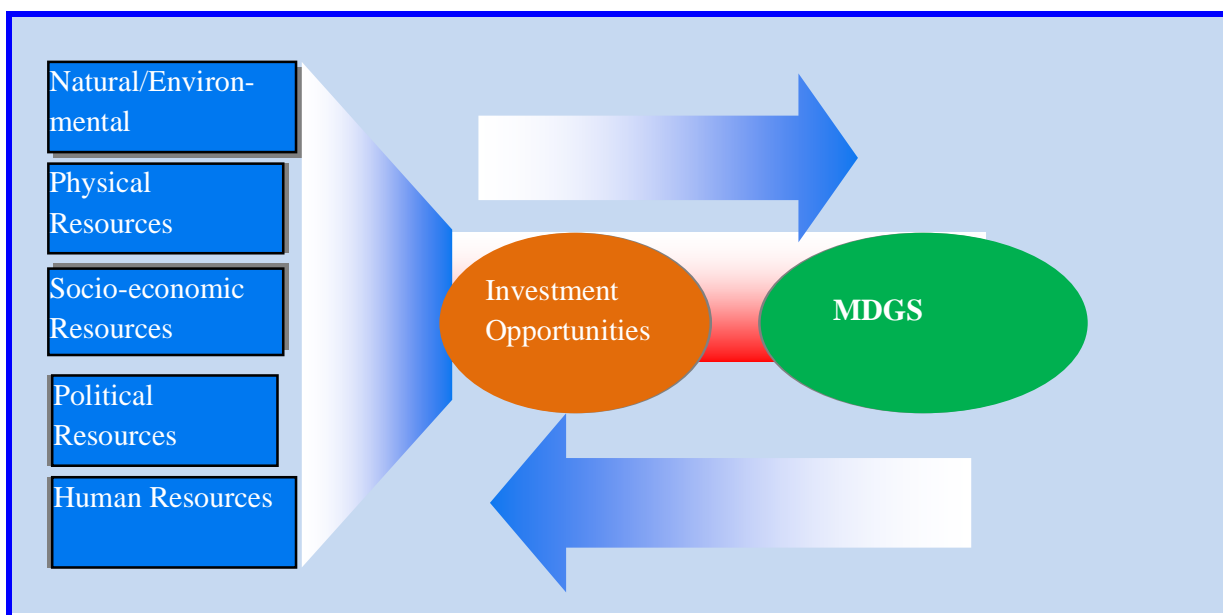
Figure 1.1: Relationship between Endowed Resources, Investment Opportunities and the Attainment of MDGs.

Objectives and Scope

Objectives

This report aims at achieving the following:

- Provide reliable data and information on the status of human development by investigating trends in the different components of human development.
- Provide detailed analytical situation analysis of the resource endowment and investment opportunities of the district and how they impinge upon the attainment of the MDGs at the local levels in Ghana.
- Identify the different types of resources available to individuals, communities and group of persons for investment and human development.
- Identify and analyze the different ways that different entities use the resources to enhance their lots.
- Assess the impact of the resource endowment of the district on individuals, communities and the nation at large for investment opportunities.
- Set the stage for or enhance the process of ensuring the preparation of a well conceived community action plan, district development plan and create links with the GPRS and the budgetary process.
- Facilitate information sharing and coordination among stakeholders.
- Assist decision makers in identifying priority issues and formulating strategies for the attainment of the MDGs.
- Enhance national and local dialogue to address the link between resource endowment, investment opportunities and Sustainable Human Development, and contribute to international dialogue on the concept of resource endowment as one of the panacea to the bane of development.
- Serve as a basis for the preparation of Community Action Plan.
- Input and inform the Long-Term National Development Plan
- Inform the review of District Medium Term Development Plans.

- Build the capacity of the district assembly to prepare its own subsequent plans.
- Serve as baseline information for the evaluation of the programme and policies of the Long-Term Multi-Sectoral Northern Growth Strategy.

Scope of Work

The scope of work as outlined in the terms of reference include the following:

- Provide definition for resource endowment and concept of resource endowment.
- Provide the status of human development in Bole District by investigating trends in the different components of human development and reflect on issues of human security, human capital and risk.
- Identify the sources and types of resource endowments available to the individual, household and the communities.
- Examine and analyze the actions that individuals and households take to tap into the resources available to them, and benefits they derive from them by translating these into productive resources.
- Examine the impact of resource endowment of the area on production, investment and consumption decisions of individuals and households, and the effect on the attainment of the MDGs in the district.
- Examine public policy actions to enhance the use of the resources for production and investment.
- Review the district development plans and identify gaps and challenges to improve upon the plans.
- Participate in workshops and stake-holders' meetings.
- Constitute an editorial team at the appropriate time.

Data and Methodology

The team applied both quantitative and qualitative methods to gather data from three different sources for the preparation of this report. We obtained information from official documents, secondary data from various censuses conducted in Ghana, and extracted data from the district-based Core Welfare Indicators Questionnaire survey that was conducted in 2003.[1] The team also conducted a socio-economic survey in the chosen districts in December 2008 and consulted various stakeholders to ensure that their interests were addressed and technical omissions minimized.

Secondary Data Sources

Some aspects of the district's profile were obtained from documents that had been prepared by the district assembly for its programmes and the Medium-Term District Development Plan prepared for the implementation of the Ghana Poverty Reduction Strategy. In addition, various departments of the district assembly provided information on their activities over the last five years. This gave the team insights into the economic and social conditions in the district and the strategies that have been adopted and implemented regarding issues of human development.

An important source for additional secondary data was the census reports for 2000. Data from the 2000 Population and Housing Census was extensively used to obtain district level information on population dynamics, housing characteristics, employment and education. We also sought assistance from the Ghana Statistical Service to get summary tables from CWIQ 2003.

Primary Data Collection

Primary data collection was done at two levels: qualitative and quantitative interviews, and global positioning systems survey and district level mapping of resources.

Interviews conducted in the district involved qualitative and quantitative techniques, principally to gather information on various dimensions of the MDGs and also for the assessment of the resource endowment and investment opportunities component of the report. Two main questionnaires were used for this purpose; community (a check list of services and infrastructure available in addition to detail discussion on development issues) and household questionnaires. The community questionnaire was completed during group discussions with traditional leaders of the communities, members of the district assembly resident in a community and opinion leaders. The objective of the questionnaire was to obtain information about the socio-economic development of the communities we visited, land tenure arrangements, resources and investments within communities.

The household questionnaire is separated into different modules that are answered by different members of the household and was also done in such a way to address issues concerning different targets of the measurable MDGs at the district level. The questionnaire also covered information on the different types of resources available

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[1] The CWIQ 2003 survey was conducted before the Bole District was split into two in 2003. As such estimates derived from it may not directly reflect the status of the localities in the new district boundary as they were in 2003. Efforts by the team to sort out enumeration areas covered in the old district and extract information pertaining to the current boundary was not successful. Owing to this lack of direct comparability, the analysis of household data in the Bole District Report compares the information from the 2008 ISSER household survey only to information from localities in the current district boundary as captured from the census. However, where it becomes difficult to find comparable indicators in the census data, we use the old district data in CWIQ 2003 as proxy for the new district.

within the district, investments and how these variables are impacting on the well-being of households.

The second was a GPS (Global Positioning Systems) survey and district-within the project district provided information on the spatial distribution of resources, the inventory of these, as well as, baseline data for district-level development planning. The following features were captured:

- Roads, and tracks network,
- Schools and health facilities,
- All water sources used by the community,
- Abandoned water sources and pipe systems,
- Communal latrines classified by type,
- Household latrines with closed pit,
- Refuse dump sites,
- Potential tourist attraction sites, including ecotourism sites and
- Community woodlot/Nature reserves.

Sampling Techniques

For comparability with the CWIQ 2003 data, a two stage sampling procedure was employed with the objective of generating results that are representative of the district. The approach was multi-stage probability sampling, clustered, and stratified with probability proportional to the size of the district's population.

We randomly selected well-defined Enumeration Areas (EAs) from the Ghana Statistical Service (GSS) database for the district. The enumeration areas were properly described by the cartography section of GSS and had well-defined boundaries, identified on maps, and were relatively of small sizes with a cluster of households. These clusters are demarcated along the lines of the proven process used by the GSS in its implementation of Ghana Living Standard Surveys (especially III, IV and V) and Core Welfare Indicators Questionnaire I and II. The selected EAs or communities were listed

level mapping of resources with GIS (Geographic Information Systems) which provided a valuable tool for natural and physical resource management. A complete GPS survey and mapping of these resources to know the total number of households that served as sampling frame from which an appropriate sample size was selected systematically for each stratum in the district.

This was done to facilitate manageable interviewer workload within each sample area and also reduce the effects of intra-class correlation within a sample area on the variance of the survey estimates.

An enumeration team consisting of the researcher responsible for the district and a number of interviewers chosen and hired from the district listed all households in each of the chosen enumeration areas. This was important because some of the enumeration areas had changed in size within the last eight years since the 2000 Population and Housing Census was done and the sampling approach at this stage did not consider their sizes before the selection. We also selected an equal number of households in each enumeration area. The listing information will be needed to compute appropriate weights for proper estimation to be done at the analysis stage.

Stratification

We employed the technique of stratification in the sample design to enhance precision and reliability of the estimates. The stratification of the frame for the survey was based on the size of the locality the enumeration area was chosen from: i.e. whether the locality is urban, semi-urban or rural. Sampling within each stratum was done independent of others and the approach of picking the number of enumeration areas in each stratum was proportional to the population size in each stratum. This was followed by systematic sample selection

within each stratum. In all, a minimum of 200 households were chosen from 15 EAs in the district. In addition to the administration of the household survey, focus group discussions were conducted in all fifteen enumeration areas in the district. In all a total of 225 households were sampled for the report for Bole District.

Profile of Bole District

Introduction

This section discusses the profile of Bole District in terms of its physical features, climate and vegetation, housing and socio-economic infrastructure, demographic characteristics, communication and transport, and governance etc. This will form the basis for discussion of other factors germane to human development as they relate to the attainment of the Millennium Development Goals (MDGs).

Picture 2.1: Bole District Assembly Block

Physical Features

Bole District is one of the 18 districts in the Northern Region, and one of the most deprived districts. It is located in the western part of the region and shares borders with La Côte D'Ivoire in the west; Tain, Kintampo North and Kintampo South districts in the south; West Gonja and Central Gonja districts in the east and Sawla-Tuna-Kalba district in the north. The Bole District covers an area of about 4800 square km; out of the area of 70,384sq km of the Northern region.

The District Capital, Bole, is the biggest town in the district. Other major towns include Bamboi, Maluwe, Tinga, Tasilma, Mandari and Banda/Nkwanta. For the percentage land size of the District and the Northern region in relation to Ghana (238,533sq km), they are 2.0 per cent and 29.6 per cent respectively. In addition, the land size of the district is 6.8 per cent of the total land mass of the Northern region.

Soils of the district are predominantly light textured surface horizons in which sandy loams are common. Many soils contain abundant coarse material either gravel or stone which adversely affect their physical properties particularly their water holding capacity. The soils are generally very fertile for agriculture. The fertile nature of the soils also favour the growth of the grasses and shrubs thus making the area favourable for the grazing of livestock.

Climate and Vegetation

Temperature

The district experiences extremes of temperature. The daily and annual range of temperature is wide. The coldest nights in the year are experienced in the months of December, January and February. During these months the air becomes dry and the atmosphere becomes hazy and one cannot see clearly due to the fine dust in the atmosphere.

The day temperatures at this period are between 28°C and 40°C but under cloudless skies the night can be very cold with temperatures under 28°C. This is the period of the harmathan. Sudden rise in temperature is experienced in the months of March, April and May when temperature exceed 30°C. The nights are usually hot and people prefer to cook, eat and sleep outside. When the rains start the mean temperature begins to fall again. After the rains temperatures rise again and there is a short hot season in November before the harmathan sets in.

Winds

Two dominant winds influence the climate of the Bole District. The rain-bearing winds that bring rain to the district from May to October are the South West winds from the Atlantic Ocean. From November to February, the harmathan period brings into the district the North East dry winds from the Sahara desert.

These winds carry a thick haze of dust. The wind-borne dust is often thick enough to obscure the sun and affect visibility. A lot of irritation and discomfort is caused at this time of the year. These climatic activities have adverse effect on the soil texture and the environment in particular. Erosion is common and affects soil fertility and productivity of crops.

Rainfall

The rains begin around May and end in October. The rainfall is seasonal and is characterized by a single maximum. The mean annual rainfall is about 1,100mm. June, July and August generally record the heaviest rainfall and also the greatest number of raining days. The rainfall is characterized by thunderstorms and lightening and somewhat erratic in nature. It is very much unpredictable and agricultural productivity is very much dependent on it. The rainfall duration is also very short which implies that for more than half of any particular year most farmers are redundant. Thus construction of dams to harvest rain-water for use during the dry season will be a much desirable intervention.

Table 2.1: Quarterly Statistics of the Rainfall Patterns (2004 and 2005)

Quarters	Amount (mm)		Wet Days	
	2004	2005	2004	2005
1st	127.7	23.2	5	6
2nd	371.7	469.4	28	30
3rd	559.8	534.0	52	36
4th	170.9	204.9	12	9
Total	1230.1	1231.5	97	81

Source: Ghana Meteorological Service Centre, Bole.

The variation between the rainfall days and the amount for the year 2004 and 2005 was not so much but the distribution for 2005 was not favourable for crop production Table 2.1).

Vegetation

The vegetation of the district consists of savannah wood land, with trees such as sheanut, *dawadawa,* teak, kapok and mango — all economic trees. There are also tall grasses and shrubs. Thorny species are also common. At a few places, flood plain, pond and clay, and flat vegetation are found.

The natural vegetation in most parts of the district especially around the settlements has disappeared. What is seen today has resulted from the inter-ference by man and animals through cultivation, grazing and exploitation for fuelwood. Beyond the major settlements the grases are periodically burnt down especially during the dry season, to clear the land of much of the vegetation. Grazing by animals has also contributed to keeping the vegetation down.

Housing Conditions and Socio-economic Infrastructure

House Ownership Structure

Most of the households (72.1%) live in owner-occupied houses in 2008. Compared to 2003, there was a reduction from 80.9 per cent. Owner occupation is prominent in the rural areas (72.8%) than in the urban areas. The number of households in rented houses has, however, increased from 7.4 per cent in 2003 to 12.3 per cent in 2008 (Figure 2.1). This may be due to migration of households to the district who are renting. Renting seems to be more common in the urban areas where 66.7 per cent of households rent than in rural areas. Households that live in rent-free houses increased from 11.7 per cent in 2003 to 15.5
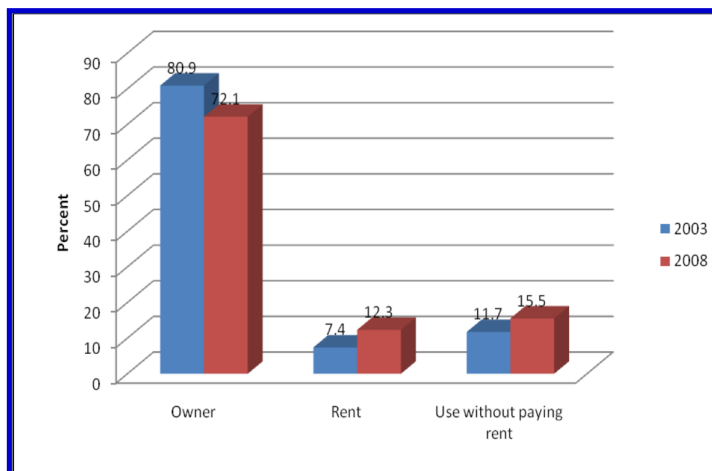
Figure 2.1: Ownership Structure of Housing.

per cent in 2008. About 50 per cent of rent-free households are in the rural areas.

Main Material for Building Houses

The main material of the walls of houses has improved in 2008 over 2003. The main material used for walls in 2003 was mud/mud bricks (78.5%) and cement/sandcrete (20.1%). In 2008, there was a drop in the use of mud/mud-brick walls from 78.5 per cent to 73.9 per cent. There was an increment, however, in 2008 of walls made of cement/sandcrete (22.1%) (see Table 2.2).

Table 2.2: Main Material Used for Building Houses

Material for wall	2003	2008
Mud/mud bricks	78.5	73.9
Burnt bricks	1	1.4
Cement/sandcrete	20.1	22.1
Wood/Bamboo	0.3	2.3
Other		0.5
Roofing		
Mud	48.7	26.6
Thatch	8.4	21.2
Wood		0.9
Metal sheets	42	47.7
Cement/concrete	0.4	0.9
Roofing tiles		0.9
Asbestos		0.9
Mud plastered with cement		0.5

Mud covered with zana mat		0.5
Other	0.4	0.9

Source: CWIQ 2003 & ISSER Household Survey 2008.

The main material used for roofing was metal sheets (47.7%) in 2008 up from 42 per cent in 2003. There was a reduction in the use of mud as the main material for roofing from 48.7 per cent in 2003 to 26.6 per cent in 2008. However, the share of thatch roofing increased from 8.4 per cent in 2003 to 21.2 per cent. Other materials used for roofing were cement, tiles, asbestos etc.

Use of Energy

There is very high dependence on wood for cooking in the district. In 2003, wood accounted for 99.6 per cent of fuel use, made up of fuelwood (87.6%) and charcoal (12.0%). Non-woodfuel was negligible (0.4%). There was a reduction in the use of fuelwood as main fuel for cooking to 75.3 per cent in 2008. More households (22%) used charcoal in 2008 than in 2003 (12%). Proportion of households using gas and electricity increased to 1.3 each (Table 2.3). Use of electricity for cooking is very low in the district because of the limited electricity coverage and cost implications for households that have access.

Table 2.3: Source of Domestic Energy

Main fuel for cooking		
Item	2003	2008
Fuelwood	87.6	75.3
Charcoal	12	22
Gas	0.2	1.3
Electricity	0.2	1.3
Source of Lighting		
Kerosene/Oil/Sheabutter	89	58.6
Electricity	10.6	16.7
Generator	0	0.5
Battery	0.2	21.2
Candle		2.3
Other	0.3	0.9

Source: CWIQ 2003 and ISSER Household Survey 2008.

More households used electricity for lighting than for cooking. About 10.6 per cent of households used electricity in 2003, increasing to 16.7 per cent in 2008. Use of kerosene and other oils reduced from 89 per cent in 2003 to 58.8 per cent. About one in five households used batteries in touches as main source of lighting mainly in the rural areas.

A greater proportion of communities in the district has no access to electricity. Apart from Bole, the district capital, Kakaiase and Bamboi which are connected to the national grid, the rest of the communities are not. Meanwhile, there are plans to connect the following communities to the national grid: Jugboi, Tasilma, Banda-Nkwanta, Sonyo, Mandari, Chibronyoa, Babator, Tinga, Mankuma and Maluwe. It is therefore not surprising that the District had only 10.6 per cent (compared to a regional figure of 28.0%) of households using electricity for lighting in 2003.

Demographic Characteristics

Ethnicity

The district has a heterogeneous population. The major ethnic group is Gonja. Other groups are Vagla, Brifor, Safalba, Mo, Dagaba, Grushie and the Pantras. Settlement creation in the district is largely on adhoc basis and usually near and around farms. It is also controlled in the scattered communities dotted all over the district.

Population Size

The population of Bole District, according to the 2000 Population and Housing Census, is 127,147[2] of which 63,172 were males and 63,975 were females. Of the total population, an overwhelming majority (112,069) were in rural localities compared to 15,078 in urban communities. The Medium-Term Development Plan records an estimated population of

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[2] This is before Sawla-Tuna-Kalba was carved out.

about 75,151 (2000 population projected) when Sawla-Tuna-Kalba District is taken out. The population growth rate is about 3.6 per cent per annum. Projections based on the 2000 population using a growth rate of 3.6 per cent yields 99,727 in 2008 (Table 2.4). The population is sparse with a density of about 14 per km^2.

The proportion of children under 15 years of age is 44.3 per cent in 2008. This represents a marginal drop from 44.8 per cent in 2003 (GSS 2003 CWIQ). The aged also increased from 3.5 per cent in 2003 to 4.5 per cent in 2008. This gives us a dependency ratio of 97.3, meaning for every 97 dependants, there are 100 economically active people to cater to their needs (*see* Table 2.5).

Table 2.4: Population Growth

Indicators	Bole
Total Population (2000)	75,151.0
Pop growth rate	3.60%
Estimated Pop (2008)	99,727.0

Table 2.5: Age Structure of Bole District 2003 and 2008

Sex/Age Group	2008	2003
% urban	28.8	
Sex ratio	102.9	
	ISSER 2008	CWIQ 2003
0-14	44.3	44.8
15-64	51.2	51.8
65+	4.5	3.5

Communication and Transport

Communication

There are telecommunication services in the District. The district is covered by cellular phone network: MTN, Vodafone and Tigo. This is expected to have a positive influence on the socio-economic development of the District.

Roads Condition

The major Kumasi-Wa road runs through the district from Bamboi in the south to Bodi in the north. This is part of the national trunk road system. The road from the northern boundary of the district Bodi up to Banda has been tarred. Work is in progress to tar the rest of the road to Bamboi at the time of this study. Radiating from the trunk road are a number of feeder roads. These are the Bole-Chache road, Bole-Sonyo, Mandari-Nsunua, Bole-Ntereso and Seripe-Kabilma roads. All these are laterite roads even though motorable.

During the period under review, there were on-going reshaping/rehabilitation of some feeder roads such as Doli-Gbampe, Doli-Dendenyiri, and Seripe-Kalidu. These roads, if completed in good time will go a long way to enhance spatial accessibility, facilitate farming activities as well as human movement.

Governance (Traditional and State)

The Bole District Assembly like any other District Assembly is a corporate body and the highest political and administrative arm of the Government at the local level. The Assembly, through the Local Government Act 1993 (Act 462) (section 10 sub sections 1, 2, 3, 4 and 5) carries out the legislative, deliberative and executive functions of Government. Its functions are summarized as follows:

1. Provision of a sound sanitary and healthy environment;
2. Provision of educational infrastructure for first and second cycle schools;
3. Provision of markets and lorry parks within the District;
4. The planning and development control of all infrastructure within the District;

5. Activities bordering on the maintenance of peace and security within the District;

6. Provision of public safety and comfort.

The Assembly performs these functions through the collaborative efforts of the various decentralized Departments.

Governance

The DA has representations of the 10 decentralized departments though some of these are yet to have the full complement of the units required (Box 2.1).

Box 2.1: Departments Operating in Bole

Decentralized Departments	*Non-decentralized Departments*
Central Administration	CHRAJ
Education and Sports — GES	NCCE
Department of Food and Agriculture	NFED
Finance	National Service
Health	Centre for National Culture
Works Department	Electoral Commission
Department of Social Welfare and Community Development	Customs Excise and Preventive Service (CEPS)
Natural Resource Conservation (Forestry)	Police Service
Trade and Industry (Department of Cooperative)	Fire Service
Disaster Prevention and Management — NADMO	Immigration Service
Physical Planning — Town and Country Planning	Judicial Service

The functions of some of these organizations include: carrying out educational campaigns on government policies; mobilizing the people for community participation; arbitration functions; security and education.

Other structures that assist in governance are the Traditional Authorities, Youth Associations and Civic Union. These other structures exercise much influence on the community and are very helpful in governance such as mobilization of persons for implementation of programmes and projects.

The district is endowed with the presence of numerous development partners and NGOs who are helping key sectors at the district level. Some of the development partners are; UNICEF, CIDA — District Wide Assistance Project (DWAP), European Union, AFD/CWSA, Ibis, EQUALL, GAIT II, IFAD, CBRDP.

Development of Goals

The development of goals of the district are summarized in Table 2.6. The overall goal is to improve upon the living standards of all persons in the district.

Table 2.6: Bole District Development Goals

NARRATIVE SUMMARY	Subsector priorities	OBJECTIVELY VERIFIABLE INDICATORS
OVERALL GOAL **To improve upon the standard of living of all persons in the district**		GDP increased by 50%
		60% of the population able to access social and technical infrastructure by 2009
		Increased access to Health Care delivery
		Reduced infant and maternal deaths by 10%
		85% Increased income
PURPOSE **To strengthen and empower the various Decentralized departments and other stakeholders to utilize their human and material resources potentials to implement developmental projects**		District Assembly implement development projects
		All sub-structures of the Assembly fully established and functional
		90% of all planned developmental projects are implemented and completed on schedule
	Increase Agriculture Productivity	60% of farmers increase their yield by 20%
		40% of farmers trained and adopt improved technology
		30% of farmers practice improved methods of Maize, Cowpea and Soya beans production
		30% reduction in livestock and poultry mortality
		Outbreak of Zoonosis prevented
		10% reduction in mortality rate of livestock and poultry
		200 farmers identified by 2009
		100 farmers groups in place and functional
		20 DADU staff impacting knowledge and skills acquired into farming
		4 staff Bungalows renovated by 2009
		8 JSQ renovated by Dec. 2009
		4 Newly JSQ constructed by Dec. 2009
		36 FBOs developed by Dec. 2009
		16 DFSN meeting held by Dec. 2009
		4 National Farmers day organized by Dec. 2009
		540 field days on demonstration organized
		1200 sheanut pickers equipped with protective clothing
		200 farmers/women trained on quality sheanut production
		10 unit sericulture plant established
		Morigua seedlings produced and distributed to farmers
	Improved road network	8 culverts/bridges constructed
		10 feeder roads rehabilitated
		24 power tillers procured and distributed to farmers
		24 No. Bicycles with Tractors procured
		1 No. engine boat procured

	Provide Reliable Sources of energy	15 rural communities connected to National Grid
		10 rural communities connected to Rural Electrification
		1 biogas constructed
		3 second cycle schools provided with internet
	Improved ITC system in the district	160 staffs, Headteachers and Heads of Department acquired knowledge in ICT
		1 internet café established in the District Capital
		30 mobile phones procured and distributed
	Promote Tourism	6 ancient broken down mud-houses rehabilitated
		4 sign boards constructed and erected
		16 km feeder roads to HIPPO and Maabi rehabilitated
		Mankuma Royal Musoleum completed and decorated
		40 tour guards identified and trained
		50 restaurants chop Bar operators and food vendors Trained
		4 Bonfires organized by2009
HUMAN RESOURCE DEVELOPMENT	EDUCATION	
	Provide and ensure access to free Basic Education	All primary schools with 2KG blocks attached
		1:1 pupil mono desks
		100% coverage of school communities
	Prioritize the disadvantage in society	300 needy pupils supported
		Pupil-Teacher Ratio reduce to 37:1
		60% GER of pupils with disabilities
	Promote gender equity in enrolment and retention	100% screening of children of school going age
		85% female GER
		90% Retention rate of girls
	Develop a motivated teaching and carter for all levels with support from private NGOs, CBOs	All award winners presented with their awards
		100% community coverage
	Develop effective accountability system	100% of all basic schools
		100% of Head teachers on financial and store record keeping
	Ensure literacy and numeracy in English and Ghanaian Language	70% of pupils read English and a Ghanaian Language
		70% of pupils read
	Provide school and pupil library and encourage community/private libraries	100% coverage of schools communities
		41% of all Basic schools with library facilities supplied to schools
	Improve the effectiveness of Teachers with preparation up grading and deployment	120 untrained teachers gain knowledge
		90 newly trained teachers trained on classroom management
		60 preschool head teachers
		4 mock exams for JSS 3 candidates
		4 DDPMT for all P1- P6 pupils
		100% community coverage
		120 teachers trained on testing and assuring skills

	Expand and improve school Health, Sanitation and Safety system	41% of schools rehabilitated
		100% of basic schools provided with poly tanks
		100% of basic schools provided with first Aid Box and content
		41% of Basic schools with toilet facilities
		63% of basic schools with gender friendly Urinals facilities
		100% of basic schools provided with hand washing facilities
		100% of basic schools provided with dustbins
		300 basic school pupils took part in STME
	HEALTH Quality Health Services Provided	9 CHPS constructed and furnished
		Health centres rehabilitated
		120 Youth Enrolled into Auxiliary Nurses Programme
		One District Health Management Team office constructed by 2009
		NHIS office constructed and in use by Dec. 2009
		Monthly outreach programme to communities undertaken
		Health Education campaign organized twice yearly by 2009
	HIV/AIDS Reduce the incidence HIV/AIDS	Health cultural practices promoted
		30% reduction in migration
		Income levels of PLWHAs increased
		Reduced early marriage and pregnancy
	WATER AND SANITATION Promote access to safe water and sanitation	
		120 boreholes drilled and in used by Dec. 2009
		16 ten seater KVIP constructed by Dec. 2009
		800 household latrines constructed
GOOD GOVERNANCE	Operationalize Area Councils	90 area councilors and Unit Committee Members inaugurated
		6 area councils fully operationalized by Dec. 2009
		6 motor-bikes purchased by 2009
		30 bicycles procured by 2009
		Office equipment procured and distributed to all Area Councils
		Two 4 x 4 pickups procured by Dec. 2009
	Ensure civic responsibility and protecting rights under rule of law	One (1) tipper truck procured by Dec. 2009
		Enforce by-laws by 2009
		3 police posts constructed and in use by 2009
		6 Radio phones procured to security agencies by 2009
		4 peoples' assembly organized by 2009
	Improved Revenue Generation	12 additional revenue collectors recruited
		2 motor-bicycles procured for Revenue Collectors by Dec. 2009
		12 bicycles procured to revenue collectors by 2009

(A)   (B)

Picture 2.2: Pictures Depicting some Economic Activities in the District.
(A) Fish being smoked (B) A cashew plantation.

Economic Activity and Poverty

Introduction

The focus of this chapter is to outline the various economic endeavours engaged in by households in the district.

Major Economic Activities

The predominant economic activity in the district is agriculture. About 76 per cent of the population was engaged in agriculture in 2003. This increased significantly in 2008 to 83.5 per cent (Table 3.1).

Table 3.1: Distribution of Economically Active Population by Industry, Status and Type

		2003	2008
Type of industry	Agric/fishing	75.6	83.5
	Mining	-	1.9
	Manufacturing	3.1	1.0
	Construction	3.6	4.0
	Wholesale/retail	12.1	2.3
	Community/social service	5.1	4.6
	Other	0.4	2.7
Employment status	Self employed	44.5	73.3
	Family worker	45.3	13.3
	Regular (wage) employee	4.7	8.4
	Apprentice/Student	0.8	2.6
	Other	4.6	2.4
Main employer	Public	4.8	7.3
	Private formal	1.6	20.8
	Private informal	92.8	70.4
	Others	0.8	1.5

Source: CWIQ 2003 and ISSER Household Survey, 2008

There are a number of fishing communities along the Black Volta. They include Bamboi, Saru, Nsunua, Babato and Cache. There is a strong potential for the development of inland fishing.

The major crops cultivated include maize, yam, cassava, sorghum, beans, millet, groundnuts, cowpea, rice and vegetables. The tree crops grown are mango and cashew. Livestock raised include cattle, sheep, goats, pigs and poultry (guinea fowls and chicken).

A review of the Medium Term Development Plans 2006/2009 reveals that out of the nine major food crops cultivated in the district, seven chalked surpluses in the food balance sheet for the period. These include maize, rice, cassava, yam, groundnut, cowpea and soya beans. For the other two, namely sorghum and millet, significant strides were made towards surplus. Overall, however, there was a decline in production from 64,000 tonnes in 2003 to 62,000 in 2004. Production jumped by a third from 62,000 tonnes in 2004 to 90,000 in 2005.

Despite the surpluses in the food balance sheet, there were reductions in acreage in land put under cultivation at the district level. Land under cultivation reduced successively from 47,000 hectares in 2003 to 43,000 in 2005 and further to 42,000 in 2005. This was a manifestation of positive actions on sound environmental and sustainable agricultural practices. Thus extension services were vigorously pursued.

Crop Performance

Generally, it has been realized during the review period that yields of most early

cereals and legumes were not encouraging but yields of roots and tubers even though delayed, were quite substantial to compensate for the decline in cereals particularly maize. It is no wonder therefore that the ISSER Household Survey revealed a high percentage of farmers cultivating yam.

The weather pattern during the period under review favoured the growth and development of most tree crops (cashew, mango, *dawadawa* and sheanut). The Cocoa Research Institute is carrying out research in the Bole District on sheanuts. Cashew is also extensively cultivated. The incidence of loss of property (cashew plantations) through bushfire activities has been minimal in spite of the numerous bushfire activities. Farmers were educated on early weed control and fire belt creation.

There was a marginal percentage increase in the households that cultivated maize, cassava and beans in 2008 over 2007 figures. Yam, guinea corn and sorghum show decline in percentage of households cultivating them in 2008 (Table 3.2). Even though land suitability map shows that about half of the district is suitable for the cultivation of sorghum, the number of

households that cultivate it is negligible (3.0%).

Table 3.2: Trend of Crop Production (2007–2008)

Crop	2008 Percent	2007 Percent
Maize	22.5	21.7
Yams	24.7	24.8
Millet	11.3	12.1
Groundnuts	15.2	15.2
Rice	0.7	1.1
Guinea corn	9.4	9.5
Cassava	9.0	8.6
Sorghum	3.0	3.4
Beans	2.3	1.9
Bambara beans	0.4	0.4
Soya beans	0.6	0.5
Cow pea	0.5	0.5
Cashew	0.2	0.2
Agushie	0.2	0.1
Total	100.0	100.0

Source: ISSER Household Survey 2008.

Apart from crops, the district is also very well endowed with the right grasses to support livestock. A livestock census by the Agriculture Office showed that there were a total of 9592 cattle, 8883 sheep, 11054 goats, 5269 pigs, and 52663 birds in 2008 (Table 3.3).

Table 3.3: Livestock Census by Supervision Operational Area

Supervision / operational area	Cattle	Sheep	Goats	Pigs	Donkeys	Cats	Dogs	Poultry	Rabbits
Bole Supervision Area	**7,063**	**5,272**	**7,403**	**4,054**	**2**	**737**	**1,142**	**30,675**	**20**
Mankuma Operational Area	494	571	826	377	2	0	10	9,039	0
Bole Operational Area	2,463	2,073	2,353	2,148	0	384	508	11,157	20
Mandari Operational Area	1,078	786	1,434	502	0	103	144	3,533	0
Chache Opeational Area	237	1,242	1,521	446	0	115	255	2,491	0
Seripe Operational Area	817	217	397	151	0	11	61	559	0
Maluwe Operational Area	1,974	383	872	430	0	124	164	3,896	0
Bamboi Supervision Area	**2,529**	**3,611**	**3,651**	**1,115**	**4**	**353**	**736**	**21,988**	**0**
Chibirinyou Operational Area	249	406	627	119	3	33	149	1,631	0
Bamboi South Operational Area	106	122	215	19	0	32	27	669	0
Bamboi North Operational Area	984	2,276	2,001	333	1	167	382	14,051	0
Banda-Nkwanta Operational Area	629	691	699	523	0	82	69	4,635	0
Tinga Operational Area	561	116	109	121	0	39	109	1,002	0
TOTAL	**9,592**	**8,883**	**11,054**	**5,169**	**6**	**1,090**	**1,878**	**52,663**	**20**

Source: MOFA, Bole District 2008 Annual Report.

Problems of Agriculture

The district is beset with a number of challenges which limits the full utilization of agricultural resources. The District Medium-Term Plan 2006–2009 outline some of these as follows:

- Low agriculture productivity and output due to over-dependency on rainfall;
- Low access of women to land including irrigated land;
- High incidence of pests and diseases;
- Over-reliance on traditional agricultural commodities;
- Low productivity of resistance bread of livestock;
- High incidence of animal and zoonotic diseases;
- Cattle rustling;
- Limited access to tractor services and other farm machinery/equipment;
- Low exploitation of ground water for irrigation purposes;
- Lack of access to credit especially by small scale women farmers;
- Limited value addition and high post harvest losses;
- Improper packaging of agricultural produce and products;
- Lack of storage facilities especially at the community level.

Small-scale Industrial and Mining Activities

Apart from agriculture, there are a few small scale informal industrial activities going on in the district. These include sheabutter extraction, groundnut oil extraction, charcoal production, pito brewing, bread baking, blacksmithing and cassava processing (Table 3.4). The promotion and development of SSI activities in the district constitutes a vital component of establishing synergetic relationship between agriculture and industry. The following groups of industrial activities can be found in the district.

About 2 per cent of the population in the district is engaged in mining activities. The district is endowed with some mineral deposits especially gold, which is found at Dakurupe, Sakpa, Bombire, Tinga, Kui and Sonyo. These deposits are available for exploitation. A number of mining companies already have concessions in the district and are at various stages of exploration. However, the Northern Goldfield Company Limited has reached an advanced stage and may soon start mining at Dakurupe.

Table 3.4: Types of Small-scale Industries

Type	Industry
Agro-Based	Milling, Cassava processing, Distillery, Brewing, Fishing
Wood-Based	Carpentry, Charcoal burning
Clothing	Tailoring, Seam stressing (Dress making)
Repairs	Bicycle, Vehicle repairs and Vulcanizing
Service	Hair dressing, Chop bar, Food processing
Metal-Based	Blacksmithing
Art-Based	Pottery, Basketry

Source: Bole (2002).

With this mix of economic activities, it is not surprising that about 90 per cent of people in Bole District were either self employed or family workers in 2003. This category reduced to about 86 per cent in 2008. The importance of the informal sector in providing employment for the greater majority of Ghanaians is reflected in the district. In 2003, about 93 per cent of people were employed in the private informal sector. This declined in 2008, and the private formal and public sector increased their share. Employment drive in the last few years may have contributed to this change.

A number of challenges confronted the working population in the Bole District. The most important of these was lack of finance (42%) to pursue their livelihood activity.

Cost of inputs was reported to be high (13.7%) due to the rough and difficult road

Table 3.5: Problems Faced by Working Population with Regard to Work

Category label	Frequency	Percent
Finance	313	42.0
Difficult to access land	11	1.5
Erratic weather conditions	99	13.3
Low soil fertility	18	2.4
Uncertain demand for output	11	1.5
Poor health	38	5.1
High cost of inputs (e.g. fuel)	102	13.7
Difficulty in marketing products	53	7.1
Low price of products	60	8.1
Inadequate Mechanised services	24	3.2
Other	16	2.1
Total responses	**745**	**100.0**

Source: ISSER Household Survey 2008.

network. Since about 83 per cent of the people are farmers, reliable rainfall is critical for them. However, about 13 per cent reported erratic weather conditions which affect their livelihood activity. Low prices of products, poor health, and difficulty in marketing were other problems the working population faced in the district (Table 3.5).

Unemployment

Based on the response of those who had been actively looking for work (in the past seven days) during the study, the unemployed in Bole District constitute about 14 per cent of the economically active population in 2008.

Reasons for not working are varied. As can be seen from Figure 3.1, lack of jobs was the dominant reason for the population not working, accounting for about 81 per cent. This, however, represents a reduction from 98 per cent in 2003. About 10 per cent of the people lost their jobs while about 4 per cent indicated that their work is seasonal. Seasonality is the major feature of those in agriculture since it is mainly rain-fed.
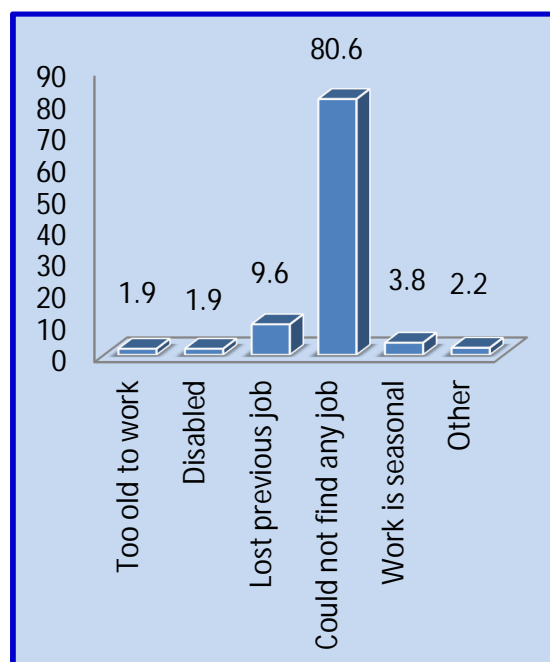
Figure 3.1: Reasons for not working.
Source: ISSER Household survey, 2008. (Recalculation by Editors).

Some Problems of Unemployment

Our study also reveals that unemployment may be due to some other factors. First, non-availability of training opportunities or facilities for some of the people to diversify from agriculture to other sectors of the economy makes it impossible for unemployment to fall. Secondly, the high illiteracy rate makes it a lot more difficult for people to change job to other sectors. Thirdly, high school dropout rate also contributes to the unemployment. There is also lack of employment avenues for school leavers without skills. Finally, poor non-farm income generating activities in the district are low, these also account for unemployment.

Women's Participation in the Labour Force

Share of women in wage employment in the non-agricultural sector is indicator 14 of the MDGs. However, our study of Bole district

shows that the share of women in wage employment in the non-agricultural sector is very low (6.1%) and measures should be taken to step it up if this indicator of participation is to be realized. There is predominance of self-employed women (73.9%) in the district and they are largely in the informal sector. Only 5.9 per cent of women were in the public sector, while 19.1 per cent were in the private formal sector. (For empirical evidence, refer to Table 3.6 for details.)

Table 3.6: Employment Status by Sex

Indicators	Sex		Total
	Male	Female	
Self-employed with employee	19	17	36
	11.9%	10.3%	11.1%
Self-employed without employee	103	105	208
	64.4%	63.6%	64.0%
Unpaid family worker	15	25	40
	9.4%	15.2%	12.3%
Casual Worker	2	2	4
	1.2%	1.2%	1.2%
Regular (wage) employee	17	10	27
	10.6%	6.1%	8.3%
Domestic employee	2	3	5
	1.2%	1.8%	1.5%
Apprentice	0	3	3
	.0%	1.8%	.9%
Other	2	0	2
	1.2%	0.0%	0.6%
Total	160	165	325
	100.0%	100.0%	100.0%

Education and Literacy

Introduction

The second and third MDGs are education specific. The focus of the second MDG is the attainment of primary education and the third goal is the promotion of gender equality and empowerment of women.

The target under the third goal is the elimination of gender disparity in primary and secondary education by 2005, and in all levels no later than 2015. (For the details related to the MDGs, policy objectives and the key indicators refer to Box 4.1).

Education is pivotal in human development as it tends to have relationship with other indicators such as income, life expectancy, empowerment etc which impact on human development. Also education better equips individuals to take advantage of whatever resources are available to the individual. Hence, the Education Sector Plan is based on four focal areas: Equitable access to education; Quality education, Educational management; and Science, Technology and Technical Vocational Education and Training (TVET).

Box 4.1: MDGs on Education and GPRS II Objectives		
Millennium Development Goals	**GPRS II Policy Objective**	**Indicator**
Goal 2: Achieve Universal Primary Education	Increase access to and participation in education and training	Gross Enrolment Ratio (GER)
		Net Enrolment Rate (NER)
		Survival Rate
Goal 3: Promote Gender Equality and Empower Women	Bridge gender gap in access to education	Gender Parity Index (GPI)
	Improve the quality of education	Proportion of students passing national assessment examinations (BECE)
		Percentage of trained teachers

Education Infrastructure

Number of Schools

One feature of the Bole District has been an increasing trend of the number of public schools at the basic level. The total number of Kindergartens (KGs) more than doubled (157.9%) from 19 in 2005 to 49 in 2008.

The number of primary schools increased by more than a quarter (26.7%) from 45 in 2005 to 57 in 2008, while the number of JHSs increased from 14 in 2005 to 23 in 2008. There is only one Senior High School in the Bole District (Table 4.1).

Table 4.1: Educational Facilities in Bole District

Period	Level	KG	Primary	JHS	SHS
2005	Public	16	42	14	1
	Private	3	3	0	0
	Total	19	45	14	1
2006	Public	26	45	15	1
	Private	3	3	0	0
	Total	29	48	15	1
2007	Public	33	49	20	1
	Private	3	3	0	0
	Total	36	52	20	1
2008	Public	46	55	23	1
	Private	3	2	0	0
	Total	49	57	23	1

Source: District Education Office, Bole.

Picture 4.1: Pre-school building at Chache.

Picture 4.2: An overcrowded classroom with inadequate

furniture at Jentige.

Picture 4.3: A class being held under the shed at Jentige Primary School.

Not only are the education facilities not well distributed, some of the structures are but run down (as Picture 4.1 clearly shows). A number of primary school buildings in the District are three unit classroom blocks. This necessitated the holding of multigrade classes which affects quality of teaching and learning (Picture 4.2). For some other schools like Jentige Primary School, some of the classes meet under sheds (see Picture 4.3).

As can be seen from Table 4.2, the number of primary schools more than double that of the JHSs. This state of affairs has two implications: firstly, pupils from communities without JHSs have to travel longer distances to other communities with JHSs and for a considerable number of them, it marks the end of their education; secondly, JHSs will be overcrowded since they serve many primary schools.

Access to Education

Access to primary and secondary school is defined as children who reside less than 30 minutes from the nearest primary and secondary school respectively, not necessarily the one they attend. About four

out of every five primary school children in the Northern region live within 30 minutes of the nearest school. This stands in contrast to Bole District with about half (50.8%) of primary school children having access (GSS, CWIQ 2003). This is not surprising because of the uneven distribution of primary schools in the District and especially at higher levels of education (*see* Map 4.1).

Overall, access to secondary education drops to a mere 46 per cent. Access to secondary education for children currently attending school is abysmally low (only 8.1%) since the District has far fewer JHSs and only one SHS which is cited in the district capital. Access level for Bole District pales when compared to a Northern regional level of 21.5 per cent. This accounts for the low progression rate in the district from primary to secondary level.

Table 4.2:Percentage Distribution of Population (6 years and above) by Highest Level of Education Completed

School	GHANA	Northern	Bole
Sample Size	111,655	7,812	420
None	4	8.9	5.7
Primary	37.2	51.1	46.7
JSS	21.3	14.6	21.3
Middle school	19.5	5.5	5.9
Senior Secondary	10.2	12.5	9.9
Lower 6	0.1	0	0.4
Upper 6	0.7	0.3	0.5
Voc/tech*	3.2	2.5	2
Tertiary**	3.9	4.6	7.6

Notes: * Refers to Vocational/Technical/ Commercial/Agriculture
** Refers to Teacher Training, Nursing and Tertiary

Education Attainment

Educational attainment influences, to some extent, employment which in turn influences financial wealth of people. Improved
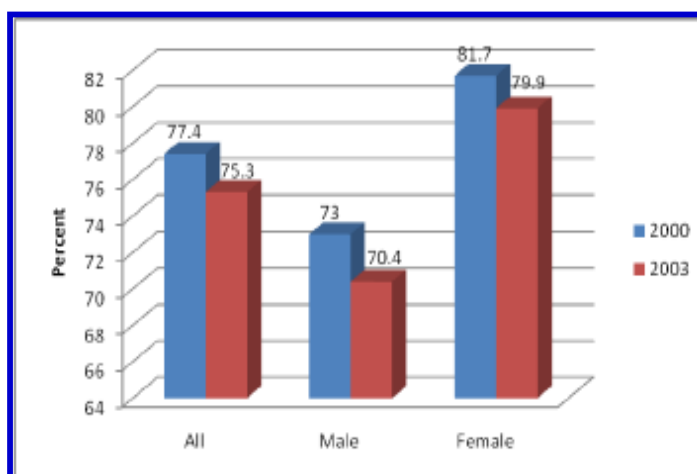
Figure 4.1: Trends of Educational attainment of Population 6 years and above (2000–2003).
Source: 2000 Population and Housing Census and CWIQ 2003.

education enhances health and better equips people to use resources more effectively.

The proportion of people who have never been to school in the Northern region is high. Evidence from the 2000 Population and Housing Census shows that at the national level, 38.0 per cent (33.1% males and 44.5% females) of the population 6 years and older have never been to school compared with 72.3 per cent (66.6% males and 77.9% females) in the Northern Region. At the District level, Bole District had 77.4 per cent (73% males and 81.7% females) of population 6 years and above who have never been to school (Figure 4.1).

There is, however, evidence that educational attainment has improved since 2000. CWIQ 2003 reveals that about 75.3 per cent of the people aged 6 years and above have never attended school. More women (79.9%) than men (70.4%) of that age bracket have never attended school (Figure 4.1).

From Table 4.2, about 47 per cent of the people of Bole District have completed primary education while 21.3 per cent completed JHS. About 8 per cent have completed tertiary which is above the regional and national figures of 4.6 per cent and 3.9 per cent respectively.

Map 4.1: Distribution of Educational Facilities in Bole District
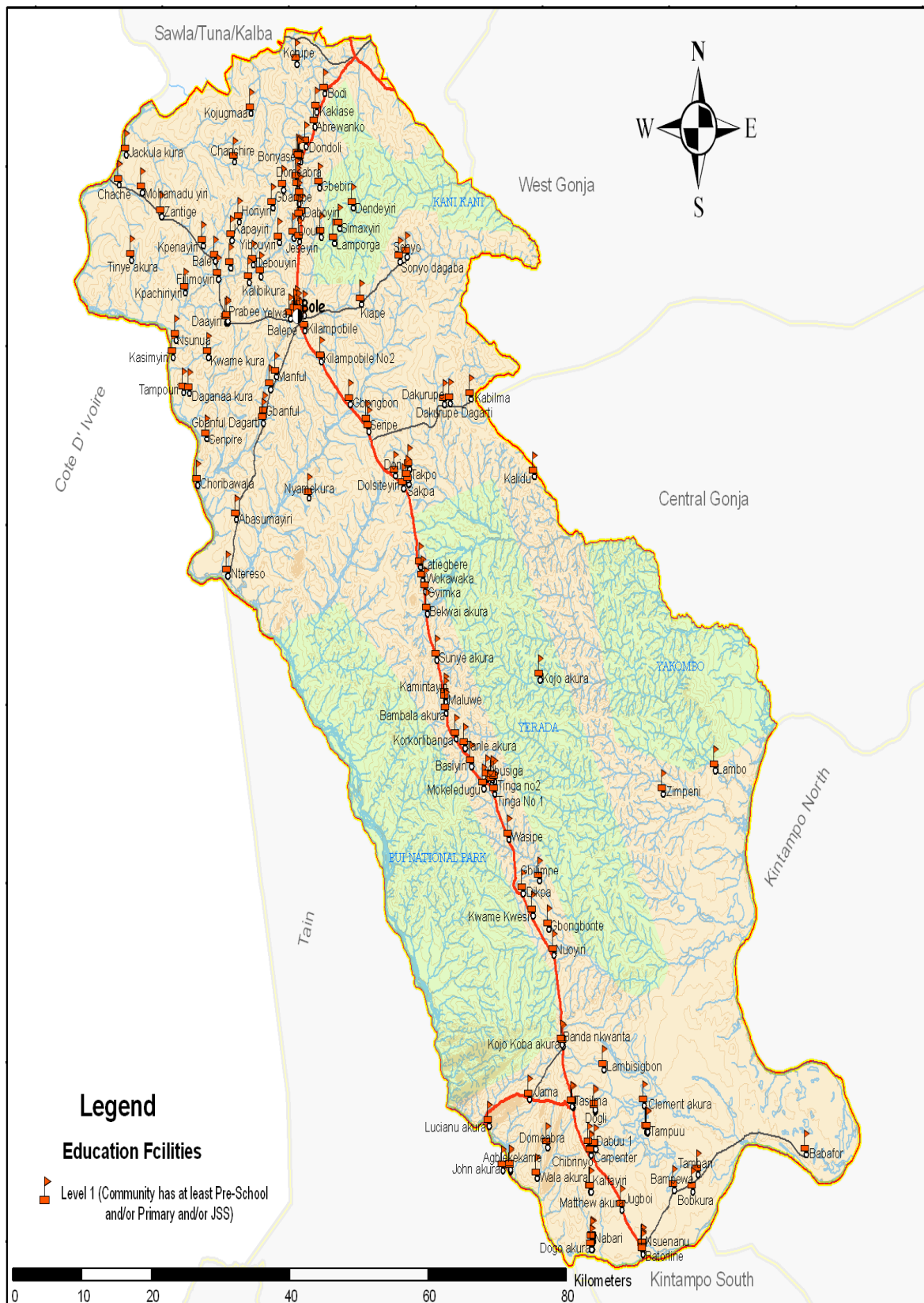
About 5.7 per cent of the people 6 years and above have not been to school at all. From the foregoing, less than 50 per cent of people were able to go beyond primary school which is not enough to influence the extent to which technological adoption and innovation can occur.

Table 4.3: Number of Pupils Enrolled at Various School Levels in Bole District by Sex

School Level	Year	Boys	Girls	Total	Gender Parity
Pre-School	2005	942	966	1908	102.5
	2006	1422	1450	2872	102.0
	2007	1871	1909	3780	102.0
	2008	2185	2193	4378	100.4
Primary	2005	3026	3234	6260	106.9
	2006	4427	3935	8362	88.9
	2007	4913	4387	9300	89.3
	2008	5149	4722	9871	91.7
Junior High School	2005	915	577	1492	63.1
	2006	1011	668	1679	66.1
	2007	1144	861	2005	75.3
	2008	1297	988	2285	76.2

Source: District Education Directorate

School Enrolment

Gross enrolment is an indicator of participation in the educational system and it measures the number of children at a given level of schooling, irrespective of age, as a proportion of the number of children in the relevant age group. CWIQ 2003 pegged enrolment rate of the district at 31.2 per cent (Table 4.4). Data from MOE points to an increasing trend in Gross Enrolment Rates (GER) and Net Enrolment Rates (NER) at primary and JHS levels. GER jumped from 55.2 per cent in the 2004–2005 academic year to 90.3 per cent in 2007–2008 academic year at the primary level. For the same period at the SHS level, GER increased from 33.3 per cent to 61.5 per cent. Several reasons accounted for this rapid increase in enrolment. The first is the introduction of the School Feeding Programme which stimulated school attendance and retention. The second reason is the abolition of the payment of school fees. The third reason is the intervention of several non-governmental actors in the area of school uniforms, means of transport, feeding of pupils etc. Data from District Education Directorate indicate that enrolment has increased successively for pre-school from 1908 in 2005 to 4378 in 2008 in absolute terms. Primary enrolment increased from 6260 in 2005 to 9871 in 2008. Enrolment is significantly lower for Junior High School considering that in 2005 only 1492 were enrolled at the district. This increased to 2285 in 2008 (Table 4.3).

Table 4.4: Percentage Gross Enrolment Rates by Type of School, Sex and District

Level		GHANA	Northern	Bole
Primary	All	109.9	81.1	55
	Male	112.7	89.3	57.4
	Female	107	72.7	52.7

NER indicates the number of appropriately aged pupils/students enrolled in schools as proportion of total number of children in the relevant age groups. Net enrolment rates were lower than the GER. This is because there were quite a number of children enrolled in the various stages of education with ages outside the prescribed age group. NER increased from 36.6 per cent in the 2004–2005 academic year to 72.6 per cent in the 2007–2008 academic year at the

Sec	All	51.5	29	19.9
	Male	54.4	32.6	24.8
	Female	48.5	24	14.9
Tertiary	All	5.6	4	2.5
	Male	8.5	5.8	4.7
	Female	4.4	3.1	1.5
Overall	All	60.5	45.7	31.2
	Male	65.9	51	36
	Female	59.1	42.1	28.9

Source: CWIQ 2003

primary level. At the JHS level, NER increased for the same period from 6.9 per cent to 41.6 per cent. Obviously, there is a huge gap between GER and NER at both primary and JHS levels resulting from the fact that children who were not in school have had to enroll because of the intervene-tions stated above.

Table 4.5: Percentage Net Enrolment rates by Type of School, Sex and District

Level		GHANA	Northern	Bole
Primary	All	69.9	49.9	35.2
	Male	69.9	52.2	33.6
	Female	70	47.6	36.8
Secondary	All	38.1	16.2	13.3
	Male	37.9	16.9	15.8
	Female	38.4	15.3	10.8
Tertiary	All	3.3	1.8	0.8
	Male	3.7	2.2	1
	Female	2.7	1.3	0.8
Overall	All	40.2	27.4	20
	Male	42	28.8	21.1
	Female	41	27.3	20.2

Source: CWIQ 2003

Gender Parity

Gender Parity Index is the ratio of boys to girls enrolment, with the balance of parity being 1. Evidence from Table 4.3, reveals that gender parity index was high at the pre-school level and reached 1.02 in 2005 where there were more girls than boys. At this level the district appears to have achieved the MDG target of eradicating gender disparity in education at the pre-school level.

Some of the interventions in 2005/06 and 2006/07 to further improve Gender Parity especially at the primary level were that 919 girls were supplied with uniforms, school bags and stationery in Bole and West-Gonja districts. Additionally, girls were provided with bicycles by UNICEF to assist in their household chores and going to school. However, these appear not to have yielded the desired results at least at the Primary level as GPI trended downwards from 1.06 in 2005 to 0.88 in 2006. The GPI improved, however, from 0.89 in 2007 to 0.91 in 2008.

The GPI is lower at the JHS level than the primary. GPI improved successively from 63 females to 100 males in 2005 to 66 females to 100 males in 2006, 75 females to 100 males in 2007 and marginally to 76 females to 100 males in 2008. It is the priority of the district to bridge the gender gap by providing incentive schemes to increase girls enrolment, retention and completion particularly in deprived areas and to sensitize parents and communities about the importance of Girl Child Education.

Literacy

Adult literacy rate in English, a local language or both has improved significantly indicating some improvement in the education component of human develop-ment. The literacy rate is

higher in English than in the local languages. In 2003, about 17 per cent of adults (15 years and older) were literate compared to regional average of 22.6 per cent and a national average of 53.4 per cent. This is not surprising considering the high percentage of the population that has never attended school. The adult literacy rate for males (23.2%) was about two and half times that of females (10.8%). Not only has there been an improvement in the literacy rates in 2008, the huge gender gap has been narrowed considerably. About 35 per cent of adults were literate in English while about 25 per cent were literate in any local language. In terms of gender, about 32.8 per cent of males and 31.9 per cent of females were literate in 2008.

Literacy rate for urban areas of the district is comparatively higher than for the rural areas. The ISSER Household data reveal that literacy in any local language in the urban areas (39.1%) and the semi-urban areas (45.8%) are much higher than the rural areas (16.7%). Literacy in English for Urban areas (49.3%) and semi-urban (55.6%) are also higher than the rural areas (27.4%).

Health, Water and Sanitation

Introduction

The overall goal of the health sector is to ensure that every Ghanaian has access to good quality health and nutrition services. Health sector policy objectives meant to achieve this goal are focused on: bridging the equity gaps in access to quality healthcare and nutrition services; ensuring sustainable financial arrangements that protect the poor; and strengthening efficiency in health service delivery. Since health, water and sanitation are intricately related, the following section discusses issues of access and quality of health, water and sanitation facilities.

Health Infrastructure

There are 8 health facilities in the district; a district hospital, 5 health centres and 2 clinics. Two of the health centres are newly established and still lack the necessary infrastructure. They are located in the Area Council buildings of Mandari and Mankuma sub-districts.

Table 5.1: Health facilities in the Bole District

Type of Facility	Number
Hospital	1
Health Centres	5
Clinics	2
CHIPS zones	12
CHIPS compounds	6

Source: District Health Directorate.

All the facilities with the exception of two, Bole MCH clinic and Catholic PHC, offer a 24-hour service to the communities they serve. The district hospital serves as the highest referral point for patients in the district and has a catchment area extending beyond the borders of the country into La Côte d'Ivoire. The district also has 12 CHIPS zones out of which only 6 compounds have been inaugurated (Table 5.1).

Number of Hospital Beds

Bole District has only 40 hospital beds down from 63 in preceding years in the District Hospital.

Health Personnel

The total manpower strength of the district as at the end of 2008 stood at One Hundred and eleven (111). This was made up of one (1) Medical Officer (who also doubles as the Medical Superintendent of the District Hospital), six (6) Medical Assistants (the DDHS is a Medical Assistant himself), fifty-six (56) nurses, Seven (7) Technical/Field Technicians and Forty-one (41) ancillary staff. Skilled professionals (Medical Assistants, Nurses and Pharmacists etc.) are still lacking in the District.

Status of Maternal and Child Health

Infant and Child Mortality

The goal of the fourth MDG is to reduce child mortality by two-thirds between 1990 and 2015. The incidence of child and infant mortality is a critical determinant of life

expectancy at birth. Infant deaths arising from various causes have been oscillating according to data from MTDP 2006–2009. It increased from 34 in 2003/2004 to 40 in 2004/2005. It then trended downward marginally to 38 deaths in 2005/2006.

Maternal Mortality

Receiving adequate antenatal care, having a delivery in hygienic conditions and with the assistance of a trained health practitioner, and appropriate and timely postpartum care are essential for reducing risks of pregnancy and birth related complications and deaths for both mother and child (GSS 2003: GDHS). Ensuring improved maternal mortality is the fifth MDG.

Table 5.2: Maternal and Child Health Indicators by Locality

Indicators		Type of Locality			
		Urban	Semi-Urban	Rural	All
Pre-natal care		86.2	89.5	81.7	83.4
Post-natal		79.2	86.7	82.6	82.4
Who delivered child in last pregnancy?	Doctor		6.7	0.9	1.3
	Midwife	46.2	46.7	24.1	30.2
	Nurse	3.8	13.3	8.3	8.1
	TBA	50	26.7	59.3	54.4
	Other			7.4	5.4
	Self-delivery		6.7		0.7
Live birth		96.3	78.9	92.2	91.4
Still pregnant		3.7	15.8	2.6	4.3
Lost pregnancy			5.3	3.4	3.1
Still birth				1.7	1.2

Source: ISSER Household Survey, 2007.

The two indicators for the goal are the maternal mortality ratio and the proportion of births attended by skilled health personnel. There was a tremendous improvement in post-natal care (82.4%) in 2008 compared to 2003 (67.0%) (Table 5.2). There was improvement in both rural and urban localities. There has been significant improvement in maternal mortality rate in the

Bole District. Total maternal deaths trended upwards from 2 in 2005 to 6 in 2006 before a significant drop to 2 in 2007 and to 1 in 2008 (Table 5.3). Supervised deliveries were 684 in 2007 up from 518 in 2006. In 2008, the total number of supervised deliveries went up to 859 (Table 5.3).

Table 5.3: Some Reproductive Indicators at Bole District, 2005–2007

Safe Motherhood Indicator	2005	2006	2007	2008
Maternal deaths	2	6	2	1
Total number of deliveries		518	1075	1082
Number of supervised deliveries	568	518	684	859
Number of ANC registrants		2748	2927	3104
% ANC coverage		107%	88%	100%
Number of PNC registrants		2035		1995
% PNC coverage		80%	82%	79%

Source: Bole District Health Directorate

Various interventions by government has helped to improve antenatal care, supervised delivery and postnatal care and family planning acceptors rate. Antenatal Care (ANC) Registrants for the year 2007 was 2,927 while attendants also stood at 8,680. There has been an improvement compared to the previous year's ANC registrants of 2,748 (Table 5.3).

Results of CWIQ 2003 indicate that the percentage of women (12–49 years) who had a live birth last 12 months and received pre-natal and post-natal care in the Bole District was 54.2 per cent and 42.1 per cent respectively. This is below the regional — pre and post-natal care of 85.7 per cent and 67.0 per cent respectively.

Incidence of Diseases

Goal 6 of the MDGs is to combat HIV/AIDS and malaria. The target of this goal is to halt and reverse the spread of HIV/AIDS and incidence of malaria. Out patients in hospitals and clinics have increased by about 5 per

cent from 20,277 in 2005 to 21,214 in 2006. Between 2006 and 2007 Out-Patients Department (OPD) cases increased by about 46 per cent from 21,214 to 31,068 respectively. It again increased to 40075 in 2008 (Table 5.4). The significant increase in OPD has been attributed to the expansion of the coverage under the NHIS. The number of in patients trended down wards minimally from 2,327 in 2005 to 2,315 in 2006 and increased minimally to 2,327 in 2007. It further increased to 3058 in 2008 (Table 5.5).

The huge gap between in- and out-patients in hospitals can be accounted for by NHIS since people are reporting early for treatment. Malaria is endemic in the Bole District as it constitutes on the average about 64 per cent of OPD cases. In 2005, malaria constituted about 70 per cent of top ten causes of consultation. This reduced to about 60% in 2006 and increased to about 62 per cent in 2007 (Table 5.4).

In 2008 malaria accounted for 73.8% of top causes of consultation (Table 5.4). The ISSER household survey revealed that about 50 per cent of household members had malaria in the last three months (Table 5.6).

Table 5.4: Leading Causes of OPD Attendance, 2006–2008

No.	2006			2007			2008		
	Diseases	Cases	%	Diseases	Cases	%	Diseases	Cases	%
1	Malaria	12,706	59.9	Malaria	19,440	62.6	Malaria	29571	73.8
2	Diarrhoea	691	3.3	URTI	997	3.2	URTI	1701	4.2
3	URTI	688	3.2	Diarrhoea	938	3	Skin Diseases	1228	3.1
4	Skin Diseases	504	2.4	URTI	629	2	Diarrhoea	1119	2.8
5	RTA	296	1.4	Skin Diseases	375	1.2	Pneumonia	567	1.4
6	Malaria in Pregnancy	288	1.4	Hypertension	362	1.2	Home Accidents	550	1.4
7	Pneumonia	275	1.3	Home Accident	352	1.1	Hypertension	345	0.9
8	Home Accident	204	1	Pneumonia	342	1.1	Acute Eye infection	338	0.8
9	Anaemia	197	0.9	Malaria in Pregnancy	317	1	Malaria in Pregnancy	304	0.8
10	Hypertension	197	0.9	Acute Eye Infection	248	0.8	Acute Ear infection	170	0.4
	All Other Diseases	5,168	24.4	All Other Diseases	7,068	22.8	All Other Diseases	3914	9.8
	Total	21,214	100	Total	31,068	100	Total	40075	100

Source: District Health Directorate.

Table 5.5: Leading Causes of Admissions in Bole Hospital

2006		2007		2008	
Diseases	No. of Cases	Diseases	No. of Cases	Diseases	No. of Cases
Malaria	1359	Malaria	1649	Malaria	1447
Anaemia	164	Anaemia	107	Anaemia	124
Pneumonia	116	Pneumonia	103	URTI	105
RTA	54	RTA	59	Dirrhoal	80
Snake Bite	44	Threating Abortion	59	RTA	72
Malaria In Pregnancy	38	Malaria In Pregnancy	46	Diseases Of Skin/Ulcer	70
Threating Abortion	36	Hernia	41	Hypertension	58
Hernia	35	URTI	36	Threatened Abortion	50
URTI	34	Skin Disease	35	Malaria In Pregnancy	47
Malnutrition	34	Snake Bite	28	Pneumonia	44
All Others	401	All Others	164	All Others	961
Total	2315	Total	2327	Total	3058

Source: District Health Directorate.

Table 5.6: Leading Causes of OPD Attendance in 2008

Disease	Frequency	Percent
Malaria	204	49.8
Diarrhoea	36	8.8
Injury/Accident	13	3.2
Skin condition	17	4.1
Eye/trachoma	21	5.1
Ear/nose/throat	7	1.7
Coughing	33	8
snake bite	2	0.5
Blood pressure	8	2
Stroke	3	0.7
Diabetes/sugar	1	0.2
Other	25	6.1
Body spains	37	9
Hernia	3	0.7
Total	**410**	**100**

Source: ISSER Household Survey, 2008.

Malaria again constituted over 50 per cent of major causes of admissions in the Bole District. This is followed by anaemia and pneumonia. Malaria has been the highest cause of deaths in the hospital with a case fatality rate of 51.0 per cent in 2005, 37 per cent in 2006 and 42 per cent in 2007 (see Table 5.7).

Strategies for Combating Malaria

A number of measures are taken by households to prevent malaria. The most popular mechanism is the use of mosquito nets by household members (42.8%). This is more so for children (23%) than adults (19.8%). The dominance of mosquito nets in combating malaria is attributable to the supply of treated mosquito nets especially to pregnant women. In the space of three years about 8,781 bed nets were received from organizations such UNICEF and distributed.

The use of treated mosquito nets, however, did not translate into decline in the incidence of malaria as it continues to increase. More efforts need to be directed toward encouraging more people to use treated mosquito nets if the goal of reversing the trend of malaria is to be achieved. Apart from a few household members (3.5%) who did nothing to prevent malaria, the others took some measures albeit less effective. (Refer to Table 5.8 for details). These include weeding around the house, cleaning gutters, using mosquito coils etc.

HIV/AIDS

According to data from the District Health Directorate, the number of HIV/AIDS cases diagnosed declined marginally from 42 in 2005 to 40 in 2006. The cases increased, however, to 52 in 2007. Proximity of the district to La Côte d'Ivoire has been cited as reason for the increase. The dearth of jobs for the youth (particularly girls) in this area

Table 5.7: Major Causes of Deaths in Bole Hospital

2006		2007		2008	
Diseases	No. of Cases	Diseases	No. of Cases	Diseases	No. of Cases
Malaria	36	Malaria	38	Malaria	38
Pneumonia	9	Anaemia	6	Anaemia	12
Anaeamia	5	Pneumonia	6	Hypertension	7
Hepatitis	4	Hepatitis	4	HIV/AIDS	3
Hypertension	2	Hypertension	4	Hepatitis	2
Septicaemia	2	Snake bite	3	Pneumonia	2
Food Poisioning	2	Sepsis	3	C. C. F	1
Malnutrition	2	Diabetes	1	Tuberculosis	1
Ascitis	2	Cellulites	1	Diabetes	1
Noenatal Tetanus	1	CCF	1	Cellulites	1
All Others	32	All Others	23	All Others	19
Total	97	Total	90	Total	87

Source: District Health Directorate.

pushes them to migrate to Côte d'Ivoire and end up in the sex industry. It is in this light that the District Response Initiative (DRI) with support from GAC and DACF undertook various awareness programmes on HIV/AIDS.

Table 5.8: Strategies by Households to Fight Malaria

Action	Frequency*	Percent
Children sleep in mosquito nets	539	23
Adults sleep in mosquito nets	465	19.8
Spray house	37	1.6
Weeds compound	593	25.3
gutters are cleaned	242	10.3
Anti-malaria tablets	36	1.5
Mosquito coil	226	9.6
Nets on windows	113	4.8
Others	15	0.6
None	81	3.5
Total	2347	100

*Multiple responses.
Source: ISSER Household Survey 2008.

NHIS

The national health insurance scheme is a mechanism designed to improve access to health services by reducing, particularly for the poor and deprived, the cost of obtaining quality health services. The ISSER Household Survey shows that about 43 per cent of the population have ever registered but 22 per cent are covered by the scheme. About 35 per cent have never registered with the scheme. For those who have never registered with the scheme, their main reason for not registering is that the premium is too high (89.2%).

Of those who have ever registered, 58.3 per cent are still registered while 33.1 per cent are covered. The dominant reason some households are no longer members of the scheme is that the premium is too high.

About 38 per cent of those registered have benefitted from the scheme and about 29 per cent of them benefitting once or twice.

There has been a consistent increase in the percentage of households consuming salt

that is iodated. According to the district MTDP 2005–2009 there was an increase from 45 per cent in 2003 to 63 per cent in 2004. This further increased marginally to 65 per cent in 2005 (*see* Table 5.9).

Table 5.9: Percentage of Households Using Iodated Salt

Year	Percent
2003	45
2004	63
2005	65

Source: MTDP 2005–2009 Bole District.

Access to Water and Sanitation

Target 13 of MDG 7 seeks, by 2015, to reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation. An adequate supply of easily accessible, potable water supply is a necessary condition for households to attain a good quality of life. Much improvement in hygiene and sanitation are contingent on availability of water (Lindskog and Lundqvist 1989: 20–21). Box 5.1 is a model that describes the relationship between water supply, sanitation, hygiene and human health.

In Ghana an estimated 70 per cent of all diseases are caused by lack of clean water and proper sanitation. The top five causes of hospital attendance from 2006 to 2008 are environment-related (Table 5.4).

Bole district is endowed with various water sources. The district capital, Bole, enjoys treated water from small town water system while other areas are served with boreholes and hand dug wells. Despite interventions by a number of actors including IDA, AFD, Catholic Diocese Damongo, CBRDP, and VIP in the provision of water and sanitation, a lot remains to be done to improve coverage. Results from CWIQ 2003 show that households who have their main source of water less than 30 minutes from

their household in the district is 81.3 per cent which is slightly higher than the regional access (80.3%) and far below the national access (94.1%).

Box 5.1: Relationship between Water Supply, Sanitation, Hygiene and Human Health

BRADLEY-FEACHEM CLASSIFICATION OF WATER-RELATED INFECTIONS

Faecal-oral (waterborne and waterwashed)
These include infections that are transmitted by swallowing faecally contaminated matter (food and water) containing pathogens. They can be caused by lack of sufficient water to maintain personal and domestic hygiene as well as by drinking contaminated water. Diseases in this group include, among others, diarrhoeal diseases, typhoid, cholera and hepatitis A and E.

Strictly water-washed (skin and eye infections)
These are conditions that are exacerbated by lack of water for washing and hygiene, but are not faecal-oral. These diseases are largely related to skin and eyes, such as scabies, trachoma and conjunctivitis.

Water-based aquatic intermediate host
Aquatic organisms such as snails act as hosts to parasites, which then infect humans either by being swallowed or through contact in water. Diseases in this group include guinea worm, schistosomiasis and bilharzia.

Water-related insect vector
These diseases depend on insect vectors, such as mosquitoes and flies, which breed in or near water. They transmit diseases to humans, for example, through bites. The diseases involved include malaria, filariasis, yellow fever, onchocerciasis.

Source: Bostoen, K. *et al.* 2007.

However, reports from the DWST office indicate that in 2003, about 56 per cent of the population in the district was covered (using a threshold of 300 people to a borehole). This increased slightly in 2004 to 58 per cent and further jumped to 66 per cent in 2005. Access levels vary markedly by area councils. The southern portion of the District (Bamboi Area Council) has low coverage. Quite a number of the communities in the Bamboi Area Council are not served with any form of potable water. In 2003, Bamboi Area Council had only 27 per cent coverage compared to Bole Area Council (72%) and Tinga Area Council (82%). In 2005, Bamboi Area Council still had the lowest coverage (46%) compared to Mandari and Mankuma Area Councils with 94 per cent and 83 per cent respectively.

Even the population served are beset with problems of low yield. Yield is low in some of the communities especially during the dry season. Picture 5.1 shows one of such low yielding boreholes. The little girl in the picture pumped for 30 minutes before water started flowing. A community member in Chache intimated that sometimes they depend on the Black Volta if the boreholes stop flowing during the dry season. This can have deleterious consequences on the health of the community members. The use of unsafe water or the inadequate supply of potable water coupled with poor sanitation contributes to diarrhoea, a major childhood killer disease as well as hookworms, yaws and scabies. It is not surprising that diarrhoea came second, third and fourth as leading cause of OPD attendance in 2006, 2007 and 2008 respectively (Table 5.4).

Beyond the provision of safe water, the creation of adequate environmental sanitation also impacts directly on health outcomes of citizens. Improved sanitation, apart from its health benefits, additionally improves the quality of the home and neighbourhood environment and hence the quality of life

(Songsore 2003). The desire for privacy when defecating is important, especially for women (Sinnatamby 1990). The study counted on selected indicators such as

*Picture 5.1:* A low yielding borehole at Chache.

household use of safe toilet facility and household disposal of solid waste.

As Figure 5.1 shows, access to toilet facility is very limited (13.8%). An overwhelming majority of households do not have access to safe sanitation (86.1%). This compels households to choose unorthodox means of human waste disposal such as

defecating in the bush without regards to its adverse impact on the environment and health. In the stakeholder discussion, two schools of thought emerged. While some of the participants attributed the use of bush to sheer indiscipline, others were of the opinion that the few public toilets in Bole especially were not maintained as users are not paying for their use. The low access to safe toilet in 2008 is nonetheless an improvement compared to 2003 when only 9.7 per cent of households in the district had safe sanitation.

The methods of solid waste disposal of many households cannot be said to be friendly to the environment. Only about 18 per cent of households in the district use improved waste disposal methods. About 58 per cent of households dump their waste indiscriminately while about 24 per cent burn their waste. The problems associated with inadequate solid waste disposal include unsightly conditions of neighbourhood environments, odour nuisance and prevalence of diseases.
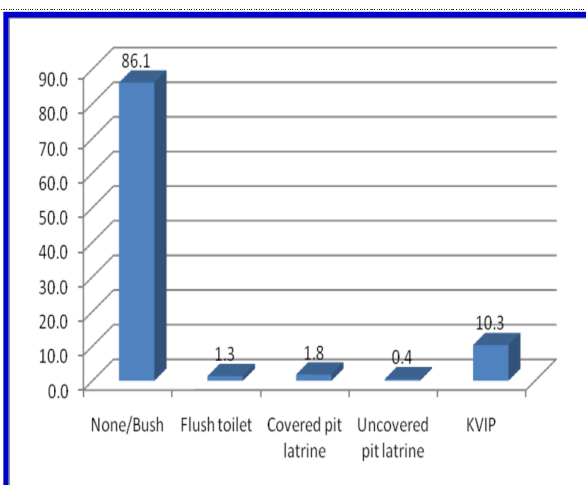
| (a) Access to Toilet facility by households. | (b) Solid waste disposal by households. |
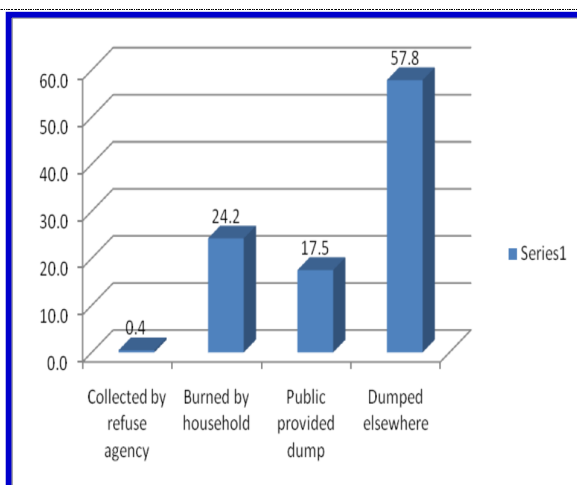
Figure 5.1: Access to Safe Sanitation.
Sources: ISSER Household Survey 2008.

Resource Endowment

Introduction

The role that resources play in advancing human development is ambivalent. For some countries resources are a blessing, for others it is a curse. According to Humphreys *et al.* (2007), countries with large endowments of natural resources often perform worse in terms of economic development and good governance. For other countries, resources — be it natural or human, form the bedrock for human development and tend, to an extent, to influence the distribution of human population. In this chapter, resources in their various dimensions will be examined in the Bole District.

Human Resources

Resources have been referred to as neutral stuff. According to Zimmerman, resources are expressions or reflection of human appraisal. He said "resource does not refer to a thing or a substance but to a function that a thing or a substance may perform, or to an operation in which it may take part" (Peach and Constantin, 1972: 9). As defined, the number and quality of the human resources is critical in determining what resources are. Not just numbers but also human resource base equipped with the necessary technology to exploit the natural resources in a sustainable manner.

Education

Education is generally associated with improved quality of human resources, which is believed to influence the extent to which technological adoption and innovation can occur. Education promotes development in a number of ways including flexible and better processing of information that improves yields, sustained physical capital accumulation, and longer life expectancy, which can enhance the long term interest in productive investments.

There is evidence that supports the view that education improves productivity, both in agriculture and non-agriculture venture. For example, Jamison and Lau (1982) find that four years of schooling on average raise farm output by 7.2 per cent, but in dynamic agricultural environments the increment increases to 9.5 per cent.

Youth literacy (15–24 years) is alarmingly low in the District. About 63 per cent of males and 77 per cent of females 15 to 24 years old were illiterate in 2003. This is as a result of the low percentage (24.7%) of people 6 years and above who have ever attended school in 2003. Even those who have ever attended school, about 53 per cent completed only primary and 25 per cent completed JSS in 2003. Only 17.1 per cent of those who have ever attended school went beyond Junior High School.

The quality of education is anything but high. There is evidence from the District that classrooms are overcrowded in some schools (see Picture 4.1) and classes are held under sheds due to inadequate classrooms, inadequate furniture, inadequate number of teachers (some schools have only three teachers), and number of untrained teachers

outstrip trained teachers at the basic level. Consequently the quality of education (teaching and learning) is impaired leading to low quality of human resource endowment.

Even though the District has primary schools which are fairly well distributed, the number of Junior High Schools are twice lower than the primary schools. Beside, the JHSs are not fairly distributed and has, therefore, limited education for a number pupils to the primary level.

The formal sector are beyond reach of those who are not educated. However, Agricultural extension services are extended to farmers to enable them increase production and also add value to their produce. In 2008, Agricultural Extension Officers managed to cover over 80 per cent of farmers with extension services.

Health, Water and Sanitation

Health

There are 14 functional health facilities in the district, a District Hospital in Bole; five (5) health centres in Bamboi, Jama, Mandari, Mankuma and Tinga; two (2) clinics in Bole (Mission Health Centre and GHS MCH clinic); and five (5) CHIPS Compounds. The 5 functional CHIPS compounds are at: Banda-Nkwanta, Carpenter, Maluwe, Chibirnyoa and Kakiasi. There are two newly opened CHIPS Compounds at Kwame-Kwesi and Gbenfu and three are still under construction at Sornyor, Dakurupe and Seripe. There are a total of 18 CHIPS zones in the District.

The only medical officer also doubles as the medical superintendant of the district hospital. Apart from administrative duties, the medical officer carries out daily consultation and hospital rounds. There are six medical assistants in the health centres and fifty-six nurses.

Water

Except a few villages mostly in the Bamboi Area Council, boreholes can be found in a good number of the villages in the District. Bole town which is covered by small town water system had 154 standposts and 10 boreholes serving the needs of 12,405 people as at 2006. There were also hand-dug wells in six of the villages in 2006. The various water sources were provided by IDA, AFD, Catholic Diocese of Damongo, CBRDP, and VIP (Map 6.1).

Natural Resources

The District abounds with natural resources in terms of rivers, soils, economic trees and mineral resources.

Topography and Drainage

Since many of the residents in the District are living directly off the land, suitable land is such a crucial resource. The district is in the savannah high plains, which generally, is gently undulating with an average height between 160m and 300m above sea level. The gentle rolling nature of the landscape implies that, the topography is not a barrier to agriculture and other physical development (Map 6.2).

Rivers

Ghana's reliance on rain-fed agriculture makes it vulnerable to the vagaries of its highly variable rainfall pattern. Rainfall is erratic and natural hazards such as drought and floods frequent. The District lies within the drainage system of Black Volta, with all rivers draining into the Black Volta. Some of the rivers include Gbungbun, Yo, Abennatia, Dagare Lambo. Black Volta, the largest and longest river serves as the district's western boundary with La Côte d'Ivoire and Tain district. The Black Volta is being dammed at Bui in the southern portion of the district for

hydro-power generation. As natural resource, rivers are potential sources for investment in safe drinking water systems, irrigation and hydro-power generation.

Map 6.1: Distribution of Boreholes in Bole District
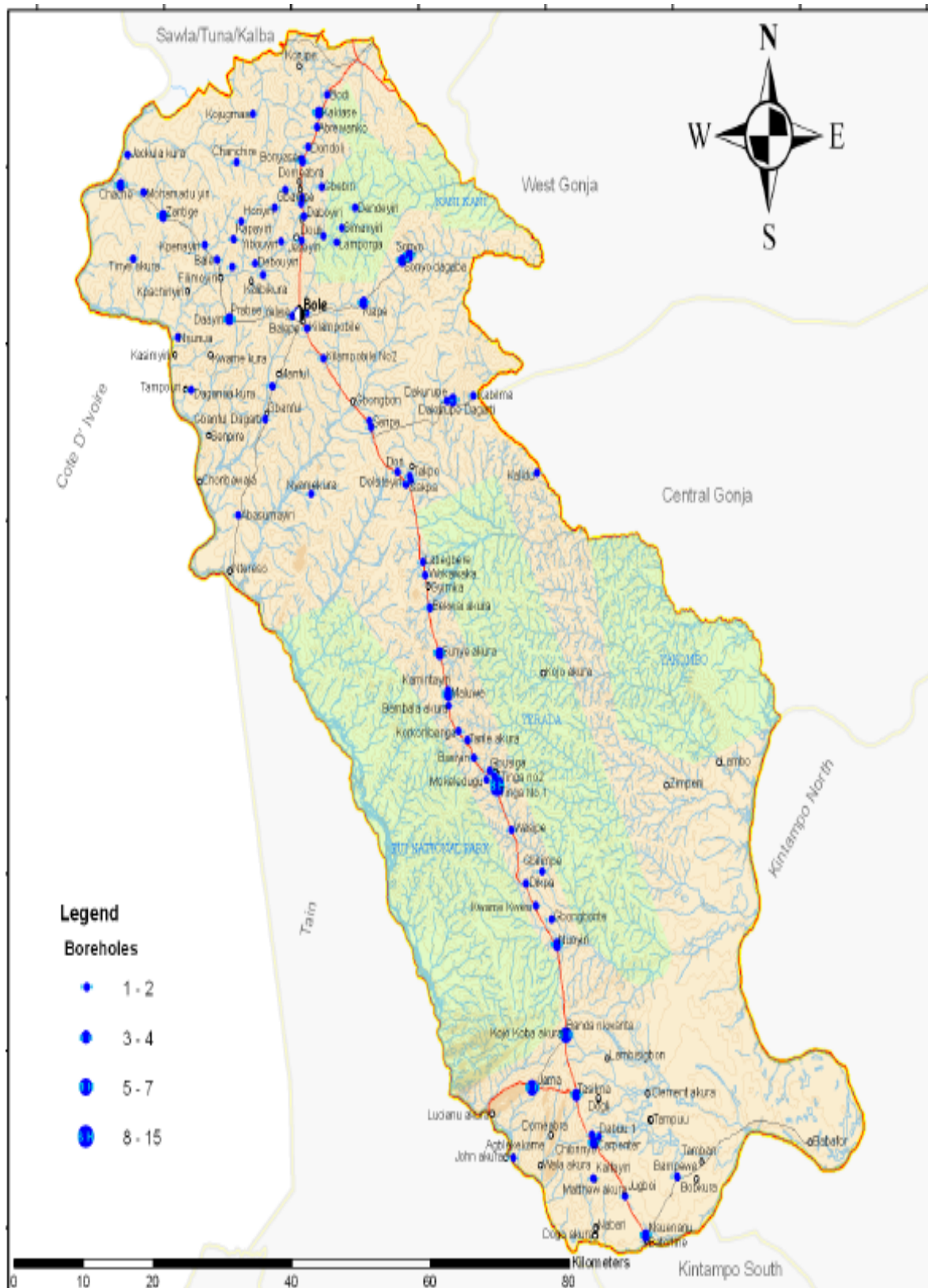
Map 6.2: Topography and Drainage Map of Bole District4
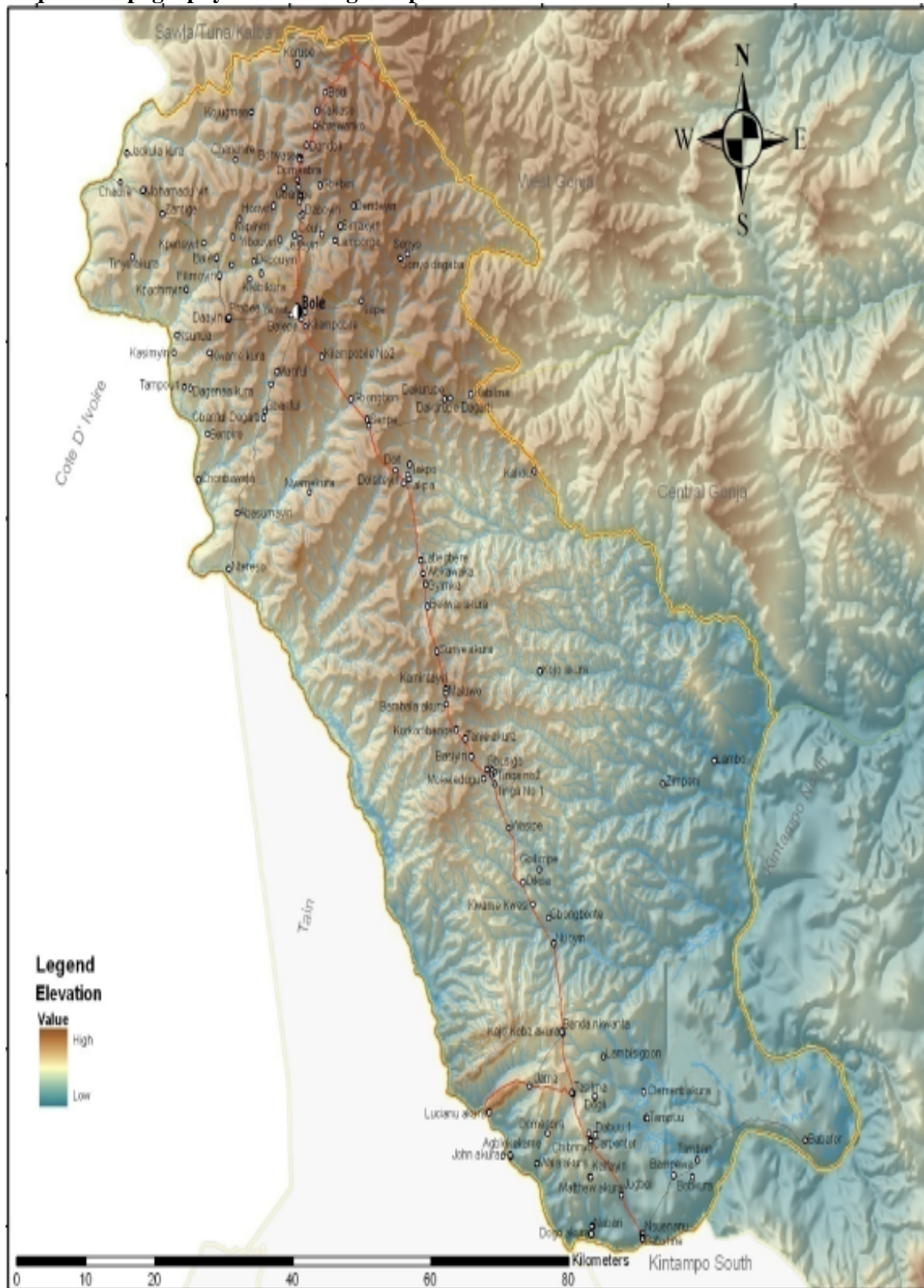
Soils

Soil types are the savannnah ochrosols, which are moderately deep, well drained concretionary soils suitable for cultivation. Alluvial soils are found along the riverbanks and very suitable for the cultivation of rice. Table 6.1 presents matrix of geological distribution in the district. Land use map of the District shows that a small portion of the land is under cultivation. Its grassland constitutes pasture for animals to graze. Map 6.3 presents the spatial distribution of soils in the district.

Table 6.1: Matrix of Geological Distribution in the District

Geology Type	% Area (HA)
Alluvium	23%
Granite	45%
Sandstone	32%

About half of the total area of the District is suitable for the cultivation of sorghum as Map 6.4 clearly shows.

Market Access

Market access is an important determinant of productivity. Farmers will only produce beyond subsistence when their products are assured of a market outlet and on favourable terms. Lack of access to markets and storage facilities can lead to post-harvest losses where perishable produce are concern. Map 6.5 shows the location of markets in the District. The markets in the district are few and far between. This will increase transportation cost to and from the market and hence the cost of general items.

Economic Trees

Bole District has one of the highest density of sheanut trees in the country. The trees usually grow in the wild. Cocoa Research Institute's Sheanut development project at Bole presents opportunities for industrial development of the District and Bole in particular. Dawa dawa trees are also found in the district. Cashew is another economic tree in the District. There are a number of cashew groups who are trained to enhance their knowledge in cashew production, maintenance and research techniques and value addition. Cashew nut is a potential foreign exchange earner the production of which should be supported.

Mineral Resources

The District is also blessed with some mineral resources. The discovery of gold at Dakurupe, Bombri, and Kui has engaged the youth in the area and beyond. This has affected the supply of labour to other sectors of the district's economy. The 2008 Annual Report of the MOFA, Bole District reveals that labour cost has increased as a result of shortage in labour for farming. More recently, there has been discovery of gold in Gbemfu as well.

Institutions/Governance

Ghana continuous to make positive gains in the area of good governance as it is paying attention to the basic tenets of good governance: transparency in the conduct of government business, accountability, equity and participation by non-state institutions in public affairs. The District has achieved some milestones in good governance.

According to the Medium-Term Development Plan 2006–2009, the following factors militate against good governance in the Bole District:

- Over-dependence on DACF and other external grants;
- Weak internal revenue mobilization;
- Poor compliance with rules, regulation and procedures;
- Weak enforcement of rules, regulation and procedures;
- Land/Chieftaincy disputes;

Map 6.3: Spatial Distribution of Soils in the Bole District
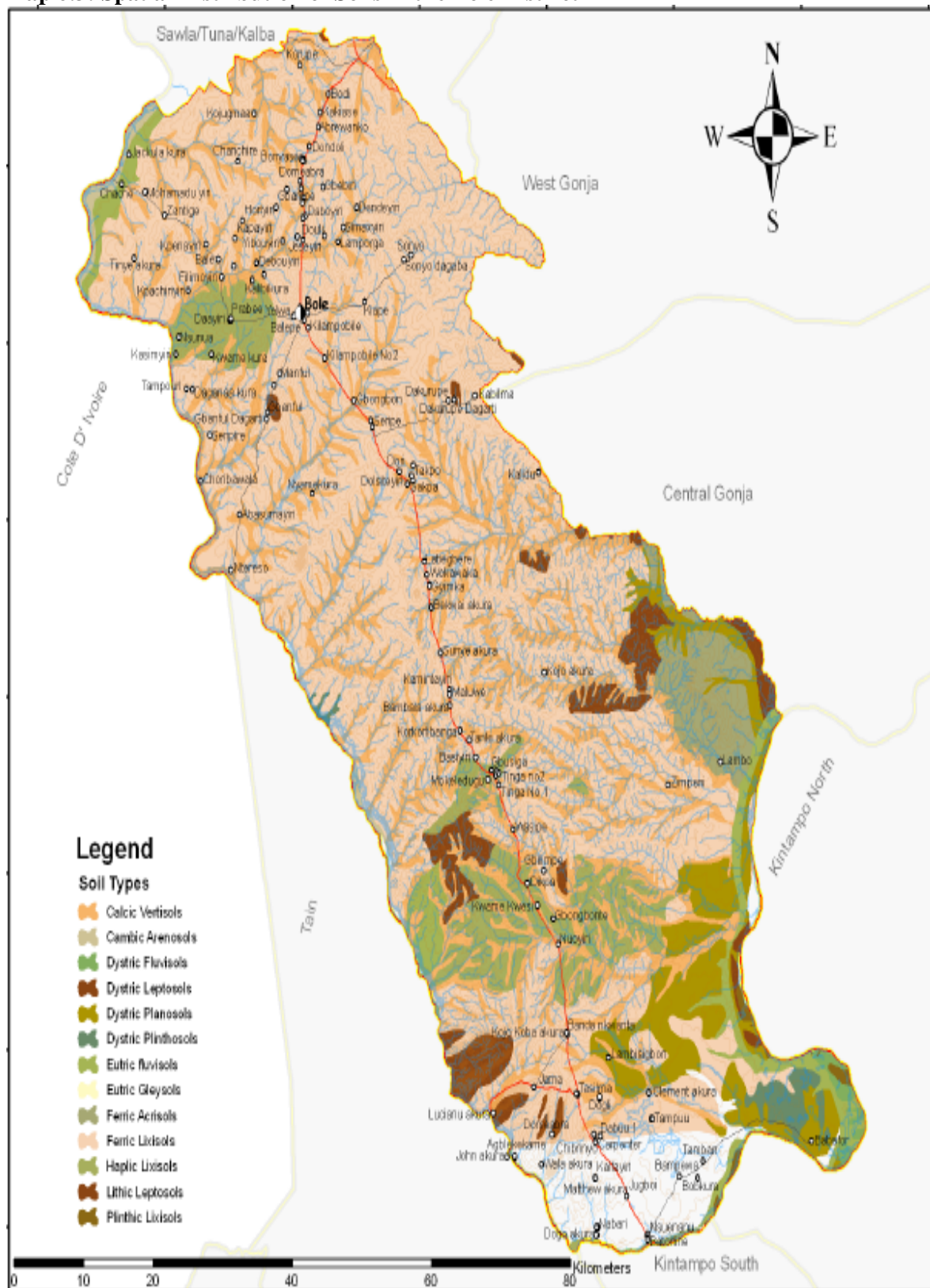
Map 6.4: Land Suitability for Sorghum
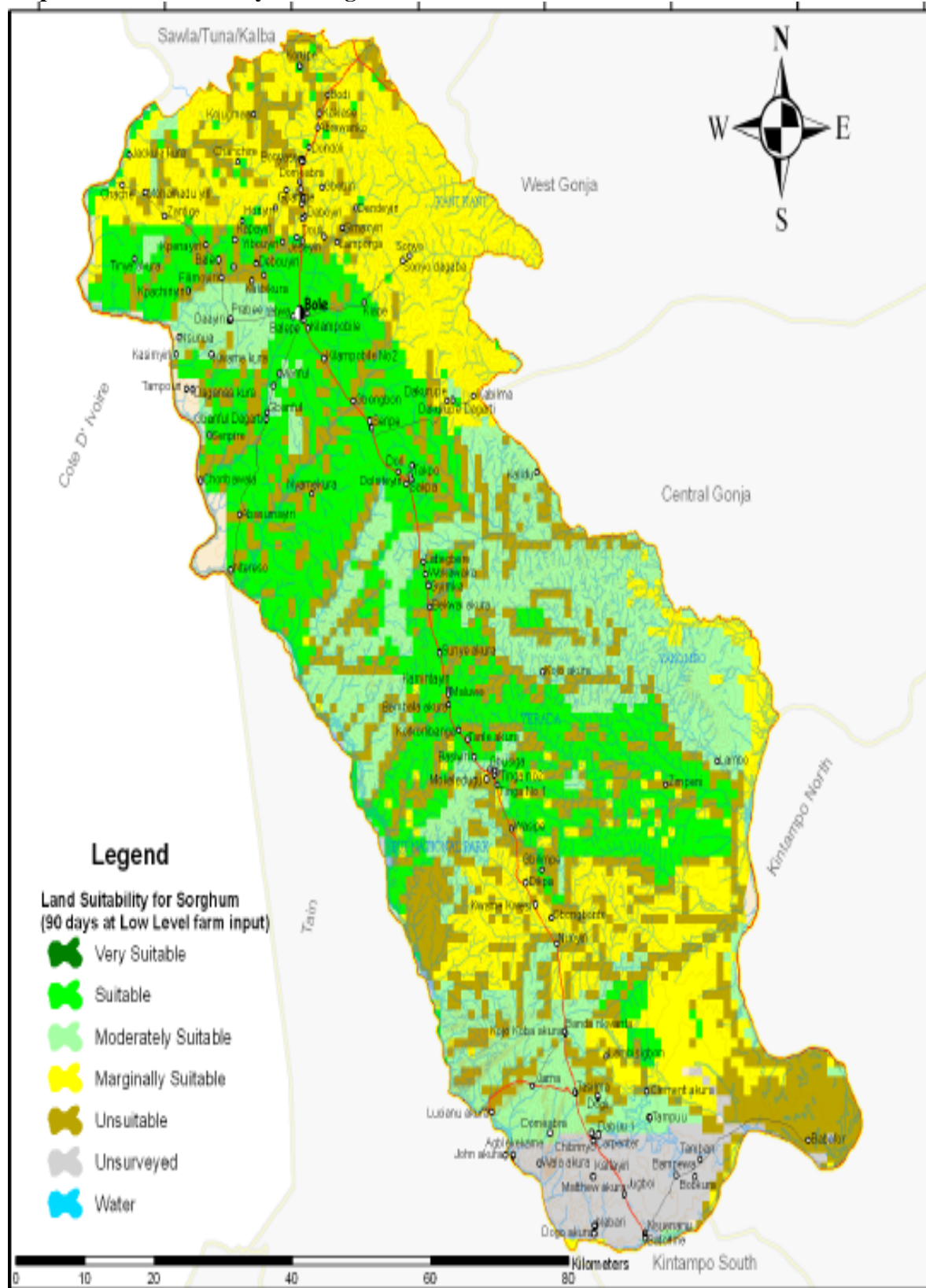
Map 6.5: Distribution of Markets in Bole District

- Increased abuse of children and harmful traditional practices (FGM, early marriages);
- Inadequate women in public life; and
- Harmful traditional practices on women: Betrothal systems, widowhood rites etc.

The Role of the District Assembly

The ISSER survey results show that about 33 per cent of people of voting age are satisfied with the services rendered by the District Assembly, about 31 per cent evinced indifference because they did not know what the District Assembly was doing. About 36 per cent were satisfied with the District Assembly because of the various projects that were ongoing at the district level (Table 6.2). Those who are dissatisfied accused the district assembly of providing inadequate infrastructural facilities and uneven distribution of projects.

Table 6.2: Households Satisfied with Services Provided by DA

Responses	Frequency	Percent
Very satisfied	5	2.3
Satisfied	67	30.7
Indifferent	67	30.7
Dissatisfied	70	32.1
Very Dissatisfied	9	4.1
Total	218	100.0

Source: ISSER Household Survey 2008

Suggestions were offered by respondents to improve the services rendered by the District Assembly. The dominant one was that the District Assembly should distribute development projects evenly (26.9%), more regular and effective community interactions so that community members' views on issues can be taken on board. Other suggestions were for the DCE position to be elective and adequate supervision of District Assembly officials (see Table 6.3 for details).

Table 6.3: Suggestions to Improve DA Services in Bole District

Suggestions	Responses	Percent
Need to adequately resource the district assembly	15	7.5
Provide facilities that will aid their work	29	14.4
More teachers should be posted to the schools	14	7.0
Proper structure for the schools	5	2.5
More even distribution of development	54	26.9
More regular and effective interaction with the communities	33	16.4
Workers in DA should be hardworking	7	3.5
Adequate supervision of District Assembly officials	3	1.0
DCEs should be elected	3	2.0
Not applicable	38	18.9
Total	201	100.0

Source: ISSER Household Survey, 2008.

Public Safety and Security

In spite of the difficulties that the police service face in terms of logistical support, accommodation etc, 32.3 per cent of the respondents think that there has been improvement in access to security services. About 16 per cent think that there is no change while 43.6 per cent do not know whether there has been an improvement or not largely because they have not used their services.

Protecting Rights under the Rule of Law

Another ingredient for good governance is increasing the capacity of the legal system, to enhance speedy and affordable access to justice. Regarding the protection of rights under the rule of law in the Bole District, just about one quarter (24.2%) of the respondents are of the view that there has been improvement in access to legal services in the last 12 months while 15 per cent said there is no change. About 57 per cent did not know whether there has been improvement in

access to legal services or not. This may be because they have not used this service before.

Political Participation

More people who were 18 years and above knew their Member of Parliament (73.1%) than those who knew their District Chief Executives (29.3%). Since MPs have to solicit the mandate of the people and hence campaign in the constituency, it is not surprising that the MP was more popular than the DCE who is appointed by the President.

One of the basic tenets of good governance is increased participation. About 76 per cent of the people above 18 years of age voted in the last district assembly elections. On the national front, however, more people (80.3%) voted owing to the higher voter education and campaigns during national elections. About 12.5 per cent did not vote because they were not eligible. The role of NCCE is necessary to encourage more participation in the voting process at both local and national level elections.

Our study also shows that less than half (45%) of the respondents have ever been consulted prior to the start of a community project.

Resource Utilization and Constraints

Introduction

The preceding chapter examined the resources in the Bole District. The focus of this chapter is to discuss the utilization of these resources by households to satisfy their needs.

Usage of Resource

The ISSER Household Survey reveal that an overwhelming majority (88%) of households in the district have access to various resources. In a discussion with community members, they mentioned various resources including rivers, land, boreholes, trees, schools, forest etc. that are accessible to them.

Boreholes

Indications from the ISSER Household Survey show that about 27 per cent of the respondents have access to boreholes or pipes in the district. Further probing of the data revealed that boreholes constituted about 79 per cent of household source of drinking water.

About 5 per cent have taps in dwelling or compound. A greater majority of the households (94.9%) who use boreholes are in the rural areas. Taps inside dwelling are used only by households in urban areas. Households in urban and peri-urban areas also use public outdoor taps to complement the boreholes (Table 7.1).

Table 7.1: Main Source of Drinking Water for Household by Locality

Source of Drinking Water	Type of Locality			Total
	Urban	Semi-Urban	Rural	
Inside taps in dwelling or compound	20.0%			5.4%
Public outdoor tap	26.7%	20.0%	.7%	9.9%
Borehole	43.3%	76.0%	94.9%	78.9%
Protected/Covered well	3.3%			.9%
Uncovered well	6.7%		2.9%	3.6%
Purchased treated water-tanker, bucket, barrels, sachet		4.0%		.4%
River/pond/lake			1.4%	.9%
Total	100.0%	100.0%	100.0%	100.0%

Source: ISSER Household Survey 2008.

Education

Regarding educational resources, about half (49.7%) of the members of households have ever been to school. A greater majority did not have access to school facilities (over 50%). This empirical evidence is captured in Table 7.2.

Table 7.2: Percentage Distribution of Household Members Ever Been to School

Ever been to school	Frequency	Per cent
Yes	313	49.70
No	317	50.30
Total	630	100.00

Usage of Land

The notion of land use is derived basically from the factors created by the nature and quality of the distribution of natural resources and also the potential inherent in the human resources to identify and develop the resources of the land in order to generate growth for the various sectors of the economy. The respondents mentioned land as a resource available to them (13.2%). The Bole district as the preceding chapter indicated abounds in arable land for agriculture. A land-use map (Map 7.1) of the district shows that only 6 per cent of the total land area is under crop cultivation.

Access to land for farming is generally not a problem. Focus group discussions held with various groups in the district revealed that access to land for farming is granted once cola is given to the chief, the custodian of the land. They stated that in their part of the world, land is free for people who settle on the land lawfully. The chiefs have bye-laws, however, guiding the usage of these resources to ensure sustainability. For example it came out that it is a taboo to weed on Fridays and offenders are fined a number of fowls to be used to pacify the gods. Aside from these, females have difficulty accessing irrigated land for cultivation.

Shea Trees and Other Economic Trees

Sheanut occupies an important segment of the economy of the district. Sheanut is mostly picked by women in their husbands' farms or uncultivated land. In 2008, about 47.6 per cent of households in the district were engaged in sheanut picking. An average of 4.25 bags of sheanut was picked per household in 2008. This represents a marginal increase from an average of 4.1 bags in 2007. Minimum and maximum number of bags picked by households in 2007 was 0.5 and 21 bags respectively.

Community members also have access to economic trees like *dawadawa,* etc. Women who usually do the picking have access to these trees in as far as they are not located in somebody's farm.

Access to Markets

Judging from the spatial distribution of markets in the District (See Map 6.5), it is not surprising that only about 40 per cent of households are within 30 minutes from them using mainly vehicles (52.6%) and foot (41.1%). About 60 per cent of households are more than 30 minutes from a market. The distance to market and the poor road network means high transport cost. Since an overwhelming majority of the people are farmers, such limited access to markets can have implications for productivity.

Ownership of Resource

Ownership of resources is an important determinant of who can use or have access to a resource. In the ISSER Household Survey, it was clear that traditional authority (35.6%) owns resources in the district. About 30.1 per cent claim that the resources belong to the community while 25.2 per cent cited government/district assembly as being the owner of resources in the district.

As to the relevance of the resources, an overwhelming majority (80.4%) said they were very relevant. Fifteen per cent said resources are relevant while 4 per cent said they were not relevant. It is not surprising, therefore, that about 36.7 per cent do not pay for the use of the resources.

Map 7.1: Distribution of the Various Land Cover Types in the Bole District
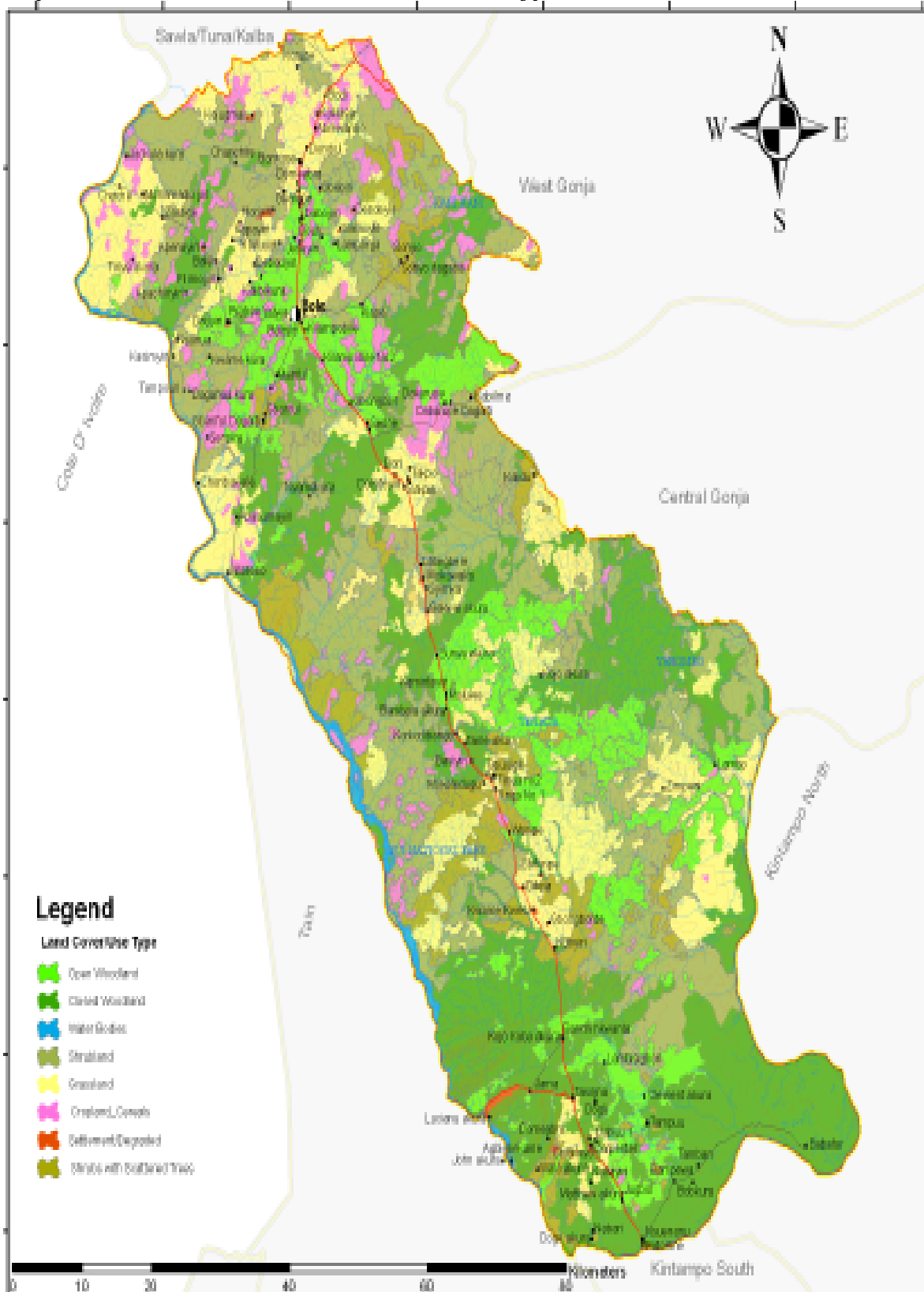
Constraints to Resource Utilization

Financial Constraint

A major constraint to the utilization of resources is lack of financial resources of households to expand their businesses, adopt improved technology etc. Reliable and effective financial services are required to enable farmers invest in land improvement, acquire new high yielding planting material and labour saving technologies to enable them increase household income. The dominant constraint faced by the households in the district is lack of finance (42.0%). Lack of financial resources coupled with high input cost put farmers in a difficult situation (see Figure 7.1).
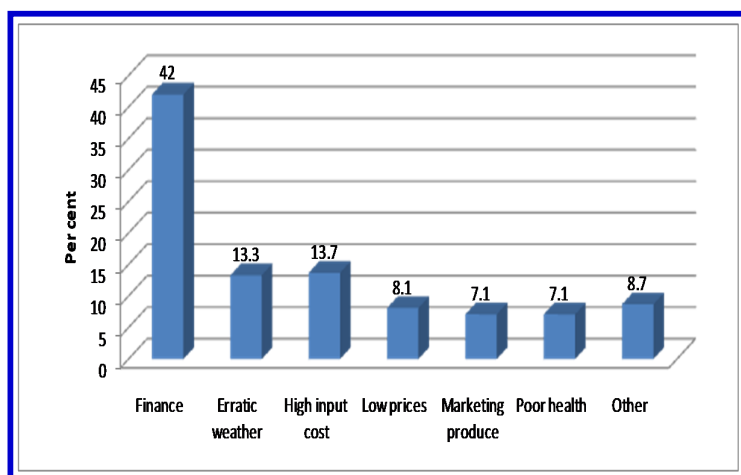

Figure 7.1: Major Constraints to Resource Utilization.

Marketing of Produce

Due to the interplay of many factors: lack of electricity to store, process and increase shelf life of perishable produce; lack of access routes etc., marketing of agricultural produce is problematic. In the ISSER Household Survey, indications were that producers had difficulty in marketing their products (7.1%) and uncertainty of demand

for the products (2.4%). In the *2008 Annual Report* of MOFA, Bole District, it was noted that the good organization of cashew farmers in La Côte d'Ivoire in terms of nuts mobilization and marketing, negatively affected the marketing of cashew nuts in the district. This made prices unstable and unattractively low (Fig. 7.2).

High Cost of Inputs

The price of farm input especially agro-chemicals was very high and this prevented some farmers from practising the chemical weed control. In the ISSER, Household Survey, only 4.3 per cent of farmers used weedicides. However, the availability of subsidized fertilizer in the district encouraged a number of maize farmers to apply fertilizer to their maize fields. The high price of agricultural inputs had a negative impact on the size and type of crop production (MOFA, *2008 Annual Report*). Also, only a small proportion (2.1%) of farmers used improved seeds from MOFA but the overwhelming majority (97.9%) use traditional seeds largely from their own stock (86.9%) or the market (8.2%).

Erratic Whether Conditions

Agriculture in the District, like most parts of Ghana, is dependent on the vagaries of the whether. About 13 per cent of the respondents in the ISSER Household Survey indicated that they faced problems with the erratic nature of the weather (Figure 7.2). Rainfall is erratic and natural hazards such as droughts and floods are frequent. In 2008, for instance, delayed rainfall affected land preparation and planting of cereals, legumes, roots and tubers (MOFA, *2008 Annual Report*).

The delayed rainfall retarded land preparation, mound raising as well as planting of cereals, legumes and roots and tubers in the second quarter. Coupled with the erratic nature of the rainfall, some maize and groundnut fields had to be re-planted due to very low germination.

Flooding

Flooding has been a perennial problem in the lower parts of the District. In 2008, the overflow of the Black Volta flooded 18 ha maize, 10ha yam and 7ha cassava field at Bamboi and Dogokura. A total of 210 individuals in 20 households were affected by the flood in Bamboi and Dogokura. Maize, yam, cassava, vegetables and cashew were submerged as a result of the flood. Extensive crop wilt just at flowering stage at the valley bottom had resulted in loss of over 6ha of tomatoes. Local market supply and household income level of Kurupe and Zampe dry season farmers were expected to reduce (MOFA, *2008 Annual Report*).

Activities of Herdsmen

Field crop/produce destruction by alien herdsmen is making farming unsecured in the district since there is no proper compensation to the victim. Their grazing activities on crop/produce, threatening of farmers with guns, raping of females and the indiscriminate burning had made farm families uncomfortable and agriculturally unsecured.

Shortage of Labour

Due to the discovery of gold in the District, many young people who otherwise should have been farming had migrated to the mining communities. Also migration of the youth to the southern part of Ghana affected the labour availability for farm activities.

Consequently, the cost per man-day of labour, is high in the district. Admittedly, this will reduce production on farms in the district. There is the need to address the rural-urban drift to attenuate this problem.

Investment Opportunities and Risk Factors

Introduction

The preceding chapter has given an exposition of resource utilization and constraints in the District. The focus of this chapter is to discuss the investment opportunities that the resources offer.

Investment Opportunities

The focus of the medium-term policies in the production and gainful employment thematic area of the GPRS is to ensure: the development of rural economy through the modernization of agriculture; sustained environmental protection through reaforestation; enhanced infrastructure development and; creation of an enabling environment for private sector activities and development. The thrust of agricultural development policy under the GPRS was to ensure the improvement of farm and non-farm incomes and food security through increased mechanization of agriculture, improvement in irrigation facilities, improvement in marketing and distribution of farm produce and the development of the fisheries subsector.

Land

Land is abundant in the Bole District for the purposes of investment. Land use map indicates that only about 6 per cent of the land is under cultivation. The land offers opportunities for the cultivation of several crops and the rearing of animals.

The soil type in the district is the savannah ochrosols, which are moderately deep, well drained and suitable for cultivation. The banks of the Black Volta and the many rivers have very fertile soils that support different crops. The land is also suitable for tree crops like cashew and mango. There are a number of cashew plantations and groups in the district. Land suitability map shows that about half of the district is suitable for the cultivation of sorghum. Vegetation of the district supports livestock. The Cocoa Research Institute is using part of its 16,050 acres of land to raise cattle.

Improved land rights influence the kind of investment that farmers and other investors will make. Under the Land Administration Project (LAP), a Customary Land Secreatariat (CLS) has been established in the District and lands acquired for various investments are being registered. From the foregoing, vast opportunities exist for investment in large-scale tree and field crop farming in Bole District. Local and foreign entrepreneurs would find investment in sorghum, cattle rearing, cashew and mango plantation as profitable ventures.

Agro-processing Industries

Small-scale agro-industries could also be set up to process cassava and extract groundnut

oil. Considering the number of cashew farmers in the district, an opportunity exists for the nuts to be processed into various products. According to the 2008 report of the District Agriculture Office, some staff and farmers have been trained on Cashew Fruit Processing. This training unveiled one of the hidden economic potentials in cashew as far as Cashew Juice and distillation of Cashew Gin (Akpeteshi) were concerned. This value creation technique will help increase farmers' income. Cocoa Research Institute has started extracting the nuts into chewable form on a small scale.

Apart from cashew, fishing which is along the Black Volta in Bamboi, Saru, Nsunua, Babator and Chache could attract investment in fish processing to increase its shelf life. Presently fish is smoked as shown in Picture 2.2(A).

Shea butter extraction is one area that offers great opportunities for investment.

> **Box 8.1: Cocoa Research Institute of Ghana**
>
> The Cocoa Research Institute of Ghana was established in 1938 mainly to undertake research into and provide information and advice on all matters relating to cocoa, cashew, cola and later sheanuts. A substation was established in 1971 at Bole where sheanuts are predominant, to develop appropriate technology that offers solution to farmers problems in sheanut and cashew cultivation and to further offer technology and scientific advice to farmers. They have about 16,050 acres of land. About 1000 acres have been used to plant cashew. They are processing cashew nuts into chewable nuts, cashew juice and cashew gin. They employ people in the district seasonally to pick and process sheanut and others for the operation of the cashew processing project.

Mining

The district is endowed with mineral deposits like gold which can be found at Dakurupe, Sakpa, Bombire, Tinga, Sonyo and Gbemfu.

A number of mining companies have concessions in the district and are at various stages of exploration. The Northern Goldfields Company Limited has reached an advanced stage and may soon start mining at Dakurupe. Mining has started at Kui, Tinga and Dakurupe by small scale mining companies. The investment potential in these mineral deposits can further be enhanced with the provision of infrastructure like access roads, hotels, telecommunication network, electricity among others.

Tourism

Tourism has been an important sector as far as foreign exchange earnings is concern nationally. Bole District has immense tourism potential in the areas of outstanding natural beauty such as the Kenikeni Forest Reserve, The Hippo Sanctuary in Ntereso, the Bui Game Reserve, Bui Gorge and the Royal Burial Ground of Gonja Paramount Chiefs at Mankuma. There are historical Mosques at Bole, Maluwe and Banda Nkwanta. The Deng festival in Sonyo celebrated annually (May) and Damba festival held six months after fasting are occasions that can bring in tourists with the right kind of promotion. With the construction of the Bui Dam and the attendant lake and other facilities like the Bui Village, the potential for investment in the tourism sector will be high. Not much has been done to promote these tourist sites and the provision of infrastructure like hotels, access roads, signposting among others would be steps in the right direction.

Household Investment

Farm investment

As much as 43.5 per cent of the respondents have made investments in agrochemicals at various stages. About 17 per cent of households made investment in field

pesticides to control pests while 21.7 per cent made investments in storage pesticides. Weedicites was the least common investment among households (4.3%). A greater majority (56.5%) have not made any form of investment in agrochemical (Table 8.1).

Table 8.1: Household Use of Agrochemicals

Type of Agrochemical	Percent
Field pesticides	17.4
Weedicides	4.3
Storage pesticides	21.7
None	56.6
Total	**100**

Non-farm Investment

One out of five households has made investments in non-farm ventures in varying amounts. The highest average amount of investment made by households has been in building a house (GH¢1,694.50). About 9.3 per cent of households made investments in building a house over the past eight years. The value of investment in land amounted to an average of GH¢1,490.00 made by 4.4 per cent of households in the district over the past eight years. Regarding human development, about 4.4 per cent of households made investments. The average value of investment over the past 7 years was GH¢580.00 (Table 8.2).

Apart from these personal investments, households also made community level investments. About 40 per cent of households have contributed to support the building of a school block. About 55 per cent of households who contributed did so in the form of cash while the remainder was in kind. The average value of contribution per household was GH¢34.00. About 11 per cent of households also contributed to the maintenance of school blocks in the district. The average value of their contribution was

GH¢14.00 and about 53 per cent of households contributed in the form of cash.

Another community level contribution households made was for electricity. About 5 per cent of households contributed an average value of GH¢24.00. The average value of contribution to provision of water was GH¢4.60 by 30 per cent of households largely in the form of cash (95.8%).

Table 8.2: Average Amount Invested by Households in Various Projects

Non-farm investment	Average Amount GH¢
Land /Housing	
House	1694.7
Renovation of house	59
Land purchase	1490
Human capacity development	
Training	580
Other	467
Community Projects	
Contribution to school block	34
Road maintenance	4.5
Electricity	24
Water	4.6
School maintenance	14
Association	
Contribution to association	8

Source: ISSER Household Study.

Associations

Associations often serve as safety nets for its members in times of financial needs. This is more so in rural areas where credit facilities are virtually nonexistent. About one of every five households belongs to associations that they have contributed money to (Table 8.3). The average value of contributions by households to associations amounted to 8 Ghana cedis.

Table 8.3: Membership of Associations
(Question: Do you belong to any association for which you committed money?)

Responses	Frequency	Percent
Yes	44	19.6
No	181	80.4
Total	**225**	**100.0**

Risk Factors

Flooding

The Bole District has a number of rivers including the Black Volta which overflow their banks during the peak of the rainy season. About 21 per cent of households reported in the ISSER Household Survey being affected by flood events between 2007 and 2008. About 76.6 per cent of the affected households were in the rural areas, 14.9 per cent and 8.5 per cent were in the semi-urban and urban areas respectively (Table 8.4). This has serious implications for food security since rural economies are dominated by farming households.

The ISSER Household Survey revealed that for the households who experienced recent flood event, about 59 per cent had their crops washed away while 35.9 per cent had their buildings destroyed.

Strategies that were taken by affected households to cope with the problem of flooding include changing the location of the farm (68%) and improving the drainage system (20%). About 12 per cent took no action.

Table 8.4: Households Affected by Flooding in Recent Period (2007 and 2008) by Locality

	Type of Locality			Total
	Urban	Semi-Urban	Rural	
Yes	1.80%	3.10%	16.10%	21.10%
No	24.70%	8.50%	45.70%	78.90%
Total	26.50%	11.70%	61.90%	100.00%

Windstorm

Windstorm affected about 13.5 per cent of households in the ISSER Household Survey. The windstorm removed the roofing of 51.7 per cent of affected households, destroyed the buildings of 27.6 per cent of households and rendered 3.4 per cent of households homeless. About 10.3 per cent and 6.9 per

cent of households had their foodstuff and property destroyed respectively. A majority of affected households (76.2%) rebuilt houses with improved building materials as a measure to cope with the problem of windstorm. Other households embarked on tree planting to serve as windbreak. About 4.8 per cent of households took no action to forestall windstorm.

Drought

Almost one out of every four households in the district was affected by drought between 2007 and 2008. The drought had a great impact on the households as 56.2 per cent of the affected households lost most of the crops they planted and 31.2 per cent had poor yield. Other households either delayed in farming or were unable to farm. Measures taken by households to cope with drought include buying food (25.8%) and early farming (29%). About 45.2 per cent of the households took no measure against the problem of drought.

Bushfire

About 16.3 per cent of households were affected by bushfire. The affected households were mostly in rural areas (88.9%). The fire affected crops and fire belts have been created as a measure to cope with the problem of bushfire. The district acknow-ledges that bushfire is a problem and started training farmers in its prevention.

On the whole, all risk factors, point to the fact that investment decision-making must incorporate measures to forestall the effect of natural disasters. Bushfires, on the other hand, are man-made and, with suffi-cient public education, can be controlled.

Summary and Policy Recommendation

Summary

Evidence from the study shows the predominance of agriculture in the economy of households in the district. About 83.5 per cent of households engage in agriculture. However, a lot of problems confront the sector and reducing the problems will serve to secure the livelihoods of majority of households. Other jobs in the district include agro-processing, mining and artisanal activities. Formal jobs are very limited in the district. Bottlenecks in all these sectors need to be removed if poverty is to reduce. The district's HPI of 72 per cent is higher than the constructed HPI for the country at 35 per cent (see details in Appendix 2).

There has been improvement in the education component of the human development index and the MDGs. Educational attainment is improving but not to the extent that will enhance technological adoption, and add significantly to sustained physical capital accumulation. Owing to policy initiatives such as the school feeding programme and capitation grant at the national level, enrolment has increased at all levels, more for the basic level. There has not been a concomitant increase in school infrastructure, trained teachers etc to match up with the increased enrolment.

Gender parity index is high at the pre-school level but reduces successively as one climbs the educational ladder. Adult literacy

doubled between the period 2003 and 2008 but the rate of 35 per cent is still low.

The District has made some progress in the attainment of the health component of the human development index and several of the MDGs. Maternal deaths have been on the decline since 2006 when the district recorded 6 maternal deaths. In 2008, only one maternal death was recorded. This is attributed to the introduction of the NHIS which increased maternal care in the areas of ANC and PNC coverage and supervised delivery. Information available indicates that infant mortality increased from 34 in 2003/2004 to 40 in 2004/2005. It however reduced to 38 deaths in 2005/2006.

The sixth MDG of combating malaria and other diseases is becoming difficult to achieve as malaria is endemic and is proving intractable. Malaria continues to be the leading cause of outpatient visits, admissions, and death in the district. Even though a lot of households (42.8%) used treated mosquito nets, others used less effective preventive strategies like weeding around the house, cleaning gutters to combat the disease.

With only one medical officer and superintendant at the District Hospital, the doctor to patient ratio is extremely high in the district. Some intervention by the Ghana Health Service would be required here.

The prospects for achieving the MDG that relates to access to water is bright. Due to the activities of development partners in the area of water provision, the district has a

high access to safe drinking water but not without wide disparity in the district. The Bamboi Area Council has the lowest coverage. Quite a number of the boreholes constructed in the area have low yield and households depend on unsafe sources of water as a coping strategy. However, access to safe sanitation is very low (13.4%). About 86.6 per cent of households do not have access to safe sanitation and therefore compels households to choose unorthodox means of human waste disposal such as defecating in the bush without regards to its adverse impact on the environment and health. Compared to 2003 when only 9.7 per cent of households in the district had access to safe sanitation, the 2008 performance of 13.4 per cent is an improvement. A slightly higher percentage of households (18%) in the district use improved waste disposal methods. More households dump their waste indiscriminately while 24 per cent burn their waste. These have serious health implications on the people. It is not surprising that diarrhoea ranks as third leading cause of outpatient visits.

Despite the numerous benefits derived from education in the area of technological adoption, a more effective use of community resources is required. Given the dismal educational attainment from the district, all efforts must be on deck to raise educational attainment at all the levels (covering primary, junior secondary and senior secondary schools, and even tertiary). More than 50 per cent of those who have ever attended school have not gone beyond primary school. This is not enough to equip people with the necessary knowledge and skills to adapt to the changing socio-economic conditions at district, national or international levels. Literacy rates are also low. A significant improvement in the number of trained teachers, classroom blocks to ease congestion, furniture, supply of exercise books etc. are required to enhance the quality of education.

In terms of natural resources, the district has a gently undulating topography which do not constitute a barrier to agriculture and physical development. The district is also endowed with rivers including the Black Volta with numerous potentials. Soils in the district are suitable for several crops including sorghum, maize, yam, etc, and tree crops like cashew, mangoes and shea trees. The district is also blessed with mineral resources like gold. Some are already being mined by small scale miners.

The district has achieved some milestones in good governance. It has 10 decentralized 10 non-decentralized departments which help the District Assembly carry out its functions. In assessing access to governance institutions such as the District Assembly over the past 12 months, one third of people of voting age were satisfied with services rendered by the District Assembly. They are satisfied because of the development projects going on in the district.

In spite of the difficulties that the police service face in terms of logistical support, accommodation etc., 32.3 per cent of the respondents think that there has been improvement in access to security services. Regarding the protection of rights under the rule of law in the Bole District, just about one quarter (24.2%) of the respondents are of the view that there has been improvement in access to legal services in the last 12 months while 15 per cent said there is no change.

An overwhelming majority of households (88%) in the district have access to various resources. The resource that most households have access to is water followed by land and economic trees like shea trees. Constraints to the utilization of these resources are financial difficulty in marketing produce, high cost of inputs which limit their use, erratic weather conditions among others.

Resource endowment of the District offers a lot of opportunities for investments. Land which is an important factor of production is abundant. Only about 6 per cent of the land is under cultivation. The soil is fertile and suitable for the cultivation of several crops including sorghum, yam, etc. Even though about half of the land is suitable for the cultivation of sorghum, only a few households cultivate it. Its open grassland constitutes pasture for livestock. A Customary Land Secretariat has been set up in the district and it is documenting lands acquired thereby improving land tenure and investment.

There are opportunities for agro-processing industries to add value to the tonnes of agricultural produce including cashew, mango, sheanuts, livestock, etc. Gold deposits and tourism sites all offer opportunities for investment. Bui Game Reserve, Sudanic Mosques, burial sites, etc. are examples of some of the tourist attractions in the district.

Households have invested especially in agriculture and contributed to community development projects. Farmer households invested in agrochemicals such as field pesticides, weedicide, and storage pesticides to improve yields and increase income. Risk factors that militate against investment are flooding, windstorm, drought and bushfire. Coping strategies needed to be adopted to stem the deleterious effect of these, particularly on the more vulnerable in the district.

Policy Recommendations

Since agriculture is the bedrock of the economy of the district, problems that confront it should be reduced if not eliminated to reduce poverty and enhance the general quality of life. The district is highly dependent on the vagaries of the weather for its agriculture. With the many rivers that the district is endowed with, small dams could be constructed. These dams will provide water for livestock in the dry season, provide water for vegetable gardening and could also be stocked with fish to supplement the protein needs of the people.

There is the need to expand market access by promoting the production of industrial raw materials to enhance the integration between industry and agriculture, and the production of traditional and non-traditional exports. Also expanding infrastructure like roads will open up the producing villages in the district. Setting up agro-processing industries to add value to agricultural produce and reduce post-harvest losses is another way of guaranteeing market for farmers.

The study revealed that the biggest problem that confronts households in the district is access to funds. Funding is important to enable farmers buy improved seeds, adopt improved technology, storage facilities to reduce post-harvest losses and guarantee stable prices etc. There is the need for timely financial products that meet the needs of the farmers since their work is seasonal instead of the standard financial products currently available. Instead of collateral security and increased cost of lending to individuals, financial institutions could use group lending methodology which is also known for reducing default drastically.

There is an urgent need for the expansion of educational facilities in the district. The present situation where some classes are held under sheds, holding of multi-grade classes, lack of furniture etc, do not allow for effective learning. The number of schools especially at the JHS level should be increased to improve the percentage of

pupils making the transition from primary to JHS. An incentive package should be instituted by the District Assembly for teachers who accept postings to some of the remotest parts of the district.

The increasing incidence of malaria in the District is worrying. If the trend continues, there is no way the district can meet the MDG target 6 that seeks to reverse the incidence of malaria and other major diseases. There is the need to pay more attention to sanitation as the district lacks access to safe sanitation. The district is in need of more health professionals especially medical doctors.

Governmental and non-governmental support is required to develop the ecotourism potentials in the district. Government could pave the way by investing in major infrastructure to make the district more attractive to private investors and the district assembly to invest in ecotourism. Investment in tourism has knock on effects on many other sectors. The District's Medium-Term Development Plan has outlined a number of activities to develop some of these tourists sites and must be supported by all. There is the need for promotional activities by the Regional Ghana Tourist Board on some of the sites using the internet, television and print media.

APPENDICES

Appendix 1: Basic School Enrolment by Sex (Appendix Figure A1 (a) to Figure 1 (d)

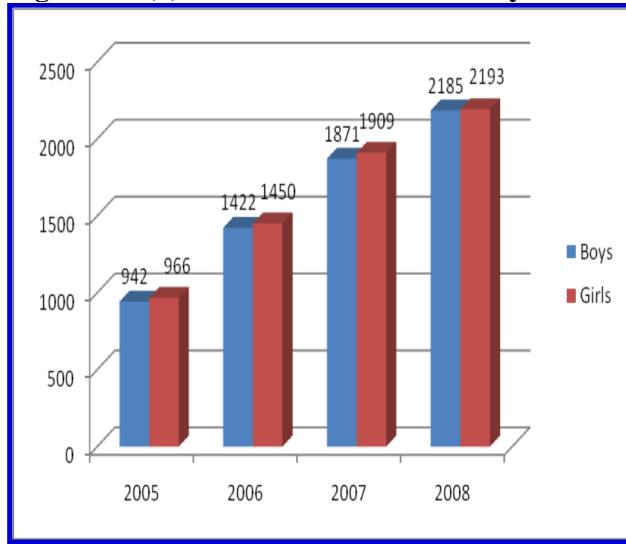**Figure A1 (a): Pre-School Enrolment by Sex.**
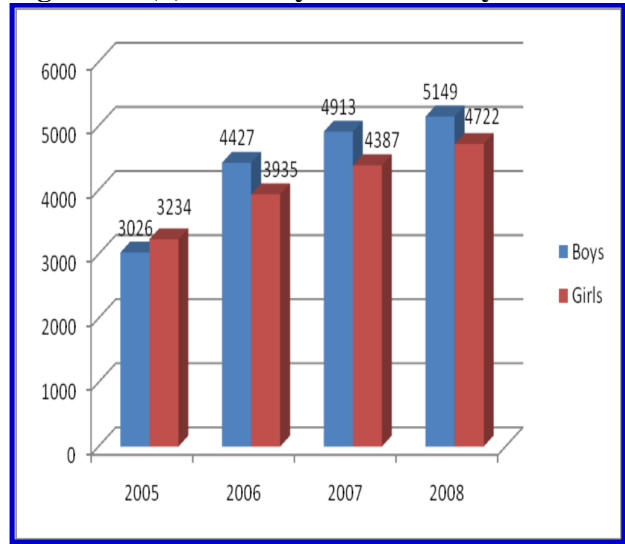

Figure A1 (b): Primary Enrolment by Sex.

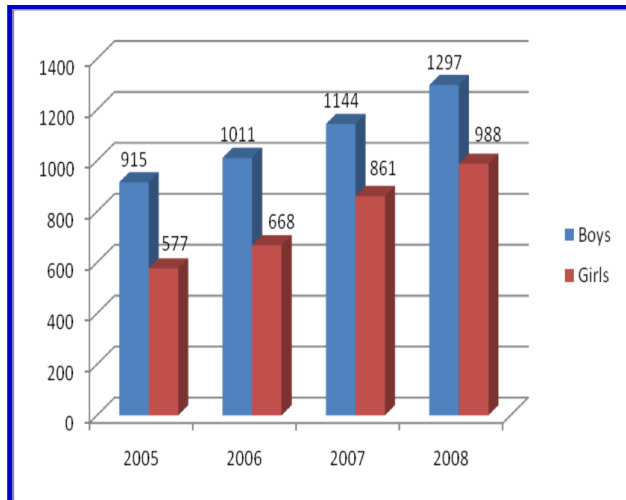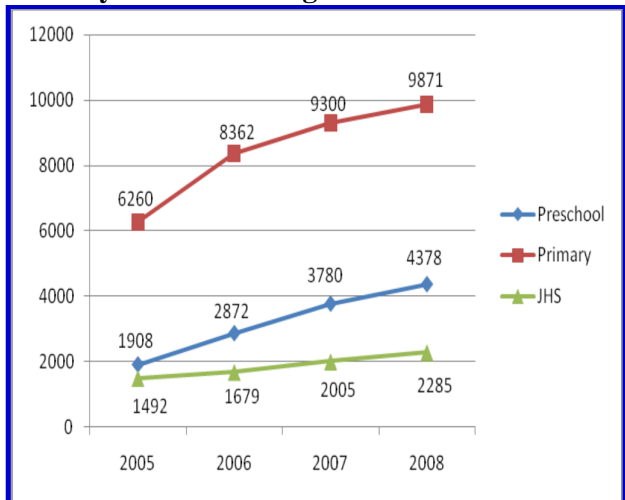**Figure A1 (c): Junior High School Enrolment by Sex.**

Figure A1 (d): Enrolment at Pre-School, Primary and Junior High Schools.

Appendix 2A: Human Poverty Index (HPI-G)

The constructed human poverty index for the preparation of the District Human Development Reports (HPI) is similar to the UNDP's HPI-1 for developing countries in terms of two components: the aspects of knowledge and decent standard of living. However, the component that measures vulnerability to death at a relatively early age, the probability at birth of not surviving to age 40 is replaced with an index measuring regional under-5 mortality. In addition to this modification, HPI includes an indicator of access to health care services in the measure of decent standard of living. A household does not have access to health care services if household members are not registered on the National Health Insurance Scheme with the reason being that premiums are too high.

1. Measuring the regional under-5 mortality index

The index measures the gap between a region's under-5 mortality rate and the national target for under-5 mortality under the Millennium Development Goals, relative to the largest regional gap in the country. A regional index is used for the district because of lack of reliable data at the district level. The under-5 mortality rate for Ghana in 1993 was 119 deaths per 1000 live births and the MDG goal of reducing this by two-thirds translates to a target of about 40 deaths per 1000 live births (GSS 2003). According to the current GDHS study, Northern region's under-5 mortality rate is 137 deaths per 1000 live births (GSS 2008). The regional under-5 mortality index is calculated as follows:

Regional under-5 mortality index

$$= \frac{\text{reigion's current value} - \text{MDG target}}{\text{Current maximum value for all regions} - \text{MDG target}}$$

$$= \frac{\text{reigion's current value} - 40}{142 - 40}$$

2.   Measuring deprivation in a decent standard of living

An unweighted average of two indicators is used to measure deprivation in a decent standard of living:

Unweighted average = 1/3 (population without sustainable access to improved water source)
+ 1/3 (children under weight for age)
+ 1/3 (population without access to health services)

3.   Calculating the HPI

The formula for calculating the HPI is as follows:

$$\text{HPI} = [1/3(P_1^{\acute{a}} + P_2^{\acute{a}} + P_3^{\acute{a}})]^{\acute{a}}$$

Where
P_1 = Probability at birth of not surviving to age 5, proxied by a normal regional under 5 mortality index (times 100)
P_2 = Unweighted average of population without sustainable access to an improved water source, without access to health care services and children underweight for age
P_3 = Adult illiteracy rate; and $\alpha = 3$

Appendix 2B: Under Five Mortality Rate, Standard of Living and Adult Illiteracy Rate Ghana and Bole Poverty Index 1 (Appendix Table A2)

Table A2: Ghana and Bole Poverty Index 1

Poverty Indicators	No. Per 1000 live births	Bole	Bole Urban	Bole Rural	Ghana	Ghana Urban	Ghana Rural
Under 5 mortality							
Ghana 1990	119						
MDG target 2015	40						
Ghana 2008	80						
2008		**Under 5 mortality index (NR)**			**Under 5 mortality index (GH)**		
Northern Region	137	95.11	95.11	95.11	39.41	39.41	39.41
Maximum (in Ghana)	142						
Minimum (in Ghana)	50						
Standard of living		11.6	16.8	30.8	23.7	19	27.2
Without access to improved water		4.5	4.7	4.3	22.7	21.4	23.8
Underweight children		21.8	16.6	25.1	13.9	10.6	16
Without access to health services		8.6	9.5	8.0	34.4	25	41.7
Adult illiteracy rate		64.9	49.2	72.6	37.1	23	50.4
A	3						
GHPI-1		72.3	67.9	69.7	34.7	29.9	41.2

Appendix 3: Provision of Toilet Facilities in Bole District (Appendix Tables A3 (a) and A3 (b))

Table A3 (a): Institutional (KVIP) Projects: Bole District Assembly

Project Description	Project Location	Number Constru-Cted	Complet-Ion Date	Sponsored Organization	Institution
Construction of (10) Seater (KVIP)	Bole District Hospital	1	August, 2006	CWSA/AFD/BDA	District Hospital
"	Bole St. Kizito's Primary (A)	1	"	"	St. Kizito's Primary School
"	Bamboi Health Centre	1	"	CWSA/AFD/BDA	Health Centre
"	Chibrinyoa R/C Primary	1	"	"	R/C Primary
Construction of (8) Seater (KVIP)	Tinga Health Centre	1	"	"	Health Centre
"	Banda-Nkwanta DA Primary Sch.	1	"	"	DA Primary Sch.
"	Jama Clinic	1	"	"	Clinic
Construction of (6) Seater (KVIP)	Mandari R/C Primary JHS	1	"	"	R/C Primary JHS
"	Tinga R/C Primary JHS	1	"	"	R/C Primary JHS
"	Bamboi BDA Primary School	1	"	"	BDA Primary Sch.
Construction of (4) Seater (KVIP)	Jugboi R/C Primary School	1	"	"	R/C Primary Sch.
"	Carpenter R/C Primary School	1	"	"	R/C Primary Sch.
"	Teselima R/C Primary School	1	"	"	R/C Primary Sch.
"	Banda-Nkwanta CHIPs	1	"	"	CHIPs
"	Tinga DA Primary School	1	"	"	DA Primary Sch.
"	Maluwe DA Primary School	1	"	"	DA Primary Sch.

Table A3 (b): Household Ventilated Improved Pit (VIP) Latrines Constructed District Wide 2001–2008 District: Bole

Project Description	Project Location	Number Constructed	Completion Date	Donor
Construction of one unit VIP latrines	Bole Town	146 Units	March, 2006	CWSA/AFD/BDA Beneficiary
"	Mandari	22	October, 2006	"
"	Baale	2	March, 2005	"
"	Jama	14	February, 2007	"
"	Sonyo/Dagaba	14	August, 2006	"
"	Bampewa	2	September, 2007	"
"	Bamboi	30	December, 2006	"
"	Banda-Nkwanta	33 Units	September, 2006	"
"	Mankuma	7 Units	October, 2006	"
"	Abasuma	6 Units	December, 2006	"
TOTAL	10	276		

Appendix 4: Water and Sanitation Projects (2001–2008) (Appendix Tables A4 (a) to A4 (d))

Table A4 (a): Boreholes Under District Water and Sanitation Programme

PROJECT DESCRIPTION	PROJECT LOCATION	NUMBER CONSTRUCTED	COMPLETION DATE	FUNDED BY
Drilling and Construction of BH	New Hospital Settlement	1	August, 2007	CBRDP/BDA
"	Mankuma	1	August, 2007	CBRDP/BDA
"	Nsunia	1	August, 2007	CBRDP/BDA
"	Bamboi	1	August, 2007	CBRDP/BDA
"	Lampoga	1	August, 2007	CBRDP/BDA
"	Jugboi	1	August, 2007	CBRDP/BDA
"	Wasipe	1	August, 2007	CBRDP/BDA
"	Teselima	1	August, 2007	CBRDP/BDA
"	Kilampobile	1	August, 2007	CBRDP/BDA
"	Mempeasem	1	August, 2007	CBRDP/BDA

Table A4 (b): List of Successful Boreholes Constructed Under AFD Project in Bole District

No.	Project Description	Project Location	Number Constructed	Completion Date	Funded By
1.	Drilling and Construction of BH	Abasumayiri	1	7/7/05	CWSA/AFD/BDA
2.	"	Agele-Kame	1	22/7/06	CWSA/AFD/BDA
3.	"	Bale-Mandari	1	18/6/05	CWSA/AFD/BDA
4.	"	Bamboi	1	12/6/06	CWSA/AFD/BDA
5.	"	Banda-Nkwanta	3	11/6/06	CWSA/AFD/BDA
6.	"	Bole Residential	3	12/6/06	CWSA/AFD/BDA
7.	"	Chache	1	10/6/06	CWSA/AFD/BDA
8.	"	Chanchiri	1	18/6/06	CWSA/AFD/BDA
9.	"	Dakrupe-Dagabayiri	2	15/4/06	CWSA/AFD/BDA
10.	"	Dipateyiri	1	18/6/05	CWSA/AFD/BDA
11.	"	Doli	1	12/4/06	CWSA/AFD/BDA
12.	"	Gbogda	1	12/4/06	CWSA/AFD/BDA
13.	"	Horiyiri	1	18/6/06	CWSA/AFD/BDA
14.	"	Jama Ganve kura	2	22/7/06	CWSA/AFD/BDA
15.	"	Jankulayiri	1	11/4/06	CWSA/AFD/BDA
16.	"	Jentige	2	11/4/06	CWSA/AFD/BDA
17.	"	Jorichanyiri	1	30/10/05	CWSA/AFD/BDA
18.	"	Kalidu	1	7/7/05	CWSA/AFD/BDA
19.	"	Kilampobile	1	13/6/06	CWSA/AFD/BDA
20	"	Maluwe	3	10/6/06	CWSA/AFD/BDA
21.	"	Maluwe-Senye kura	2	5/5/01–23/7/06	CWSA/AFD/BDA
22.	"	Mamaduyiri	1	24/7/06	CWSA/AFD/BDA
23.	"	Mandari	3	10/4/06	CWSA/AFD/BDA
24.	"	Nouyiri	1	23/7/05	CWSA/AFD/BDA
25.	"	Nyame-kura	2	5/5/06	CWSA/AFD/BDA
26.	"	Seripe Batomayiri	1	15/4/06	CWSA/AFD/BDA
27.	"	Sonyo	1	13/4/06	CWSA/AFD/BDA
28.	"	Sonyo Dagaba	1	10/11/05	CWSA/AFD/BDA

Table A4 (c): List of Boreholes Successfully Rehabilitated Under AFD Project in Bole District

	Project Description	No. Rehabilitation	Project Location	Completion Date	Funded By
22.	REHABILITATION	2	Sonyo-Dagaba	29/06/06	AFD/COMMUNITY

Table A4 (d): List of Boreholes Constructed Under Village Infrastructure Project (VIP) - District: Bole

Project Description	Project Location	Number Constructed	Commencement Date	Completion Date	Funded By
Drilling and Construction of BH	Bonbontey	1	6/02/2004	6/02-28/03/2004	CBRDP/BDA
"	Gblinpe	1	"	6/02-28/03/2004	"
"	Tinga/Glisege	1	"	6/02-28/03/2004	"
"	Bole ASIP Market	1	"	6/02-28/03/2004	"
TOTAL		4			

Appendix 5: Distribution/Locations of Health Centres in Bole District (Appendix Map A5)

Map A5: Distribution/Locations of Health Centres

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