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**POPULATION DISTRIBUTION, AND AGRICULTURAL PRODUCTION
IN NORTHERN GHANA**

By

ANDY KUSI-APPIAH, B.A (Hons), M.A

**A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of the
requirements for the degree of**

Master of Arts

Department of Geography

Carleton University

Ottawa, Ontario

April, 1994

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IN NORTHERN GHANA

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in partial fulfilment of the requirements for
the degree of Master of Arts

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ABSTRACT

Ghana often imports food to feed her ever increasing population. At the same time, some cultivable lands are uninhabited, especially in Northern Ghana. Various governments' desire for food self-sufficiency in Ghana have not been realized. Why then is Northern Ghana not performing well in the food sector although there is evidence to show that it can? In answering this question I adopt a holistic approach with an historical inclination, in which I analyze 'top-down' policies which neglect rural farmers and other vulnerable groups. This has exacerbated the migration of labour to southern Ghana. With examples, I show that neglect of cultural beliefs and practices have contributed to the low food production and the pattern of population distribution in Northern Ghana.

With intriguing arguments, I recommend that poor rural farmers should be involved in the formulation and implementation of programmes meant to improve their standard of living. Through interactive dialogue, consensus would be reached, and suggestions made which would form the basis for reform in areas such as land tenure issues and other socially based problems.

Finally, I speculate on the future of population distribution and food production in Northern Ghana, and I argue that lack of social and physical infrastructure in certain parts of Northern Ghana is a disincentive for rural poor farmers. Scarce resources should be mobilized for the provision of such infrastructure in remote rural areas so that a great burden on rural farmers would be eased.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

The disparity between population and food trends constitutes one of the most intractable problems that many sub-Saharan African countries have to grapple with. It is also a major challenge to development planning and a constant threat to economic and political stability. Indeed, the high costs in foreign exchange of food imports to make up for shortages in domestic production have further exacerbated the problem. Since the late 1970s, governments in sub-Saharan Africa and donor agencies have been preoccupied with encouraging food production for national self-sufficiency and to provide 'poor rural sectors' with production inputs and credits (Kraus, 1988, Tabatabai, 1988).

One major issue that has contributed to the problem is the pattern of population distribution and inequality in spatial development. These issues simply present problems for the food production system. In most cases, the aged and/or females dominate the labour force in the production system, but there has not been a corresponding change or transformation of the indigenous sexual division of labour,

land tenure systems and access rights to other strategic resources. The performance of these people in the system is therefore limited quite considerably. In addition to this, there is a sharp inequality in the distribution of basic social and physical infrastructure within and/or between political entities. These factors have impacted negatively on the total development of most sub-Saharan African countries, particularly in the area of food production.

Although the rural areas in sub-Saharan Africa are mainly agricultural, the so-called accelerated efforts at food production have not led to increased food production. In most cases, as in Ghana for example, certain areas with abundant uncultivated land and fertile soils for food production are paradoxically the areas worst hit by frequent food shortages. There is an under-utilization of fertile lands, while uplands and less fertile frontiers have been over cultivated, rendering them vulnerable to environmental stress. The result is persistent hunger, especially for vulnerable groups: children, nursing mothers and old people. Clearly, the socio-cultural aspects of rural peoples' lives have not been given priority in policies and/or programmes intended to assist in the production of more food to feed the teeming population.

This study will analyze the problem of food production and population distribution in Northern Ghana with the basic argument that the unique historical dynamics in specific areas, coupled with policies which do not cater for poor rural

farmers have contributed immensely to the food deficit situation in Ghana today. The major argument to be explored in this study is that although Northern Ghana has all the essential ingredients (viz, climate, soil types, vast uninhabited lands etc) for food production, this potential has not been realised because of past and contemporary governments' implementation of policies and programmes which do not take the peculiarities of small-scale poor rural food farmers and other vulnerable groups into consideration. Indeed, more often than not, local people are not involved in the planning and implementation of agricultural programmes/policies meant to motivate them to produce for the market. Rural farmers, especially women, are often neglected and there is no consideration of their socio-cultural beliefs and practices.

The development process in sub-Saharan Africa is replete with examples of governments pushing their own agenda as to what is good for the vast majority of the people. Consultation with people and making provision for them to participate in development programmes are mostly relegated to the background.

The observed pattern of population distribution in most sub-Saharan African countries can be attributed to a number of factors. These include differences in ecological/climatic conditions, communication networks, urbanization, the role of export agriculture and of mineral exploitation (Amarjit Obera,

1986). However, politico-historical factors have played a leading role in shaping the above factors, resulting in the present distribution pattern of both population and infrastructure. Indeed, colonization and its attendant interference with various traditional social systems can be blamed, to a considerable degree, for the problem of maldistribution of population and the low production levels in the agricultural systems of most countries. Today, the distributional pattern of population in almost all sub-Saharan African countries depict an agglomeration of population in urban areas, in areas with favourable climatic conditions for the production of export raw materials, and in areas with good infrastructure and job opportunities, leaving so-called marginal lands for the cultivation of non-export food crops.

The search for strategies to break away from this impasse has been the concern of almost all governments and non-governmental organisations alike (both indigenous and international). However, government policies tend to ignore socio-cultural conditions within which most rural communities perform their daily agricultural activities. In the case of Ghana, government policies have resulted in a lag in the development of resources, both human and natural, in Northern Ghana. Recent efforts at improving conditions in the area have not benefitted rural poor farmers. Rather, they serve the needs of rural elites and rural/urban bureaucrats. This has resulted, among other things, in a population distribution

pattern where urban centres in both Northern Ghana and the rest of the country continue to attract more people who have basically neglected agricultural production as an economic activity, and rural areas continue to deteriorate to the extent that rural farmers, especially female farmers, are not motivated to produce in abundance for the market. Obviously, this state of affairs raises questions of the adequacy of efforts at attaining food self-sufficiency in the country. The relationship between the food production system and the distribution of population in Northern Ghana presents an interesting question to be answered in our efforts at making Northern Ghana a food 'basket' for Ghana.

1.2 OBJECTIVES OF STUDY

The study is designed to analyze the relationships between agricultural production and population growth, distribution patterns and trends in Northern Ghana¹ (Figure 1.1). Specific issues to be examined include the following;

- (i) The factors that account for agricultural development, population growth and distribution in Northern Ghana.
- (ii) Patterns and trends of agricultural production in Northern Ghana.

¹. Northern Ghana comprises the three northern-most administrative regions in Ghana; Northern, Upper-East and Upper-West Regions (see Figure 1.1). They correspond to the Savanna vegetation zone.

Figure 1.1: Administrative Regions in Ghana showing Northern Ghana

(iii) The relationship between population distribution and agricultural production patterns in Northern Ghana.

(iv) The effects of government programmes and policies on the food production system in Ghana, with special emphasis on Northern Ghana.

The historically determined socio-cultural characteristics of the population in Northern Ghana have played an important role in the food production system. Thus any attempt at reversing the low food production trend in Northern Ghana should of necessity consider fundamental socio-cultural issues concerning the people. Furthermore, factors affecting the distribution of population must be well understood in order to appreciate the burden of certain vulnerable groups in these areas.

1.3 STATEMENT OF THE PROBLEM

Most sub-Saharan African countries are struggling to survive economically, with food production barely meeting demand. Although the harsh food insecurity scenarios of the early 1970s are over, the problem has not been fully solved. Global trends on the world market, characterised by declining prices of raw materials and rising prices of fuel and industrial products for sub-Saharan African countries, coupled with unfavourable terms of trade, have had a severe impact on their economies. The desire to be self sufficient in food production is rapidly being eroded by the ever increasing

population and its pattern of geographical distribution. Indeed, most policy makers and implementers of development programmes continue to equate development to growth in Gross National Product (GNP), which does not reflect inter and intra-regional differences in living standards. Such policies and other variations of them emphasize the provision of amenities and other facilities which only benefit a small section of the population, with the rest of the people being made to "wait their turn". This formulation of development overlooks the requirement that growth has to serve the rural poor by raising returns to the factors of production owned and/or operated by them and by allocating an equitable share of public resources to providing rural social services and infrastructure. Decisions are normally taken in a 'top-down' fashion, with minimum input from the people who are supposed to benefit from such projects (Jazairy et al., 1992: 7). In most cases, selection of projects is done without consulting the local people and therefore in the long run they end up being the losers.

In recent times however, the concept of assisting in the alleviation of poverty among the poor has dominated development thinking. The need to establish a 'safety net' to protect the most vulnerable groups, especially women and children, and to encourage them to innovate, experiment and take risks, has gained prominence among development researchers and workers alike (Lele, 1989; Jazairy et al,

1992). But this laudable objective has not been fully implemented, such that many areas have lagged behind in the development process. It is very crucial, especially in the food production sector of most sub-Saharan African countries, for governments and development agencies alike to formulate and implement policies that pay attention to supply expansion and also projects which motivate rural smallholders to increase their production level, but the implementation of such policies does not reach those who need the assistance most - rural poor farmers.

Ghana is predominantly a rural country, with 69 per cent of its population living in rural areas (Statistical Service, 1987). Its main economic activity is agriculture, which accounts for about 45 per cent of GNP, employs 55 per cent of the labour force and provides 70 per cent of the total income from export earnings. Of this, cocoa alone provides 70 per cent of the agricultural export earnings (Economic Intelligence Unit, 1993: 3). Thus there has been an emphasis on cocoa production by all governments of post-independence Ghana to the extent that non-traditional export crops are neglected. However, there is a clear indication that the expansion of staple crops can help reduce the food shortage problems and the vulnerability that comes with dependency on cocoa. The paradox is that although there are large portions of uninhabited land in Northern Ghana suitable for food production, Ghana has been frequently faced with food

shortages. Expanding the small base of food production will therefore require a conscious effort on the part of government to address all issues affecting the people of Northern Ghana.

In general terms, land availability for food production in Ghana is not a constraint, especially in the Northern half of the country. Of the 13.58 million hectares of arable land available in Ghana in 1989, only 50.9 per cent was cultivated (Appendix A). Northern Ghana as a whole had about 37.6 per cent of the cultivable land in Ghana (Statistical Service, 1990). Of this, about 54.4 per cent was not cultivated in the same year. Considering that Northern Ghana is the area least suitable for the cultivation of cocoa, but better placed for the cultivation of such cereals as millet, sorghum, maize and rice, it is essential that the agricultural resources of the area are fully exploited for the production of food items in order to sustain the gains of the Economic Recovery Programme (ERP). With a population growth rate of 2.6 per cent per annum, and a growing imbalance between food demand and supply, the country needs to exploit its agricultural resources wisely so that production can keep pace with the ever increasing population (Asiedu Saforo, 1989).

Northern Ghana has the capacity to play a leading role in the provision of the needed nourishment for the people of Ghana, but several factors have slowed down the process. Basically the area lags behind the rest of the country in the provision of basic amenities like schools, roads and

hospitals. Consequently, it has become the number one out-migration zone in Ghana, recording the lowest densities in the country. In addition, the standard of living remains the poorest in the country (Aryeetey, 1987; Ghana Government, 1991). Meanwhile, attempts made to improve the socio-economic development of Northern Ghana have not achieved the set goals. The result is a high density of population in and around a few urban centres in Northern Ghana, and a movement of population, especially males, to the southern export sector of the economy, which has traditionally 'pulled' labour from Northern Ghana. This pattern of population movement, and similar patterns elsewhere in sub-Saharan Africa, has impacted negatively on developmental efforts to the extent that even most governments consider their distribution patterns to be unacceptable (Adepoju, 1987: 9).

Within Northern Ghana some areas are deemed uninhabitable due to the presence of disease-causing vectors such as the black fly, which causes onchocerciasis. This has resulted in the migration of people from the river basins (which used to be endemic onchocerciasis foci), especially to the uplands of Upper-east and west regions, thus putting pressure on the lands there¹. The presence of the black fly, which takes advantage of existing fast flowing rivers to breed, has

¹. The north-western portions of the Upper East are areas which have been affected by such movement. This is mainly due to the onchocerciasis disease which used to be very prevalent along the Volta Basin.

contributed immensely to the pattern and trend of population distribution in the sub-region. According to a World Health Organization (WHO) report in 1973, the savanna area of the Volta basin, of which the whole of Northern Ghana is a part, was at the time one of the worst endemic zones in the world. Common areas of the disease were incidentally fertile areas flanking the rapids of rivers. Clinical manifestations of the disease include intense itching rashes, wrinkling, thickening and depigmentation of the skin, and eye injuries leading to blindness. Heavily infested persons lose weight and suffer from debilitation. The black fly also constituted an intolerable nuisance, the average number of bites per person per day sometimes amount to several thousands, although a small proportion of this resulted in infections (WHO, 1973). Apart from the personal suffering it causes, the disease has a two-fold destructive economic effect namely; a reduction in the productive capacity or overall negative contribution of those afflicted by the disease; and migration to poorer lands that are over cropped and degraded which provide an inadequate means of subsistence. For populations dependent on agriculture and cattle raising, the situation is economically crippling.

Needless to say, there are other factors which have led to the present state of affairs, and this is related to government policies which have brought in their wake a progressive drift of the labour force (mainly males) to the southern industrial sector. The continued movement from north

to south, from rural areas to urban centres in the north, and from fertile river valleys to uplands, have all contributed to the weakening of the socio-cultural system of Northern Ghana, and consequently the food production sector in particular. Most importantly, the resultant differential sex-ratios, especially in rural areas, have played a crucial role in this regard.

With the eradication of onchocerciasis along the river beds, an area with fertile soils for food production is now available (Ewusi, et al, 1986). The potential of Northern Ghana in terms of food production has been kept alive as a result of this achievement. This is mainly in view of the fact that most of the cereals consumed (viz, rice, maize, guinea corn etc) by most Ghanaians can be produced there. This can be done, however, only through a concerted effort on the part of government and non-governmental agencies who would address the issues, taking into consideration the socio-cultural beliefs and practices in the region. Human resource considerations with respect to gender in the division of labour, access to land and other resources, are all important issues which have limited the capacity of the northern regions to perform creditably in the food sector. In this regard therefore, an analysis of the distributional patterns of population¹ in

1. Population Distribution here broadly refers to the distribution of characteristics such as age/sex of the labour force, their educational standards and their densities in the area of study.

relation to the food production system would serve as an appropriate watershed in the effort at making Northern Ghana viable for increased food production and other economic activities, and therefore reverse the recurring spate of food shortages that have been plaguing the country for some time now.

1.4 RATIONALE OF STUDY

Many studies portray Northern Ghana as an out-migration area (Caldwell et al, 1976; Engmann, n.d; Forde, 1976, Nabila, 1990). The distribution of population in the area portray belts and cells of high population, usually in the extreme north-east and north-west, and low populations around fertile river valleys (Nabila, 1990; Kusi-Appiah, 1990).

By the last population census of Ghana (Statistical Service, 1984), Northern Ghana's population was growing at a faster rate (2.9 per cent) than the national average of 2.6 per cent. This can be attributed to natural increase and the return of about one million migrants from neighbouring Nigeria to Ghana in 1983 (Benstil-Enchill, 1983: 382). Obviously some of the return-migrants settled in Northern Ghana. This could explain the high growth rate within the intercensal period 1970-1984. Again the control of onchocerciasis and the emergence of Tamale and other urban centres as powerful administrative and business centres in the north, have reduced the rate at which people from the north moved into the south

for jobs (Nabila, 1990). However, patterns and trends which started in the colonial era have persisted. The majority of people living in these areas are women, who till the land for subsistence. Although most of them have use-rights to land, they lack the security that goes with it because of the traditional inheritance systems in place. In addition, they lack the required capital and other inputs to improve their farms. Their holdings on the land are just enough to keep them surviving despite the fact that there are wide expanses of land available in the study area for farming purposes.

Apart from a few surveys (Nabila, 1990), there has not been any conscious effort to document the emerging population changes and the possible effects these may have on the utilization of natural resources, especially land and therefore food production. This interest is based on the assumption that Northern Ghana as a whole, and the fertile Volta river basin in particular, can be effectively harnessed to play a leading role in the production system of the country.

1.5 SCOPE OF STUDY AND RESEARCH METHODOLOGY

1.5.1 Scope of Study

The study is confined to Northern Ghana, which comprises the administrative regions of Northern, Upper-east and Upper-west. These three regions together have a population of 2.4 million, according to the census of 1984 (Statistical Service,

million, according to the census of 1984 (Statistical Service, 1987), with a growth rate of 2.9 per cent. Projections for the area for 1993 put the population of Northern Ghana at approximately 3.1 million, forming about 20 percent of the total population of Ghana. Physically, these regions occupy 41.0 per cent of the total land area of Ghana. The three regions generally have similar geographical, socio-cultural and economic characteristics, but they are by no means homogenous. They could either be zoned into districts or local councils. For the present study, the 26 local councils are used as the unit of analysis (Figure 1.2). This is done mainly for the sake of consistency and to avoid overlapping with changes that occurred in the re-zoning of districts in Ghana in 1983 (PNDC Law 207). The local councils were the same zones used in the last three censuses, their use therefore allows for easy comparison. Where necessary, reference is made to districts but analysis is made at the scale of the local councils.

The study covers the period 1960 and 1993. This period incorporates three national population censuses conducted for Ghana, namely 1960, 1970 and 1984. Data for the period 1985-1993 as far as population and agricultural output and trends are concerned, are based on reports from Ghana's Ministry of Agriculture, Statistical Service, United Nations Food and Agriculture Organization (UNFAO) reports on Ghana, and other surveys and statistics. However, for historical analyses, we

Figure 1.2: Local Councils in Northern Ghana

Source: Central Bureau of Statistics, Population Census of Ghana, 1984
 Demographic and Economic Characteristics, Northern Ghana

move far back to the time of colonial rule, in order to put the study in perspective.

1.5.2 Research Methodology

(i) Sources of data and limitations

The study makes use of both primary and secondary sources of data. The principal characteristics of population distribution in Northern Ghana are summarised into several measures which are easily comparable; these include population density, and the index of concentration. Data on the above were extracted mainly from the census reports of 1960, 1970, and 1984. The movement of population in space is a highly diverse phenomenon and the distance of move may range from a few metres to thousands of kilometres, while the length of stay at the destination may range from minutes to the remainder of a life time. However, distribution or density involves residents in a specific area, and therefore the number of people residing in a particular area is of much interest here. In view of this therefore, the concept of residence¹ is given prominence over mere movement into and out of a region. The census reports are therefore very handy and also give a clear picture of the distributional pattern of the population in Northern Ghana. Also "place of birth" data give

¹. This concept tracks down the length of stay at a particular place by people. One is said to be a resident if that person has lived in an area for at least six (6) uninterrupted months or more.

an indication of migrants and non-migrants. They also give an indication of the amount of migratory movement into and out of an area within Northern Ghana and outside Northern Ghana.

The major limitation of the "place of birth" data, is that apart from being indirect, such data relate to the de jure population, even though they may appear to relate to the de facto one, instead. However, the classification of whether a person was born in a particular district or elsewhere in the country is examined in relation to other characteristics of the migrants such as the sex-ratio in the labour force age groups. This makes it easier to determine the trend of movement of the agricultural labour force in the study area, especially by sex.

Data on agricultural production in the area were collected from the Ministry of Agriculture, Lands Commission and the UNFAO office in Accra, Ghana. But a breakdown into local councils was not available for the period, and therefore it was impossible to make an in-depth analysis for the local councils. However, available data for production levels for each of the three regions of Northern Ghana are used in the analysis. Other sources include reports from the Upper-east Land Conservation and Small-holder Rehabilitation Project, which is sponsored by the International Fund for Agricultural Development (IFAD); the Upper Regional Agricultural Development Project (URADEP), and the Northern Regional Rural Integrated Programme (NORRIP). Maps, diagrams and other

illustrative documents have been extensively used in the study. The University Departments of Geography, both at Carleton and Legon, Ghana, were of much help in this direction.

(ii) Methods of Analysis

The study views population and agriculture from the standpoint of labour productivity. In an area where the labour force in agriculture is well motivated, there is a higher probability for them to increase production. Availability and easy access to land and other resources, including agricultural inputs and credit are all crucial ingredients which motivate farmers to increase productivity. In addition, the system of agriculture and technology in place at a given point in time also has a bearing on the level of production. In this regard therefore theories and other conceptualizations about agricultural productivity are thoroughly examined, and some of the concepts are borrowed to enrich the analysis.

In terms of concentration of population, measures such as the index of concentration, and density (crude and agricultural density) are used in the study. The index of concentration is used to throw more light on the level of concentration of population within and between regions. In this way one can envisage the extent of distributional problems facing the region in the production system. This particular scenario affects, and is in turn affected by the development process.

1.6 SIGNIFICANCE OF STUDY

Since independence there have been efforts to modernize all sectors of the Ghanaian economy, and also to improve production in the food sector. However, not much attention has been given to the northern part of the country. Almost all post-independence agricultural policies have paid lip service to food production in the country, yet it has been documented in the literature (Sarris and Sham, 1992; Dadson, 1974; Haizel, 1974) that about 85 per cent of Northern Ghana is fertile for food production. The socio-cultural and ecological factors that hinder the full scale production of food crops have not been analyzed to any appreciable extent. This study therefore seeks to conduct a thorough analysis of these factors, especially social characteristics, in order to explain the peculiar situation in which Northern Ghana finds itself today. In this way, it will be easier to formulate and implement policies and programmes which clearly suit the needs of the area.

1.7 ORGANIZATION OF THE STUDY

The study is divided into six chapters. Following this introductory chapter, chapter 2 considers the conceptual and theoretical formulations on population and agricultural production, with special emphasis on Ghana. Chapter 3 focuses on the background issues of Northern Ghana with regard to socio-economic and environmental characteristics. It is also

devoted to a discussion on population change and distribution trends in Northern Ghana and it includes an evaluation of the migration patterns in Northern Ghana since 1960. The chapter also discusses the level of population concentration within and between regions in Northern Ghana. The rationale is to show how the dispersion or otherwise of the population has impacted on development objectives, especially agriculture, in the area. Chapter 4 explores the relationship between government policies and the distribution of population in Northern Ghana. The chapter also examines politico-historical factors that have affected agricultural production in Northern Ghana since the colonial era.

Chapter 5 is devoted to a discussion of specific projects and policies which have entrenched the situation that Northern Ghana faces in the development process, and especially how this impacts on the food production system. It includes an evaluation of gender relations in the agricultural system of Northern Ghana. In addition, the chapter also explores the impact of gender inequalities in the distribution of agricultural resources, such as land and access to credit, on agricultural productivity in Northern Ghana, and the implications of this for Ghana as a whole. The study ends with chapter 6, which presents the summary and conclusions of the research and policy recommendations for Northern Ghana.

CHAPTER TWO
POPULATION AND AGRICULTURAL PRODUCTION;
CONCEPTUAL AND THEORETICAL FORMULATIONS

2.1 INTRODUCTION

The objective of this chapter is to provide a conceptual framework within which population and food production in Northern Ghana can be analyzed. A holistic approach is viewed as the most appropriate way of approaching the issue, with emphasis on historical and socio-cultural characteristics of the agricultural production system in the area. This is done in order to bring into focus the main reasons why efforts at increasing productivity in Northern Ghana have not succeeded - i.e., a failure to incorporate socio-cultural issues into the formulation and implementation of projects and programmes intended to reduce poverty and also increase productivity. In addition, concepts used in the entire study are defined, and some pertinent models of agricultural production vis-a-vis population growth and distribution are reviewed.

2.2 CONCEPTUAL FRAMEWORK

Conceptually, emphasis will be placed on the historical and contemporary manifestations of the agrarian crisis in

Africa, with special focus on the commoditization of production and land access issues. These issues mutually interact and impinge on the production system, especially in rural farming areas. Thus, the neglect of one variable leads to a derailment of any effort at improving the state of the production system. In spite of frantic efforts at improving food production in Ghana, since the early 1970s, policies and programmes have not been sensitive to variables that shape the socio-cultural peculiarities in Northern Ghana.

These variables include cultural institutional constraints which shape the land tenure arrangements, sexual division of labour and the quality of land. Of particular interest is the question of people's participation in the decision-making process. The study adopts a framework which addresses socio-cultural issues vis-a-vis other factors (income, capital accumulation, credit, land, extension service availability and affordability) which affect the production system. Within this holistic framework, all factors are isolated and discussed, with socio-cultural issues playing a dominant role. As an entry point for the conceptual framework however, Beattie et al's (1981) table of factors affecting agricultural production, is illustrative.

2.2.1 Factors affecting Food Production in Northern Ghana

Environmental and socio-economic factors influence agricultural activity. They are important in understanding the

nature of agricultural production. According to Beattie et al (1981: 33), the variables include the physical environment (i.e., climate, physiography, hydrological conditions and vegetation); cultural/historical factors, which are functionally related to agricultural practices and policies, calibre of human capital, technological build up, attitudes, taboos and land tenure and use patterns. Government policy is inextricably related to cultural/historical factors and it plays a crucial role in the level of food production. This is particularly so in many sub-Saharan African countries, whose economies depend mainly on cash crop production for their foreign exchange. Other important variables include capital and community infrastructure. Beattie et al (1981: 34) discussed these factors with regard to their effects on agricultural productivity (see Table 2.1). They emphasized the complex linkages among the variables and their relative importance in any agricultural venture.

Many channels of causation exist between the variables in the production process. For example, land variables, which include farm size, the total number of farms, the total area of farmland, fragmentation, the percentage of improved farmland, tenure systems etc, are linked to factors such as government policy, social institutions, infrastructural development and access to other resources. These linkages take place in a multi-dimensional situation, where there is feedback to and from other variables. For example, Beattie et

al noted that larger farms are expected to be found on poorer farmland, as more land is needed when overall quality is low just to ensure enough workable acres.

In Northern Ghana, farm sizes range from average to small sizes (between 1-3 hectares), with very few large-scale farms mostly owned by absentee farmers, government, and non-governmental organisations. This is related to the farming and tenure system in place, differential access to vital resources within the society, and the nature of government policies toward food farming in the area as a whole. Under the traditional farming system, subsistence farmers clear land with rudimentary implements, and employ family unpaid labour in the process. In this system, not many farmers can afford to expand their farms because they do not have money to buy modern implements and other farm inputs. In recent times, high population density in parts of Northern Ghana, especially Upper-east Region (Bawku area), has led to severely fragmented farm lands. This poses problems with respect to provision of social amenities, since such provision is seen as uneconomical. Thus issues of population levels and distribution can affect the provision of amenities to certain geographic areas.

Table 2.1: Agro-Economic Variables

Variables**Land**

Farm Size
 Fragmentation
 Percent improved land

Labour

Age of farmer
 Sex
 Education, useful skills
 Expectations
 Part-time, Full-time
 Productivity

Capital/Economic & Community Infrastructure

Income, standard of Living
 Mechanization
 Agricultural Services
 Credit Sources
 Social-Community Services
 Transportation and Marketing

Source: Beattie et al., (1981: 33).

In Northern Ghana, the uninhabited and low population density areas are mainly along river valleys, where inhabitants avoided the scourge of riverine diseases like trypanosomiasis, onchocerciasis and malaria (Nabila, 1990). The avoidance of lowlands by local inhabitants resulted in some uplands recording high population densities ranging from 100 to 400 persons per km² in 1931. In Zuarungu District, for example, densities of 250 persons per km² were recorded between Sekoti and Nangodi, 300 around Bongo and Winkago, and 100 around Zuarungu itself (Hilton 1966). On the other hand, with high population densities in most agricultural areas, the

ability to support the population under the current systems of exploitation is questionable. The situation is further complicated by the smuggling of unknown quantities of food crops from the area into neighbouring Cote d'Ivoire, Togo and Burkina Faso, where food prices are comparatively more attractive than they are in other parts of Ghana (Chilson, 1988: 1479). This is due to the convertibility of the CFA Franc (French West African currency), which was also higher in terms of purchasing power compared to the Ghanaian cedi (Chilson, 1988; and Mbaye, 1993: 2346). The most direct impact population pressure had on agriculture in the uplands was to increase the percentage of cultivated area to very high levels. Of much interest in this study is the issue of land tenure and the relations of production by gender and class.

In addition, infrastructure plays a leading, if not the leading role, in agricultural production. Although productivity per unit of land can be increased significantly through intensification of cultivation practices, there exists a limited system of supplying inputs to or within an area, which is also related to government policy. Thus, the rate at which mechanization can progress in a given area depends on several factors including people's cultural beliefs and practices, government policy toward agriculture, and other labour related factors. Above all, the well-being and skills available to the agricultural workforce are also crucial in the level of production. The educational and cultural

background of the labour force by sex and age, their health status, tenancy arrangements; and income levels are all important variables with respect to food production.

Moving beyond Beattie et al's list of variables, a conceptual presentation of what the situation is in terms of the interrelationships between food production and population distribution in Northern Ghana is illustrative. In the formulation and implementation of policies which affect Northern Ghana, social and cultural characteristics are not given equal attention. Rural populations, especially the poor and other vulnerable groups such as women, are not involved in the decision-making process. In effect, government policy-makers do not regard their participation in the process as both a means and an end. Local government officials only exist to oversee the implementation of policies and programmes put in place by the central government. With respect to infrastructural development, policy-makers are hardly in close contact with rural farmers and other groups to determine their preferences. There is no free flow of information between local administrations and central government. This situation has created a conducive environment for increased out-migration in the area.

In terms of support for poor farmers the situation is even worse. Poor farmers lack access to credit, land and other strategic resources. These are obviously stumbling blocks of the food production system. The land accessibility problems

are of particular importance as far as the food production system in the area is concerned. Since the interactive relationship between rural farmers and local council officials is weak, no dialogue goes on in a bid to find lasting solutions to the land problem. The result is increasing suspicion and misunderstanding on both sides.

The weak interrelationships between and among the above variables, with the attendant neglect of socio-cultural practices and beliefs in the north, has created a condition prejudicial to high productivity, leading to tension, social instability (out-migration etc.) as well as resource depletion. In short, lack of growth-inducing linkages have resulted in the present situation in Northern Ghana, compared to the rest of the country.

Conceptually therefore it is argued that local farmers and other groups in Northern Ghana have not participated in important decisions that shape their lives. More often than not they are passive beneficiaries of policies and programmes. The status of food production and population distribution in Northern Ghana will depend on the strength of inter-sectoral linkages; the importance of Northern Ghana as a region, and the rural poor farmers will depend on their relative importance in production, market and accumulation. The poorer population groups, such as small-scale farmers and women of Northern Ghana can play a leading role in the food production system of Ghana if they are closely integrated with the rest

of the country, and are given the needed attention in terms of the provision of infrastructure, incentives and other inputs. As will be illustrated with respect to two strategies which have been adopted to address the issue (see chapter 5), the social and cultural peculiarities of Northern Ghana have been given insufficient emphasis. As a result such projects have failed to stem the continued out-migration into urban centres and into other non-farming sectors.

2.3 HISTORICAL & CONTEMPORARY MANIFESTATIONS OF THE FOOD CRISIS IN SUB-SAHARAN AFRICA

In order to clearly appreciate the interactions conceptually portrayed in the preceeding section, a historical discussion of the food situation in Ghana and other sub-Saharan African countries is illustrative. The origins of the agrarian crisis in sub-Saharan Africa can be traced from the dawn of commoditization of production relations. According to Bernstein (1979), the withdrawal of labour from use-value production and the monetization of some of the material elements of reproduction forced rural producers into commodity production through cash crop production and/or the exchange of their labour-power for wages. New needs developed simultaneously with the erosion of entire cultures of production based on the previous systems of production. Thus, many traditional production skills, particularly in non-agricultural activities have been lost over time in the face

of pressures exerted by the process of commoditization.

Needless to say, this process was not uniform across the board; there were spatial differentiations. These differentiations explain the differences which exist within and between rural communities in contemporary times. The penetration of capital in Ghana, for example, led to a differentiation between north and south in which the north was turned into a labour reserve for the export economy in the south. Northern Ghana's role was essentially to exchange its labour power for wages in the southern export sector. Sorrensen (1986), Meillasoux (1977), Arrighi (1973), and Amin (1974) have documented the mechanisms used by the colonial administration to create labour reserves in certain areas of Africa. This policy resulted in unprecedented movement of able-bodied men from one area to another leading to different processes of social reproduction in the areas concerned. In essence, the relations between individual households at all levels of division of labour were increasingly determined through the place each household occupied in the total nexus of relations of commodity production and exchange (Bernstein, 1979).

Commodity production has broken the cycle of production for use value or for subsistence, leading to increasing vulnerability on the part of poor rural farmers who cannot cope with the demands of producing for consumption, and also surplus for the market, to satisfy their basic needs. Another

manifestation of this trend is its impact on the sexual differentiation of labour processes and the distribution of resources in terms of sexual categories. Labour migration, which in most cases is sex selective has resulted in skewed sex-ratios in favour of women in the source areas, with its attendant increase of the burden on women who are taxed to the bone to provide subsistence for the household and also surplus for the market. A 'simple reproduction squeeze' (Bernstein, 1979) is therefore created. According to Bernstein, the pressure from this form of production results in a squeeze on subsistence production and consequently an exhaustion of both land and labour given the techniques of cultivation employed. Constrained with these problems therefore, labour farmers may not be able to make use of land even if they were available for extensive use. In other words, without assurance of increased return to labour commensurate with the costs incurred it is unlikely that farmers will take the risk to extend their farms.

Related to the above are the joint issue of ownership of, and access to, resources and the role these play in the process of intensification of land use. Blaikie (1989) relates the pattern of access to land in most farming communities to the extent of intensification in which marginalized or weaker groups are forced to intensify production to meet their needs. Blaikie (1989), Okoth-Ogendo (1989) and other scholars have contended that a combination of factors, including the legal

duality of land tenure systems in sub-Saharan Africa, have effectively deprived some people of their access to essential resources. Although labour migration in Northern Ghana has led to mass movement of males to the south, especially cocoa producing areas (Hill, 1963), this has not changed the relations within tenure systems in favour of vulnerable groups. Poor farmers still work on small plots of land, with no access to inputs to improve their farms. An instability in the production system is therefore set in motion and perpetuates itself. Giving reasons for the instability of food production and the recurrent food deficits in most African countries, Berry (1984) observed that;

People are reluctant to tie up capital in fixed assets.....and prefer to hold commodities...or specialize in activities with rapid turnover rather than those with long gestation periods.....So that the quantity of commodities and services in the economy remains constant or declines, while their 'velocity of circulation' increases (Berry, 1984).

Thus faced with lack of security in land ownership and tenure, coupled with inaccessibility to vital inputs such as tools and credit, small-scale rural farmers cannot effectively participate in the food production systems of their countries although their local climatic conditions may be suitable for increased production. The worst hit areas are out-migration zones, Northern Ghana being a classical example. In such situations, the management of agricultural production progressively becomes the responsibility of women. This is a

responsibility which, given the demands of their productive and reproductive roles, women have difficulty in carrying out (Jazairy, 1993). The situation is further aggravated if rural women themselves have to seek income away from the farm in order to meet their subsistence needs. The result is a continuous decrease in overall agricultural productivity and a consequent ever increasing need for migration from rural areas.

2.4 POPULATION AND ACCESS TO LAND

The preceding section has set the tone for the study by discussing some of the historical consequences of agricultural commercialization in sub-Saharan Africa. It is clear that access to strategic resources is an important consideration in the rural agricultural economy. Land is the single most important factor of production in Africa. Indeed, issues surrounding land permeate all spheres of life, especially among rural people who depend directly on land for their livelihood (Berry, 1984; Okoth-Ogendo, 1989). In these areas especially, land is sought and struggled over to satisfy various needs including aesthetic, spiritual, material, status, identity and sovereignty, that flow from or are associated with access to and control over land (Okoth-Ogendo, 1989; Goheen, 1992; and Shipton and Goheen, 1992). Yet as much as humans conceive of land in various combinations of the above criteria, scholars now emphasize that land means

different things to different people in time and space, and is even contested for different reasons. Indeed, the conception and meaning of land differs not only between people who are spatially and temporarily differentiated, but also among and within them, if structurally and functionally they are differentiated (Clawson, 1968; Berry, 1984; 1989; Bruce, 1988; Mackenzie, 1990).

In Africa, land tenure systems are diverse, and therefore defy generalizations. However, there are some shared or common features which if contextualized illuminate the current problems in the overall agricultural system of sub-Saharan Africa. Access to and control over land is mainly controlled by indigenous systems of land tenure although state appropriation of land is not uncommon (Berry, 1984). This is a historically determined phenomenon, based on social membership in a land owning group. With plenty and relatively fertile land, indigenous tools, primarily basic needs to satisfy and small populations, access to land by community members was often on a first come basis. It was only a sign of respect or for protocol to consult with authorities in the power structure. According to Colson (1971), access to land was an inalienable right. The situation began to change when increases in group members and other forces at play in the mutually reinforcing economic, political and ecological marginalization set in (Blaikie and Brookfield, 1987: 19). Today, as manifested in the "simple reproduction squeeze"

(Bernstein, 1979: 427), land tenure systems are becoming more and more exclusive as rights to land are defined more narrowly in the context of new political, social and economic conditions (Bassett and Crummey, 1993).

Secondly, two related features, ownership and security of tenure, impinge on the agricultural system in rural sub-Saharan Africa. Indeed, there are so many grey areas regarding these features but together, they determine the level of food production in most regions. Prior to colonization, land ownership was not a hotly contested issue. In other words, Africans had no need to assert or differentiate land use rights from ownership. With abundant land and few competing land uses and users, tenure was more secure and definition of land rights was viewed as a matter of course (Colson, 1971: 197). The question of land market also did not arise, since it was unlikely that anyone would be prepared to pay for what s/he could easily obtain by other means (Colson, 1971: 195). Without individual ownership or a land market, when land was no longer in use and/or was abandoned, it reverted to the group for re-allocation or custody to others, including future generations.

The above discussion seems to imply a land-conflict free Africa. The contrary is rather true. It should be emphasised, following Kobben (1963) and Berry (1992), that land-based conflicts in Africa predate colonialism and have even raged over fallow land. In spite of the long history of land-based

conflicts in Africa, it is widely accepted that colonialization and its attendant internationalization of African economies fundamentally rearranged the pre-existing land tenure systems in time and space, with consequences that extend to the present (Bruce, 1986). The first major act in colonial rule as a political and economic project was to usurp and thereby weaken the local social structures concerned with all aspects of production. The customary and imposed statutory systems existed side by side, with the statutory seen as modern, best, and the ultimate in response to the dynamics of the market (Brock, 1969; Bruce, 1993). These historical contexts underlie the contemporary complexities of the land issue and observed population distribution patterns which contribute to the food crisis.

Today, due to legal plurality in most countries, there is constant conflict with respect to access rights to land, ownership and security, which are crucial motivating factors in rural agricultural ventures. These features therefore assume socio-political characteristics which impact negatively on the production system. Writing on the dual land tenure system in southern Nigeria, Park (1965) identified two systems of law; English and customary law, both in force at the same time. As commented by researchers such as Bentsi-Enchill, (1965); Segal (1968); West, (1982); and Okoth-Ogendo, (1989), this scenario reflects the historically determined shifts in the power systems from autonomous societies to the authority

of the state in sub-Saharan Africa starting with the colonial administration which vested most traditional lands to their home governments.

The political wrangling relating to access and control over land are manifested not only between traditional communities and the state, but also between traditional authorities, and within communities down to the household level. In these struggles, as in all struggles, individuals and vulnerable groups are mostly the losers. These historical contexts and their contemporary extensions can also be seen in the Ghanaian situation, and specifically Northern Ghana, the case to which the discussion now turns.

2.4.1 Land Tenure in Ghana

Traditionally, all land in Ghana was vested in either 'stools', 'skins' or families. These lands were controlled, administered and managed by chiefs, family/tribe/clan heads or captains, in trust for their subjects. With the emergence of colonialism and subsequently national sovereignty the government, by legislative intervention, either claimed absolute ownership of some lands or shared 'ownership' with traditional custodians of land. Mensah-Brown (1978) identified three major types of land in Ghana and the basis of the socio-legal principles underlying ownership and interest in the lands, namely; state land, vested land, and indigenous or

traditional community land¹.

In Ghana most of the farming activities are carried out on community or traditionally owned lands. Ownership as well as access to land differs among tribal groups. In Northern Ghana, prior to the enactment of the Administration of Lands Act, 1962 (Act 123), and by virtue of the Lands and Native Ordinance of 1927, land was placed under the 'control' and subject to the disposition of government to be held and administered for the use and common benefit of the 'natives'. In practice, the chiefs or religious heads (Tindanas) administered most of the farm lands (Cheshire, 1977). A stranger settler who wanted land for farming purposes applied to the chief in the first instance. The chief then asked him to see the Tindana concerned, who was legally referred to as the 'land owner'. However, outright sale of land to strangers is not uncommon in Northern Ghana.

¹ State Land

Land acquired absolutely by the state. Under the State Lands Act, 1962 (Act 125), the mere declaration through the publication of an instrument designating a piece of land as required in the public interest automatically vests ownership of that land to the state.

Vested Land

Land previously belonging to a given traditional indigenous community is declared under the Lands Administration Act 1962 (Act 123) to be vested in the State and administered for the benefit of the community. The State possesses the legal interest in the land as a "trustee" while the indigenous community is left with a beneficial interest as a "beneficiary".

Indigenous or Traditional Community Land

Land vested in a given traditional authority to be administered according to the principles of indigenous or native law or customary law.

The customary land tenure system in Northern Ghana favours males through the patrilineal inheritance system. Males dominate in the interlocking political, social and economic domains, and they define the terms of access to and control over land. Women seldom inherit land in the predominantly patrilineal system. They participate mostly as institutionalized subordinates. This tenure system is strictly enforced and violators are sanctioned within communities. Women thus have only usufructuary rights on clan/tribal lands or they work on their husbands'/fathers'/elder brothers' farms, as the case may be. This is in total contrast to their counterparts in the southern sector, who have land owning rights with some actually owning commercial farms (Hill, 1963: 115; Oppong; 1984: 25; Okali and Mabey, 1975: 20). The inequality in the land tenure system coupled with migratory trends of males in Northern Ghana has further exacerbated the problems faced by women. This progressive movement of people, especially able-bodied males, to the south and the uplands of the north-east and north-west of the country, has led to a drastic change in the labour structure of rural farming communities in the North, but without a corresponding change in the land tenure relations. The customary tenure system is strictly enforced to the extent that although there are more females than males, in matters of land males are made to oversee family lands, whatever the male/female ratio is (Nabila, 1990).

2.5 CONCEPTUAL & THEORETICAL DEFINITIONS

This section defines the main concepts used in the study in order to avoid misunderstanding since several concepts have multiple connotations and therefore could be misleading.

2.5.1 Population Density and Distribution

Population distribution in this study refer to the way people are arranged in space, gender and age differences among people living in different parts of a region, and other socio-economic characteristics (education, health etc) which affect the production system. As already mentioned, population distribution in Northern Ghana has been influenced mainly by ecological and socio-economic factors. This is reflected in the persistence of out-migration to 'favourable areas' in the region, and other parts of Southern Ghana.

Southern Ghana is richly endowed with almost all the mineral resources in the country. It is environmentally conducive for the cultivation of Ghana's main export crops. Again, past government policies (including those of the colonial administration) have favoured the development of both physical and social infrastructure in Southern Ghana (Benning, 1975). To a considerable extent, this explains the progressive movement of people from north to south. This movement, and the patterns thereof, have been documented by all three post-independence censuses of Ghana. Apart from the census reports, other surveys conducted have observed similar patterns in the

distributional pattern of the population, which has a strong bearing on the viability of the northern food production system (Nabila, 1990; Ewusi et al, 1986; and Aryeetey, 1987).

Population density is a concept used in studies relating population size to resources and in ecological studies. It is often computed as population per square kilometre of land rather than of gross area (land and water). It is a proxy of the concentration of population in a spatial context. However, for countries which rely mostly on agriculture, more meaningful densities are obtained by relating the size of the population to the agricultural land. In assessing the productivity of Northern Ghana's population in terms of agricultural yield, this is handy, since about 80 per cent of the population live in small rural communities.

2.5.2 Agricultural Production

In this study, agricultural production or food production in the north are used interchangeably to refer to the output of the main cereals consumed in Ghana (maize, sorghum, millet and rice), in relation to existing technological know-how and other inputs. Most importantly, these crops are well adjusted to the climatic and vegetational types in Northern Ghana. As already stated, the production of export crops such as cocoa and oil palm are not important in the area. Although there appears to have been a decline in recent times, agriculture continues to be the most important sector of the economy in

terms of employment, contribution to GDP and export revenue (Economic Intelligence Unit, 1993: 3). In Ghana, as in most sub-Saharan African countries, the collection of data on food production is not well developed. Production figures are usually estimates and mostly do not reflect the real situation. However, the domestic production of the main cereals, especially maize and rice in Northern Ghana has been documented at some appreciable level and therefore would be a proxy of the production level in Northern Ghana.

The main issues which are considered with respect to agricultural production in this study include gender inequalities in land tenure and land use systems in the area. In addition, since technological innovations, fertilizer applications, access to extension services, and credit facilities are pertinent in the production of food, an investigation of how these have been distributed to poor farmers, who make up the majority of food producers in Northern Ghana is attempted.

2.5.3 Population Perspective on Agriculture

One of the earliest theoretical conceptualizations of the effects of population growth on agriculture (and economic development) is that of Malthus. A Malthusian analysis would emphasize the problem of large numbers and large absolute size relative to scarce natural resources. The associated hypothesis of Malthus' theory has been referred to as the

"invention pull" hypothesis (Simon, 1992: 44). According to this hypothesis, a new invention in the agricultural sector is immediately followed by a population increase that eventually eats up the benefits of the invention until the population returns to subsistence living.

However, in spite of the huge projected increases in population of the world today, the population problem is not explained in terms of absolute size or numbers or density, but in terms of the rapid rate of population growth vis-a-vis technological innovations applied. World population has grown faster, to higher numbers, than Malthus would have imagined, but so too has world production and income levels. Boserup (1965) has argued that with rapid population growth, the process of intensification would need to take place much more quickly to bring food supply in line with demand. Thus she saw population growth as an inducement to increased food production to meet increasing demand.

Simon (1992; 46) also argued that there are no real natural resource limits, because population growth itself brings adjustments that continually put off doomsday. However, his argument is flawed since there is no evidence that population growth itself inspires the science-based technological innovations rapidly enough to save millions from poverty. Even with the assumption of technological change built into Simon's model, there are short-run difficulties.

More generally, the fact that most developing countries

still have yields only a quarter to half the yields of industrialized countries suggests that natural resource scarcity is not the fundamental problem (World Development Report, 1984). The lack of appropriate technology for agricultural production, land tenure issues, differentiation in the sexual division of labour, coupled with the biased nature of government policies best explains the situation in most countries. The emphasis on export crop production in the southern region of Ghana, unsuccessful experimentation with mechanized farming in Northern Ghana, and the systematic outward flow of population, especially males, have contributed to the low productivity levels in Northern Ghana in spite of the vast tracts of land there.

2.5.4 Agricultural Labour Force and Productivity

According to Nancy Birdsall (1986: 3), a population perspective in agriculture generally requires a focus not so much on land yields (and on natural resources), as on labour productivity, on raising per worker income even as labour supply is increasing. She posits that where the land frontier is exhausted, as in much of South Asia and parts of Africa, the options for increasing labour productivity are obviously fewer, but are still the proper focus of concern under conditions of rapid population growth. Where land is still plentiful, as in some parts of Africa, it cannot be assumed that labour productivity will increase automatically. This is

partly because of the rapid pace with which labour supply is increasing and the current low levels of inputs, poor transport, land tenure issues etc., increasing productivity in agriculture becomes a great challenge.

Johnson and Clarke (1982) suggest and illustrate an accounting identity for the rate of growth of the agricultural labour force. The formulation allows hypothetical calculations of the turning point when growth ends and the absolute number of workers in agriculture begins to decline. This can effectively happen in a situation where the labour force is moving into economically favourable areas (either voluntarily or forcibly) as opposed to subsistence agriculture. In most cases, as in the case of Northern Ghana, the dominant gender in the migration stream is the male, which leads to a drastic change in the sex ratio of the source area.

According to Johnson and Clarke (1982,), whereas most countries have reached the turning point, sub-Saharan African countries are unlikely to reach it until the next century. They posit that the critical difference between the countries of the South in the present period (1950-2000) and countries of the North at the turn of the century (1880-1920) lies in the total labour force growth (comprising the non-agricultural labour force (industry, services etc), and the agricultural labour force). The turning point is sensitive to the initial share of labour in agriculture. For example, assuming a 4 per cent growth of non-agricultural employment and a 2.5 per cent

growth of the total labour force, the turning point comes after 50 years if the initial share of the labour force in agriculture is 70 per cent - compared with after only 15 years if the initial share is 50 per cent.

However the "turning points" are only illustrative since in the event of increasing labour productivity within agriculture there is no *a priori* reason to view an exodus from agriculture as a "turning point". Again, it should be noted that it is not a levelling off or a decline in the number of agricultural workers itself that encourages an increase in labour productivity within agriculture, but a decline in the supply of labour relative to other inputs. The obvious other input is land. But transportation, science-based technology (Green Revolution high-yielding variety seeds), and human capital are also inputs, increases in which can induce a relative scarcity of raw labour.

2.5.5 Farm Population

Farm population is often equated to rural population. This is not always the case, as there are some people living in rural areas who are not farmers in the strict sense of the word; they earn their living from activities other than or in addition to farming. However, the farm population in any area tends to be set off more distinctly from other population groups, in its cultural traits, living standards and social institutions.

In order to differentiate between these groups, the study relies on the censuses of Ghana which classify economically active population by industry, occupation and industrial status, and other surveys such as the agricultural censuses of 1972 and 1986. In this way the farm population is easily differentiated from the rest of the economically active population. Northern Ghana's population is mainly rural, as depicted by the census reports. The census report of 1984 also show that about 75 per cent of Northern Ghana's population is engaged in one form of agriculture or another. Again the gender differentials in the agricultural labour force can be easily discerned from the census reports. Most of the subsistence labour force are women and children who work on the farm and perform other functions which assist in the survival of the household. This is further explored in chapters 4 and 5, with evidence to show that the historical distribution of population in Northern Ghana has seriously affected the agricultural production efforts of the area.

2.5.6 Labour Migration

Any meaningful study on population and agricultural production cannot begin or end without a discussion of the migratory patterns which have shaped the distribution of population in the given area. This is because labour migration is a demographic phenomenon which has implications, both positive and/or negative, for economic activity. It is more

important to this study because it involves the movement of the economically active population within a country and also between regions. Labour migration can be estimated by relying on the "place of birth" data in the census reports. A comparison of all the three censuses of Ghana therefore gives the study a temporal as well as a spatial dimension.

Essentially, labour migration is considered as economically motivated spatial mobility which is accentuated by the labour needs of a modern economy. In Ghana, as in most countries, labour migration has had a tremendous impact on the development of natural resources, particularly in agriculture and mining. The historical movement of population is quoted to explain the effect of gender bias in the distribution of labour in the agricultural system of Northern Ghana. Analysis of the three census reports show that labour migration in Ghana involves nearly one half of the country's labour force. Commenting on the significance of labour migration in Ghana, Killick (1966) admitted that migrant labour is very important in the Ghanaian economy. These observations have since been corroborated by various writers including Addo (1975), Cheshire (1977) and Nabila (1990). Apart from the volume of the movement, the direction of the movement is also crucial. Although rural-urban migration is important, rural-rural migration is also significant, especially among the agricultural labour force. In most areas, farmers move from village to village in search of virgin lands for farming.

In addition to the above scenario, a whole community may move from an area of unfavourable ecological conditions to more favourable areas. In such a situation, pressure is brought to bear on the in-migration area and productivity per unit of land may be lowered. North-eastern Northern Ghana is an area where in-migration, from the immediate south-west and south-east Northern Ghana, has been going on for the past three decades or so, due mainly to the ravages of onchocerciasis. These areas have surplus population¹ and, consequently, suffer land degradation in the form of soil erosion and loss of the nutrient content of the soil. Densities in parts of the Bawku district for example, are believed to be over 100 persons per hectare (Statistical Service, 1987). This has disrupted the traditional compound farming system and accelerated the extent and scale of land degradation, especially soil erosion (Nabila; 1990).

2.5.7 Labour Scarcity and Rising Labour Productivity

It has been theorized that large gains in labour productivity within agriculture tend to occur when an exogenous change in conditions affecting production makes labour scarcer than it had been relative to land and capital. Such labour scarcity also tends to coincide with rising

¹. Areas with infertile soils, but high population densities are squeezed to produce food on the limited land available. This becomes more acute when we consider that about 75-80 per cent of the population are farmers.

average incomes. Thus much attention has gone to the demand-side explanation for the shift of labour out of agriculture, i.e., that in a stationary population, an equal increase in productivity in agriculture and industry leads to a decline in the agricultural labour force. The income increase that higher productivity brings reduces the demand for food relative to the demand for other goods. As already mentioned, Boserup's well-known suggestion is that high population density provides an impetus for a shift to a new "food supply system" and an increase in labour input (Boserup, 1965). For example, the movement from forest fallow to annual cultivation using the hoe in West Africa resulted in an increase in total labour input per hectare from 770 hours to 3,300 hours per unit of time. The increase occurs due to an increase in intensity with which certain tasks have to be performed (for example, land preparation and weeding) and due to an increase in the number of operations performed (for example, manuring, irrigation, etc.) (Pingali et al, 1984). The distinction between population density and the rate of growth of the population is important here. Boserup discusses the positive effects of increases in size due to very gradual increases in population in the pre-industrial age. She notes that more rapid increases in population can cause difficulties;

"The cultivators must be able to adapt themselves quickly to methods that are new to them.... the community must somehow be able to bear the burden of a high rate of investment and perhaps to undertake sweeping changes in land tenure" (Boserup, 1965: 85).

She suggests that the decline of civilization in Mesopotamia and other river areas occurred when societies did not maintain investment in irrigation systems sufficient to support ever-increasing populations. This means that as populations increase in most countries, there is the need to make reforms in their agricultural systems for higher yields in order to feed their teeming populations.

The links among higher density, new cultivation systems, and higher labour inputs have been explored systematically by Pingali and Binswanger (1984). Using data on 53 locations in Africa, Asia, and Latin America, they demonstrate for these locations the point noted above, that labour input per hectare increases as the mode of cultivation becomes more land-intensive. More importantly, they show that though yields (product per unit of land) increase dramatically with shifts to more land-intensive modes of cultivation, product per worker-hour does not increase, holding "tools" (i.e., the hoe, animal ploughs and tractors) constant. In other words, all other things the same, higher population density leads to an increase in yields, but not necessarily in labour productivity.

Raising labour productivity in agriculture will be relatively difficult in sub-Saharan African countries facing large increases in the absolute size of their agricultural work forces. A country such as Kenya, for instance, could have as much as a 9 fold increase in the size of its agricultural

work force by the year 2050. In the same way, Ghana's agricultural labour force is projected to increase to as much as 8 or 10 per cent by the year 2050 (Statistical Service, 1987). Though increases in labour induce certain farmer-managed innovations in agriculture that raise land yields and have generally prevented a decline in per worker output, (including intensification of land use and use of organic fertilizers), the farmer-managed innovations that raise labour productivity (for example, mechanization) are less likely until labour scarcity and rising wages make them economically viable for individual farmers. The more rapid the growth rate of population, the more delayed the onset of labour scarcity in the agricultural sector, all other thing being equal, and thus the more delayed the farmer-based innovations that would raise labour productivity.

Thus, in an area where subsistence agriculture is the largest economic activity, and most of the farm inputs including land tenure is in the hands of a particular group of people, largely males, it is unlikely that agriculture would be economically viable unless changes are made in the existing land tenure system pertaining in the area. Again, the lack of the requisite educational and technological know-how on the part of a large percentage of the labour force, coupled with lack of infrastructure and other amenities, implies that increasing labour productivity is a very uphill task.

2.6 SYSTEMS OF AGRICULTURE

We now turn to the agricultural system in Ghana since it plays a crucial role in the level of stress to the environment and the food production system. There is a great variety of indigenous agricultural systems. Apart from the fallow system of agriculture, which is now almost extinct, there are permanent small-scale systems practised all over the region (Benneh, 1972; Arhin, 1986). These systems are practised in combination with bush fallowing¹ of small plots of land immediately around compound houses. Under compound farming, land is extensively cultivated with no fallow periods. It is seen in its most developed form in the densely settled areas of the savanna zone (Dickson, and Benneh, 1988).

Mixed farming¹ is also practised, especially in extreme north-eastern Ghana. It is characterized by a combination of arable cultivation with keeping of livestock. This agricultural system was introduced by the British Colonial Administration in the 1930s to increase agricultural

¹ Bush fallowing is a system of rotation of fields or of crops and bush. A plot of land which has been cultivated for a number of farming seasons is abandoned and allowed to fallow to become secondary vegetation. This system is sometimes called shifting cultivation, but technically shifting cultivation implies the movement of both settlements and farms to the new areas when old farms are abandoned. In the case of Northern Ghana, farm settlements are usually permanent, therefore bush fallow is preferred.

¹ Mixed farming can be defined as growing two or more crops on a given plot of land, and also rearing livestock at the same time (Norman; 1974). It involves the planting together of different crop species, or sometimes different varieties of the same crop in a single field.

productivity and to check the rapid deterioration of soils in the area due to population pressure (Shepherd, 1979: 29). The main technical innovations associated with the introduction of mixed farming were the use of the bullock plough, planting on ridges, and the deliberate attempt made to collect cow dung through stall feeding of work animals. With all the above systems, the production and consumption unit is the household, but in the case of large compound houses, nuclear families farm separately (Dickson, and Benneh, 1988).

However, agricultural technology has not kept pace with the growing population, especially in Northern Ghana. Traditional methods of agriculture, especially bush fallow and shifting cultivation using simple tools like the hoe and cutlass, support low population densities. As population densities increase, the traditional agricultural practices are stretched to breaking point. The need to evolve new and advanced forms of agricultural technology thus becomes imperative. In the Ghanaian situation, while population densities in agricultural areas, despite local variations, are on the ascendancy generally, agricultural technology has remained static. It is not uncommon therefore to see in most agricultural areas the shortening of fallows and encroachment on marginal land and reserves. The result has been eroded soils and consequently a reduction in the supportive (productive) capacity of the soil as the level of technology is unable to sustain growing numbers.

Yields in production of food in Ghana have been stagnating and declining¹. Among other things, it points to the fact that the potential of the land in terms of food production has not been fully realized, and that increased production is possible with a combination of improved technology and a well developed human resource. It should be noted that food shortages in Ghana cannot be attributed solely to the inefficiency of farming systems. Other factors including increasing urbanization, changes in consumer tastes, land tenure and access issues are responsible for the low performance of the food production sector. With respect to Northern Ghana, the low attention given to food production, and the overall development pattern which favours the southern regions, coupled with lack of access to resources by rural farmers, has affected their production capacity.

2.7 SUMMARY

A framework for the study has been conceptualized. The focus has been on the broader socio-cultural issues connected essentially to population distribution in Northern Ghana, which is the direct result of past and contemporary development policies. The link between agricultural

¹. The average annual growth rate of total agricultural production between 1970 and the early 1980s was -0.1 per cent. The total food availability has declined significantly, resulting in reduced food intake (by about 30 per cent) and malnutrition, especially among children and other vulnerable groups (Dadson; 1986: 144)

intensification and labour productivity have also been explored, and the concept of density, in relation to population and agricultural land was contextualized to fit the framework for this study. In order to explain the pertinent aspects of population vis-a-vis food production, some population related models of agricultural production were reviewed. The review indicates that 'management-intensive' innovations and associated increases in non-labour inputs such as land, transportation (which increases market size), fertilizers and other science-based changes could lead to increased productivity in food production. However, this will happen only if local farmers are involved in each stage of implementation of such innovations. The social and cultural characteristics should be effectively factored into all plans aimed at increasing productivity. It is only through such an approach that one can understand the real issues underlying the recurrent spate of food deficits in Ghana.

What then are the unique environmental conditions prevailing in Northern Ghana? Again, what socio-economic characteristics do communities in Northern Ghana exhibit generally? Environmental and socio-economic characteristics affecting food production in Northern Ghana are discussed in chapter 3, to set the scene for subsequent analysis. It forms the background information for understanding the role of environmental and socio-economic issues in the food production system of Northern Ghana.

CHAPTER 3
ENVIRONMENTAL AND SOCIO-ECONOMIC
CHARACTERISTICS OF NORTHERN GHANA

3.1 INTRODUCTION

This chapter introduces the physical environmental and socio-economic characteristics of the study area and indicates their interconnectedness with its food production system. In particular cultural beliefs and practices in terms of land tenure and use, inheritance systems, the gender division of labour, and inequalities are examined, thereby focusing on some of the basic factors that affect the production system in Northern Ghana. This information will assist us to understand why any attempt at changing or modifying the farming systems in the area should of necessity be framed by not only a political and/or economic perspective, but also a socio-cultural perspective.

3.2 ENVIRONMENTAL CHARACTERISTICS

3.2.1 Extent and Relief Features

Northern Ghana lies between latitudes 8° and 11° North and between longitudes 0° 30 East to 3° West (see Figure 1.2). It is flanked by the Togoland to the east, Volta Region of

Ghana to the south east, Brong-Ahafo Region of Ghana to the south, La Cote d'Ivoire to the west, and Bukina Faso to the north.

Apart from the Gambaga scarp to the north-east, which rises to about 600 metres in the Upper-west Region, Northern Ghana is characterised by a plateau averaging between 183 metres and 366 metres in elevation, with undulating plains carved out by the Volta river and her tributaries, such as Sissili, Kalpaw, White Volta and Black Volta (Figure 3.1). There are also gently rolling north-south trending hills in the west through Wa to Bole and south from Tumu. Residual granite stones are frequent, which wear down to better soils, especially in areas around river basins (Church, 1980: 372).

3.2.2 Climate and its influence on Agriculture

Climatically, Ghana's regions can best be differentiated on the basis of the disparities in the amount and distribution of rainfall rather than temperature differences. This is because on the average, temperatures are almost uniform all year round. The mean annual temperature for Northern Ghana is about 27°C, with the highest and lowest temperatures occurring in March and August respectively. There is also a prolonged dry season (November to March) during which the dry continental air mass (cT) which originates from the Sahara desert. At this time, relative humidity drops to about 20 per cent in Northern Ghana and to about 65 per cent in the rest of

Figure 3.1: Relief and Drainage Characteristics of Ghana

the country (Dickson and Benneh, 1988: 34). The winds are hot, dry and laden with dust particles, resulting in dry, and irritating skin conditions. Epidemics of cerebrospinal meningitis are most prevalent during this season. These conditions have a negative impact on farm activities since most seriously affected people cannot work on their farms¹. Vegetation cover also dries up and wilts away. In addition, most water bodies dry up entirely. During this period, drought may occur. The severe drought of 1982/83 severely affected Northern Ghana, and this was reflected in the low food production for the whole country (Dadson, 1986; Asiedu-Saforo, 1989: Tables 1, 2 and 7).

The rainy season (April to October) is marked by inconsistent intra-seasonal distribution, with a marked variability from year to year. At this time, Northern Ghana is influenced by the Tropical maritime airmass (MT), which originates from the Atlantic ocean, from a south westerly direction. It is moisture laden and therefore causes rain. The growth of crops is most seriously affected by the water available and its distribution in the soil. Regular distribution of rainfall enhances the food production system, *ceteris paribus*. Mean annual rainfall varies from 925mm in the extreme north-east to 1300mm or more in the south-western

¹. This is largely based on personal observations and informal conversations with farmers in and around West Dagomba District (Northern Region) between the summer of 1988 and the winter of 1989 when I was doing my national service as a Liaison Officer for UNICEF-Tamale

portions. The average crop growing period ranges from 180 to 240 days.

Other aspects of rainfall which affect the suitability of particular crops in Ghana include variability in time and space; distribution of water need; balance of water need and precipitation; mean annual rainfall deficiency; mean annual water surplus and seasonal variation of water balance.

Rainfall variability is greatest in Northern Ghana (Latitude 8°N is the dividing latitude, and it coincides with the 1250mm isohyet). Water need is therefore greater in Northern Ghana than in Southern Ghana (Figure 3.2). There is no station in the region with an annual water surplus. This implies that crops which require a higher number of rainy days cannot survive in the savanna region (Table 3.1). Apart from cassava, plantain and cocoyam, which need a longer growing cycle, the rest have shorter cycles (3 and 5 months).

Crops like rice and yam, with a growing cycle of 4 months and water requirements of between 1,000-1,200mm, need at least 5 humid months to do well. These crops thrive very well in the north where conditions are favourable. It is no wonder that the yam and rice belts are found in the Tamale, Yendi, and Damongo/Salaga districts. In these areas there are 5 humid months within the rainfall regime. Areas in the Upper-east region (Navrongo, Bawku, and Bolgatanga) have 3 humid months each. Here, millet, guinea corn and groundnuts are grown without irrigation. These crops also have a marked degree of

**Figure 3.2: Mean Annual Rainfall
Ghana, West Africa.**

drought endurance once established. Figure 3.3 shows the spatial distribution of staple food and tree crops in Ghana and indicates their coincidence with rainfall patterns, vegetation and soil.

Table 3.1 Length of Growing Cycle And Water Requirements of Crops in Ghana, 1989.

Crop	Length of the Growing Cycle (Months)	Water Requirement (An. Mean in MM)
Maize	4	1,000 - 1,700
Sorghum (Guinea Corn)	3	600 - 1,000
Millet	3	500 - 1,000
Rice	4	1,000 - 1,200
Cassava	6-24	500 - 1,200
Plantain	10-24	1,000 - 1,200
Cocoyam	9-24	1,000 - 1,200
Yam	4	1,000 - 1,100
Groundnuts	3	800 - 1,000
Pepper	5	900 - 1,000
Onion	3	800 - 1,000
Tomato	3	900 - 1,000

Source: Ministry of Agriculture Reports, 1990

3.2.3 Soils

Savanna ochrosols and gliesols, together account for about 80 per cent of all soils here (Dickson and Benneh, 1988: 44-45). They have lower organic matter content and nutritional status compared to forest soils. In addition, the high temperatures recorded result in high evapo-transpiration.

Figure 3.3: Distribution of Staple Food and Tree Crop Production in Ghana

Map based on the basis of a map produced by the World Bank

Potential evapo-transpiration is between 150 and 155mm per month, and it is only in the wet season that monthly rainfall is likely to exceed evapo-transpiration (Ahn, 1970: 93). On balance, there is water deficit for most parts of the year.

The effect of seasonality, namely extremely hot dry conditions alternating with waterlogged conditions, results in the formation of lateritic soil surfaces, which give rise to concretionary layers with neutral or even slightly alkaline reactions, particularly in the topsoil. They are the poorest soils in the humid tropics (Brammer, 1962; Ahn, 1970). However, those with deep topsoil formed from Voltaian granite are good for cultivation, but they are susceptible to drought and erosion. Increasing yields of food crops depend on adding organic matter to improve the physical constitution of the soils. Savanna Ochrosols consist of red and brown well drained friable, porous, loamy soils. They are acidic or mildly acidic. Nutrients are concentrated in the topsoil organic matter and the soil mineral matter has little capacity to supply or retain nutrients. They are extensively farmed but the area covered by this soil group is relatively small compared to the savanna gleisols (Figure 3.4).

The main agricultural problems associated with savanna soils are shortage or poor distribution of water, with long severe dry seasons. The lack of organic matter in the soil owing to the sparse vegetation, which is aggravated by annual burning and the frequent presence of ironstone layers at or

Figure 3.4: Distribution of Soils in Ghana

near the surface are among some of the many disadvantages of the soils of the savanna region (Benneh, 1974). In addition, most of the soils in this region are shallow and cannot store much water. They are not suitable for intensive agriculture, and may deteriorate rapidly when subjected to intensive mechanization. Even the relatively rich ochrosols can be cultivated only for short periods, after which there is the need for constant application of fertilizer to maintain yields. As part of the Medium-Term Agricultural Development Plan (MTADP) of 1986 (Republic of Ghana, 1986), a land suitability assessment was undertaken using UNFAO principles (UNFAO, 1976). These make distinctions between land that is highly suitable (S1) for a given use, land that is moderately suitable (S2) and land that is only marginally suitable (S3). Table 3.2 summarizes land suitability for various crops based on the land suitability assessment principles of the UNFAO.

The taxonomy of land suitability is based on factors limiting its use for particular crops such as nutrient status, erosion and moisture availability (UNFAO, 1976; 23). About 80 per cent of the land available in Northern Ghana is S1 lands, suitable for cereals. However, it must be noted that these soils require considerable amount of human time and energy for the attainment of high food production levels.

Table 3.2: Land Suitability by Categories of Crops - Area of Suitable Land (thousand ha)

Crop	S1	S2	S3
I. Cereals			
Maize	3 900	4 220	3 730
Sorghum/millet	3 820	2 660	730
Upland Rice	300	3 080	760
Lowland Rice	2 390	300	2 250
II. Roots, Tubers			
Yams	320	210	800
Cassava	3 900	4 020	760
Cocoyam/Plantain	200	4 020	760
III. Legumes			
Peanuts/cowpeas	3 900	6 160	1 320
IV. Industrial Crops			
Cotton	3 820	2 660	730
Tobacco	3 820	1 020	1 710
Cocoa	2 890	690	530
Oil-Palm	3 320	760	650
Rubber	3 320	760	650
Coffee	3 320	760	650
Coconut	430	110	-

Source: Ministry of Agriculture, 1989, Accra, Ghana.

3.2.4 Vegetation

The rainfall pattern, and other climatic factors have resulted in two distinct, but related, vegetation zones namely; the Sudan savanna in the Zebilla-Bawku-Pusiga areas in the extreme north-east, and the Guinea savanna covering the rest of the region. Both represent an ecoclimatic zone which has evolved in response to climatic factors and has been modified by biotic activity (Figure 3.5). The Sudan savanna is a parkland vegetation dominated by short grasses and

Figure 3.5: Vegetation Zones of Ghana

- Moist-semi deciduous forest
- Guinea Savanna
- Sudan Savanna
- Rain Forest
- Coastal Scrub and Grassland
- Strand & Mangrove

scattered dwarfish trees, whereas the Guinea savanna is characterised by medium and tall grasses (between 3-5 metres), with a higher diversity of trees. Butyrospermum parkii, Parkia clippertonia and Acacia albida are the predominant trees of economic importance. They are widely encouraged by farmers in the sub-region (USAID, 1991). The vegetation also include "gallery forests" along river banks. These have experienced minimal human disturbance due to the prevalence of river and moisture borne diseases in the area. There are also a number of forestry plantations planted with exotics such as teak, neem and minosoides since 1900 (Forestry Department, 1990). In the savanna zone of Ghana, the tree species are mainly fire resistant and are often left in situ during the fallow season in combination with savanna grasses. This provides a reasonably stable environment for the recovery of fertility.

So far, physical characteristics of the study area have been discussed without incorporating the impact of human activities. The following sections deal with some social aspects of the people, with reference to how they interact with the physical characteristics.

3.3 ENVIRONMENTAL STRESS

Agricultural practices enhance people's ability to find nourishment however, modifications and/or outright changes in farming practices, resulting particularly from changes in technology, without significant protection from environmental

stress, can cause serious problems. These lead to unsustainable environments which in turn cannot support growing populations. In order to come to grips with such environmental issues, the pattern of a society's culture, as well as historical aspects of its production system should be critically examined (Raay, 1975: 13). This is because culture, responding to past and present political economy of a particular society, reflects the various practices including the type of tools used for cultivation and the system of agriculture.

The traditional method of shifting cultivation, by which land is cropped for two to three years with food crops and then left fallow for eight to ten years or more, is a farming system which causes no lasting damage to the environment (Benneh, 1972: 247). Problems of environmental stress become apparent when the fallow cycle is altered, either by changes in land-clearing methods such as felling of trees for mechanized farming, or excessively intensive use of marginal lands resulting first from severe interference with the traditional productive cycle, and secondly as a result of local population pressure from both migration and natural increase in some areas. Consequently, the regenerative capacity of the soil is drastically reduced. There is also a correspondent change in soil structure due to rapid loss of organic matter. On savanna soils, the result can be devastating due to sheet erosion occurring during the short

rainy season¹. There is evidence that this is becoming a common feature in the densely populated areas of the Upper-east region (Bawku, Zuarungu and Navrongo), where continuous cropping of some upland soils is becoming a necessity; and in other parts of Northern region too, such as areas in and around West Dagomba Urban council, where annual burning of vegetation, coupled with shortened bush fallow, is contributing to environmental degradation. Furthermore, soil erosion in certain parts of the area, especially the densely populated district of Bawku (Upper-east) is directly linked with some socio-cultural practices of the people, including fuel wood fetching, charcoal making and bush burning. In most cases the effects of these activities on soil erosion are direct and easily noticeable on the landscape. The intensive felling of trees for fuelwood in certain areas exposes topsoils to sheet erosion. In addition, annual bush fires constitute a major cause of environmental degradation in the region (Environmental Protection Council, 1992; Cater, 1990).

The use of bush fires for clearing the land before the farming season is a common feature in most rural farming societies. In the Bawku district and its surrounding areas, for example, there are customary practices, cults and traditional institutions that revolve around bush burning and the use of fire in other forms. The fire festival is also

¹. It should be mentioned that rainfall in this area lasts for a very short time but rain comes in heavy torrents.

practised by the Moshi, Mamprusi and other ethnic groups in Northern Ghana. In these areas, it is believed that setting vast areas on fire before the farming season lead to higher yields in the coming farming season. It is also believed that the ashes from bush fires enrich the soil (Environmental Protection Council, 1992).

In addition, the widespread use of woodfuel as the primary energy source in most rural communities has implications for the environment and the fertility of the soils they farm. This widespread use of fuelwood, however, is mainly influenced by the socio-economic status of the household. Most people in the area are poor and therefore cannot afford the high cost of other fuel types such as stoves and electrical accessories (Ardayfio-Shandorf, 1985). Consequently, there is a high demand for fuelwood for both domestic and industrial purposes. As a result of increased tree felling for fuelwood in the savanna zone, soils are laid bare, making them vulnerable to sheet erosion. The result is widespread environmental degradation. As the pivots of household management (as cooks and manufacturers in charge of family welfare), rural women in the area have fuelwood production as a central task. According to a study by Ardayfio-Schandorf (1985) in southern Ghana, some women spend between five to eight hours daily fetching fuelwood. The situation in Northern Ghana could even be worse considering the sparse nature of vegetation in the area.

In spite of the above stressful activities on the environment, there are certain traditional practices for checking soil erosion in some parts of the region, especially in the densely populated area of Bawku, and Navrongo districts. These practices include terracing, contour farming, planting of grasses, bunding and damming by logs and stones. In the Nangodi area, for example, terracing has been an age-old farming practice which has been widely adopted for checking soil erosion. In addition, there are some sacred groves, which safeguard the land from encroachment and subsequent degradation. The groves are not evenly distributed across the area, however each traditional area has some groves which are strictly protected. Some of the popular groves in the Upper-east region for example include "Chug" for Nabdam, the "Azolige" for the Gurune, the "Tongban" for the Kusasi and the "Konjag Pung" and the "Pilsa Gaab" for the Builsa, to mention a few (Environmental Protection Council, 1992). These groves are protected, conserved and maintained through a mechanism of taboos, prohibitions, beliefs and restrictions. In almost all cases, burning, tree cutting and fuel fetching are prohibited in the groves. There are prescribed sanctions for persons who violate the taboos. The groves epitomise the dimensions that vegetal cover could assume given maximum protection: luxuriant greenery, abundance of trees both in number and variety, abundant wood, thick undergrowth of grass and shrubs.

It should also be added that the river valleys have been protected so far from environmental stress due to the low level of human activity in those areas. This is the direct result of the presence of the black fly which causes onchocerciasis - a disease that has resulted in many blind people, and in mass out-migration from the river valleys. As already mentioned in the introductory chapter, the presence of fast flowing rivers, coupled with the savanna vegetation and high temperatures are favourable conditions for the blackfly to lay its eggs and breed. The river valleys have relatively good soils and high water availability, compared to other areas with the same climatic conditions and characteristics; in other words, it is highly fertile and conducive for agricultural production (Ewusi, et al., 1986). However, the ravages of the disease have kept people at bay to the extent that even the recent declaration of the area as 'Oncho-Freed' has not led to any appreciable human activity in those areas.

The inevitability of changes in farming practices cannot be overemphasised since progress toward increased food targets necessitates the adoption of increased input use and, in some cases, mechanization of land preparation. However, permanent damage to the environment as a result of these changes can be reduced through research programmes which take beliefs and practices of local farmers into consideration. The Nyankpala Agricultural Research station, near Tamale (Northern region), and other research institutions would make more meaningful

contributions to the food production system if their researches are geared towards making recommendations which are compatible with traditional practices of the area.

3.4 SOCIO-ECONOMIC CHARACTERISTICS

The discussion will dwell mainly on issues such as population growth and distributional patterns, occupational and age/sex characteristics, land tenure and use systems, and also a brief description of the infrastructural development, as they relate to the food production system of Northern Ghana. The rationale is to put this area's socio-economic development in perspective, especially in terms of the food production system, and assess how viable it is with respect to producing for the whole country.

3.4.1 Population Growth in Northern Ghana

Northern Ghana's population has been increasing at a fast pace since 1960, when it was 1.3 million. By 1970 about 1.6 million people were enumerated, an increase of 23.4 per cent. By 1984 it had increased to 2.4 million, an increase of 1.2 million over the 1970 figure (Statistical Service, 1987). Thus, for the period 1960-84 Northern Ghana's population almost doubled. An inter-censal annual growth rate of 2.1 per cent was recorded for Northern Ghana between 1960 and 1970. This increased to 2.9 per cent during the 1970-84 intercensal period. At this rate of growth, Northern Ghana's population is

expected to double in 24 years. These rates reflect major changes in the composition of the population in the area (Statistical Service, 1987). First, the prominence gained recently by Tamale as a commercial and administrative nerve centre for Northern Ghana, explains the high rates of growth in recent times (Nabila, 1990). Secondly, the return of a million people from Nigeria to Ghana in 1983 (Bentsi-Enchill, 1983: 382), coupled with the effects of the 1983 drought on food production forced people to migrate. This may have resulted in a return of migrants to "home" areas. Another related reason, perhaps the most important of all, is the high total fertility rate of 6.60 children per woman, recorded for Northern Ghana (Statistical Service, 1989).

Despite the above, however, growth rates are not uniform throughout Northern Ghana. The annual growth rate for Upper-west region for instance, increased from 1.0 per cent during the 1960-1970 inter-censal period to 2.3 per cent between 1970-1984. Upper-east region experienced the same pattern; from 1.5 per cent for 1960-70 inter-censal period to 2.5 per cent for 1970-1984. Of the three regions, Northern region had the highest overall increase in her rate of growth, from 3.1 per cent during the 1960-70 inter-censal period to 3.4 per cent during the 1970-84 period (see Table 3.3; also see Appendix B for local council differences).

Table 3.3: Population Change & Growth Rates (Northern Ghana).

Region	Population			% Increase		Growth Rate %	
	1960	1970	1984	1960-70	1970-84	1960-70	1970-84
Northern	531.6	727.6	1162.6	36.9	59.8	3.1	3.4
U. East	468.6	542.9	771.6	15.8	42.1	1.5	2.5
U. West	288.7	319.9	439.2	10.8	37.2	1.0	2.3
N. Ghana	1288.9	1590.3	2373.4	23.4	49.2	2.1	2.9
Total Country	6726.8	8559.3	12205.6	27.2	42.6	2.4	2.6

Source: 1960, 1970 and 1984 Ghana Population Censuses
(Population figures are in thousands ('000)).

3.4.2 Population Distribution in Northern Ghana

The distributional pattern of Northern Ghana's population is dominated by the existence of cells and belts of population concentrations separated by wide areas of low density (Figure 3.6). Within Northern Ghana, the pattern of distribution is such that the gap between the two extreme regional densities continues to widen with each subsequent census, since 1960 (Table 3.4). The highest and lowest densities are recorded for Upper-east and Northern regions respectively, over the period 1960 to 1984 (See Appendix C for local council details). With 87.3 persons per square kilometre in 1984, Upper-east region is the most densely populated region in the area, followed by Upper-west region (23.8) and Northern region (16.5) in that order.

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Figure 3.6: Population Density and Distribution in Northern Ghana

These density patterns correspond with the biophysical variables discussed earlier. Both Upper-east and Upper-west regions owe their high densities to people's preference for uplands in these areas as opposed to the river valleys. There are high population densities in the plateau areas between the valleys of the White and Red Volta, the Sissili and Kalpaw rivers, while the valleys themselves are sparsely populated or even uninhabited (see Figure 3.6). Northern Ghana is predominantly rural, with majority of the people residing in localities with population of less than 5,000 inhabitants¹. On the whole, about 82 per cent of the people live in rural areas. Rural population densities currently averages 20 persons per square kilometre compared to the Northern region, which has many scattered rural communities with populations of between 500 and 800 inhabitants.

¹ In Ghana, an urban area is defined on the basis of population numbers. Any area with a population of 5,000 people or more is considered as an urban area. There is no recourse to the use of amenities such as hospitals etc, however, most urban areas are more or less better than rural areas in terms of infrastructure distribution.

Table 3.4 **Population Density for Northern Ghana**
(Compared to total country), 1960-1984

Region	Area (Sq.Km)	1960		1970		1984	
		POP.	DENS.	POP.	DENS.	POP.	DENS
Study Area	97702	1288.9	13.2	1590.3	16.3	2373.4	24.3
Northern	70384	531.6	7.6	727.6	10.3	1162.6	16.5
Up. East	8842	468.6	53.0	543.9	61.4	771.6	87.3
Up. West	18476	288.7	15.6	319.9	17.3	439.2	23.8
TOTAL COUNTRY	238533	6726.8	28.2	8559.3	35.9	12205.6	51.2

Source: Statistical Service, Ghana Population Census Reports, 1960-1984.

(POP = Population) figures in thousands ('000).

(DENS = Population Density in sq km.

Urbanization in and around Tamale, and also in areas like Bolgatanga, Wa and Bawku have to some extent led to disinterest in the agricultural sector, such that most people are engaged in the informal sector other than the food sector. Northern region's distributional pattern for instance can be attributed to out-migration, which has historical and economic connotations. The region has a long history of being the focal point of persistent out-migration from Northern Ghana. Available evidence from past census data indicates that inter-regional labour movements which started in the past have continued to develop. Appendix D (Table 2) shows the approximate number of people who were recorded in the

2

PM-1 3½"x4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

PRECISIONSM RESOLUTION TARGETS

movement, using "place of birth" data. In 1948, about 340,000 people were involved in inter-regional migration within Ghana. The North sent 70,000 people to Ashanti alone, but received only 3,800 and made a loss of over 65,000. The north lost on balance very heavily to the rest of the colony. The role of the colonial government, and subsequent governments that took over from the colonial authorities, in the present distributional pattern of population in Northern Ghana, and the effect of this pattern on the food production system is treated from a historical point of view in chapter 4. It is argued that the colonial experience of Northern Ghana, as a labour reserve for the southern export sector, contributed in no small measure in both the under- development of the region and the pattern of population distribution in Northern Ghana today.

Presently, two areas of heavy out-migration zones lie within formally endemic onchocerciasis foci, which incidentally have fertile soils compared to other parts of the area. These areas include Sandema, Navrongo, Chiana-Paga (Upper-east region) and Walewale (Northern region) (Nabila, 1990). There have been efforts by various governments, including the colonial administration, to influence the trend of distribution in these areas, but without success. The Damongo Resettlement Scheme, for example did not achieve the desired effect of resettlement (Shepherd, 1978). Farmers who were re-settled did not stay for more than a year. The scheme failed because of poor planning and implementation. Specifically, instead of finding out how compatible different

groups are in terms of living in the same area, and therefore working hard to diffuse such tensions before sending people to their new settlements, the programme planners ignored such cultural variables (Nabila, 1990).

The discussion above has concentrated on densities which does not fully tell us how uneven the population in Northern Ghana is. Such an analysis (ie., the degree of spatial concentration of population) is crucial because it will throw more light on the land available for agricultural purposes. By looking at the concentration of population in Northern Ghana it will be possible to relate the population to land, and therefore safely predict the land situation in the area. We therefore turn to an analysis of the level of population concentration in Northern Ghana.

3.4.3 Degree of Population Concentration

Although density measures are useful, they do not reveal the whole truth about population distribution. It is therefore more appropriate for analytical purposes to find out the concentration of population in a given area, and the causes of this pattern. In this analysis, concentration refers to a state of degree of unevenness with respect to the population at any point in time. In order to determine the extent of concentration of Northern Ghana's population during the period 1960-1984, the index of concentration is calculated for Northern Ghana (see Appendix E for calculations and tables). The local councils are used as the units of analysis. The data required are the uncumulated percentage distribution of

areas (y_i), and population (x_i). The index of concentration is interpreted as the proportion of population that would have to be distributed in order to attain a completely uniform distribution of persons over the area in question. The proportion or percentage shows how concentrated the population is within the area under discussion. This will further give an insight into the availability of land for economic activities.

For the whole of Northern Ghana the concentration ratios were 0.426 (1960), 0.419 (1970) and 0.405 (1984). Clearly, it can be realised from the indices that concentration was highest in 1960, but this has been decreasing ever since. It shows that there is still a large proportion of population in belts with dense population. However these areas with dense populations are also areas with environmental problems in terms of soil fertility and other practices such as bush burning which diminish the richness of the soil. Apart from the unevenness of population in the region, land is also not evenly distributed among the three regions. Also, in terms of fertility, there are variations in the natural endowments of the land, and the ecological balance within and between regions, giving credence to the discussion in the section on physical characteristics of the region.

Calculations for the three regions separately, using the local councils as units of analysis also show interesting results (see Appendix E for tables). For Northern region, the concentration ratios were 0.327 (1960), 0.330 (1970) and 0.312 (1984). The high unevenness of population recorded for 1970 dipped

in 1984. As already pointed out, a few urban centres in Northern Ghana gained prominence as commercial and/or administrative centres, and this attracted people from all parts of the study area and even from the south. It is also an indication that the population of Northern region has been slowly redistributing itself since 1970. This trend needs to be sustained through programmes and projects that motivate people to take advantage of the large areas of uninhabited land in the area. Upper-east and Upper-west regions (see Appendix E for tables) followed different trends. However, the ratios recorded for the three regions generally confirm the notion that Northern Ghana as an entity is still sparsely populated, with vast uninhabited lands and scattered settlement patterns.

The indices portray a situation where certain parts of Northern Ghana continue to lose their population to other parts of the area. Upper-east and Upper-west regions have maintained their status as areas with the highest population concentrations. Seen from the perspective of land and agricultural implications, it could be speculated that Northern region's large tracts of uninhabited land could be harnessed for the production of food and other agricultural commodities. However, land tenure relations in the area may play a vital role in the determination of who uses what. In the same way, labour force availability in the given area should also be taken into consideration. This implies that the distribution of the sexes and the ages of the labour force in the area are important issues to be considered. What then is the ratio of males to females in the region and between areas of the same

region?, What is the average age of the farm population in the area, and how does this affect the production system? Who controls strategic resources, (such as land, credit, and inputs), and how does this impact on the production system?. These and many other questions bordering on the socio-cultural aspects of the study area are discussed in the next section, which basically deals with age/sex characteristics of the area.

3.4.3 Age/Sex Characteristics

The personal characteristics of age and sex are important in any analysis dealing with social and economic activities in space, and also with respect to planning. For example, under the condition of "male shortage" the extent of burden on females in the labour force becomes extremely unbearable. Age is an equally crucial variable since it is essential in the determination and analysis of labour supply and the problems of economic dependency.

In Northern Ghana, there is a preponderance of females over males, as Appendix F shows. The sex ratio for the whole area is about 93.0 per cent, with an age/sex pyramid revealing the proverbial "pyramidal" structure, confirming the youthful nature of the population in Northern Ghana, a typical feature of the entire country (Kusi-Appiah, 1990: 29, Table 2.2a.). Of the three administrative regions, Upper-west region had the lowest sex ratio of 90.3 per cent. In terms of local councils, Lawra-Jirapa had the lowest sex ratio (85.0 per cent), with Salaga recording the highest (102.7 per cent).

With respect to age, about 47 per cent of the total population are in the youthful age group of 0-14 years, and the total dependency ratio for Northern Ghana is 109.7. In view of the in-built momentum created by the high fertility rates, this phenomenon will continue into the next century, even if fertility reduction practices are fully adhered to in the region.

The characteristics portrayed above have implications for both females and children. In terms of education, most females lack basic skills necessary to compete on the formal sector job market. This means that rural 'uneducated' people, especially women, are mostly engaged in the agricultural sector yet programmes and policies are planned and implemented "top-down", without any input from them. Thus, they always have to contend with problems such as lack of access to strategic resources viz; land, credit and farm inputs. For most rural children, the distance to school alone can prevent them from attending regularly. During farming and harvesting seasons, most children are required to assist their parents and/or family members on the farm and with other household chores. Going to school is therefore a luxury in such situations. The result is a vicious cycle of poverty which translates into low productivity in all sectors of the economy.

So far, it has been demonstrated that Northern Ghana has a rapidly growing population, a high proportion of females over males, and a youthful and dependent population. These are all important issues of concern. However, a disaggregation of the whole area into administrative regions reveal differences in terms of the

various demographic characteristics. The issue of unequal distribution of population by sex and its attendant inequalities in terms of the distribution of resources is of paramount importance in the search for solutions to the dismal agricultural performance of the region generally. It is therefore important to explore such issues and relate them to the food production system.

Table 3.5 shows sex ratios of the economically active population by region. Northern region has a higher sex ratio than the rest of the area. The region has a ratio of between 80 and 85 males per 100 females in the rural areas, and about 90 per 100 in Tamale and its surrounding communities. In the Upper-east region, the ratios averages 74 males per 100 females, and falls to between 60-65 per 100 in certain parts of the same region. Upper-west region exhibits almost the same pattern as Upper-east region. The average ratio is between 65 and 70 males per 100 females. The low ratios in the densely populated north-east and north-west reflect the emigration of young males when faced with insufficient land with which to support a family at subsistence levels (WHO, 1987).

Table 3.5: Sex Ratios by Most Economically Active Age Bracket in Northern Ghana by Administrative Regions, 1984.

(a) NORTHERN REGION

AGE GROUP	MALE Population	%	FEMALE Population	%	SEX RATIO
15-19	51131	52.5	46308	47.5	110.4
20-24	37844	42.3	51066	57.7	74.1
25-29	38667	43.2	50808	56.8	76.1
30-34	30954	43.2	40658	56.8	76.1
35-39	26520	46.4	30690	53.6	86.4
40-44	20979	46.7	23892	53.3	87.8
45-49	19017	51.8	17686	48.2	107.5
TOTAL	225112	46.3	261108	53.7	86.2

(b) UPPER WEST REGION

AGE GROUP	MALE Population	%	FEMALE Population	%	SEX RATIO
15-19	19942	49.8	20085	50.2	99.3
20-24	11274	37.7	18593	62.3	60.6
25-29	11500	37.9	18823	62.1	61.1
30-34	9957	38.5	15900	61.5	62.6
35-39	8825	39.9	13295	60.1	66.4
40-44	7175	39.2	11106	60.8	64.6
45-49	6772	43.4	8831	56.6	76.7
TOTAL	75445	41.3	106633	58.7	70.8

(c) UPPER EAST REGION

AGE GROUP	MALE Population	%	FEMALE Population	%	SEX RATIO
15-19	30454	49.3	31280	50.7	97.4
20-24	21074	38.4	33867	61.6	62.2
25-29	23689	40.1	35316	59.6	67.1
30-34	18482	40.3	27428	59.7	67.4
35-39	18913	42.4	25662	57.6	73.7
40-44	13943	41.1	20011	58.9	70.0
45-49	15805	45.5	18932	55.5	83.5
TOTAL	142360	42.5	192496	57.5	74.0

Source: Calculated from Demographic & Economic Characteristics; 1984 Population Census of Ghana.

As a result, the proportion of the population within the active working age range has reduced drastically. The same can be said for parts of Upper-west region, where upland areas have become over-populated as a result of the progressive retreat from and abandonment of the river valleys (Ewusi, et al., 1986). Thus not only is the productive capacity of the family seriously reduced, but there is a greater burden on females and children to provide subsistence for the rest of the family. The proportion of work undertaken by females increases tremendously to the extent that they always have to work long hours daily to keep the family going (Cpong, 1984; Ardayfio-Shandorf, 1986).

3.4.3 Occupational Characteristics

The major economic activities here include agriculture, small-scale industries and commercial enterprises. Farming activities comprise the cultivation of food staples such as rice, maize, millet, sorghum, beans and groundnuts. While some of these staples are grown on a large scale, vegetables like tomatoes, garden eggs, pepper and onions constitute important cash crops which are mostly cultivated on small holdings around irrigation schemes (for example Vea and Tono), and in several other smaller irrigation projects managed on household basis in most areas, especially in the Upper-east and Northern regions.

The breakdown of persons aged 15 years and over, employed in agriculture and hunting in 1984, is shown by sex and region in Table 3.6. The table shows that throughout the country a large proportion of the labour force (males and females) are engaged in one form of agriculture or another. However, in the case of Northern Ghana the proportion of recorded female farmers is significantly lower than male farmers. This is quite unusual and therefore calls into question the criteria used in defining who is a farmer and who is not (Sarris and Shams, 1992). The type of land tenure system and the traditional sexual division of labour in the region explains the situation better.

The land tenure and inheritance systems in Northern Ghana, which are heavily biased against women, accounts for the above situation. The pervasive nature of male dominance in both the land tenure and inheritance system makes it extremely difficult for women to gain greater access to land, their greater numbers and increasingly greater burden in the household notwithstanding. Although out-migration has resulted in some changes in the sexual division of labour, where women now perform certain "male" duties in addition to their traditional roles, land tenure laws have not changed, men are still the custodians of family land and they are mostly recognised as owners of farms even though they may be working with women (Sarris & Shams, 1992, 95). The traditional sexual division of labour is also a cause of the misrepresentation of

who a farmer is. In Northern Ghana, farming activities such as land clearing, tilling and raising of mounds and ridges are usually done by men, while most women do the planting and weeding and help with harvesting. In areas such as Mamprusi, Dagomba, Gonja, Sissala, Wala and Nanumbaland it is absolutely forbidden for women to participate in the actual tilling of the land, which is normally referred to as "real farm work". A more appropriate way of defining who a farmer is would require a consideration of the factors enumerated above. The definition should not only relate to only people who 'own' or control land.

Table 3.6; Persons Aged 15 Years and Over Employed in Agriculture, by Region and by Sex, 1984 ('000)

	Male		Female	
	Number	as a %	Number	as a %
Western	160.15	44.22	171.94	51.78
Central	140.88	46.57	161.65	53.43
Greater Accra	36.36	58.24	26.07	41.76
Eastern	250.44	49.35	257.02	50.65
Volta	159.99	46.60	183.33	53.40
Ashanti	259.82	45.71	308.55	54.29
Brong Ahafo	216.37	51.28	205.53	48.72
Northern	208.25	73.91	73.50	26.09
Upper West	78.01	51.94	72.17	48.06
Upper East	134.27	59.94	89.67	40.04
All Regions	1 644.32	51.49	1 349.42	48.51

Source: Republic of Ghana "1984 Census of Ghana: Preliminary Report", Accra: Central Bureau of Statistics. Mimeographed.

Another agricultural activity is livestock rearing involving cows, sheep, fowls, goats, and pigs. These are generally kept under varying free-range/confined conditions. Others include small-scale industrial and commercial activities which derive their inputs from the environment. The small-scale industrial activities are mostly local craft and processing activities including weaving, leatherworks, pottery, blacksmithing, pito brewing, sheabutter and processing. Traditional medicine is also practiced to a limited degree as an occupation.

Northern Ghana's economy is overwhelmingly informal, characterised by lack of wage paying employment and lack of interaction with government in terms of tax paying and data submission (Kusi-Appiah, 1990: 23). The formal sector is mainly characterised by administrative jobs in the civil service in the urban centres which attract relatively educated people. Others are employed in such service jobs as health, police, electricity, water and sewerage sectors, and the few banking institutions. There are more males than females in the formal sector. For every ten people working in the formal sector, eight are males (Statistical Service, 1989). This is directly related to the biased nature of access to educational facilities in favour of males. The informal sector is therefore the main employer in the region. Even formal sector employees, especially those in service jobs as the post office and administrative offices, are engaged in one form of informal activity or another. This is more apparent during the farming season when government workers take time off their schedules to

informal activity or another. This is more apparent during the farming season when government workers take time off their schedules to till the land and participate in the agricultural sector. These government sector workers farm on government owned land, mostly around their residences or land leased to them by traditional elders. The introduction of mechanized farming, with the use of tractors and combine harvesters has, to a large extent, contributed to the renewed interest by formal sector workers in the agricultural sector. Also related to this is the comparatively cheap land rates and the easy nature of acquiring land in Northern Ghana, compared to the southern sector. Trading and other commercial activities are undertaken by women, who specialise in the sale of cooked and fresh food items on set market days in the various centres of trade. Other women are engaged in activities such as brewing and pottery.

3.4.4 Land Use and Land Tenure

The traditional land tenure system (discussed in chapter 2) determines to a large extent who uses land, and how extensive one can go in terms of the size of farms. This is a source of worry for most policy-makers. Apart from vested lands which remain effectively within government control (Mensah-Brown, 1978) and can be offered for outright sale, "skin lands" which lie in the jurisdiction of traditional rulers are mostly communally owned but held in trust by family

elders who are mostly males. In most cases, the family elders serve as more or less "owners" of family land, which is transferred in the name of males, to the disadvantage of females.

Whereas affluent people from all over the country can buy land within government control for any purpose, poor rural farmers in Northern Ghana are left with little land, normally leased to them by their kin group head. Thus, although the number of farms owned by farmers themselves in Northern Ghana has been on the increase since 1970, a differentiation by class and gender reveals that poor rural farmers and women have not benefitted from this increase (Ghana Government, 1972; Giri, et al., 1987). This situation reflects the nature of land tenure and 'ownership' in Northern Ghana.

As discussed earlier, land ownership and inheritance in Northern Ghana are generally based on a patrilineal system, where succession moves from a man to his children. However, this system varies among ethnic groups in the region but the basic principle of male dominance runs through all ethnic groups. For example, if a woman marries outside her village and the marriage terminates in death or divorce, she and her children may return to her patrilineage. She will have access to the family land temporarily but her children cannot inherit it. This is done to prevent the children from diverting land to their own patrilineage, that is, their father's lineage. Under this system, widows are disadvantaged because they are

regarded as outsiders by their husband's lineage. Sometimes, widows may agree to marry the dead husband's brother or successor to the land, so that their children may inherit the land; but they themselves will have no use rights to it except for what may be allocated to them by their children. This arrangement really kills initiative on the part of women in terms of farming because many of them do not have full rights to the land they farm.

Among the moslems in Northern Ghana however, daughters have rights to inherit land, but only half of what is allocated to sons. A widow receives one-eighth of her deceased husband's estate if she has children and one-quarter if she does not. A widower on the other hand, receives one-quarter of the deceased wife's estate if he has children and one-half if he does not. However, both systems of land ownership and inheritance discriminate against women, who form a large part of the agricultural labour force in the area. The enactment of the Intestate succession law in Ghana in July 1985 makes provision for wives and children to inherit shares of a deceased man's property (Sarris and Shams, 1992). The new law, however, applies only to property acquired by the deceased and not property held by him on behalf of the lineage. In practice, two legal systems do exist. Although women have rights as men under constitutional law, in the villages, customary law is applied to marriage and land tenure cases. In these cases, men decide and women have little say.

3.5 INFRASTRUCTURAL DEVELOPMENT

With respect to the distribution of services and physical infrastructure, Northern Ghana is by far the least fortunate region. Although there is evidence to prove that the situation has improved for some services since 1970 (Aryeetey, 1987: 34), the over-all impression is that Northern Ghana remains an area of extreme under-development. The situation has impacted negatively on all aspects of its economy, most importantly the food production system. This section deals with distribution of some basic services vis-a-vis the rest of Ghana with a view to illuminating the effect this has on the food production system of Northern Ghana.

3.5.1 Health Care System in Northern Ghana

Health care delivery in Northern Ghana is the poorest in Ghana. Adibo (1986) described it as unjust. In 1986 for example, there was one bed for every 1000 persons in Northern Ghana compared to a ratio of 1:350 and 1:500 for greater Accra and Ashanti regions respectively. In the same year, there was one physician for every 56,000 persons in Northern Ghana as compared to 6,000 persons and 18,000 persons in Greater Accra and Ashanti Regions respectively.

The disease pattern reported at one of the government hospitals in Northern Ghana (Bawku) is shown on Table 3.7. The situation is typical for the whole of Northern Ghana. Many people die from preventable diseases due to a combination of

factors including, poor ecological conditions, lack of proper personal hygiene, and of health facilities and personnel.

Table 3.7: Leading Causes of Illness in Bawku Hospital

Disease	Number Seen	%
1. Malaria	42,438	35.57
2. Diarrhoea Diseases	8,262	6.92
3. Upper Resp. Tract Infect	7,505	6.29
4. Acute Eye Infection	6,797	5.70
5. Pregnancy Related Complications	6,365	5.70
6. Diseases of Skin (Incl. Ulcer)	5,789	4.85
7. Intestinal Worms	4,987	4.18
8. Accident(fracture, burns etc.)	4,934	4.14
9. Gynaecological Disorder	2,606	2.18
10. Measles	1,835	1.54
Total	91,518	
<hr/>		
Total New Cases Reported	119,316	
Submission Rate 231/240	=	96.25%
Source: Gandaa, W.H. (1991)		

Indeed the delivery system of health in Northern Ghana has very grave consequences for the people's health. The harsh environmental conditions, and the attendant diseases make it quite difficult to undertake meaningful agricultural activity. Although Northern Ghana's potable water availability has improved tremendously, (thanks to the many projects undertaken by multilateral and bilateral organizations such as CIDA, DANIDA and other NGOs), there has not been an equal

improvement in access to these resources. Close to 70 per cent of the population in Northern Ghana still do not have access to potable water. Indeed most women and children still travel between 5 and 8 kilometres daily to fetch water for household chores, which reduces the number of hours they use to work on farms. Lack of accessibility to these improved water sources leads to the use of untreated and bacteria infested water sources which also result in health problems, such as the guinea worm disease, thus exacerbating the problem.

The preponderance of environmentally related diseases in Northern Ghana invariably leads to a very gloomy health situation in the area. Health indicators for Ghana clearly show that Northern Ghana lags behind the rest of the country in terms of health status (See Appendix G). Compared with national averages, the sub-region still has very high infant, child and under-five mortality rates. This is indicative of the low standard of living and the poor status of health care delivery system in the region. The fact that only about 38.5 per cent of rural areas are covered by health services as compared with a national average of 60 per cent gives an indication of the seriousness of the poor health status of the people, and the lack of commitment on the part of government in the provision of health services. The Under-five mortality rate of 222.1 per 1000 is very high even by developing world standards. Maternal mortality rate is likely to be double that of the national average considering the fact that apart from

the few government and private health institutions, maternity homes are few or non-existent in some Local councils of Northern Ghana (See Appendix G).

A greater percentage of people therefore rely on traditional medicine and birth attendants (TBAs) who until recently often operated under very unhygienic and dangerous conditions (Twumasi, 1985). Efforts to improve the health situation in the region through the Primary Health Care programme (PHC) is laudable but poor logistic support on the part of the Ministry of Health, and the generally poor infrastructural level in Northern Ghana, are some of the constraints to the achievement of health for all the people (Ghana/UNICEF, 1991).

The interaction of the health situation described above and the food production sector is quite obvious. Considering that the human resource is the most vital resource which needs to be developed in all respects for maximum output in any economic activity, it follows logically that ill health is a liability. Clearly, Northern Ghana which depends largely on human energy (labour intensive) for cultivation, would be seriously affected in such a situation. A healthy workforce therefore implies an increased activity, provided that all the needed inputs are available. In view of the low health status generally pertaining in the area of study, and the low availability of health facilities, it goes without saying that the people of Northern Ghana are having a hard time coping

with farm work.

3.5.2 Educational Facilities in Northern Ghana

The distribution of educational facilities in the area has the same characteristics as health facilities in Northern Ghana. They are grossly inadequate compared to the rest of Ghana. Schools of all grades are heavily concentrated in Southern Ghana. Until 1992, there was no university situated in this region. Appendix H, shows the regional distribution of educational institutions in the public sector at various levels in 1987/1988.

Apart from inadequate facilities, the overall educational attainment for people from Northern Ghana is exceptionally weak. These problems are longstanding. They originated in colonial policies which deliberately discriminated against the north. Most of the schools are also inaccessible to rural dwellers. To some extent, the pattern has been self-perpetuating since graduates from the training colleges, for example, are reluctant to take up teaching appointments in the comparatively remote and poorly serviced areas. Hence, the educated and other manpower continue to move out of these areas. Nabila (1986) noted that since migration is not only age and sex selective, the educated are more prone to migrate, leaving behind the never attended school population. Hence, the low "ever attended school rates" in Northern Ghana compared to the rest of the country (see Appendix H).

Apart from inadequate educational facilities in Northern Ghana, there is the issue of misplaced priorities as far as training is concerned. Ghana's educational policy has followed that of the colonial administration and has since not changed. The policy of training in white-color positions to the detriment of other practical vocations which has relevance to the needs of the community is very outmoded. By the early 1960s this had become apparent to a lot of politicians and scholars alike. Jato Kaleo, then member of parliament for Walla North, Upper-west region, aptly summarized the situation pertaining in Ghana with the following;

"If we train our children to be clerks and then at the end of their schooling we ask them to go to the farm..... how do we expect them to contribute anything good to the community....." (Parliamentary Debates, 1962).

Herein lies the contradiction in the educational system in the country. In most cases it is the males who get educated and after their education, they migrate to the urban centres for jobs which are normally non-existent. They are mostly neither ready for farming nor white color jobs, they end up in the urban centres engaging in all sorts of activities in the informal sector. In most cases, females, who lack the basic educational skills, are left behind to fend for the household and to tend the farms. Also, since the inheritance system and the system of division of labour does not favour them they are unable to devote their time fully to food production for the market.

The low educational backgrounds of the majority of people in Northern Ghana, especially among females, makes it difficult for them to take advantage of opportunities such as mechanization and other innovations (even if they are available). The human capital of Northern Ghana has been denied technical education, especially in the field of agriculture for a long time. There is an inequality of opportunity, wealth and influence in the region. The cumulative effect is negative. Northern Ghana was, and still is, relied upon as a labour reserve for the development of cocoa and other export related activities in the south. This can be remotely blamed on the lack of educational facilities and the right training, and therefore the lack of education for the people. Ironically, this lack of education, interacting with other factors, has exacerbated the low level of production in the north. In the area of food production however, lack of proper education partly explains why young men, and to some extent women, now leave household control and family labour for alternative sources of independent income, other than agriculture.

3.5.3 Road Network

The road network in the region is in a deplorable state. Accessibility is therefore very poor. Certain areas in the region don't have roads at all. Other areas have roads but most parts are impassable, especially during the rainy season.

A journey which takes 30 minutes in other parts of the country, would be made in 5-6 hours. Areas which are practically inaccessible, (especially endemic onchocerciasis foci), are often known as "overseas" by most travellers in recognition of the difficulties faced in reaching them (Ewusi et al, 1986). Most travellers use boats to cross rivers in these areas. The functional link between the road network and resource exploitation and distribution is extremely weak. The implications for food production is enormous. Owing to the rudimentary nature of storage systems, it is expected that roads linking farming communities and markets would be well maintained to facilitate easy marketing of products from the farm. Unfortunately, with deplorable roads, and mostly private owned transport services, transport fares are exorbitant and therefore poor farmers are not able to take advantage of such services (if even they exist). Farmers either sell their produce cheaply to middlemen/women (mostly from the south) or, in most cases, they leave surplus food to rot on the farm. Only large-scale farmers, can compete in this environment. Most of them are businessmen/women who own vehicles, and therefore do not have any problems with paying high prices (Addo, 1988). Government transport facilities are also highly priced, beyond the reach of poor farmers.

CONCLUSION

The chapter has dealt with the physical and socio-

economic characteristics of Northern Ghana. It has been demonstrated that the area is physically conducive for the production of cereals such as maize, millet, sorghum and rice. The land tenure/use patterns, and the impact of these on agricultural production have been analysed.

Other characteristics given prominence in the chapter include the age/sex composition in the area. There is a preponderance of females over males. This is a major source of worry as far as labour participation in the agricultural system is concerned. It is particularly important because of the in-built traditional gender division of labour, land ownership and other important issues, which are not in the interest of women. The distribution of basic social amenities in the region are inadequate, both in absolute and relative terms. These aspects of socio-economic characteristics interact with the physical characteristics to give Northern Ghana its unique character.

The remaining chapters analyze how the above characteristics have been manipulated over the years by both exogenous and endogenous forces to shape both the food production system and the distribution of population. Most significantly, the role of government policies, especially in the area of agriculture and the distributional pattern of the population, is explored extensively to explain the changes which have occurred in the labour force distribution.

CHAPTER 4
POPULATION CHANGE AND DISTRIBUTIONAL
TRENDS IN NORTHERN GHANA

4.1 INTRODUCTION

The previous chapter has discussed the basic physical environmental and socio-economic characteristics of the study area. In addition, the distributional pattern and concentration of population in Northern Ghana have been discussed. These characteristics, to a large extent, define the economic fortunes of the area. However, the characteristics outlined cannot adequately explain the peculiar situation of Northern Ghana with respect to the development of infrastructure, and most importantly, the food production system. A combination of factors, deeply entrenched in history and involving the political situation of the country as a whole, can best explain the situation. Northern Ghana is a victim of deep inequalities in terms of the development process in Ghana. The area has been disadvantaged by an orientation of the Ghanaian economy toward the export of a single crop, cocoa, and a few minerals which are all based in the southern regions. There is a bias, in terms of the provision of amenities, against the northern regions.

These inequalities, coupled with a harsh environment and the effects of both past and present government policies, have deepened the plight of Northern Ghana as an out-migration area. This has resulted in an unstable economic performance compared to the southern regions of Ghana. It is therefore appropriate to turn to historical factors that have prevented the area from playing an effective role as a major provider of nourishment for the people of Ghana. This chapter adapts a historical approach to demonstrate that government policies have played a leading role in the pattern of population distribution in Northern Ghana, which has influenced the food production system. In this regard, the migratory trends within and between Northern Ghana¹, and the rest of the country are given further prominence in the analysis with a view to illuminating the major issues affecting the food production sector. At another level, the role of migration in the socio-economic disintegration of Northern Ghana will be explored.

As already mentioned, population distribution has been greatly influenced by historical and demographic factors, ecological conditions and the structure of economic development (Adepoju, 1983). In areas where agriculture, especially food production, is the major occupation, the distribution of population is related to the system of food

¹. Rural-urban and rural-rural interactions which happens more or less frequently for longer or shorter periods in regular or sporadic patterns of migration and for various reasons.

production and the productivity thereof. Any shifts in the production system as a result of the effects of government policy or other external factors negatively affect labour force participation in the food production system. This aspect of changes in the composition of population in Northern Ghana is given greater prominence in this chapter, to portray how the phenomenon of age and sex selectivity in the migration stream has affected the fortunes of food production in the area. Again, the effect of government agricultural policy in displacing some indigenous people from their land is discussed.

4.2 COLONIAL RULE & POPULATION DISTRIBUTION IN NORTHERN GHANA

The distribution of population in Northern Ghana has been the concern of all governments, non-governmental organisations (NGOs) and other developmental agencies for many decades. The pattern is dominated by the existence of cells and belts of population concentration separated by wide areas of low density. The factors that have influenced this distributional pattern include technology/economy and socio-cultural considerations, the effects of harsh environmental conditions, and unfavourable government policies. Labour migration is the main mechanism by which the population responds to the structural changes brought about by inequalities in the distribution of essential resources. In Northern Ghana, lack of essential social infrastructure, coupled with the

progressive weakening of the traditional cultural system, has perpetuated an accelerated movement of people into the relatively industrialized southern sector (Engmann, 1972, Nabila, 1990).

Before colonial rule in 1902, Northern Ghana was organised on the basis of autonomous ethnic groupings which included the Dagombas, Mamprusis, Gonjas, Nanumbas and many more. Most of these ethnic groups engaged in trade with North African traders and the Asantes to the south, and also agricultural production, basically on subsistence basis. Salt, cola and other items were exchanged along the major trade routes with the chiefly class controlling much of the trade in the north on behalf of the people. The chiefly classes or elders also provided security for the people, who in turn supplied the chiefly class with food items from their agricultural activities. For the majority of the people, subsistence farming was the major economic activity. Land was held in trust for the people by the Tendanas - spiritual leaders of the northern tribes - and each family was entitled to land for farming activities. The basic social/political organization was the extended family living in a compound and comprising on the average 15-25 members. The family head 'owned' the land and the yields which he distributed among his dependants. The latter farmed the family land on a communal basis: family ties were very strong, and the traditional system of agriculture was just suitable for the environment.

The slash and burn system was practised and most lands were worked for approximately 2-3 years, after which they were left fallow for a number of years to regain their fertility (Benneh, 1985). This was especially so in most parts of the present day Northern region, which was inhabited mostly by the Gonjas and the Dagombas, where there were vast tracts of uninhabited land, and therefore they could afford to abandon "infertile" lands for virgin lands.

Family elders, in most cases elderly males, controlled the farmlands, the labour and produce of their dependants. Marriage transactions of the lineage were controlled by the family elders. This was very important as far as farm labour was concerned. Due to the communal nature of production, more hands were needed to help on the farms and therefore reproduction and replacement of the lineage was crucial in this system. The elders extracted bride prices which were usually in the form of cattle and in-kind payments such as prescribed free labour on in-laws' farms (Manoukian, 1951). Bride price payment and obligations varied from place to place in Northern Ghana. Among the Tallensi in the north-east, payment in cattle was more common; among the Dagombas, cash payments were more frequent, and among the Konkomba, in-kind payments of a prescribed number of days work on in-laws' farms was the norm. According to Gariba (1989: 82), the Konkomba case was more profound, as newly born girls were committed to their prospective husbands immediately after birth. The fiance

then began to render his labour obligations to his in-laws until he married their daughter. The age differences between suitors was quite wide, leading to major problems when the females grew up.

The centrality of the elders, especially elderly males, in the payments perpetuated their dominance in the household relations of production. This helped extensively in maintaining equilibrium in the communities. People remained long enough in the same area and in the same productive labour force without much disruption. Thus the stratification of the various kingdoms of traditional Northern Ghanaian society into elders and juniors resulted in a situation where the individual producer remained subordinated to the corporate household, 'where wealth remained submerged in status, and where status resided solely with elders' (Gariba, 1989: 56). In this situation therefore, social relations of production were encapsulated in patron-client networks and familial and ethnic loyalties, and the dominant position of the elder precluded the private appropriation of peasant surplus (Gariba, 1989: 69).

Apart from the household's role as a production unit, there were transactions between households, clans and villages on the level of surplus product exchange. Women were basically subordinate to men and all or almost all decisions in the household were taken by men. It should be noted that the dictates of tradition obliged women to have more children to

assist in the production system. Women therefore had to respond to this "duty" so that the "family line" can continue (Chambas, 1980: 89; Gariba, 1989: 84). This economic structure also had social connotations since households, clans and villages donated surpluses of their produce to the chiefly clans for a minimum security of their farms and property. These formalized state structures in pre-colonial Northern Ghana led to social relations on the basis of non-producer rulers on the one hand, and producer subjects on the other. The ruling class represented a wider measure of social, political and economic dominion within the communities. There was therefore minimal movement between territories, and even if people did move, they eventually moved back to their original communities after short periods in the destination areas (Ferguson and Wilks, 1970: 331).

The history of the northern territories of the then Gold Coast is characterised by a failure to develop significantly the production of export staples through the provision of essential amenities such as feeder roads and agricultural inputs, and a restrictive attitude on the part of the administration toward changes which sprang from education or missionary activity. In the circumstances, the major day to day impact of British rule on the chiefs and people lay in the recurrent call for labour, often unpaid, for building, maintenance of public works and transport within the northern territories and outside (Thomas, 1973: 81). During World War

I, similar methods were used for the recruitment of troops, hypothetically all volunteers, for the Gold Coast Regiment¹. As an administrative convenience, and in line with the policy of supporting chiefly power, labour for government work was usually recruited through the chiefs by political officers. This arrangement left an indelible mark on the social structure of the region.

First, the designation of northern Ghana as a labour reserve for the southern mines and plantations, which were springing up rapidly as a result of colonial influence, transformed the north from a society dominated by elders, especially males, and a peasant agricultural system driven by kinship division of labour, into a society in transition (Benning, 1975: 54). As a result, there was a mass movement of farm labourers, mostly male, into the booming economy of the southern sector for wage earning jobs. Consistent with the colonial government's policy of making the northern territories a labour reserve for the south, infrastructure (schools, hospitals, agriculture) was developed in the southern sector, without a corresponding development of the same in the north (Thomas, 1973; Benning, 1975).

In contrast to the intensity with which the colonial administration pursued its policy of labour recruitment from the northern territories, its policy of developing the

¹. See file entitled "GCR Recruiting in NTs 1917" National Archives of Ghana, Accra ADM 56/1/219).

agricultural and other resources of the region was characterized by indifference and purposeful neglect (Chambas, 1980: 38). This is clearly portrayed in the colonial administration's responses to attempts at producing on a commercially exportable basis certain agricultural resources such as cotton, shea-butter and cattle¹. These responses show that the agricultural underdevelopment of the North was not a matter of inherent inferiority of natural or human resources. As an illustration, the Department of Agriculture's interest in promoting the large-scale commercial experiments with American Black Rattler and Volta River varieties of cotton at Salaga and Yeji was made possible by the successful experimental work on cotton at Salaga in 1903 (Benning, 1975, Plange, 1976). The results actually showed that the Volta river variety was the most likely to succeed. Indeed, cotton had been one of the major natural resources of the Northern Territories even before British conquest. According to Plange (1976), cotton was cultivated in considerable quantities and used in the manufacture of cloth, a point which was well documented by colonial officials. A 1909 report by a cotton expert sent out to the region by the British Cotton Growers Association was very favourable and highly laudable of the cotton already cultivated by the small-scale farmers,

¹. For a detailed account of abortive commercial agricultural projects in the Northern Territories, see Plange, N., (1976): "Colonialism and Under-development in Northern Ghana", Ph.D Dissertation, University of Toronto (especially chapter 4).

observing that the sample was "wonderfully clean" (Plange, 1976).

A small cotton gin and press were installed at Tamale and an experimental farm set up. By 1911, more permanent buildings had been completed at Tamale and in subsequent years inferior cotton seeds were distributed to farmers. New cotton gins were installed at Wa and Gambaga and by 1914 more than 24,000 pounds of cotton were exported from the northern territories. At this point, Ghana, then Gold Coast, was about the third largest producer in the world. In monetary terms, cotton production had increased from a 1903 output of 10,000 pounds to 124,000 pounds in 1916 (Plange, 1979). However, that year, the British Cotton Growers Association terminated its operations in the northern territories. Evidently, the British Cotton Growers Association faced a transportation problem well beyond its capacity to solve, and in numerous letters to the governor, the Association drew the attention of the colonial administration to this, requesting assistance through the development of a transport system. The response of the colonial administration was to withdraw its annual grant-in-aid to the cotton project, thus crippling it, on the grounds that there was no need to encourage such schemes in the north: first, because cotton growing would compete with the mines for labour and second, because there were already in existence in the colony lucrative agricultural industries like cocoa and palm oil. Thus had cotton production been encouraged in the

north, it would have absorbed the labour that would otherwise work in the mines, not to mention other economic activities that cotton cultivation might bring to the region, which would also put restraints on labour mobility (Plange, 1979:)

A shea-butter (oil-seed) project (1919-1924) suffered a similar fate. Lay and scientific observation in the region all attested to the abundance of this seed, which grows on the shea-butter tree that is found all over the region and to the possible economic enterprise it could generate. Foreign firms expressed interest and requested concessions from the colonial office to bring modern techniques to bear on the shea production. John Walkden Company Limited, the Africa Merchants, and W. Bartholomew and Company were some of the firms that expressed a desire to enter into this enterprise. The Imperial Institute and colonial agricultural offices conducted investigations and expressed favourable remarks about the soil, the seed and the oil yields from shea-butter seed. They also observed the "industry of the natives" who "would be only too willing to engage in employment in undertaking any work which would bring him money or its equivalent in European goods" (Chambas, 1980; 43, citing Plange, 1979).

The colonial administration exhibited indecision and ultimately the shea-butter project suffered the same fate as the cotton project before it. Once again, a possible enterprise that could have had considerable impact on the

economy of the Northern Territories was neglected due to a reluctance to provide infrastructure and fear that it would compete with the mines and cocoa industry for labour. Far from suggesting that cotton and shea-butter were the only resources in the north, it should be observed that there were other resources which had the potential of becoming economically feasible. Due to the policy of preserving a reservoir of labour for colonial resource exploitation in other parts of the country, other opportunities in Northern Ghana were neglected. It is no wonder that apart from the near forced movement of labour to the south, most able bodied persons left the Northern Territories for the south to enjoy the facilities there and to work.

Indeed, by the 1940s it had become increasingly apparent that food production was lagging behind population growth, especially in the southern sector of the colony, and the north was called upon to produce food for the increasing urban population. But recommendations for soil conservation, and the use of farm yard manure and the consolidation of farm holdings were not seriously implemented by the colonial government (Shepherd, 1978: 25). Again, another project that could have addressed the mass movement of the people into the south was given little attention. In the Upper-east, C.W Lynn, an agricultural officer, had conducted research into the possibilities for introducing yield-increasing and soil-conserving measures and mixed farming. The needs of the Upper-

east for agricultural research were great, but progress was slow and interrupted (Chambas, 1980: 38).

Earlier in the 1930s other hopes for the agricultural progress of the north, specifically in the area of cattle rearing was identified, but again little attention was given to this idea (Shepherd, 1978). The cattle industry was seen as a potential for progress, and the colonial government even provided 9,000 pounds sterling to prop up the cattle farms. Immunization against rinderpest achieved considerable results, and extension efforts achieved some improvement in the care of cattle and by the mid-1930s there was reported to be a good trade in steers (Shepherd, 1978). However, the level of public investment remained low and in spite of the colonial agricultural officers' contention that "the indigenous cattle of the northern territories possess quality of the good breed.... and they also appear to possess sure immunity from tse-tse sickness" (Plange, 1979; 232), when it came to generating a direct policy great indecision was exhibited.

Other efforts by the colonial authorities to make agriculture in the region more viable did not strike the right chord. The experiment with bullock technology in the north-east and the huge experiment with mechanization culminating in the inception of the Gonja Resettlement Scheme in 1947, are two typical examples (Gariba, 1989). The increasing demand for food in the colony following the worldwide depression of the 1930s compelled the colonial government to explore avenues of

increasing food production in Northern Ghana (Shepherd, 1979: 187). The colonial government encouraged mixed farming and the use of bullock ploughs as a means of increasing productivity. The response was rather discouraging because of the relative ease with which household labour could be mobilized and the wide scale availability of land in the region. North-eastern Ghana was the only place where the experiment was quite successful, and this was due to the fact that the area had had experiences of seasonal food shortages and was traditionally an area of population pressure on land. However, bullock technology lost its appeal no sooner than it had been introduced. This was basically because bullock farmers were essentially made to cultivate cash crops such as groundnuts in order to repay their debts from purchasing farm inputs, consequently, traditional subsistence crops were given less priority. Farmers were compelled by circumstances to buy staples from the market (Shepherd, 1978: 97). Life became unbearable for them, and this was further exacerbated by increased population influx into the area from relatively unfavourable environments especially around the Volta river valleys, where the black fly was causing a lot of inconveniences to the people. Again, the relatively infertile soils in the north-east created an unfavourable situation for food production in the area, and this eventually led to a less favourable response to bullock technology use.

Related to the above was the introduction of mechanization into Northern Ghana, and the colonial government's desire to redistribute the population into less densely populated areas of the region. At this time however, all lands in the north were vested in the crown of Britain in trust for the people of the Northern Territories. This was made possible by the Land Registration Act of 1934 (Arhin, 1986), which gave legitimacy to the Governor General of the colonies to do whatever he wanted with lands in them. This programme did not achieve its avowed aims. The planning and implementation of the programme was "top-down" with no input from the local people, thus neglecting the behavioral patterns and cultural beliefs of the local people (Quansah, 1972: 16).

The Gonja Development Corporation was established in 1947 as one of the first experiments in agricultural mechanization in pre-independence Ghana. This project, unlike the bullock experiment, was aimed at transforming the techniques of peasant agriculture and also the social relations of the entire Northern Territories. The project was located in a sparsely populated but fertile area of Damongo, which is now part of Northern region of Ghana. This was to ensure the availability of large tracts of land for mechanization. Secondly it was to ensure the availability of labour all year round. It also acted as a resettlement scheme: the colonial administration imported a large number of people from the densely populated area of the north-east (Quansah, 1972: 15).

At the inception of the project, heavy farm equipment was imported to help increase the production of cereals. This aim was never realized, mainly because with the importation of non-natives into the Damongo area, a new dimension of household relations was introduced viz wage earning farm labourers and tenant farmers who obtained mechanized services from the corporation and gave two-thirds of their produce to the corporation. The arrangement was too hard on the farmers, and therefore most of them left for their respective homes in the north-east. Of the more than a thousand farmers who moved to the site to take advantage of mechanized farm services as tenants, only 15 actually settled on the site (Benning, 1975).

The foot dragging on the part of the administration, and their preoccupation with infrastructural development of the southern part of the colony resulted in the present pattern of population distribution in the region. Unfortunately, the policies of the colonial government did not transform subsistence production into production for the market. Thus, to paraphrase Rodney, peasant farmers went into colonialism and came out with basically the same technologies (Rodney, 1972: 219).

Apart from its pervasive dimension, another significance of colonialism on the distribution of population in Northern Ghana, and for that matter agriculture, was the impact of market forces on the society. This undermined existing social

insurance patterns and eroded the viability of farmers' subsistence orientation, hence their desire to move out of the area into other parts of the colony which were beckoning them (Bernstein, 1979).

Wolf (1969: 279) describes the social equilibrium that prevailed in Africa before colonialism. According to him, there was a balance of transfer of surpluses to rulers, who also provided minimum security for cultivators. The social stratification was based on kinship ties, with labour mostly drawn from the family. However, with the monetization of the economy, a unified national market for food and other commodities was created, forcing peasant producers, as it were, to drift into more favourable areas (Bernstein, 1979). Thus, the very fabric of the northern society which was based on non-wage labour was broken apart, leading to smaller and smaller farm sizes, and fewer people to work on those farms (Plange, 1979; Gariba, 1989; Songsore, 1989).

The overall colonial policies led to a weakening of the traditional basis of division of labour in the region and a resultant mass movement into the southern sector of the country. Most of the people who moved out were males who were basically the "landowners" and decision-makers in the household. They did not entirely relinquish their positions as decision-makers. In most cases elderly males and other males who were left behind took control of the lands and all decisions pertaining to the household, while women and

children performed about 90 per cent of the household chores. As discussed in chapter 3, the majority of the people residing in Northern Ghana are women, children and elderly men, with the mantle falling on the women to keep the household and work on the farms for subsistence (Nabila, 1990). In spite of the change in the sexual division of labour, a corresponding change in the distribution system of land and other resources in the north has not taken place, thus maintaining a situation where poor farmers, especially females, are denied access to land and other resources, which to a large extent has weakened efforts at producing food for the market.

With the demise of colonialism and the dawn of independence this situation has not been reversed. More men, continue to move into the south, leaving mostly women and elderly persons in the north. The politicians who took over from the colonial administration also did not pay attention to the cultural patterns of the people in the north. The chiefs were denied effective authority over their people and lands. As a result, the authority of the traditional rulers and the cultural patterns have been weakened but not entirely changed. The next section is devoted to a discussion of the immediate post-independence government policies and their effects on population distribution and food production in Northern Ghana.

4.3 "SELF-RULE", POPULATION DISTRIBUTION & FOOD PRODUCTION IN NORTHERN GHANA

While the structural pattern of movement prevented the north from achieving any stability in the pattern of agricultural production during the colonial era, there has been little effort on the part of the indigenous leaders who took over from the colonial administration to break away from the colonial policies that made the movement out of the region viable. At the dawn of independence, an urban elite was slowly emerging, especially in southern Ghana. Their demands and tastes for foreign imported goods played, and continues to play, a vital role in the nature of government policy towards agriculture in the country. Again, the incorporation of the Ghanaian economy into the global economic system through the export of cash crops such as cocoa and oil palm has diverted attention from domestic food production. Thus areas which are not climatically suitable for the production of cocoa and other designated cash crops are given less attention as far as the provision of infrastructure and other inputs are concerned. The conditions therefore were set during the colonial era for many northerners to drift into the southern regions for jobs in the urban capitalist economy, which had sprung up as a result of the colonial exploitation of minerals and other material resources. To be able to grasp this tendency of mass movements on the part of northerners to the south, it will be helpful to see how the situation has been

handled since independence. The question then to be answered is: how has the trend of population distribution in the region affected food production pattern among farmers in the region?

4.3.1 State Intervention and Population Distribution in Northern Ghana (1957-1966)

The Convention Peoples Party (CPP) which took over from the colonial administration was determined to transform Ghana's economy under state control. There was an attempt to invest in public sector agriculture through state farms and the use of mechanization (Ofori-Atta, 1978). Mechanization was taken to mean the introduction of modern, more scientific agriculture, with improved varieties of stock and seeds, and use of fertilizer, nutrients and insecticides in addition to mechanical cultivation. This was considered a sure way of making farming attractive to young people. In furtherance of the "mechanization plan", there were to be established agricultural schools and a network of research stations for the purpose of training young farmers, tractor drivers and mechanics, and to conduct testing and development of new crops. The State Farm system was introduced for developing agricultural production. Land was expropriated for farming purposes and the state employed rural wage earners and introduced state-induced farmers' co-operatives which represented an attempt to bring the farmers under one umbrella. The State Farms were officially incorporated in

January 1963. By December 1963 there were 107 State Farms employing 15,000 people and by 1966 there were 135 State Farms with 20,800 workers on payroll in the five year period from 1961-1966 (Seidman, 1978). An "agricultural revolution" was characterised as a "precondition" for the desired Industrial Revolution that Nkrumah repeatedly advocated. It was held that the agricultural sector needed to produce enough foodstuffs so that an increasing proportion of the labour force would be transformed into high productivity industrial employment (Seidman, 1978). Northern Ghana was not left out in this policy objective. Indeed, the relatively flat nature of the land, coupled with the availability of large tracts of land and the absence of significant export related activities or investment in mining, cash crop production or forestry galvanised the notion that the region was very conducive to food production, with mechanization under government control.

Co-operative unions were recommended in the northern parts of Ghana in a bid to encourage farmers to join co-operatives to produce groundnuts and rice for local consumption and for export (Seidman, 1978). In the Navrongo district, for example, cooperative societies were formed for the cultivation of both rice and groundnuts. These cooperatives made loans in kind, such as ploughs, to members who were to repay over three years. In the Bawku district, the Kusasi Agricultural Development Cooperative Society was organized with the assistance of a full-time Assistant Officer

seconded to it by the Department of Co-operatives (Chambas, 1980).

These efforts in co-operative farming were greatly hindered by marketing, storage and most importantly, inequalities in the distribution of resources such as land. Although the Ministry had been active in encouraging co-operatives to increase their produce, it had not given serious attention to the provision of storage facilities and satisfactory marketing channels to the farmers (Chambas, 1980: 96). It is revealed, for instance, that although there was an increased yield of 26 more tons of groundnuts (35 per cent) within one season of the formation of the co-operative societies in Navrongo district, marketing outlets were reportedly reduced and a higher proportion of the crop was carried forward to the next season and sold at a loss (Chambas, 1980). Apart from these problems, there was the issue of distribution of credit to farmers in the co-operatives. This was based mainly on the farmers' ownership of collateral, which was basically in the form of land. Here the rich and well-to-do farmers benefitted more from credit from the union, and the poorer farmers, especially females got very little credit or nothing at all.

The experimental attempts at promoting co-operative agriculture, as explained by Chambas (1980), "were rather piecemeal and tentative, and failed to make any significant progress among agricultural producers". The co-operative

structures did not conform to the prevailing cultural practices in Northern Ghana. The traditional tenure systems were by-passed and alien structures were put in place with the hope that rural farmers would adopt co-operative strategies given to them from "above". In addition, the government's faith in mechanization, which led to the acquisition of large tracts of fertile land (over a million hectares throughout Northern Ghana over the State Farm period), dispossessed poor subsistence farmers of both their land and homes (Konings, 1981). Consequently, many dispossessed peasants were either incorporated into the co-operatives, absorbed into the labour force for the State Farms Corporation or simply pushed out to other areas. This is particularly true of land acquisition for large irrigation projects in Veia and Tono in the Upper-east region which led to a dramatic 30 per cent decline in population from 1960 to 1970 (Konings, 1981). Farmers working as wage labourers on State Farms had many problems to contend with, and this included the long distances that they had to walk to and from their work places every day (averaging between 6 and 12 km per day). Again, their salaries were quite irregular, making it difficult for them to meet their basic needs.

While these arrangements were specific attempts to increase domestic food production rapidly to feed the entire nation, it is of interest to note that they did not produce the desired objectives in the region because they essentially

by-passed most traditional food producers, and more importantly, they disrupted the already weakened traditional kinship ties relating to labour force participation in agriculture. By 1965, only 10 per cent of the land acquired had been cultivated by the State Farms (Gariba, 1989: 168). Thus instead of increasing food production, the policy led to losses in production which further exacerbated the food problem and even accelerated the southward movement of labour.

However, while government policy did not lead to any appreciable change in the trend of population distribution in the area, other problems of relevance, such as the presence of environmentally related diseases in the region, were ignored, to the extent that the fertile Volta basin, which was humanly uninhabitable because of the presence of the black fly, remained so during the entire period. Inhabitants either stayed and contracted the disease, which inhibits labour productivity, or migrated to other areas, especially the uplands of the north-east and north-west, known to be more favourable for human habitation. Movement into these areas resulted in a huge pressure on the land (Shepherd, 1978: 98).

Furthermore, the CPP government did not take active measures to provide the northern sector with the much needed infrastructure such as schools, roads, hospitals and other amenities which would serve as a vehicle for development, including higher agricultural yields (Ofori-Atta, 1978, Plange, 1979). Again, there was no effort to transform the

socio-cultural system, taking into consideration traditional norms and beliefs, into a viable one which could stand the test of time, and therefore lead to a transformation of the production system. Instead, there was a drastic effort on the part of the party leadership to bring the north into the mainstream of CPP support. Party patronage became rampant, leading to a total neglect of the important issue of uniting the already weakened social fabric of the northern tribes (Gariba, 1989: 208). Again, the CPP government was too busy with the disenchanted southern urban elites to the extent that no efforts were made to consider the northern section of the country. As a result, Northern Ghana degenerated into an area of few opportunities. Basic necessities of life, including potable drinking water, were almost non-existent (Ofori-Atta, 1978). More and more people joined the exodus into the southern sector or to more favourable areas, especially the few urban centres. The State Farm idea did not achieve the desired aim of producing cheap food for the whole country, instead it created a very deep-seated political antagonism between CPP party functionaries and the opposition in Northern Ghana, which did not augur well for the development of the region, especially the food production industry.

At the end of Nkrumah's regime, the State Farm system and the Co-operative Farming system had not achieved the desired results. Indeed, they rather led to a further movement of people from the northern sector into the south. Young people

who had been introduced to wage income through the State Farm system soon began to look elsewhere for wage employment. Most of them moved to the south and other urban centres in the north.

4.3.2 Laisses-faire Policy & Population Distribution (1966-1972).

The state interventionist policy of the CPP was replaced by a military government, the National Liberation Council (1966-1969) and its elected civilian successor, Progress Party (1969-1972) with a policy of encouraging private enterprise in all spheres of national development, including agriculture. Most of the state farms of the CPP era were either sold to private farmers or liquidated. The main thrust of the government's policy at this time was to de-emphasize state agriculture and give prominence to private investment (Ofori-Atta, 1978). However, poor rural farmers whose lands had been taken over during the State Farm era did not benefit from this arrangement; they did not receive their lands back. Rather absentee farmers and other rich individuals took advantage of the government's policy to acquire more government-owned lands for commercial purposes.

In pursuance of this policy, private commercial farmers were exempted from income tax in the first five years and infrastructural and capital facilities were put at their disposal. The underlying rationale for the support of the

private farmer was the belief that economic development could only become a reality through the creation of a class of "wealthy individual farmers even if this aggravates inequalities within the rural population" (Ofori-Atta, 1978: 12). As would be expected, only the rich private farmers could have access to the required collateral needed for the acquisition of loans and the exemption of income taxes on the proceeds thereof. In this regard therefore, there was a rush by rich entrepreneurs to Northern Ghana for land acquisition and subsequently, large scale production of crops. Very few northern entrepreneurs could even have access to loans because of lack of the needed collateral. Most indigenous people who bought lands were the rich ones residing permanently in the southern towns such as Kumasi, Accra, and Takoradi (Goody, 1983).

During this time, there was stagnation in the food sector as a result of a sharp decline in agricultural expenditure (see Table 4.1). The average share of agricultural spending, in relation of total spending, was much lower during the period 1966 to 1972 than it had been between 1959 and 1966. Between 1966 and 1969 for example, agricultural expenditure declined by about 35 per cent, falling from 10.1 per cent to only 6.9 per cent of the total expenditure.

Related to the above was the widespread antagonism on the part of small-scale farmers, some of who worked as wage earners on lands taken away from them, against commercial

farmers. Workers on these farms felt that they had not been involved in the decision-making process which had been 'top-down' and they were simply paid daily wages (Chambas, 1980: 129). In most cases, this antagonism resulted in clashes with managers of commercial farms, and farms were destroyed, mostly by fire (Goody, 1980). These clashes mostly led to low agricultural yields, affecting the overall production levels in the country.

Table 4.1 Agricultural Expenditures as percentage of Budgetary Expenditure, Ghana, 1959/60 - 1971/72

Year	Agric Expenditure as % of Total Expenditure	Annual % increase in Agric. Expenditure
1959/60	8.8	+ 7.3
1960/61	10.2	+51.2
1961/62	7.6	---
1962/63	7.8	---
1963/64	7.8	---
1965	10.8	+49.6
1966	10.1	-30.9
1967	8.1	- 6.6
1968	7.1	+ 3.6
1969	6.9	- 2.6
1970	6.5	-10.5
1970/1	16.5	- 6.7
1971/2	26.3	-10.2

Source: Gariba S, 1989, Table 5; culled from
Economic Survey, Ghana (1957 to 1973); World Bank Data.

Thus, in this era too, the limited attention given to rural poor farmers, especially women, led to disinterest in the food production system. The resultant shortage of food items on the market in the whole country, and the corresponding high market prices, led to a widespread disillusionment on the part of a wide variety of poor farmers in the country (Tabatabai, 1988, and Kraus, 1988). Laissez-faire policies failed to transform Northern Ghana into a viable area for agricultural development. Instead, the region continued to suffer the same ailments from the civilian government which had promised to transfer power into the hands of the individual farmer. The Progress Party's policy of rural development and transformation was not implemented with the rural people in mind. Indeed, little attention was paid to the social stratification and beliefs of the people. The transformation that resulted from the implementation of the laissez-faire policies further assisted in alienating rural poor farmers from the food production system. Thus, efforts at revamping the agricultural economy of the region were just like attacking the symptoms of the problem and not the causes themselves.

4.3.3 Agricultural Development & Population Distribution

The 1970s and early 1980s saw governments trying hard to solve the problem of out-migration in northern Ghana through a combination of strategies, including various forms of

agricultural production techniques. However, none of the strategies could stem the tide. This section discusses some of the strategies implemented and the reasons for their failure.

The Acheampong government which succeeded Busia in 1972 introduced the Operation Feed Yourself (OFY) programme, which was aimed at ushering in widespread state intervention in agriculture. In pursuance of this programme, Acheampong's government constructed some of the much needed infrastructure in the north (Gariba, 1989: 169). New roads were built throughout the sub-region and medical facilities were provided in certain areas. The Tono and Veia irrigation schemes (Upper-east region) were completed to facilitate year round cultivation of crops such as rice in Northern Ghana. This policy was also influenced by the availability of land, and cheap unskilled labour which made mechanization potentially lucrative. Here, the emphasis was on the state as the owner of the means of production, which distinguished it from the private/commercial inclinations of the NLC/PP era. However, there was little, if any, consultation with the people, in the implementation of the irrigation schemes to supplement the fortunes of rainfed agriculture in the north (Goody, 1983).

Tono and Veia were envisaged as multi-purpose projects which would provide a source of water for irrigation, water supply and fish farming. Between the two projects, 4,100 hectares of land were to be prepared for irrigation

agriculture¹. Both projects were initiated by the Irrigation Development Authority, and full responsibility for all aspects of the management of the projects came under its control. The policy making body for the Tono project for example, was the Regional Administrative sub-Committee, consisting of thirteen officers, including the Navro-Pio (the paramount chief of the Kasem people). The Vea Project had a similar composition on its policy making sub-Committee, with a place reserved for the Bolga-Naba (paramount chief of the Frafra people) to serve as the representative of the Vea people. The day-to-day administration of the two projects fell under the responsibility of the respective project management. There was also an irrigation staff of engineers, technicians, and various skilled craftsmen for operation and maintenance (Chambas, 1980: 152). Thus, operating along elitist and technocratic lines, the committees were made up of top bureaucrats, leaving only one place on each of the projects for so-called traditional rulers of the people affected. As Chambas rightly put it;

"This effort is nothing but a subtle effort by the government bureaucracy to co-opt traditional authorities for the implementation of policies. This has been an old trick from colonial periods where traditional authorities were often used to implement policies, so as to give them a semblance of legitimacy" (Chambas, 1980: 154)

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1. An elaborate description of both the Tono and Vea Irrigation projects can be seen in the following reports;
 - a) Vea Irrigation Project, Irrigation Department, Ministry of Agriculture, 1977.
 - b) Tono Irrigation Project, A Brief Description, Irrigation Development Authority, 1978.

In the case of Tono, it is interesting to note that disenchantment with their representation by the Navro-Pio grew so high that the people of Tono brought to the attention of the Regional Administrative sub-Committee their desire to have their own chosen representative on the committee, but this legitimate demand was dismissed outright since the committee was of the opinion that the Navro-Pio adequately represented the people of Tono and the surrounding area (Chambas, 1980).

With the construction of the dams, a number of villages were flooded, and people had to relocate in surrounding unaffected areas. At Tono, seven villages were affected (Tono, Bonia, Yogbania, Yeguania, Wuru, Kavamie and Gani); and at Ve a ten villages were affected (Gowrie, Nyariga, Ve a Asorabisi, Ve a Nzangongo, Zaare Nyarega, Yorogo Asorogorisi, Zaare Avambisi, Zaare Ayorogobisi, Yikine and Sumbrungo Zorebisi). The economic and social lives of these villagers were disrupted, as they had to move from lands that they had settled for generations to new homes. Promises that they would be resettled in new villages to be built with government assistance were never met, and about 40 per cent of the affected people received no compensation at all (Frafra Youth Association, 1975).

The compensation issues dragged on up to the summer of 1979 without much success for the people. With respect to the allocation of irrigable land, local farmers marginally benefitted from the two projects (Ghana Government, 1978). To

qualify for an irrigable land, one had to be a "commercial farmer". This was loosely defined to mean that one had to be cultivating rice, have agricultural machinery, and be able to get a big bank loan. Small peasant farmers were therefore bypassed in the allocation of land. Those who obtained plots were influential people (military officers, wealthy traders/businessmen and women, senior civil servants, chiefs), most of whom invariably were absentee landlords. From available evidence, people who acquired lands were not able to utilize their plots fully. By 1978, 29 per cent of irrigable land was lying idle. Numerous petitions were written to the Head of State and other high ranking government officials about the plight of the people, but not much was done to address the situation (Chambas, 1980: 161).

The impact of the above situation on the food production system has been negative. Although there are no hard data on this, it appears that the construction of the irrigation systems did not improve the availability of food for the people; on the contrary, it appears to have worsened their plight. Small-scale farmers were pushed off onto agriculturally less productive lands, which made it difficult to maintain their previous levels of food production - which were not impressive in the first place. Certainly they did not attain the capacity to engage in year-round cultivation, since they had not acquired irrigable lands. For most of the people in these areas, the irrigation systems signalled hard times.

The development of irrigation agriculture and other projects in the area offered the possibility for evolving innovative approaches to participatory agricultural and rural development geared at overcoming ecological, economic and political barriers that have held the masses in a life of poverty and deprivation. However, the administrative machinery and planners, unable to reorient their conventional thinking - bureaucratic "top-down" approaches, individualistic preferences, and biases towards commercial-profit-oriented schemes, interlocking ties with wealthier rural and urban interests - frustrated the new possibilities of building economic and political democracy in rural areas (Kraus, 1988). Small-scale farmers and other rural dwellers were not made part of the decision making process to decide what kind of projects to implement, and they were not consulted on how to distribute the land for agricultural purposes. Rural farmers were therefore left in the dark with respect to land allocation, distribution of inputs and other agricultural implements. These approaches further served as a 'push' factor for people to move out of the rural areas into urban centres, both in the south and the north. Related to the above is the fact that most rural farmers were not very familiar with the heavy machinery introduced, and even if they were, they could not afford to buy or hire it. In addition, the prolonged sahelian drought of 1973-1976, which affected food production in Ghana and especially in Northern Ghana, and above all the

oil crisis of 1973, did not augur well for Acheampong's campaign.

The above factors, coupled with the fact that most of the support went only to large-scale rice cultivators, led to a further exodus of people into the southern sector and subsequently out of the country. Interest in food production by small-scale farmers was drastically reduced, with immediate consequences for the production of major food items. Small-scale farmers still produce just enough to feed themselves and very little surplus for the market. Table 4.2 shows the trend in maize production in Northern region from 1970 to 1979. There has not been any significant improvement in the overall trend of production since 1970.

Table 4.2: Maize Production in Northern Region, 1970 to 1979

Year	Hectares	Tonnes	Tonnes/Hectares
1970	60,300	50,770	0.8
1971	56,700	49,800	0.8
1972	54,200	44,200	0.8
1973	78,200	66,100	0.8
1974	71,200	37,400	0.5
1975	n.a	n.a	n.a
1976	n.a	n.a	n.a
1977	58,071	55,224	0.9
1978	68,795	61,329	0.9
1979	64,789	43,360	0.6

Source: Gariba, S. p.189; compiled from the records of the Department of Economic Research and Planning, Ministry of Agriculture, Tamale, Ghana, various years.

It could therefore be argued that in this regime too, agriculture was dealt a big blow. The people were not consulted in the formulation and implementation of the OFY programme. However, the population census report of 1984 recorded a substantial increase in the population of such urban centres as Tamale, Bawku and Navrongo. This increase can be attributed to natural increase and also return migration, mainly into already urbanized centres in the north, where infrastructure such as good drinking water and hospitals were available. The fertile lands of the Volta basin continued to attract fewer people due to the ravages of onchocerciasis.

However, there were certain developments in the north which are worth mentioning. These include the favourable efforts at eradicating river blindness which culminated in the Onchocerciasis Control Programme (OCP) of 1974, and efforts at integrated rural development projects including the Northern Regional Rural Integrated Programme (NORRIP) and the Upper Region Agricultural Development Project (URADEP), both of which started operations in the late 1970s. All these programmes are still operative. They serve as some of the greatest efforts at addressing important issues affecting peoples of Northern Ghana, however, certain bottlenecks need to be redressed in order to make them viable (see chapter 5).

The OCP, for example, was aimed at removing a major obstacle to development, the black fly, and therefore making river valleys humanly habitable. It was supported by WHO in joint sponsorship

with United States Agency for International Development (USAID) and the Organization de Coordination et de Cooperation pour la Lutte Contre les Grandes Endemies (OCCGE). The programme took off in 1974 after preparatory studies in the countries involved. Spatially, the programme included the severely affected areas of the Volta River Basin, involving adjoining parts of seven West African countries including Ghana. In Ghana, the whole of Northern Ghana was designated an endemic zone and it was hoped that after the programme, about 75, 000 hectares of land would be made available for human habitation, and more importantly agricultural production (WHO, 1973; Ewusi, et. al, 1986).

The areas most heavily affected by the disease include parts of the valleys of White and Red Voltas, Morago, Sissili, and Kalpaw, rivers (see Figure 3.1). These areas have fertile or moderately fertile alluvial soils which are very conducive to the cultivation of cereals such as maize, millet and rice. The main strategy of the programme in eradicating the vector was the use of insecticides to spray the whole area. This measure was taken in view of the general ineffectiveness of chemotherapy in the past. Thus the aerial spraying of insecticides for the control of the larvae, which occupy restricted stretches of fast flowing rivers was started in earnest. In addition, ivermectin, a novel semi-synthetic macrocyclic lactone, was distributed at the community level once a year to assist those already infected with the disease (Greene, 1992). By 1984, the OCP had brought the black fly under effective control in about 90 per cent of the initial OCP area, and

this included a very large portion of Northern Ghana (WHO, 1987; Ewusi, et. al, 1986). This is good news. Yet so far, the anticipated agricultural development and consequent re-population of the Volta Basin in Northern Ghana have not taken off. This is due mainly to lack of governmental support. The PNDC administration which took over from the Limann administration was too busy dealing with issues connected to southern Ghana. In terms of the provision of amenities for the north, the PNDC government did very little to develop the infrastructure for the "oncho-freed" zone. Just a few trunk roads in the region have been resurfaced and made motorable, but the rural feeder roads have remained effectively inaccessible. Schools and health facilities in those areas are still in a deplorable state.

4.3.3 Structural Adjustment and Northern Ghana

In December 1981 Rawlings became head of government for the second time in two years through a coup d'état. The first two years of the PNDC's eleven year reign were characterized by acute instability of the Ghanaian political and economic scene. By 1980, Ghana's economic crisis had become very severe. Per capita incomes fell sharply and there was an acute shortage of food and foreign exchange. Malnutrition increased, especially among children and mothers; health care standards deteriorated and infant mortality rose to very high levels (Ghana Government 1984). The government budget shrank in real terms and was grossly imbalanced. These conditions have been emerging gradually over many years and came to

a head in the early 1980s.

Droughts all over the country and a deterioration in terms of trade were also contributory factors in the crisis. These were compounded, especially, by serious failure of government policy. The absence of an effective food policy in any of Ghana's agricultural policies up till 1983, coupled with an overvalued exchange rate, excessive and counter productive price controls and a lack of incentives for most types of producers, especially small scale food producers, were the key policy failures (Loxley, 1988). The PNDC government's programme to reverse the serious economic decline and stagnation led to the proclamation of the Structural Adjustment Programme (SAP), which was contained in the government's Economic Recovery Programme (ERP), Phases I and II. The programme has been supported by the International Monetary Fund (IMF) and the World Bank with loans.

The adjustment programme has shifted public resources away from vital social services and support for local farming and resource management toward export agriculture. The social cost of this shift is very high, and Ghanaians are being forced to pay for it. Jerry Rawlings' promise of providing incentives for farmers to produce the needed food for survival has not been met. His own words can be said to be rhetorical, and therefore do not reflect what is happening especially in the northern regions of the country. He said;

"Food production could be given a bigger push directly and indirectly by putting in place real incentives in areas suitable for food that are in high demand in the country, such

as maize and rice, so as to make the country self-sufficient in food production" (Quoted in Bequelle, 1988).

Adjustment has not changed the systemic factors that stifle production and distribution of food items in the north. The food sector which actually need the support of government policy has been given less priority. Northern Ghanaian food producers, including vulnerable groups such as women and children, have not benefitted from structural adjustment. Under adjustment in Ghana, small-scale farmers cannot afford to buy the needed inputs for their farms. The situation is even worse in Northern Ghana due to accessibility problems. There have been steep rises in fertilizer and pesticide prices, exceeding inflation by a factor of between five and six (Loxley, 1990).

Poor rural farmers are still at the mercy of rich commercial land owners. Most of them work as wage labourers on commercial farms. With respect to population movement from Northern Ghana, it can be said that not much has changed since the structural adjustment programme was launched. The movement toward the urban centres has even been accelerated. As in the 1970s, farming no more provides the security that the rural farmer needs (Nabila, 1990). Thus, the process of movement from the north, which started forcibly during colonial times, has been transformed into an economically induced phenomenon. Producing food entirely for the market is no longer appealing to rural poor farmers, especially since most of them do not have access to strategic resources which could make their work a little bearable. Structural adjustment

could do better if it had a "human" face. In chapter 5 we explore some of the weaknesses of SAP, especially in the area of food production in Northern Ghana with a view to suggesting recommendations for incorporating rural poor farmers into the system.

CONCLUSION

This chapter has traced, from a historical perspective, the population distribution and food production situation in Northern Ghana within the framework of various government policies since colonial times. The obvious catalyst of change was the colonial policy of according Northern Ghana (then Northern Territories), the role of labour reserve in a bid to incorporate the region into the colonial capitalist economy. However, subsequent post-independence government policies and attitudes toward development in the north have further exacerbated the problem. Unfavourable climatic and infrastructural conditions within the area itself have resulted in certain parts attracting more people than others. First, the existence of relatively better social amenities in some urban centres, like Tamale, Wa, Bawku, Navrongo and Bolgatanga, have made those areas attractive to migrants. Secondly, ecological problems, notably onchocerciasis, have led to originally favourable agricultural lands being vacant or near vacant with respect to population. This situation has aggravated the degradation of other environments as a result of the influx of a large number of people fleeing uninhabitable lands to upland areas. Thus

the environment has also played a leading role in shaping the patterns of population distribution, especially in north-eastern and north-western Ghana. The OCP programme which was launched in 1974 to eradicate the disease has achieved about 90 per cent eradication, but this has not resulted in a movement toward the rich valleys for food production.

The Northern Regional Rural Integrated Programme (NORRIP) and Upper Regional Agricultural Development Programme (URADEP), both designed to encourage subsistence farmers to be self supporting and produce more food, lack a vital ingredient - peoples' participation. Meanwhile, the north is still not attractive to many people in Ghana today, mainly because of the lack of basic infrastructure such as good roads, potable drinking water, health and educational facilities outside of the few urban centres. Again, the age/sex characteristics of labour organization previously existing in the area have changed, due to the trend of population distribution. This has led to heavier burdens on females whose traditional role it has been to cater for the family, but ironically who do not have access to credit and/or land. Chapter 5 discusses the performance of the production system in the north in relation to contemporary agricultural policies.

CHAPTER 5
STRUCTURAL ADJUSTMENT, FOOD PRODUCTION &
POPULATION CHANGE IN NORTHERN GHANA

5.1 INTRODUCTION

In this chapter, the impact of contemporary agricultural policies in the marginalization of the vast majority of rural poor farmers in the region is discussed and analyzed.

We will argue that various aspects of both the integrated rural development programmes and Structural Adjustment Programme (SAP) on the distributional pattern of population and food production in Northern Ghana have been negative. While the integrated programmes were motivated by a desire to save the region from further deterioration and therefore make it viable for food production and other economic activities, the planning and implementation of the programmes did not take the poor farmers into consideration, with the result that they and other rural dwellers, have not benefitted very much from them. In addition, SAP's emphasis on the export sector, which in the case of Ghana is based in the southern regions, bypassed rural northern farmers, while promoting southern based cocoa farmers, who stand to gain a great deal from incentives provided by structural adjustment. Indeed, criticism has

mounted that adjustment programmes are adversely affecting the rural poor in Africa (Lele and Adu-Nyarko, 1989; Jolly, 1991). In Ghana, the northern regions are the hardest hit in view of the neglect of food production. This has perpetuated the age long phenomenon of southward movement from the north, and exacerbated the problems connected with households and gender related issues in the production of food in the region.

5.2 INTEGRATED RURAL DEVELOPMENT IN NORTHERN GHANA

In the late 1970s and early 1980s, two integrated projects, namely: URADEP, initiated by the World Bank, the British Overseas Development Assistance and the Ghana government in 1976; and NORRIP, initiated by the Ghana government with assistance from the Canadian government in 1980, were initiated for Northern Ghana. Both programmes were aimed at promoting rural development efforts, with a multi-sectoral approach in view, by embarking upon a concerted effort to expand food production and provide for the basic needs of the people (Lele & Adu Nyarko, 1992). The projects aimed at providing poor rural farmers and other vulnerable groups with direct access to better technology, credit and amenities to enhance their production of a marketable surplus of food. As already mentioned, experience with previous development programmes which sought to provide poor rural farmers with their basic needs failed because of a lack of their involvement in both planning and implementation. Most

importantly, such programmes ended up not reaching the rural poor who need assistance most. People other than the poor benefit from such assistance. In almost all cases, it is women, who did not have access to resources, who suffer most. The integrated approach was designed basically to serve the needs of vulnerable groups, improve upon other development strategies of the past, and therefore provide a sustainable basis for development. Increased productivity and higher incomes for rural small-scale farmers was implicit in the integrated development approach. Coombs et al compared the integrated development approach to previous development strategies and observed as follows:

"....the opposite (ie., integrated development approach) of the piecemeal approach pursued throughout most of the developing world over the past 20 years. Under this haphazard approach, each specialized agency has pursued its own narrow objective with little attention to whether it harmonized with complementary objectives and programs or with the broader processes of rural development in that particular situationThe only alternative to this fragmented, one-eyed approach is a more integrated approach that views the complex realities of rural development in wider perspective, that pays greater attention to the relationships and interdependence of various specialized parts of the whole, and that seek to link these various elements together more effectively, whether in designing a particular program or project or in fashioning broader policies and strategies" (Coombs et al, 1976: 1).

There was the explicit desire to provide other facilities for rural communities such as health, education and improved road network. Among other things, the integrated strategy called for institutional reform to make for increased participation of rural peoples in the decision-making process (Chambas,

1980: 171). But this institutional reform never involved the poor rural farmers. Rather it involved the same bureaucratic order, with a cosmetic representation of the people on the steering committees of the programmes¹ (also see section 4.3.3 on Ve a and Tono Irrigation projects' implementation committees). From the beginning therefore, the two integrated rural development programmes, URADEP and NORRIP, have been operating based on a weak foundation.

The implementation of URADEP started in 1976 with financial assistance from the World Bank (US\$21 m), and the United Kingdom (US\$11 m), with the government of Ghana providing (US\$31 m). The Dutch government also contributed about (US\$1.6m) in support of the communication and training of URADEP personnel and other Ghanaians in the subject of agricultural extension communications (World Bank, 1976). NORRIP, on the other hand was launched in 1980 with about 75 per cent of financial input coming from external sources, notably CIDA. The period 1980-1988 saw the planning and formulation of the NORRIP integrated strategy, the specification of the broad investment plans in a number of

¹. For a comprehensive presentation of the management committee of both the NORRIP and URADEP programmes see
 (a) Gariba S., "The Peasantry and the State in Ghana: The Political Economy of Agrarian Stagnation and Rural Development in Northern Ghana", Unpublished PhD. thesis, Carleton University, 1989.
 (b) Chambas, I.M., "The Politics of Agricultural and Rural Development in the Upper Region of Ghana: Implications of Technocratic Ideology and Non-Participatory Development", Unpublished PhD. thesis, Cornell University, 1980.

sectors, and the preparation of specific project packages for two out of ten districts designated as Integrated Development areas.

For both programmes, the mal-functioning of bureaucratic systems at the national and regional levels was identified as one of the constraints to alleviating poverty in the region and the development of a viable community. In this regard, the project planners concluded that the poorest of the poor farmers should be the target of policies to improve agricultural productivity. Meanwhile none of the very poor people were consulted in the implementation of the programmes. Thus, many intervention programmes were prepared by the management committees of both projects, which were made up entirely of bureaucrats from the south and the region's urban centres. Some of the programmes proposed included farm credit schemes, social infrastructure programmes to provide safe drinking water, primary health care and adult literacy programmes. Such programmes, it will be recalled, had been advocated earlier by various political administrations. In each case, though they were well intentioned, they did not reach the poor farmers. Small-scale farmers are always bypassed and the result is total disenchantment and subsequent neglect of the food production sector (Kraus, 1988).

The NORRIP programme, for example, had a policy of encouraging small-scale farmers to produce more food crops, and to do this effectively NORRIP decided to integrate all

state institutions in the region to support one coherent thrust in regional development (Gariba, 1989: 272). In the specific area of agriculture, there was to be a coordination of extension services and the provision of farm implements to farmers at their "doorstep", and all these were to be handled by the Ministry of Agriculture (MOA). The Ghana Water and Sewerage Corporation (GWSC) was to be involved with drilling 350 boreholes fitted with hand pumps, and the primary health care was to be implemented by the Ministry of Health (MOH). These policy objectives look marvellous on paper but, again, the composition of the planning committee, and the implementation that followed showed a lack of representation by the local people. The programmes are therefore not seen by the rural people as their own. They appeared like the usual programme where researchers and development consultants only give assistance to people who can be classified as "not-poor". The end result is that the rural poor are totally alienated from the programmes which were ironically put in place for their benefit.

In view of the lack of representation and participation from the rural people themselves, plans advanced by both NORRIP and URADEP programmes did not pay much attention to the structure of the rural social system and the production patterns of the region. No effort was made to understand thoroughly the social milieu within which rural people conducted their daily lives and the recurrent problems they

face. Thus, although there is a great potential for increased food production in Northern Ghana, the programmes have not addressed the critical issues underlying the region's underdevelopment and poverty. This is clearly seen in the distribution of farm inputs and other amenities, which are controlled by elderly males, traditional leaders, and rich bureaucratic and absentee landowners, who have their permanent residences in the south or in urban centres in the north and who return once in a while to inspect their farms in the rural areas (Goody, 1983). Indeed women were, and are still, neglected in the distribution system, so much so that food production has suffered, since they form the bulk of farmers in the region. This has further entrenched the elite group that started springing up after the first republic (i.e after 1966)¹.

With regard to the introduction of new technology by the programmes, an appraisal of the NORRIP programme observed;

".....the introduction of bullocks in the villagesproduces an "elite" group who no longer depend on help from other villagers. This tends to disrupt the social order of the village..." (CIDA, 1983: 4.22).

Another aspect of the integrated rural development operations in Northern Ghana which further alienated the poor farmers, especially women, was the disbursement of credit facilities. Both programmes (URADEP and NORRIP) anticipated a situation

¹. For an analysis of the 'evolution' of the modern 'elite' group in Northern Ghana, see Gariba, 1989: chapter 3.

where small farmers would not get the needed collateral to secure loans for their farms. Therefore the "small farmers' group loans scheme" was instituted and administered by the Agricultural Development Bank (ADB) and the Ghana Commercial Bank (GCB). This strategy, as it were, requires that small groups of farmers guaranteed each others' loans. However in the implementation of this strategy many problems cropped up, as put bluntly by Gariba,

"...loan recipients, mostly household heads and traditional leaders, mortgage the present and future of their family members for these financial resources. In this case poor farmers, and their entire households became indebted in relying on credit financing in the long run" (Gariba, 1989: 278).

These bank loans are normally serviced through the sale of household produce, and this falls on the broad shoulders of one particular group of people - women and children, who do not only lack access to new technology and inputs introduced by the projects, but credit as well. By virtue of their subordinate status in society and their lack of land resources in most of the communities, most women are by-passed in the allocation of credit facilities and other agricultural inputs, even though it is widely acknowledged that they play a very important role in activities that enhance the survival of the household. Their role in the maintenance of the household is made more manifest considering the fact that the sex-ratio of most communities in Northern Ghana is heavily skewed in favour of women, as portrayed in chapter 3.

The situation is even more problematic when we consider that some taboos prevent women from performing certain functions which by and large are now in their purview in view of the added burdens resulting from the progressive movement of males out of the region. A typical taboo in the Northern region is the ban on the operation of ox-drawn ploughs by women, due to a mixture of religious and mystical excuses (Chambas, 1980: 201). This taboo has prevented women from using bullock ploughs to clear the land, which is unfortunately regarded as male work. In this regard therefore, women continue with the more tedious and laborious jobs of planting, harvesting, processing food and fetching firewood for the household without any implements, in most cases they use their bare hands.

To redress the situation, it is essential that women be specifically targeted and consulted in the provision of certain essential commodities so that they can effectively play their roles. It is therefore a welcome relief that NORRIP has initiated programmes, after its first overview in 1981, to put in place water programmes and community forestry programmes which reduce the time women spend fetching water and wood (CIDA, 1983: 4.44). Most of these water projects have now been completed and are in use by the communities. It should also be mentioned that the CIDA-funded programme in the Upper Region which provided 2,500 boreholes fitted with hand pumps to over 1,000 villages, has, to some extent, freed women

from the energy sapping and time consuming search for water in the region. Indeed there are other on-going women-oriented development initiatives supported by Canadian NGOs in Northern Ghana. This includes a \$5 m CIDA funded small credit scheme for rural women executed by the Canadian University Services Organization (CUSO) and the Ghana National Council on Women and Development (NCWD), as the local partner. The project sought to improve the income earning potentials of women and ensure their active participation in the development process (CIDA, 1993). However, it should be mentioned that although the above projects targetted women, it did not reach the remotest villages due mainly to logistic problems. Roads in these areas are sometimes immotorable and therefore aid and/or development workers have problems getting to these areas.

Apart from the above gender-related problems which have been addressed, there are other concerns related to the benefits that would accrue to poor farmers. It was noted in Chapter 4 that government policies have led to the intrusion of absentee farmers into the northern countryside. Another flaw of the integrated rural development approach, as it is presently packaged is the fact that incentives and other inputs still do not reach the rural poor, and even if they did rural poor farmers would not be able to afford them. Instead, rural elites, bureaucrats, military officers, and absentee landlords/businessmen, who have strong connections with the central bureaucratic system of the central government, are

still the beneficiaries of such packages. Indeed, the introduction of the SAP by the central government has worsened the situation, since adjustment policies have further increased the nominal prices of farm inputs such as fertilizers and farm implements. Necessary as the SAP may be, it should be noted especially that the fiscal reformation embedded in the programme has in large measure disoriented the implementation of the integrated rural development approach in Northern Ghana, in view of the fact that most of the packages supplied by the integrated approach are now simply unaffordable by the rural poor farmers. Consequently, only rich farmers and other influential individuals enjoy from them. An analysis of the basic tenets of the SAP in the context of food production and rural development in general will put the picture in perspective.

5.3 STRUCTURAL ADJUSTMENT AND NORTHERN GHANA

The severe deterioration in the Ghanaian economy by the end of the 1970s prompted the government of Ghana to adopt an Economic Recovery Programme (ERP), considered to be one of the severest adjustment programmes the International Monetary Fund (IMF) and the World Bank have ever persuaded a developing country to accept (Sarris and Shams, 1992: 1).

As briefly mentioned in chapter 4, the 1970s plunged Ghana into the worst economic crisis ever, and this was mainly due to the relative neglect of the agricultural sector in the

1960s (Bequale, 1983; Tabatabai, 1986). At this time, Ghana's economic strategy emphasised rapid industrialization by state-owned enterprises (SOEs) at the expense of agriculture. This resulted in lower export production and export earnings. The industrialization strategy opted for self-reliance, and established import-substitution industries behind highly protective trade and non-trade barriers. This caused further economic deterioration during 1973-1983 (see Table 5.1). Gross Domestic Product (GDP) fell by 1.3 per cent per annum, industrial output by 7 per cent, exports by 6.4 per cent, imports by 8 per cent, cocoa output by 7.1 per cent and food production by 2.7 per cent. During the period 1973-1983 annual inflation rates of 53.2 per cent for food prices and 46.5 per cent for non-food prices were registered (Sarris and Shams, 1992).

Table 5.1: Some Factors Indicating Performance of the Economy 1970-1983

	1970	1975	1980	1981	1982	1983
Official Exch. Rate (c per \$)	1.02	1.15	2.75	2.75	2.75	3.45
Real Exchange Rate (1970=100)	100	106	378	850	1020	1700
Parallel Rate (c per \$)	1.64	1.99	15.87	26.25	61.67	76.58
Differential Parallel/ Official Rates	1.6:1	1.7:1	5.8:1	9.5:1	22.4:1	22.2:1
Cocoa Exports (Metric Tons)	362	322	240	201	160	148
Cocoa Producer Price (Cedis)	293	597	4,000	12,000	12,000	20,000
Real Producer Price (1972=100)	106	90	45	62	49	34
%FOB Receipts to Cocoa Farmers	46	42	86	267	38	24
%FOB Receipts to Cocoa Farmers at Parallel Market Rate	27	26	14	28	9	6
Terms of Trade (1986=100) (1971)	81	96	95	62	48	48
External Debt (Excl. IMF and Arrears) (\$m.)	489	676	1,099	1,111	1,117	1,132
Debt Servicing (% of Exports)	5.0	5.4	7.7	6.4	8.3	20.9
Changes in Broad Money Supply (M2) (%p.a)	10	39	34	51	23	38
% Change M2 explained by Govt. borrowing			81	101	15	45

Source: Loxley (1988 as Table 2)

The aim of SAP was to reverse the decline in economic performance through a programme of prudent fiscal and monetary policies, domestic resource mobilization (savings), development of infrastructure, managerial and administrative skills, production incentives and price and income policies to engender sustained growth and development (Asiedu-Saforo, 1989: 360). Specific measures adopted include devaluation, increases in domestic

currency prices for exports, price liberalization and increased incentives in the private sector. In agriculture, reform efforts have been concentrated almost exclusively on the export crop sector. More specifically, they have concentrated on the restructuring of the state cocoa marketing board (COCOBOD). There has been an increased emphasis on cocoa production as the cornerstone of economic development. This is seen as an effective way to generate foreign exchange revenues and to simultaneously raise the incomes of the rural poor (Kennedy and Haddad, 1992).

Accompanying the restructuring of the cocoa industry, and acting as a condition of the increase in the producer price of cocoa is the extremely sharp devaluation of the Ghanaian currency, the cedi. By the late 1980s the opening of private forex bureau meant that it was exchanging at more or less market-clearing rates, representing a nominal devaluation of 6000+ per cent since 1983 (Gibbon, 1992: 65). In Ghana, exchange rate adjustment has helped to generate a strong recovery in traditional exports essentially because of the production and marketing character of cocoa. Large increases in real producer prices of cocoa which devaluation enabled, helped to stimulate an immediate expansion of cocoa exports, output and tax revenue. There have been massive increases in the producer price of cocoa as an incentive for increased production (Table 5.2).

Table 5.2 Cocoa Production and Price Change in Ghana, 1982-1993 (Current prices, Gc)

Year Season Begins	Producer Price cocoa(1978=100)	Officially Marketed cocoa ('000t)
1982	300	179
1983	500	159
1984	750	180
1985	1400	219
1986	2125	228
1987	3750	188
1988	4125	301
1989	4350	295
1990	5600	250
1991	6274	n/a
1992	n/a	307
1993	n/a	245*

* Estimates from COCOBOD

Source: EIU Country Reports, Ghana, various years.

For cocoa, these amounted to 50%, 88%, 51% and 64% in the years 1984-1987. In real terms the increases were 12%, 63%, 29% and 25% (Loxley, 1990: 14). This scale of increases could have been absorbed only by very large shifts in purchasing power of non-traded goods or by inflation induced by those groups seeking to defend their living standards. A major undesirable effect of these increases in the price of cocoa is a severe erosion of the incentive to produce food, with the index of relative price of food to cocoa (1977=100) falling from 184 in 1983 to only 42 in 1987. A similar but less extreme fall occurred in the food/non-food relative price index, from 138 to 55 during the same period (Loxley, 1990: 14).

5.3.1 SAP, Population Change & Food Production

The enabling atmosphere that adjustment offered for cocoa production did not transfer to the food production sector, especially for the savanna regions. The high price trends in the cocoa sector were accompanied by a failure of the reform programme to address, directly, the non-price aspects of Ghanaian food supply problems. In practice the structure of price incentives and the absence of a coherent food policy meant that export crops (in this case cocoa) were more likely to benefit than food crops. The mixed fortunes of the food production sector of the country as a whole during the adjustment period (1986-1992) is a source of concern for politicians and development workers alike. Indeed, there have been increases in the production figures for some food crops such as maize (see Table 5.3), but they fall far below the rising demand level in the country reflecting an increasing population over the years. There has been a population growth rate of 2.6 per cent per annum (Asiedu-Saforo, 1989: Table 2: 363). However, some critics have been quick to attribute the increases in food production to the effects of adjustment - viewing it as an indication of price responsiveness on the part of farmers (Stryker et al, 1990: 230). This may be true for farmers in the cocoa sector, since most of them also produce food crops on their cocoa farms and on other plots of land. In addition, it is worth noting that the adjustment period in Ghana has been one of relatively favourable weather conditions. However it should also be mentioned that a policy that gives incentives to cocoa farmers but requires food crop producers

to rely on market forces cannot motivate farmers to produce more food. Food crop producers have been struck by massive devaluation and price de-regulation for inputs such as pesticides and fertilizers without a corresponding increase in food prices. Songsore (1989) has argued that one of the factors perpetuating inequalities between the south and the north is the worsening terms of trade. Commodity terms of trade have shifted in favour of cocoa producers since adjustment began. Commenting on the effect of adjustment on Northern Ghana, one writer lamented that;

"Almost all the loans contracted are going into the export sector with almost nothing into the food crop sector. Thus regions that have no export base and very little linkages with the enclave export economy are unlikely to benefit from the export boom". (Songsore, 1989: 12, quoting Salia)

Although Northern Ghana has been neglected in the adjustment policies, it is not exempted from the burden of adjustment. Indeed, it has been the worse hit in the restructuring process (Songsore, 1989: 14). The terms of trade have shifted against poor rural food producers, and this has affected women and children most. Despite recent increases in food production figures, it is not surprising that "projections by the Policy, Planning, Monitoring and Evaluation department (PPME) of the Ministry of Agriculture predict continuing shortfalls in cereal output into the 1990s" (Asiedu-Saforo, 1989: 366). The northern regions have benefitted from these price incentives. As Loxley puts it;

"It is sad commenting on Fund/Bank programmes that the food sector is treated as a virtual 'residual' in the programmes of most countries producing agricultural crops for export". (Loxley, 1990: 15).

The above observation is true for Northern Ghana. Adjustment is primarily focused on export promotion, and once consumer subsidies have been removed, the market prices of food are supposed to adjust in a 'trickle down' manner. This is assumed in virtually complete ignorance of the micro conditions under which food is produced, for example the change in the composition of households as a result of selective movement of able bodied males to the urban centres in the north and to the southern regions.

Table 5.3 Food Production Trends, Ghana 1982-1989,
(1980=100)

Year	Population ('000)	Net Cereal Production	Maize, millet cassava & Plantain	Producer price of maize (1980)
1982	105.4	74.6	103.2	67.3
1983	107.2	55.6	64.8	132.9
1984	109.9	104.5	156.3	82.7
1985	112.6	88.6	117.9	81.2
1986	116.2	100.0	130.5	97.7
1987	119.8	105.0	133.0	n/a
1988	125.2	132.0	153.1	n/a
1989	131.5	140.4	143.1	n/a

Source: EIU Country Reports, Ghana, various years.

In addition, the recent shift of emphasis from agricultural activities to the now popular retail trade - 'buy and sell' - has further led to an increase in the growth rate of larger urban centres in the north such as Tamale, Bolgatanga, Wa, and Bawku. This is the direct result of the rural population's limited access to farm inputs and credit for expanding and/or intensifying their farming activities. This aspect of structural adjustment has further exacerbated the problems encountered by rural integrated development in Northern Ghana.

It is also important to emphasize that in this situation the group mostly affected are women. As already mentioned, they constitute a very high percentage of the population in rural Northern Ghana. Maintenance of the status quo by structural adjustment means that vulnerable groups, especially women, still do not have access to strategic resources which they have been denied, in spite of the increasingly vital role they play in both the food production sector and in the household. Hence the increasingly reduced importance of food production as a viable economic activity in the region in recent years (Table 5.4).

Table 5.4 Estimates of Cropped area and Production for Rice and Maize in Ghana by Region, (1986-1992).

YEAR	Northern Ghana				Southern Ghana			
	Cropped Area		Production		Cropped Area		Production	
	(Ha='000)		(MT='000)		(Ha='000)		(MT='000)	
	Maize	Rice	Maize	Rice	Maize	Rice	Maize	Rice
1986	114.0	46.0	111.0	45.0	358.6	30.1	448.1	24.6
1987	164.8	45.0	128.3	51.7	383.6	27.0	469.4	29.0
1988	184.2	67.4	175.9	63.9	315.8	48.3	424.3	41.1
1989	182.2	45.0	121.2	36.1	413.5	29.4	593.4	31.0
1990	122.9	53.9	130.9	48.2	341.9	34.4	421.8	32.7
1991	150.8	30.2	195.2	64.2	459.6	64.7	736.3	86.7
1992	142.3	38.2	140.2	73.3	465.5	41.5	590.4	58.3

Source: Policy, Planning, Monitoring and Evaluation Department (PMED - Statistics Division), Ministry of Agriculture, various years.

Table 5.5 Comparison of yields in metric tonnes per hectare for Rice and Maize between North and Southern Ghana (1986-1992)

YEAR	Northern Ghana		Southern Ghana	
	(Yield Per Ha)		(Yield Per Ha)	
	Maize	Rice	Maize	Rice
1986	0.97	0.97	1.2	0.81
1987	0.77	1.14	1.2	1.10
1988	0.78	0.94	1.3	0.85
1989	0.95	0.80	1.4	1.05
1990	0.67	0.89	1.2	0.95
1991	1.29	2.15	1.6	1.34
1992	0.98	1.92	1.2	1.40

Source: Calculated from Table 5.4.

A cursory glance at production figures for maize and rice for Ghana arrayed by region on Table 5.4 shows clearly that Northern Ghana has lagged behind Southern Ghana since 1986. However, comparing crop yield per hectare for the two regions (ie, North versus South), Table 5.5 shows that maize had better yields in Southern Ghana than in Northern Ghana during the period under review. This can be attributed to the differential support given to farmers from both regions. Apart from this, there is the issue of fertile versus infertile areas in Northern Ghana. As already discussed, the river valleys are fertile but it is not intensively farmed due to environmental problems. The 'oncho-freed' zone of Northern Ghana can be cited as a typical example of a fertile area which has not been fully utilized for food production. These areas are sparsely populated and not attractive to farmers in view of the ravages of onchocerciasis and also the fact that infrastructural development is minimal or non-existent. With respect to rice, yields per hectare seem to be better in Northern Ghana than in the south, especially in recent years. This trend can be attributed to the contribution of large-scale commercial rice farmers who have taken advantage of irrigation facilities such as Tono and Vea. Rural farmers do not have access to such inputs and therefore it is difficult for them to improve their farms, and subsequently their yields.

Production of other food crops in Northern Ghana during the same period (1986-1992) was also not encouraging. These crops include millet, guinea corn and groundnuts, which are traditional

to the region due to their compatibility with prevailing climatic conditions. Apart from an improvement in production from 283,00 metric tonnes in 1986 to 547,000 and 580,000 metric tonnes in 1987 and 1988 respectively, production levels can at best be described as mixed ever since (see Table 5.6). Production figures for groundnuts for 1990 and 1992 could not be obtained from the Ministry of Agriculture, but from previous figures, it is safe to say that groundnuts alone could not make up half of the production figures for the three traditional crops and therefore the figures for Northern Ghana portray a declining trend which started in 1988.

Table 5.6; Estimated crop area and Production Trend for selected crops (Millet, Groundnuts & Guinea corn) in Northern Ghana (1986-1992)

Year	Cropped area (HA= ,000)	Production (MT=,000)
1986	390.7	282.9
1987	639.9	546.9
1988	587.5	580.0
1989	644.3	574.0
1990	338.9*	207.3*
1991	562.1	412.9
1992	511.1*	386.3*

* These figures exclude groundnuts.

Source: Policy, Planning, Monitoring and Evaluation Division, (PPEMD - Statistics Division), Ministry of Agriculture, various years.

The variable nature of production figures for these crops cannot be attributed to climatic conditions, neither can they be attributed to lack of arable land in the region. The most plausible explanation for this state of affairs is the result of unfavourable conditions created by the adoption of SAPs, which emphasize the production of export crops to the exclusion of food crops. With Northern Ghana being a food production area therefore, it is not surprising that inputs for improving farm yields have not reached the farmers. Small-scale farmers in the region have not been given the needed push and have not been involved in the planning and implementation of projects in the region. In addition, infrastructural development is poor, especially for the rural communities. Farmers are therefore not motivated to produce for the market.

Recent increases in population growth rates for the region over and above the national average cannot be solely attributed to natural increase, as already mentioned. Returned migration is also an important factor in the increases experienced in Northern Ghana's population. However, this is concentrated mainly in a few urban centres, with very few of the returnees engaged in farming activities; and also in areas known to be infertile for agricultural purposes. Indeed, most of the 'returned migrants' are employed on commercial farms or are engaged in trading activities, which are more rewarding than producing food in large quantities with all the attendant problems.

Thus, like the rural integrated development programmes before it, structural adjustment has not reached out to the poor farmers and the rural folks who have been affected most by adjustment policies. Incentives for cocoa and not for non-export products means that food production is not favoured. Producing food crops on a large scale is left mainly to large-scale commercial farmers who can afford to buy inputs like fertilizers and pesticides.

5.3.2 Adjustment and Provision of Credit Facilities to Rural Farmers.

With respect to the provision of credit to poor rural farmers the adjustment strategy is no different from the rural integrated programmes. Indeed the two integrated rural programmes are more committed in their effort to provide Northern rural farmers with credit than SAP. This makes the southern regions more viable compared to the northern regions, even in terms of producing food crops for the market.

The lack of access to credit has further exacerbated the problems in the food production sector of Northern Ghana. An illustration of this situation will suffice here. The movement into the "Oncho-Freed" zone, to take advantage of the fertile soils for food production, has not been as expected. Indeed, development of the areas's agricultural system has been very slow (Fwusi, et al, 1986; Aryeetey, 1987; Nabila, 1990). Small-scale farmers do not enjoy the widely advertised credit system of the integrated approach nor the increased availability of inputs resulting from

the introduction of the adjustment programme. The recipients of credit are rather the large scale commercial farmers and businessmen who have benefitted from government policies in the past and present, and are also able to provide the needed collateral for loans, which most poor farmers don't have access to.

In this regard therefore, small-scale farmers in their frustration either enter the informal retail sector to supplement their income, or serve as farm labourers on the large scale farms for money to supplement their income. This situation is counter-productive in view of the fact that small-scale farmers are the backbone of the food production sector of the Ghanaian economy. Thus any policy that pushes them away from the agricultural sector into other ventures, such as retailing, is an indicator of the final demise of the Ghanaian economy down the road. The Volta river valleys remain sparsely populated, with a few small-scale farmers producing mainly for subsistence and not for the market.

So far, policies and programmes that affect Northern Ghana have led people of Northern Ghana to adopt desperate measures to survive. Notable among these desperate measures are out-migration, which is well documented, and a shift from the agricultural sector into other economic activities, such as the retail of imported goods on the market and in various homes, especially in the urban centres of Northern Ghana, which, compared to the rural areas, are better off in terms of the availability of essential amenities like schools, health care centres and motorable roads. In a sense, government policies have reduced the northern regions into an area

of 'open air-traders', with very little capital to expand their activities. The burden on vulnerable groups who are mostly engaged in food production is enormous. Commitment on the part of policy-makers is very much needed to bring these people into the main stream of policy planning and implementation.

5.3.3 Infrastructure Development and Population Change

As discussed in chapter 3, Northern Ghana is very poorly served with infrastructure such as motorable roads, health facilities and schools. These facilities are important for societal survival, indeed, all aspects of production depend on the availability or otherwise of these facilities. In the absence of such facilities, most communities, especially those with a large percentage of small-scale producers, are not able to produce for the market. Subsistence production is therefore the norm and just a little is produced for the market. The disparity between the north and the south, and also between certain parts of the north and its rural areas, in terms of infrastructure, has also played a key role in pattern of migration in the region. S i n c e independence, all governments have pledged to redress the situation but the present condition of Northern Ghana is anything but favourable. Developing infrastructure has been one of the policy objectives of SAP and other programmes before it. However, as far as Northern Ghana is concerned, the process has been very slow mainly due to the fact that the region does not produce the most important export commodity in Ghana - cocoa. This implies that

Northern Ghana is only considered after other regions, especially the cocoa producing areas, have been catered for. This can be clearly seen in the construction of roads and the provision of schools and health facilities in the country as a whole. Northern Ghana's roads, especially the feeder roads linking the rural areas, are still in a deplorable situation compared to feeder roads in the cocoa producing areas of southern Ghana.

Although SAP is assisting in re-building some of the run-down infrastructure in the north, it should be noted that so far only some of the trunk roads linking urban centres have been resurfaced. These roads serve mainly the urban elites who play a dominant role in the politics of the nation and therefore they cannot be ignored in the distribution of roads which cater to their business needs. However, rural feeder roads are still in a deplorable state and therefore even if rural small-scale farmers produce surplus for the market they are faced with transportation problems. It is hoped that in the years ahead priority would be given to the construction of feeder roads to link rural areas in Northern Ghana to facilitate easy access to facilities and also ease the transportation of essential items like fuel, toiletries and other consumables. This will in turn boost the morale of small-scale farmers to produce more, since they can be assured of ready markets for their produce, and also be accessible to other innovations.

5.4 NEGLECT OF FOOD PRODUCTION AND POPULATION DISTRIBUTION

The neglect of the rural communities in Northern Ghana, which forms about 70 per cent of the total population of the study area, has resulted in an increasing deterioration of the standard of living in these communities (Ghana/UNICEF, 1991). It is no wonder that these areas have not been able to produce more food for the market. Their immediate concern is for the survival of their families and therefore producing for the market is not given much thought, especially in a situation where basic social amenities are not available and/or accessible. In most villages, people have to walk distances of between 5km and 8km to reach the nearest health post or school. This scenario rather repels people from staying and farming in those areas. Herein lies the reasons for the low production level of the food production sector of the region, and this is well entrenched in the historical dialectics of the region's incorporation into the national economic system.

The interest of the state in the transformation of agriculture in the North has been secondary to that of maintaining the survival and profitability of the export sectors in the south, hence the lack of motivation for rural farmers in this era of structural adjustment. In the first place the southern sections of the country are viewed as more viable economically by most people from the north and therefore most northerners spend most of their time in the southern urban centres either in school or working for income. Secondly, those who remain in the north mostly prefer to stay in urban centres which are relatively well provided for, in terms of

social amenities. Instead of empowering rural people to take initiative in many areas, including food production, most government policies have rather led to a distinct internal transformation of the social organization of the people in Northern Ghana. The social fabric of the people in Northern Ghana has been drastically shaken by government policies, including adjustment. The peasants have not been passive receptors of government policies which encroach on their survival. They have responded to the realities on the ground by producing what they can to feed themselves and their families and have avoided a situation where they have to wait for assistance from some government official, which in most cases they are not in a position to pay for. Households are under pressure to satisfy their basic needs, which takes up more energy to realize in the present circumstances. Not much energy is left to produce for the market.

The result is an increasing burden on women who are expected to cater for the household and perform other duties. The overall implication of these policies on agricultural production cannot be overestimated. The depletion of labour affected both the sex ratio and the social division of labour that existed in the region. In the uplands of the Upper-east region for example, the productive capacity of the family is seriously reduced by the shortage of land and declining yields which follow overcropping. Overcropping in upland soils has resulted in considerable yield reductions and serious food deficits in many areas. At the same time, emigration of the young presents serious reduction in potential productivity

with the consequential aging in effective labour force. The rate of emigration is such that it is often difficult for the remaining members of the family to make an adequate input for their needs. Furthermore, the remaining work force in the previously oncho-infested areas are severely debilitated by the effects of the disease.

CHAPTER 6

SUMMARY AND CONCLUSION

6.1 SUMMARY

The relationship between population distribution and food production in Northern Ghana has been examined in this study. It has been demonstrated that although large parts of the region are climatically suitable for food production, output has not kept pace with demand. The reasons are deeply rooted in the socio-political history of Northern Ghana, an area which was designated a labour reserve for the southern export sector during the colonial era. This policy led to the region's neglect in terms of the development of social amenities for the people, while in the southern regions social infrastructure was developed and comparatively well maintained. Post-independence policies and programmes have perpetuated the plight of the north. Indeed, rural small-scale farmers, especially women have been neglected in the distribution of inputs and other vital resources which can boost the production of foodstuffs in the area. A historical review of the relationship between population distribution and government policies in general, and agricultural policies in particular, clearly illustrates the above assertion. These

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issues were discussed because of their important bearing on the understanding of the complex relationship between population distribution and food production in the region.

More often than not, issues connected with the development of agriculture have been seen from the perspective of physical attributes, without taking into consideration the socio-cultural characteristics and implications for the people involved. Chapter 2 is therefore devoted to a framework which discusses the role of social and political factors in the marginalization of the rural poor farmers in Northern Ghana, leading to their vulnerability in the reproduction cycle. The chapter presents a theoretical conception of population and agriculture as portrayed by scholars and researchers in the field. Here the role of population, with respect to labour, productivity and the role of technology and agricultural systems were all examined. In addition, theories related to land tenure/use systems and access to these resources in the production of food were presented and brought to bear on the survey of the region that followed in chapter 3.

Through this discussion, the study has provided evidence to show that although Northern Ghana is not suitable for the production of Ghana's main export crop, cocoa, it is suitable for the production of cereals such as maize, guinea corn, millet, and rice. However, physical characteristics, though very important, cannot by themselves lead to high productivity. There is the need for a combination of other

factors to make production possible. These "other", human factors have been discussed in chapter 3, with more emphasis on the distribution and characteristics of the population. The rural nature of settlements and the dominance of farming compared to other economic activities in the region has been emphasised.

Increasing inequalities in the distribution of social services between Northern Ghana and the rest of the country have served as a pull factor, especially for the youth of Northern Ghana in search of jobs and also for higher education. Although this inequality has improved somewhat in the last decade, it is still an important reason for out-migration to other parts of the country, especially the mining towns and cocoa producing areas. Northern Ghana continues to be the most sparsely populated area of the country, but a closer look at the region reveals that there are belts and cells of densely populated areas, most of which are comparatively better off in terms of service provision.

Inequalities within Northern Ghana have further led to an influx of people, especially economically active people, into most of the urban centres of the region, especially Tamale, Navrongo, Wa and Bawku. As discussed in Chapter 3, the sex-ratio in Northern Ghana is skewed in favour of females. This is especially so in the rural areas. The implications for food production are not very encouraging due to a myriad of unfavourable situations. The customary land tenure system,

taboos about land preparation and other related issues in Northern Ghana do not favour women, and these affect their participation in the food production system. In addition to the above, the absence of males in most of the rural areas of Northern Ghana has brought in its trail additional burdens on women both within the household and on the farm. With respect to the status of the environment, this study has shown that although onchocerciasis has been eradicated from the Volta river valleys, farmers have not taken advantage of the fertile lands. The uplands are still extensively farmed, causing further degradation.

In terms of population distribution, the study has illustrated that not all areas in Northern Ghana are sparsely populated - there are areas of high density, and these are mainly urban centres which include Tamale, Bawku, Bolgatanga, Navrongo, Salaga, and Wa. All these urban centres have either developed as trading and/or administrative centres and have over the years attracted many migrants from all over Northern Ghana.

Past and present policies in the study area have been formulated and implemented without the participation of the rural poor, who are mostly small-scale farmers using indigenous materials for production. Chapter 5 focused on the integrated rural programmes of Northern and Upper regions of Ghana (Northern Ghana) of the late 1970s and the early 1980s, as a development strategy which was meant to provide rural

farmers and the poor with their basic needs so that they can increase agricultural production. However, the analysis shows that, in spite of the good intentions of this strategy, not much has been achieved because the target group has not been reached. The people who need assistance most - the rural poor and women - have again been by-passed in the distribution system. The integrated programmes' aim of providing infrastructure for the people has so far not been met. In the area of credit provision to farmers, vulnerable groups, especially rural women, still do not get any credit even though the integrated programme has put in place a system which supposedly should have taken care of that. Clearly, lack of participation in both the formulation and implementation of the programmes can be blamed for the lack of good results. Indeed, food production in Northern Ghana has not fared very well under the policy of rural integrated development.

The above situation is also true for the World Bank/IMF funded Structural Adjustment Programme (SAP) which started in 1984. Although the programme was designed for the country as a whole, the emphasis on cocoa clearly marginalizes food producing areas. SAP's emphasis on the increase in the production of Ghana's main export crop, cocoa, means that incentives provided for cocoa farmers do not reach food producing farmers. Again, the devaluation of the Ghanaian currency, privatization, and the removal of all subsidies on social services present a triple blow to rural small-scale

farmers, and vulnerable groups in Northern Ghana. First of all, these people cannot afford the exorbitant prices of agricultural inputs to improve their farms, and secondly they cannot afford to pay for social services (though most of these are inaccessible), which used to be their only safety net for survival. Thus, rural farmers in Northern Ghana who have in the past contributed so much to the food production system have been alienated and frustrated by policies that are insensitive to their needs. Above all, SAP was also formulated and implemented without the participation of identifiable groups like farmers in all the regions of Ghana. A very important ingredient - socio-cultural consideration - is lacking.

6.2 RESEARCH IMPLICATIONS

The need to focus on the social and cultural activities of the rural farmers in Northern Ghana in explaining the low level of food production has been stressed in this study. Other forces or factors of agricultural production are important, and should not be ignored in the search for a lasting solution to the problem.

Blaikie (1989) has emphasised the need to blend both socio-political and ecological factors in the search for answers to the agrarian crisis in Africa. However, given the complexities of the conceptualization of the role of each factor in the crisis, it is extremely difficult to

conceptualize an approach which brings together all the various factors solving the problem of recurrent food shortages. This should be the focus of future research on the relationship between population and the agrarian crisis in sub-Saharan Africa.

A more penetrating approach would have been an analysis of the problem at the household level, since this is the smallest unit of production in most rural agricultural communities. In this regard it would have been easier to ask questions relating to the issue of food production, division of labour and access to vital resources for production. Follow up research in this direction is recommended.

Some of the approaches used by governments to solve the food problem have been challenged by this study. From programmes and policies implemented so far, it is clear that the plight of rural poor farmers has become worse. This brings into question the viability of such programmes which are based solely on the dynamics of the market. Similarly, the importance of rural farmers, especially women, in the food production system of Northern Ghana, and the continued neglect of the area in terms of provision of social amenities, creates doubts about the sound judgement of government policy makers and implementors alike.

Female farmers will continue to be the backbone of the food production system in Northern Ghana, and therefore the need to focus more on them cannot be overemphasised. Again,

their critical role as providers of nourishment should be re-examined. Emphasis should be placed on the land issue and the accessibility and distribution of resources to vulnerable groups, of which women form a greater part. Consequently, research must focus on the impact of limited land and/or labour on the production system, with special emphasis on vulnerable groups in specific communities (Kennedy and Haddad, 1992).

6.3 POLICY IMPLICATIONS

Agricultural policies and programmes will continue to be important for achieving food security objectives. However, such policies should take the interests of rural people into consideration. Their peculiar situations should be well analyzed, and programmes meant for them should of necessity involve them and be religiously implemented. Most importantly, vulnerable groups in the area, such as the very poor, landless people and women should be identified and programmes aimed at improving their situation should be formulated with their full participation in the process. This will offer effective means for reaching the goal of turning Northern Ghana's potential for food production into actual high production levels.

Another issue of concern is the institution of literacy programmes for rural people, with special emphasis on interactive education where indigenous knowledge is given more attention. It has been recognised that rural farmers are

experts in their own right, having specific and detailed knowledge on, for instance, soils, weather patterns, microclimate, soil moisture regimes and interactions among plant types (Farrington and Martin, 1988). Respect for farmers' indigenous knowledge in some parts of the world has led many researchers to treat them as equal partners in the search for new technology. Instead of a partnership where researchers introduce technology and other inputs and expect farmers to adopt them wholeheartedly, interactive education would lead to a partnership where facilitators and/or researchers would learn from farmers and then offer innovative options allowing farmers to choose and adopt as they wish (Sumberg and Okali, 1988). Policy makers and researchers alike should pay more attention to this approach and place it on a sustainable institutional footing in Ghana. In this way, the knowledge and other important cultural traits of rural farmers would be adopted and modified to suit contemporary situations and boost food production.

Above all, government's attention to land tenure issues, including access rights and ownership, especially in Northern Ghana, is needed now more than ever before. For some time now, most sub-Saharan African countries have emphasised income generating policies, particularly those that were likely to reach the food insecure. Increasing producer prices for agricultural commodities is one such income generating policy. The underlying assumption is that by increasing producer

prices (which in most countries have been kept artificially low) farmers' incomes would increase, and at the same time domestic food production would also increase. Although there have been supply increases in response to increased producer prices, in many countries they have been lower than predicted. Farmers are often constrained by limited land or no access to it at all, and therefore do not respond robustly to price increases. The result is that most farmers, especially women, are not able to take advantage of price incentives because of accessibility and security problems with respect to land and other farm inputs.

To solve this problem, it is necessary to concentrate on the sensitive issue of land tenure and plan toward eliminating all discriminatory tendencies. First, more research into both the traditional land tenure and the statutory systems should be undertaken from both a historical and political perspective so that an up-to-date analysis of the situation could be assessed. Secondly, a three-cornered discussion involving government officials, traditional leaders and people in Northern Ghana should be undertaken, dwelling on issues relating to land tenure and accessibility issues. In this way vulnerable groups and traditional leaders would share their concerns and views with government representatives, and a compromise would be reached in solving the land question in the area. The resultant policy should be an integral part of a comprehensive "Northern Ghana Development" package which

involves all the people in the area for maximum results.

Another area which has been of concern to policy-makers in Ghana for the past two decades is population distribution. Ghana's Population policy of 1969, which was confirmed in 1986 as a comprehensive document, aimed at reversing the present mal-distribution of population in the country as a whole, by implementing resettlement schemes and other programmes. Experience with these programmes has shown that they lacked proper planning and did not appeal to those who were to have benefitted from them (Ewusi et al, 1986; Nabila, 1990). Rather, these programmes resulted in encroachment on peoples' social and cultural stability and therefore further deepened the crisis of out-migration in Northern Ghana. The missing link in the implementation of the policy is participation and empowerment of the local people. With the eradication of the black fly from the river valleys, infrastructure development should be a top priority area for government and non-governmental organizations in order to attract farmers into these areas. In addition to physical infrastructure, rural farmers, especially farmers in the upland areas who are prepared to settle in the "oncho-freed" zone, should be encouraged to do so. Special programmes, in the mode of PAMSCAD, but unlike the latter, should be researched with the main emphasis on the peculiarities of rural Northern Ghana, targeting especially female farmers, female household heads and other poor rural farmers. Their major concerns and fears

should be the basis of the formulation of programmes and projects. Such programmes must be closely monitored and sustained on a regular basis. Government support for the programme should be unflinching but firm, because the reoccupation and cultivation of the valley soils will provide an opportunity to lift the average yield and reduce the degree of variation from year to year.

Related to the above is the need to tie agricultural policies to infrastructural development in Northern Ghana. This study has shown that roads, schools, hospitals, and other basic infrastructure are not well developed in Northern Ghana, compared to the rest of the country. Part of the problem of out-migration is the lack of such infrastructure in parts of Northern Ghana. The government should divert scarce resources into the development of infrastructure in some of the remotest villages in Northern Ghana so that the people there would be motivated to stay and perform their activities without recourse to migration. The excuse of lack of funds for such infrasturctural development is no longer plausible because despite the deterioration in the revenue base of most sub-Saharan African countries, government expenditures expanded drastically in the 1970s and 1980s. Although sectoral allocations of government expenditures to health, education and agriculture maintained historical levels, the intersectoral allocations of expenditures did not reflect an anti-poverty focus. Urban bias in public expenditure has been

strong in Ghana and other sub-Saharan African countries. A large part of public expenditure spending was used to finance public sector employment and consumer subsidies which largely benefitted urban consumers (Ferroni and Kanbur, 1990). SAP's emphasis on demand management, (i.e., curtailment of the role of the government by reducing public expenditures and public employment, involving reductions in both public consumption and investment) is laudable; however, across-the-board cuts in government expenditures in certain vulnerable areas can be counter-productive. Northern Ghana is one such area, which has a large proportion of poor rural farmers but which does not produce export crops, and therefore does not enjoy incentives in that direction. One way of motivating northerners to produce more food for the country is to provide important basic infrastructure at subsidised prices so that the adverse effects of SAP would be moderately felt. It will also result in increased efforts at producing more food for the market, all things being equal. Another important area which needs greater attention is the development of the road network connecting the various farming communities. The only way to reach the so-called 'overseas' areas is by paving out the connecting routes to make them passable. The Ghana Highway Authority is doing quite a good job in the north so far, however much more needs to be done especially as far as the rural agricultural sector is concerned.

Prospects for sustainability of Ghana's food production system will depend on how farmers in Northern Ghana are motivated to produce more food for the market. Further research is necessary to throw more light on the land situation and gender issues at the household level. In the same way there is the need to explore other activities of rural farmers and the length of time used at such activities. The results of this research would serve as the basis for improving technologies for time consuming tasks in the rural setting.

6.4 CONCLUSION

The complex relationship between population and food production in Ghana cannot be overemphasised. Many of the problems of food production in Northern Ghana can be attributed to social factors which are deeply entrenched in the political history of Ghana. The pattern of population distribution has further exacerbated the problem by impacting on the sex-ratio and reversing the sexual division of labour in the area.

While considerable success has been achieved in identifying the types of research method to generate acceptable technology in partnership with farmers, less progress had been made so far in placing these approaches on a sustainable institutional footing within Ghana's agricultural research systems. This is partly because much of

the methodological development has been conducted by special projects often involving aid donors, but having only tenuous links with local institutions. Much of the difficulty in implementing these approaches, however, lies with the inflexibility of national research systems themselves: staff promotion prospects are assessed by published output, so that the bias is towards 'safe' experiments under controlled conditions; experimental work remains divided along commodity or disciplinary lines; field experience continues to command only low status, and such basic requirements as adequate subsistence allowances for field work are not met.

The fortunes of the food production system in Ghana in the future will depend on how the central government responds to the socio-cultural issues raised in this study.

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APPENDIX

APPENDIX A.

ARABLE LAND AND CULTIVATED AREA FOR GHANA BY REGION IN 1987,
('000 Ha).

Region	Total Area	% of Total	Arable Land	Cultivated Area	Surplus Area
Northern	7038.4	30	3519.2	1417.4	2101.8
U. E .	884.2	4	663.2	469.2	193.6
U. West	1837.6	7	918.8	439.2	479.6
Volta	2392.1	9	1028.5	295.1	733.4
B. Ahafo	3955.7	17	2373.4	974.6	1398.8
Ashanti	2438.9	10	1463.3	1181.8	281.5
Western	2392.1	10	1435.3	697.6	737.6
Central	282.6	4	589.6	452.6	136.9
Gt. Accra	324.5	1	243.4	106.9	136.4
Total	23643.3	100	13577.7	6908.2	6485.8

Source: Policy, Planning, Monitoring and Evaluation Division,
Ministry of Agriculture, Ghana, 1989.

- * U. East = Upper-east Region
- * U. West = Upper-west Region
- * B. Ahafo = Brong-Ahafo Region
- * Gt. Accra = Greater Accra Region

APPENDIX B:

POPULATION CHANGE AND GROWTH RATES BY LOCAL COUNCILS
(NORTHERN GHANA) 1960-1984.
(Population Figures in thousands)

Local Council	Population ¹			% Increase ²		Growth Rate	
	1960	1970	1984	1960-70	1970-84	1960-70	1970-84
NORTHERN REGION³							
Bole	30.8	49.0	85.9	60.0	74.1	4.7	4.0
Damongo	32.9	40.8	63.4	24.0	55.4	1.7	3.1
Salaga	55.0	73.1	123.0	34.0	10.4	2.9	3.7
Bimbila	46.4	75.0	91.1	63.2	21.5	4.9	1.4
Saboba-Sab.	29.4	50.0	72.0	69.0	44.7	5.2	2.6
Yendi	44.2	57.0	83.7	28.3	47.5	2.5	2.8
Gushiegu	48.8	55.2	102.7	13.1	86.0	1.2	4.4
Savelugu	38.9	51.8	83.1	34.9	60.4	3.0	3.4
Tamale	58.2	98.6	168.1	69.4	70.5	5.3	3.8
Tolon	43.9	52.1	88.8	18.6	70.5	1.7	3.8
Walewale	36.2	39.6	58.7	9.5	48.1	0.9	2.8
Nalerigu	68.3	85.7	142.2	22.5	65.9	2.3	3.6
UPPER EAST REGION							
Sandama	50.9	51.8	67.9	1.7	31.0	0.2	1.9
Navrongo	44.5	48.1	64.1	8.1	32.3	0.8	2.1
ChianaPaga	48.9	50.9	86.6	4.1	70.1	0.4	3.8
BolgaTongo	79.0	95.0	142.0	20.2	49.5	1.8	2.9
BongoNabdam	71.1	77.2	95.4	8.7	23.6	0.8	1.5
KusanabaZeb.	37.3	44.7	64.3	20.0	43.7	1.8	2.6
TempeneGaru	51.7	61.7	87.4	19.4	41.6	1.8	2.5
Bavku	53.9	74.9	111.3	39.0	48.8	3.3	3.8
PusigaPul.	31.5	38.6	52.6	22.5	36.3	2.0	2.2
UPPER WEST REGION							
Wa	70.9	90.0	141.8	27.0	57.5	2.4	3.2
Navrongo	60.1	63.9	81.8	6.3	28.1	0.6	1.8
Lawra Jirapa	69.8	75.2	88.4	7.8	17.5	0.7	1.2
Lambusie	44.4	48.3	67.4	8.8	39.4	0.8	2.4
Tumu	43.5	42.4	49.8	-2.5	40.9	-0.3	2.4

Source: 1. Ghana Government: Population Census of Ghana, 1970, Vol. I, P.XX; 1984 Demographic and Economic Characteristics, Statistical Service, Accra, Ghana.

2. Computed from Census figures, $\frac{Pt - Pt+n}{Pt} \times 100$

3. Local councils come under the Region specified.

APPENDIX C;

POPULATION DENSITY BY LOCAL COUNCILS, NORTHERN GHANA, (1960-84)

Local Council	Area (Sq. km)	1960		1970		1984	
		POP	DEN	POP	DEN	POP	DEN
Bole	8721	30.8	6	49.0	6	85.9	10
Damongo	15727	32.9	2	40.8	3	63.4	4
Salaga	12955	55.0	4	73.1	6	123.0	9
Bimbila	3820	46.4	12	75.0	20	91.1	24
Saboba Sab.	4650	29.4	6	50.0	11	72.0	15
Yendi	4403	44.2	10	57.0	13	83.7	19
Gushiegu	6923	48.8	7	55.2	8	102.7	15
Savelugu	3719	38.9	10	51.8	14	83.1	22
Tamale	214	58.2	272	98.6	461	168.1	785
Tolon	1463	43.9	30	52.1	36	88.8	61
Walewale	3077	36.2	12	39.6	13	58.7	19
Nalerigu	4683	68.3	15	85.7	18	142.2	30
UPPER EAST REGION							
Sandama	2220	50.9	23	51.8	23	67.9	36
Navrongo	886	44.5	50	48.1	54	64.1	72
Chiana Paga	750	48.9	65	50.9	67	86.6	115
Bolgatanga	1313	79.0	60	95.0	72	142.0	108
Bongo Nabdam	591	71.1	120	77.2	131	95.4	161
Kusanaba Zeb.	979	37.3	38	44.7	46	64.3	66
Tempane G	1072	51.7	48	61.7	58	87.4	82
Bawku	717	53.9	75	74.9	104	111.3	155
Pusiga Pul.	308	31.5	102	38.6	125	52.6	171
UPPER WEST REGION							
Wa	2929	70.9	24	90.0	31	141.8	48
Nadawli F.	5778	60.1	10	63.9	11	81.8	14
Lawra Jira.	1855	69.8	38	75.2	41	88.4	48
Lambusie N.	255	44.4	52	48.3	57	67.4	79
Tumu	6959	43.5	6	42.4	6	49.8	9

Source: Compiled from Population Census Reports (1960, 1970 & 1984), Statistical Service, Accra, Ghana.
See Figure 1.2 (pp. 16) for full names of Local Councils shortened here for convenience.

APPENDIX D (Table 1 a, b, c):

SETTLEMENT PATTERNS BY LOCAL COUNCILS (NORTHERN GHANA)

1(a) Settlement Pattern for Northern Region by Local Councils, 1984.

Local Council	Pop. less than 1000		Pop. more than 1000		All Settlements		% of Rural Population
	#	%	#	%	#	%	
Bole	61555	72.1	23780	27.9	85335	7.3	92.8
Damongo	32032	50.9	30939	49.1	62971	5.4	80.1
Salaga	90805	71.9	35530	28.1	126335	10.9	87.0
Bimbila	56701	62.0	34728	38.0	91429	7.9	84.0
Saboba-Sabzugu	56577	78.3	15684	21.7	72261	6.2	90.5
Yendi	41055	48.5	43517	51.5	84572	7.3	62.6
Gushiegu-Cherepo	77603	76.1	24336	31.4	101939	8.8	85.0
Savlugu	45272	54.6	37646	45.4	82918	7.1	79.5
Tolon	50618	57.4	37555	42.6	88173	7.6	83.2
Tamale	20240	12.1	147538	87.9	167778	14.4	19.0
W'vale	25286	42.8	33844	57.2	59130	5.1	86.6
Nalerigu	89603	63.2	52139	36.8	141742	12.2	90.6
Total	647347	55.6	517236	44.4	1164583	49.0	74.8

1(b) Settlement Pattern for Upper-west Region by Local Councils, 1984.

Local Council	Pop. less than 1000		Pop. more than 1000		All Settlements		% of Rural Population
	#	%	#	%	#	%	
Wa	82436	58.4	58664	41.6	141100	32.2	74.4
Nadawli-Funsi	44471	54.4	37251	45.6	81722	19.7	100.0
Lavra-Jirapa	66476	75.2	21977	24.9	88453	20.2	93.8
Lambussie-Nandom	45269	66.9	22452	33.2	67721	15.5	100.0
Tumu	39788	67.4	19224	32.6	59012	13.5	89.8
Total	278440	63.6	159568	36.4	438008	18.4	89.1

1(c) Settlement Pattern for Upper-east Region by Local Councils, 1984.

Local Council	Pop. less than 1000		Pop. more than 1000		All Settlements		% of Rural Population
	#	%	#	%	#	%	
Sandema	66357	100			66357	8.6	100
Navrongo	39107	62.0	24284	38.3	63391	8.2	69.6
Chiana-Paga	65677	76.1	20612	24.0	86289	11.2	90.8
Bolgatanga-Tongo	100529	68.6	46129	31.5	146658	19.0	77.8
Bongo-Nabdam	88338	92.7	6925	7.3	95263	12.3	100
Kusnaba-Zebila	56745	89.3	6820	10.7	63565	8.2	91.0
Tempene-Garu	63247	72.3	24245	27.7	84792	11.3	100
Bawku	72635	65.6	31862	34.4	110797	14.3	69.2
Pusiga-Pulima	42870	81.0	10062	19.0	52932	6.9	100
Total	595505	77.1	177239	22.9	772744	32.5	87.1

Source: Computed from Population Census Reports, 1984, Statistical Service, Accra, Ghana.

1. Represents percentage of total population in the entire administrative region

* See Figure 1.2 (pp. 16) for full names of Local Councils.

APPENDIX D (Table 2);

POPULATION BORN IN ANOTHER ADMINISTRATIVE REGION, 1948
(Cumulative Effect of Population Movement Within Ghana)

REGION	Resident (Enumerated) Where Born	Not Born Where Enumerated (Resident) Elsewhere				Total Immigrants
		Colony	Ashanti	North	Togo	
Colony	1954872		13569	83217	59204	175990
Northern- Territories	997392	3477	3821		10607	17095
Togoland						
Mandated	317778	7254	1718	20485		29457
Ashanti	675841	39626		69743	6244	115613
Total						
Emigration		50357	39108	173445	76055	338965

Source: Calculated from 1948 Population Census Reports,
(Table 20: 32)

Appendix E:
Index of Concentration - Northern Ghana (1960)

Local Council	Land Area km sq.	Population	Proportion Land Area Yi	Proportion Population xi	$ xi-yi $
Tamale	214	58183	0.002	0.045	0.043
Pusiga-Pulmakum	308	31494	0.003	0.024	0.021
Borgo-Nabdam	591	71005	0.006	0.055	0.049
Bawku	717	53862	0.007	0.042	0.034
Chiane-Paga	756	48920	0.008	0.038	0.030
Lambussie-Nabdam	855	44409	0.009	0.034	0.026
Navrongo	866	44477	0.009	0.035	0.026
Kusanaba-Zebilla	979	37257	0.010	0.029	0.019
Tempene-Garu	1072	51678	0.011	0.040	0.029
Bolgatanga-Tongo	1313	79023	0.013	0.061	0.048
Tolon	1463	43894	0.015	0.034	0.019
Lawte-Jirapa	1855	69784	0.019	0.054	0.035
Sandema	2220	50922	0.023	0.040	0.017
We U.C.	2929	70897	0.030	0.055	0.025
Walawale	3077	36173	0.032	0.028	0.003
Savelugu	3719	38394	0.038	0.030	0.008
Bimbila	3820	45937	0.039	0.036	0.004
Yendi	4403	44213	0.045	0.034	0.011
Saboba-Sabzugu	4653	29419	0.048	0.023	0.025
Nalerigu	4683	68290	0.048	0.053	0.005
Nadawli-Funsi	5778	60076	0.059	0.047	0.013
Gushiegu-Cheriponi	6923	48836	0.071	0.038	0.033
Turnu	6959	43540	0.071	0.034	0.038
Bole	8721	30836	0.089	0.024	0.065
Selaga	12955	54503	0.133	0.042	0.091
Damongo	15727	32890	0.161	0.026	0.136
Total	97553	1286917			0.852
Index of Concentration					0.426

Index of Concentration = $\frac{1}{2} \sum_{i=1}^n |x-y|$
 x = The uncumulated distribution of population
 y = The uncumulated distribution of land area

Appendix E:
Index of Concentration - Northern Ghana (1970)

Local Council	Land Area km sq.	Population	Proportion Land Area y _i	Population x _i	Proportion x _i -y _i
Tamale	214	98560	0.002	0.062	0.060
Pusiga-Pulmakum	308	38587	0.003	0.024	0.021
Bongo-Nabdam	591	77192	0.006	0.049	0.042
Bawku	717	74851	0.007	0.047	0.040
Chiere-Paga	756	50920	0.008	0.032	0.024
Lembussie-Nabdam	855	48311	0.009	0.030	0.022
Navrongo	866	48086	0.009	0.030	0.021
Kusanaba-Zebilla	879	44714	0.010	0.028	0.018
Tempene-Garu	1072	61716	0.011	0.039	0.028
Solgatanga-Tongo	1313	95010	0.013	0.060	0.046
Tolon	1463	52070	0.015	0.033	0.018
Lawra-Jirapa	1855	75203	0.019	0.047	0.028
Sendema	2220	51782	0.023	0.033	0.010
Wa U.C.	2929	90049	0.030	0.057	0.027
Walewale	3077	39614	0.032	0.025	0.007
Sevelugu	3719	51804	0.038	0.033	0.006
Bimbila	3820	74976	0.039	0.047	0.008
Yendi	4403	56753	0.045	0.036	0.009
Saboba-Sabzugu	4650	49728	0.048	0.031	0.016
Nalerigu	4683	85236	0.048	0.054	0.006
Nedawli-Funsi	5778	63860	0.059	0.040	0.019
Gushiegu-Cheriponi	6923	55217	0.071	0.035	0.036
Turnu	6959	42442	0.071	0.027	0.045
Bole	8721	49347	0.089	0.031	0.058
Salega	12955	73029	0.133	0.046	0.087
Demongr	15727	40784	0.161	0.026	0.136
Total	97553	1590341			0.838
Index of Concentration					0.419

$$\text{Index of Concentration} = \frac{1}{2} \sum_{i=1}^n |x_i - y_i|$$

x = The uncumulated distribution of population
y = The uncumulated distribution of land area

**Appendix E:
Index of Concentration - Northern Ghana (1984)**

Local Council	Land Area km sq.	Population	Proportion		Population	[xi-vi]
			Land Area yi		xi	
Tamale	214	188091		0.002	0.079	0.077
Pusiga-Puliniekum	308	52600		0.003	0.022	0.019
Bongo-Nabdam	591	95390		0.006	0.040	0.034
Bawku	717	111349		0.007	0.047	0.040
Chiane-Paga	756	86640		0.008	0.036	0.029
Lambussie-Nabdam	855	67360		0.009	0.028	0.020
Navrongo	866	64083		0.009	0.027	0.018
Kusaneba-Zabilla	979	64274		0.010	0.027	0.017
Tempene-Geru	1072	87379		0.011	0.037	0.026
Bolgatanga-Tongo	1313	142003		0.013	0.060	0.046
Tolon	1463	88796		0.015	0.037	0.022
Lewre-Jirapa	1855	69784		0.019	0.029	0.010
Sendema	2220	67866		0.023	0.029	0.006
We U.C.	2929	141813		0.030	0.060	0.030
Walewale	3077	58677		0.032	0.025	0.007
Savelugu	3719	83111		0.038	0.035	0.003
Bimbila	3820	91072		0.039	0.038	0.001
Yendi	4403	83731		0.045	0.035	0.010
Saboba-Sabrugu	4650	71977		0.048	0.030	0.017
Nalerigu	4683	142220		0.048	0.060	0.012
Nadawli-Funsi	5778	81830		0.059	0.034	0.025
Gushiegu-Cheriponi	6923	102730		0.071	0.043	0.028
Turnu	6959	59802		0.071	0.025	0.046
Bole	8721	85904		0.089	0.036	0.053
Salaga	12955	122954		0.133	0.052	0.081
Damongo	15727	63382		0.161	0.027	0.135
Total	97553	2374818				0.8:1
Index of Concentration						0.405

$$\text{Index of Concentration} = \frac{1}{2} \sum_{i=1}^n |x-y|$$

x = The unaccumulated distribution of population

y = The unaccumulated distribution of land area

N.B. The formula can be substituted for local councils in each administrative region i.e. Northern, Upper East and West

APPENDIX F;

SEX RATIOS

Sex Ratios for Population in Northern Ghana by Local Councils

Local Councils	Population		Sex Ratio
	Male	Female	
Bole *	43,216	42,688	101.2
Damongo	31,512	31,870	98.9
Salaga	62,291	60,663	102.7
Bimbila	45,015	46,057	97.7
Saboba-Sabzugu	35,240	36,737	95.9
Yendi	41,179	42,552	96.8
Gushiegu	50,808	51,922	97.9
Savelugu	40,590	42,521	95.5
Tamale	84,005	84,086	99.9
Tolon	44,006	44,790	98.2
Walewale	28,523	30,154	94.6
Walerigu	69,907	72,313	96.7
Sandama**	32,346	35,520	91.1
Navrongo	30,939	33,144	93.3
Chiana-Paga	42,695	43,945	97.2
Bolgatanga-Tongo	67,297	74,706	90.1
Bongo-Nabdam	44,673	50,717	88.1
Kusanaba-Zebilla	30,451	33,823	90.1
Tempane-Garu	41,195	46,184	89.2
Bawku	53,401	57,948	92.2
Pusiga-Pulimakum	24,773	27,827	89.0
Wa***	69,694	72,119	96.6
Navrongo	38,420	43,410	88.5
Lawra-Jirapa	40,588	47,768	85.0
Lambussie-Nandom	31,581	35,779	88.3
Tumu	28,083	31,719	88.5

Source: Statistical Service, Ghana Population Census Reports, 1984, p. 71-73.

* All Local councils in this section are in Northern Region

** All Local councils in this section are in Upper East Region

*** All Local Councils in this section are in Upper West Region.

APPENDIX G;
HEALTH STATISTICS

Table 1: Basic Health Parameters, Ghana and Northern Ghana

	NG ¹	Ghana	Scale
1. Infant Mortality Rate (under 1 yr)	103	77	per 1000
2. Child Mortality Rate (1-4 yrs)	132	84	per 1000
3. Under 5 Mortality Rate	222.1	155	per 1000
4. Total Fertility Rate (TFR)	6.8	6.4	-
5. Maternal Mortality	7-10	per 1000	-
6. Doctor-population ratio	40,000	20,450	pop/doc
7. Rural Health Services Coverage	38.5%	60%	-

NG = Northern Ghana

Source: Ministry of Health Reports, 1992.

Table 2 Health Facilities in Northern Ghana, 1990

Health	Region			Total
Facilities	Northern	U-East	U-West	Country
Teaching*	-	-	-	2
Regional*	1	1	1	8
District*	2	-	-	36
Special*	2	-	-	11
Quasi Govt.*	1	-	-	13
Mission*	2	1	2	35
Mines*	-	-	-	7
Health Centre	7	2	1	74
Health Post	18	7	8	177
Clinic (Govt.)	9	-	5	139
Clinic (Mission)	4	8	3	34
Training Centres	3	1	2	35

Source: Ministry of Health, Unpublished Documents, 1990, Accra.

* All are hospitals

Table 3: Distribution of Health Facilities in Northern Ghana

(a)	Hospitals	District	Ownership	*Bed state
i)	Central Hosp.	Balga	Government	*153,58
ii)	Bawku	Bawku	Mission	*151,15
iii)	War Memorial	Navrongo	Government	*163,48

* 163,48 means 163 beds including maternity and 48 cot

(b)	Health Centres			
	Name	District	Ownership	Status
i)	Bongo	Bongo	Government	Active
ii)	Tongo	Bolgatanga	Government	Active
iii)	Paga	KND	Government	Active
iv)	Binaba	Bawku West	Government	Active
v)	Landoga	KND	Government	Active
vi)	Chiana	KND	Government	Active
vii)	Sandema	Builsa	Government	Active
viii)	Fumbisi	Builsa	Government	Active
ix)	Police clinic	Bolgatanga	Government	Active

(c)	Private Clinics	Location
i	Odoi-Agyarko	Bolgatanga
ii)	Banga's Hospital	Bawku
iii)	Asankunde Memoria	Bolga
iv)	Alaah Memorial	Pwalugu
v)	Great Gbewaa	Bawku
vi)	Islam Maternity	Bawku
vii)	Abunya Maternity	Bawku
viii)	Kadara	Bawku

(KND = Kasena-Nankani District)

(d) Non-Government Organisations

Organisation	Type of Service	District
Presbyterian Mission	Mobile Clinic + PHC	Bolgatanga
Catholic Mission	Mobile Clinic + PHC	Bolgatanga
Sudan Interior Mission	Static Clinic + PHC	Builsa

Source: Ministry of Health Reports, 1992.

APPENDIX H;

EDUCATIONAL STATISTICS

Table 1: Educational Institutions in the Public Sector in Ghana by Region (1987-88).

Level	Total	REGIONS									
		Gt.A	Cent.	West	East	Volta	Ash	B.A.	Nor.	UE	UN
Nursery	3610	53	350	643	516	476	685	615	239	16	19
Primary	9921	584	990	1077	1698	1261	1575	1255	926	252	292
Mid. Cont.	5160	454	587	544	985	715	865	670	147	113	80
JSS	4444	331	556	515	743	505	771	520	179	114	140
Secondary	240	25	26	20	44	30	48	23	11	6	7
Spec. Educ	16	2	1	2	4	1	2	1	1	2	
Tech/Voc.	27	4	2	4	5	4	2	1	3		2
Teach. Tr.	45	2	7	3	7	7	9	3	3	2	2
Universities	3	1	1				1				

Source: Ghana Education Service (GES), Budget and Planning Division, Statistical Unit, 1989.

Table 2: Population of School Going Age, Number and Percentage Ever Attended School in Ghana Compared to other Regions in Ghana

Region	Pop. of School Going (6 Years and Over)			# Ever Attended School			% Ever Attended School		
	1960	1970	1984	1960	1970	1984	1960	1970	1984
Northern Ghana*	1004171	1217063	1829114	254208	133199	917462	25.3	10.9	50.2
Northern	454336	548516	881359	116173	61158	359588	25.6	11.1	40.8
Up. East	357654	430545	608505	88895	46394	357782	24.8	10.7	58.8
Up. West	192181	238002	339250	49140	25647	200092	25.0	10.8	59.0
B. Ahafo	446639	543583	954892	87671	186748	545691	19.6	35.4	57.1
Ashanti	844531	1144202	1679059	274913	588973	992709	32.6	51.5	56.7
Volta	603724	742099	978424	203677	242958	447772	33.7	32.7	45.8
Eastern	847330	713061	1303835	296741	327555	781906	35.0	46.0	57.3
Gt. Accra	394227	685988	1178683	187325	442749	812954	47.5	64.5	69.0
Central	388417	544518	923128	160993	380660	520091	41.4	69.9	56.3
Western	494542	606133	930451	138807	291075	576214	28.1	48.0	61.9
Total Country	5023581	6196650	9837586	1404332	2593922	5554799	28.2	41.9	56.5

* Implies all three regions combined

Source: Ghana Government: 1960 Census of Ghana, 1960, vol.II, P.XVII
 Ghana Government: 1970 Census of Ghana, 1970, vol.II, P.XVI
 Ghana Government: 1984 Census of Ghana, 1984, vol.I, P.32.

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