

**URBAN AGRICULTURE NETWORK
NORTHERN GHANA**

**TAMALE FOOD SECURITY APPRAISAL:
AN ANALYSIS OF THE ALTERNATIVES FOR IMPROVING
URBAN FOOD PRODUCTION**

FINAL REPORT

BY

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CHAPTER ONE

INTRODUCTION

1.1 Background

In the aftermath of World War II, the international community codified a set of human rights principles—the Universal Declaration of Human Rights, for the purpose of promoting a more just and peaceful world order. Prominent in the code was the right to food and other basic necessities.

Recognition of state obligations with respect to the right to food empowers civil society to demand that these rights be fulfilled by their governments. Contrary to what is sometimes argued, states that take on these obligations are not required to supply three meals daily to all citizens. Rather, the state must respect (that is, not interfere with) the right of everyone within its borders to have access to adequate food, protect that right from encroachment by others, facilitate opportunities by which that right can be enjoyed (for example, through employment or access to land), and only in the last instance fulfill the right to food for those unable to do so themselves.

The different areas of Ghana are characterised by uneven levels of wealth, deprivation, educational levels, access to health and other livelihood facilities, nutritional status, and vulnerability status. Generally the southern parts of Ghana are much wealthier than the north and indeed every measure of development indicates that the three northern regions are the most deprived and the most vulnerable. (See for example, Asenso-Okyere et. al. 1993; GSS, 1994; 1996; 1999). While poverty in other parts of Ghana decreased slightly as a result of the economic recovery programme (ERP) of the 1980s, poverty increased in Northern Ghana during the same period. As a result, there is widespread food insecurity in most parts of northern Ghana especially in rural areas.

Empirical evidence has shown that by the year 2020, food insecurity will reduce in all developing countries except for Sub-Saharan Africa (SSA). Although total cereal production will increase in SSA, demand will exceed supply in the future as a result of the predicted increases in population within the region (IFPRI, 2002). Other reasons for this decline could be attributed to the socio- economic, cultural and natural conditions prevailing in the region. In addition, policies that govern food production are not being rightly implemented, evaluated and monitored.

Tamale is one of the fastest growing urban centers in West Africa. The population of Tamale grew by 48.8% between 1984 and 2000 (Population and Housing Census, 2000). In an area where agriculture is the main source of livelihood for majority of the inhabitants, such population increases limit access to farmland thereby creating unemployment, loss of income and eventually food insecurity. Arguments have been advanced to the effect that rapid urbanisation although limit access to farmland, it creates opportunities for alternative informal sector employment. Studies however suggest that

rising informal employment have not improved household food security. Between 1988 and 1993, informal urban employment in Ghana grew from 66% to 83% of total employment while wages were falling. As a result, urban poverty is increasing rapidly, with some groups now threatened by food insecurity and malnutrition. During the same period, the number of severely malnourished children more than doubled (USAID, 2002).

In the past, the issue of urban food insecurity has received little attention. Advocacy was directed towards reducing poverty and improving food security in rural areas especially in the northern region of Ghana. Studies have however indicated that about 33% of Ghana's poor live in urban centers thus making urban food insecurity a major development issue. While urban poverty and food security seems to be receiving much attention in other parts of the country, very little is done in this regard in the northern sector and for that matter Tamale. In order to implement policies that would go a long way to ameliorate the food security situation in Tamale, there is the need for research that would highlight:

- (i) The nature of food insecurity in urban and peri-urban Tamale
- (ii) The consequences and the coping strategies developed by the people
- (iii) The food production situation in urban and peri-urban Tamale
- (iv) The constraints in food production in urban and peri-urban Tamale
- (v) Households access to factors of production (particularly land) in urban and peri-urban Tamale
- (vi) The options available for improving and maintaining food production in Tamale.

The information generated from such a study will act as a push to the government, the general public, donor organizations and other interested parties in the domain to intervene in one way or the other in seeking appropriate solutions to the problem.

1.2 Terms of Reference for the Survey

Apart from seeking to improve agricultural productivity among urban farmers, URBANET is advocating for the integration of agriculture into urban planning processes. This activity of URBANET is intended to initiate the debates and actions that would lead to the recognition of agriculture as a legitimate form of land use in urban areas. In line with this objective, URBANET commissioned this survey in August 2006 to assess the food security situation in Tamale and generate information that would highlight major food security issues for purposes of advocacy and planning of future activities and for initiate dialogue with stakeholders towards the integration urban agriculture into urban planning schemes. This study is done in partnership with Action Aid International Ghana and the International Water Management Institute (IWMI).

The terms of reference (TOR) for the survey are stated as follows:

1. To establish the nature of food insecurity in urban and peri-urban tamale.
2. To assess households food production as well as their access to production resources (especially land) in urban and peri-urban Tamale
3. To examine avenues/options and recommend activities that could be implemented using empowerment approach to strengthen people's capacity for self-reliance and active citizenship in the exercise of their rights and responsibilities to overcome poverty and food insecurity in Tamale. This will enable URBANET in partnership others advocate for policies at local, national, and international levels to address causes of income poverty and food insecurity

1.3 Objectives of the survey

Based on TOR, the main objective of the study is to identify the nature and causes of food insecurity in urban and peri-urban Tamale and to make recommendations that could lead to improvements household food production in the study area.

The specific objectives are:

1. To examine the nature of food insecurity in urban and peri-urban Tamale
2. To identify the major causes of food insecurity in urban and peri-urban Tamale
3. To examine food production in urban and peri-urban Tamale
4. To assess households access to food production resources (especially land)
5. To analyse the major constraints in food production in urban and peri-urban Tamale

1.4 Relevance of the Survey

As already indicated the main purpose of this survey is to generate an understanding of the nature and causes of food insecurity in urban and peri-urban Tamale as well as alternatives that could be explored to improve food production in the study area. The information generated will constitute basis for advocacy by local authorities and other civil society groups.

CHAPTER TWO

SURVEY METHODOLOGY

2.1 Introduction

The objectives of the study given above indicate that the survey is a targeted one. It concentrates on studying the nature and causes of food insecurity, the coping strategies of the people and the alternatives available for overcoming the food insecurity situation. This section outlines the concepts and methods employed in assessing the food security situation in Tamale. Sampling and data collection procedure are also outlined.

2.2 The Concept of Household Food Security

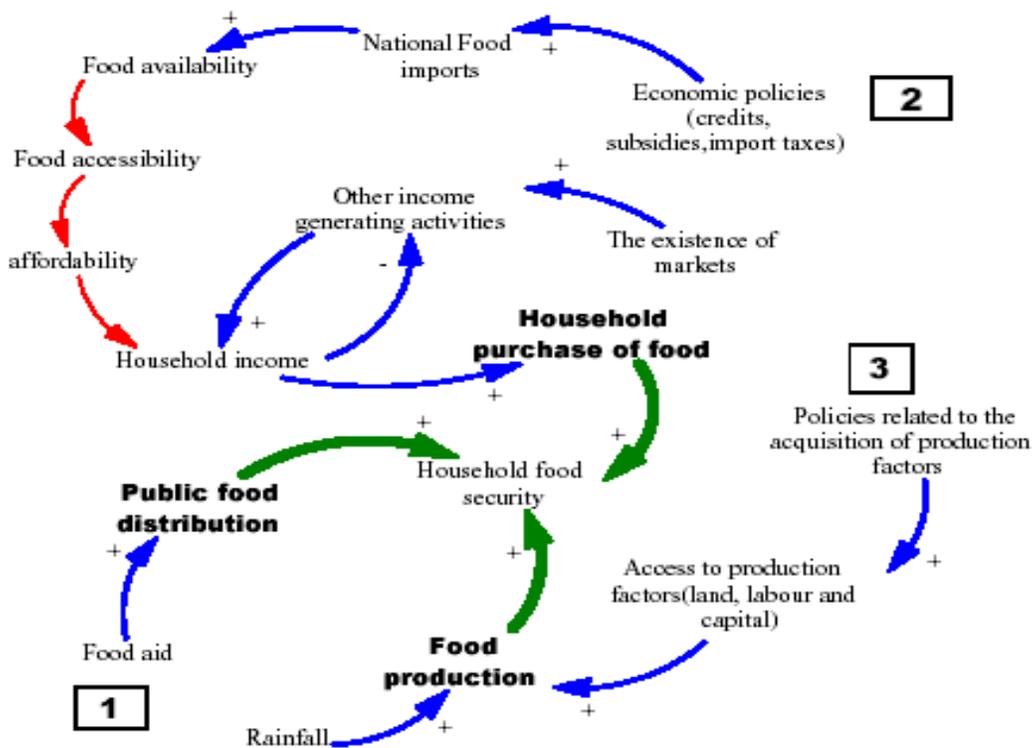
Food security implies “access by all people at all times to enough food for an active, healthy life”(World Bank, 1986 as in Salih, 1995). Food insecurity can either be chronic or transitory. Transitory food insecurity is a temporary decline or shortage in the food needs of a country, regions or households. The declines may be due to fluctuations in the production of food, changes in incomes and food prices. On the other hand, chronic food insecurity occurs when there is persistence in food declines. Thus food insecurity can be defined as a situation in which households and individuals are neither able to access nor afford for food for an active and healthy life.

Despite the diversity in these definitions, most of them evolve around some common themes, which are very important in the measurement and analysis of food insecurity. These themes include availability and accessibility and affordability.

There exist three major pathways through which households can achieve food security, that is, through food production, public food distribution and through food purchase. This is illustrated using Causal Loop Diagram of a household food security model (see Ijang Abeh, 2003).

From point (1), reading to the left, it shows that if more food aid is made available, then the quantity of food to be distributed to households will eventually increase. Equally, if more public food is distributed, then household food security will be achieved. However, its success depends on the policies that accompany the distribution.

Figure 1: Causal Loop Diagram of a Household Food Security Model



From point (2), reading to the left, the broken lines in this loop represents conditionality. Less harsh economic policies will trigger national food importation, which will increase the quantity of food available in the country. However, availability of the food does not guarantee its accessibility because it might not be equally distributed at the regional and sub-regional levels. On the other hand, if the food is equally distributed, it does not imply that everyone can afford for it. Thus its affordability depends highly on the household income that is set aside for food procurement. Considering that the affected group of persons in this case has low incomes, it implies that household purchase of food is likely to decrease thereby jeopardizing general household food security. Under such conditions, households will be triggered to create other income generating activities that will in turn increase household incomes. Increase household income will again trigger the creation of more income generating activities (balanced loop). However, the creation of income generating activities depends on the existence of markets to sell goods and render services.

At (3): If policies related to the acquisition of production factors are fair enough, then access to production factors by individuals will increase. Increased access to production factors brings about an increase in total food production thereby ensuring a high household food security. Likewise a frequent and acceptable rainfall distribution of increases food production and subsequently household food security. The thrust of this study is to make recommendations that would allow for advocacy leading to the

implementation of pathway three (3) in figure 1. The unit of analysis of the study will be the household, which is defined as a group of people who constitute a production and consumption unit within a compound. They are usually bound together in production by the household farm and in consumption by usually taking at least one meal a day from a common pot.

2.3 The Study Area

Tamale, the capital of the Northern Region of Ghana, is the third most populated city in country with a population of 202,317 (2000 estimate). The main source of livelihood for majority of the inhabitants is farming, as indicated earlier. However, there is rapid diversification into commerce as the population increases and agricultural land becomes scarce. That notwithstanding, the greater majority of the people still depend on agriculture for survival. Unfortunately, agriculture is regarded (even by policy makers) as a rural enterprise hence little attention given to farming in urban Tamale compared to surrounding rural communities. URBANET is working to reverse this trend through advocacy for planning and implementation of policies that would improve the access of urban farmers to production resources such as land, technical support as well as financial intermediation. The main objective is to improve household food security in its operational area, urban and peri-urban Tamale.

2.4 Sampling and Data Collection Procedure

Urban Agriculture Network has zoned communities in Tamale into urban and peri-urban communities for operational purposes. These communities constitute the sample frame for this survey. The sampling of communities and households for the survey was done using cluster and systematic sampling procedures respectively. The communities were grouped into urban and peri-urban clusters. Simple random sampling was used in the selection of communities within each cluster while systematic random sampling was employed in the selection of households. In all, 15 communities were selected, 8 from urban Tamale and 7 from peri-urban Tamale. Six (6) households will be covered in each community (See Table 1).

Qualitative and quantitative information was collected. Participatory Rural Appraisal (PRA) methods and semi-structured interview instruments were used to collect information from communities and households. Data collection in communities began with focus group discussions (FDGs). A checklist was drawn for that purpose. The FDGs aimed at gathering information from communities on general knowledge and experiences in relation to food production and food security issues. Semi-structured interview instruments (questionnaires) were used to collect detailed qualitative and quantitative information from sampled respondents. Information on agricultural land issues, especially with regards urban planning was obtained through consultations with the Ministry of Food and Agriculture (MoFA), the Department of Town and Country Planning, the Tamale Metropolitan Assembly as well as local authorities. Checklists were designed guide the consultation process.

Table 1: List of Sampled Urban and Peri-urban Communities

Urban Communities	Peri-urban Communities
Songnayilli	Kasalgu
Gbambaya	Dimala
Buglanfong	Dungu
Bulpiela	Katariga
Nyohini North	Jonshegu
Tutingli	Dabogshie
Chogo Manaayilli	Chanshegu
	Young

2.5. Method of Data Analysis

Many questions in the questionnaire were pre-coded before data collection. Since questionnaires contained a number of open-ended questions, there was the need for post-coding after data collection. This was followed by data editing (cleaning) and entry. A combination of Excel, Statistical Package for Social Sciences (SPSS). Mainly frequencies, means, cross-tabulations and other simple statistical methods were used in data analysis.

Although household food security is determined by assessing the quantity and quality of food available to the household all year round, an innovative way of assessing the gravity of household food insecurity is done through analyses of households' coping strategy. The Consumption Coping Strategy Index (CSI) was employed to assess the severity of food insecurity in Tamale. The CSI is an indicator of household food security and is relatively easy to compute and use. It involves a series of questions about how households manage to cope with shortfalls in food consumption. The results lead to a simple numeric value that indicates how insecure a household is compared to another.

CHAPTER THREE

RESULTS AND ANALYSIS

3.1. Introduction

As indicated in earlier chapters, the main aim of this survey is to highlight the food security situation in Tamale and also explore alternatives for improving food production in Tamale. In addition, the studies also sort to critically analyse the land situation in Tamale in relation to agriculture and make recommendations that could facilitate the integration of agriculture into the spatial plan of Tamale.

The main aim is to provide information that will act as a push to the government, the general public, donor organizations and other interested parties in the domain to intervene in one way or the other in seeking appropriate solutions to the problems of urban agriculture in particular and urban food insecurity in general. This section presents the results and analysis of the information obtained in the survey.

3.2. Household Food Security

There are two major avenues through which households get access to food. The household either directly produce the food or purchase the food given that funds are available. These two avenues need to be critically examined in order to determine households' access to food in the area. By access, we mean the household gaining physical control over the food so as to allow for utilisation.

3.2.1. Households Food Production

The first step in analysing household food production is to examine household farm holding. Given technology and other farm inputs endowment, farmland would remain the only limiting factor to food production. Table 2 presents households farm holding by type of crop. As expected, farmland is relatively scarce in urban locations as compared to peri-urban communities. Urban communities have an average of about 16 acres per household and 2.6 acres land per capita (see table 2). The average is slightly higher in peri-urban areas at about 17 acres per household and 2.8 acres per capita. The implications are that 2.6 acres of land in urban Tamale or 2.8 acres in peri-urban Tamale must produce enough of all food crops to meet the annual requirement of one household member.

Given the land situation in the communities, enhancing land productivity remains the most feasible alternative to ensuring food security. Soil fertility improvement interventions as well as improved crop production technology are therefore extremely necessary if households are to produce a significant proportion of their food requirement. It is also quite clear in table 2 that more than half of household farmland is put to the cultivation of Maize, Groundnut, Sorghum and Yam. Improving the output levels of these

crops will not only free up land for cultivation of other crops but will also improve food availability in households since these crops are staples.

Table 2: Average Area Cultivated by Crop and Location

Crop/Crop Mixture	Farm Holding (Acres)			
	Urban Area		Peri-Urban Area	
	Mean (Acres)	SD	Mean (Acres)	SD
Maize	3.2	0.6	3.0	2.0
Rice	2.0	1.5	2.1	0.0
Groundnut	2.0	3.4	2.3	1.0
Yam	2.0	1.9	2.5	2.0
Pepper	0.5	0.4	0.5	0.0
Late Millet	2.0	0.0	1.0	0.0
Sorghum	2.0	1.4	1.7	0.6
Bambara Beans	0.3	0.0	1.0	0.0
Soyabeans	0.5	0.7	1.0	0.0
Cowpea	0.5	0.7	0.5	2.0
Cassava	0.5	1.0	1.0	2.0
Sweet Potato	0.4	1.0	0.5	0.8
Total Average Household Holding (Land Per Capita)	15.9 (2.6)		17.1 (2.8)	

Source: Field Survey, August 2006

Output levels in both urban and peri-urban communities are extremely low and could have serious implications for household food security given the fact that access to farmland is very limited. Output levels of major crops produced in the study area are presented in table 3. The output of maize for example is 3.8 bags per acre and 4.2 bags per acre in urban and peri-urban Tamale respectively. This is less than a regional average of 7 bags per acre (see RUDEMA 2006). Output levels for groundnut, late millet and sorghum are not significantly different from the regional average of 3 bags per acre although the level for urban Tamale is 0.5 of a bag less. The result in table 3 indicates that the study area is worse-off in terms of crop yields and given the land constraints, output levels must be twice as high in order to ensure some level of food security.

The standard deviations indicate the extent to which the outputs of individual households vary from the average for the community. In some cases (rice and yam for example), the standard deviations are bigger than the average for the community. Even though statistically, the standard deviation only measures dispersion its interpretation have wide implications as long as intervention policies are concerned. In the case of maize for example, the standard deviation of 12 indicates that some households get as much as 12 bags more than the community average of 12 bags. This implies that twice the average

output level of maize is possible in the community since the deviation in area cultivated to maize is not that significant.

Table 3: Output Levels of Major Crops by Location

Type of Crop	Urban Areas				Peri-Urban Areas			
	Output		Average Yield/Acre	Output/Capita	Output		Average Yield/Acre	Output/Capita
	Mean No. of Bags/HH	SD			Mean No. of Bags/HH	SD		
Maize	12.0	12.0	3.8	2.0	15.5	18.5	4.2	2.5
Groundnut	10.0	0.0	2.5	0.4	3.0	0.4	2.9	1.0
Rice	8.1	9.3	4.1	1.3	7.0	0.0	3.0	1.1
Yam*	56.8	80.4	28.4	9.3	13.3	14.6	5.3	2.2
Pepper	2.0	0.0	4.0	0.3	1.0	0.0	2.0	0.2
Late Millet	5.3	1.1	2.7	0.9	6.0	0.0	2.8	0.4
Sorghum	5.0	5.7	2.5	0.8	5.5	6.4	3.0	1.0
Bambara Beans	1.0	0.0	3.3	0.2	2.3	0.3	2.3	0.4
Soyabeans	2.3	0.7	4.6	0.4	1.0	0.0	1.0	0.0
Cowpea	2.0	0.0	4.0	0.3	2.0	0.0	4.0	0.3
Cassava	8.0	0.0	16.0	1.3	5.0	2.0	5.0	0.8
Sweet Potato	4.0	0.0	10.0	0.7	5.5	2.0	11.0	0.9
Okro	5.0	0.0	-	0.8	4.0	2.0	-	0.7

*Yam is measured in Units. A Unit comprise 100 average sized tubers

SD= Standard Deviation

Source: Households Survey, August 2006

The keeping of livestock is an integral component of the farming system of Northern Ghana and for that matter Tamale. Almost every household is in one way or the other is involved in livestock keeping. Income from livestock is usually the lifeline when households urgently need cash or when there is massive crop failure. Households that own more livestock are less vulnerable to food supply shortfalls resulting from crop failure. Thus any intervention aimed at improving food security in the study area must necessarily take concrete measures towards improving livestock farming.

Table 4 presents household livestock ownership. The results indicate livestock numbers are generally low especially in urban communities (table 5). There are less than 3 cattle on the average in urban households and about four in peri-urban households (see table 6). Donkeys are virtually non-existent, a situation that has serious implications for animal traction. The numbers of poultry owned is also relatively low indicating households' ability to cope in the event crop failure could be severely limited.

About 75% urban and 78% peri-urban households have consistently been experiencing declines in their crop output and livestock numbers since 2002. In Dungu and Dimala for example, farm output as well as livestock numbers have been declining in all households. However, about 19% of households recorded increases in output levels within the period under review. This confirms reports by ISSER (2005) that output per acre (land productivity) has been in relative decline in for all major crops over the past five years with exception of traditional export crops (cocoa in particular).

Table 4: Household Livestock Ownership by Location

Type of Livestock	Number of Livestock Owned			
	Urban Area		Peri-Urban Area	
	Mean	SD	Mean	SD
Cattle	2.8	3.8	4.2	4.1
Donkeys	-	-	0.5	2.4
Sheep	9.8	6.2	9.0	12.6
Goats	4.3	2.5	9.8	6.6
Chicken (fowl)	13.3	7.6	15.8	17.0
Guinea Fowls	10.0	9.7	16.9	13.1
Ducks	4.2	2.6	8.3	3.4
Turkeys	-	-	1.4	2.1

Source: Households Survey, August 2006

SD = Standard Deviation

Table 5: Urban Households' Perception of Production Levels by Community

Community /Location	Percentage of Households Recording Increase in Production	Percentage of Households Recording Decrease in Production	Percentage of Households With no Changes in Production
Songnayilli	25.0	75.0	0.0
Gbambaya	20.0	80.0	0.0
Buglanfong	40.0	60.0	0.0
Buipiela	33.3	66.7	0.0
Nyohini North	20.0	60.0	20.0
Tutingli	0.0	80.0	20.0
Choggu Manayilli	0.0	100	0.0
Composite Percentage (Urban)	19.8	74.5	5.7

Source: Households Survey, August 2006

Table 6: Peri-urban Households' Perception of Production Levels by Community

Community /Location	Percentage of Households Recording Increase in Production	Percentage of Households Recording Decrease in Production	Percentage of Households With no Changes in Production
Dungu	0.0	100.0	0.0
Katiriga	25.0	75.0	0.0
Kasalgu	33.3	66.7	0.0
Dimala	0.0	100.0	0.0
Dabogshie	20.0	80.0	0.0
Chansegu	40.0	60.0	0.0
Yong	20.0	80.0	0.0
Jonshegu	0.0	60.0	40.0
Composite Percentage (Peri-urban)	17.3	77.7	5.0

Source: Households Survey, August 2006

Given the fact that output levels in the study area are less than what prevails elsewhere in the region, there is the urgent need for interventions to improve the situation. In order to design strategies that can improve the current low levels of farm output, there is the need for a clear understanding of the factors responsible for the current state. What resources/conditions existed two or three years ago that no longer exists? The answer to this question will provide information on how to improve output levels in the communities.

Tables 7 and 8 outline the perceived causes of low farm output in the study communities. Results in the tables indicate that the major cause of low farm output in the study area is low investment in farming activities due to capital constraints. About 40% of urban households and 37% of peri-urban households attribute the current state of low farm output to low capital. Low soil fertility and decreasing farm sizes are the next most prominent causes of low farm output. In some cases, poor rainfall pattern and late planting have also been perceived by households as responsible for the declining level of farm output. As farmland rapidly becomes a limiting factor in the communities, agriculture (especially crop production) becomes more input intensive, requiring significant injection of capital. Suddenly, smaller farm sizes are expected to produce the same (if not higher) levels of output. This can only be achieved through use improved production technology. Households that are unable to afford this technology will certainly record extremely low levels of output. URBANET and other stakeholders who are interested in improving food security in urban areas should incorporate into their agendas, strategies that will empower households to purchase improved farm technology and production resources.

Even though most credit intervention programmes have failed due to number of factors from both the supply and demand sides of credit, financial and social intermediation remains the main tool for improving productivity and reducing poverty and food insecurity in poor communities of developing countries. The issue of credit has been discussed in detail in subsequent sections.

Table 7: Reasons for Decrease in Levels of Production by Community

Community/ Location	Percentage of Households Attributing to Reason				
	Low Soil Fertility	Low Capital	Decrease in farm size	Poor Rainfall	Late Planting
Songnayilli	25.0	25.0	25.0	25.0	0.0
Gbambaya	0.0	20.0	20.0	40.0	20.0
Buglanfong	20.0	40.0	20.0	20.0	0.0
Buipiela	33.3	33.3	0.0	0.0	33.3
Nyohini North	20.0	80.0	0.0	0.0	0.0
Tutingli	20.0	40.0	20.0	20.0	0.0
Choggu Manayilli	20.0	40.0	20.0	20.0	0.0
Composite Percentage Attribution (Urban)	19.7	39.8	15.0	17.9	7.6

Source: Households Survey, August 2006

Table 8: Reasons for Decrease in Levels of Production by Community

Community/ Location	Percentage of Households Attributing to Reason				
	Low Soil Fertility	Low Capital	Decrease in farm size	Poor Rainfall	Late Planting
Dungu	33.3	16.7	0.0	16.7	33.3
Katiriga	33.3	33.3	0.0	33.3	0.0
Kasalgu	33.3	66.7	0.0	0.0	0.0
Dimala	20.0	40.0	20.0	20.0	0.0
Dabogshie	20.0	40.0	20.0	0.0	20.0
Chansegu	60.0	20.0	20.0	0.0	0.0
Yong	20	40.0	0.0	20.0	20.0
Jonshegu	20.0	40.0	0.0	20.0	20.0
Composite Percentage Attribution (Peri-urban)	30.0	37.1	7.5	13.8	11.7

Source: Households Survey, August 2006

3.2.2. Household Income Activities and Income Levels

Income as well as the enterprises from which the incomes are made is very important in the assessment of food security. As already indicated, households can attain food security by producing their food requirements or generate income that could be used to finance food purchases from external sources. The sources from which households generate their income are also an indicator vulnerability status. About 64% of urban and 70% of peri-urban households generate their income from agriculture (see table 9). This is an indication that dwindling agriculture production not only indicates food shortage in households but also dwindling household earnings.

In urban Tamale households, yam is the highest contributor to household income, contributing up over 27 percent of income earned from the farm. Income from Maize and groundnut together constitute 24% of household income. In peri-urban communities, income from maize and livestock (small ruminants) are the largest contributors to household income. About 15% of the income earned by peri-urban households comes from maize. Unlike in urban Tamale communities, livestock especially small ruminants contribute significantly to household income in peri-urban communities. Income from small ruminants constitute up about 13% of total household farm earnings in among peri-urban. The information in table 9 clearly indicates that interventions that will improve the output of maize, groundnut, yam, rice and small ruminants will significantly improve household earnings. Improvements in the cultivation of vegetables especially in urban areas will also improve household farm income. There seem to be little income generation activity outside the farm. Non-farm employment outside the formal sector is limited. About 48% of non-farm income is earned from salaried work. Close to 33% of non-farm income is received in the form of remittances. Other sources of non-farm income include Artisanry and petty. These activities however are relatively insignificant contributors to household income. It is thus clear that the only interventions that can significantly improve livelihood in these communities are those that will improve agricultural productivity.

Although urban households are slightly better off in terms of income, the incidence of poverty in all the communities within the study area is relatively high. On the average, all households live below the United Nations Poverty Line of US\$1 a day (see table 10). Given that there is some amount of inequality in income distribution; one can only imagine the level of deprivation in some of the households. Tables 11 and 12 suggest that households' earnings have been declining in recent times and particularly in the past three years. About 49% and 60% of households in urban and peri-urban communities respectively have recorded decreases in their income over the past four years. This is consistent with the trend in crop output levels.

Table 9: Annual Average Household Farm Income by Location

Farm Activity	Urban Areas			Peri-Urban Areas		
	Mean (SD) Income Earned (Cedis)	Percentage of Total income	Income Per Capita (Cedis)	Mean (SD) Income Earned (Cedis)	Percentage of Total income	Income Per Capita (Cedis)
Maize	1,126,153 (1,263,827)	9.9	184,615	1,494,375 (2,854,617)	14.8	244979.5
Groundnut	1,703,333 (1,911,668)	15.0	279,235	300,000 (0.0)	3.0	49180.33
Rice	580,000 (376,342)	5.1	95,082	897,500 (661,995)	8.9	147,131
Yam	3,133,333 (80,829)	27.5	513,661	701,666 (807,863)	6.9	115,027
Pepper	650,000 (636,396)	5.7	106,557	450,000 (586,174)	4.4	737,701
Late Millet	500,000 (176,776)	4.4	81,967	750,000 (0.0)	7.4	122,951
Sorghum	600,000 (0.0)	5.3	98,361	240,000 (0.0)	2.4	39,344
Leafy Vegetables	100,000 (0.0)	0.9	16,393	80,000 (0.0)	0.8	13,115
Soyabean	320,000 (0.0)	2.8	52,459	1,430,000 (1,937,472)	14.1	234,426
Tomato	250,000 (0.0)	2.2	40,984	340,000 (0.0)	3.4	55,738
Okro	245,000 (205,060)	2.2	40,164	300,000 (0.0)	3.0	49,180
Cowpea	100,000 (0.0)	0.9	16,393	230,000 (57,332)	2.3	37,705
Cassava	75000 (-)	0.7	12,295	200,000 (0.0)	2.1	32,787
Poultry	445000 (205,061)	3.9	72,951	602666 (279,036)	6.0	98,798
Small ruminants	640000	5.6	104,918	1310000 (579828)	12.9	214,754
Large ruminants	920000 (230,000)	8.1	150,820	800000 (3,435,000)	7.9	131,148
Average Household Income	11,387,819	100.0	1,866,856	10,126,207	100.0	1,660,034

Source: Field Survey, August 2006

Table 10: Annual Average Household Non-farm Income by Location

Non-farm Activity	Urban Areas			Peri-Urban Areas		
	Mean (SD) Income Earned (Cedis)	Percentage of Total income	Income Per Capita (Cedis)	Mean (SD) Income Earned (Cedis)	Percentage of Total income	Income Per Capita (Cedis)
Artisanship	200,000 (0.0)	3.2	32,787	2871428 (2,077,429)	64.4	470,726
Remittances	2,250,000 (1060660)	35.7	368,852	0.0 (0.0)	0.0	0.0
Petty trading	850,000 (919239)	13.5	139,344	840000 (0.0)	18.8	137,705
Salaried work	3,000,000 (0.0)	47.6	491,803	750000 (353553)	16.8	122,951
Average Household Non-farm income	6,300,000	100.0	1,032,787	4,461,428	100.0	731,382
Total Income (farm and non-farm)	17687819			14587635		
Overall Per Capita Income (\$)	2,899,643 (US\$ 0.8 Per Day)			2,391,416 (US\$ 0.7 Per Day)		

Source: Field Survey, August 2006

Table 11: Urban Households' Perception of Income Levels by Community

Community	Percentage of Households Recording Increases in Income	Percentage of Households Recording Decreases in Production	Percentage of Households With no Changes in Income
Songnayilli	20.0	40.0	40.0
Gbambaya	20.0	80.0	0.0
Buglanfong	60.0	40.0	0.0
Buipiela	40.0	0.0	60.0
Nyohini North	40.0	40.0	20.0
Tutingli	20.0	80.0	0.0
Choggu Manayilli	20.0	60.0	20.0
Composite Percentage	31.4	48.6	20.0

Source: Field Survey, August 2006

Table 12: Peri-urban Households' Perception of Income Levels by Community

Community	Percentage of Households Recording Increases in Income	Percentage of Households Recording Decreases in Income	Percentage of Households With no Changes in Income
Dungu	0.0	100.0	0.0
Katiriga	60.0	40.0	0.0
Kasalgu	0.0	80.0	20.0
Dimala	0.0	80.0	20.0
Dabogshie	0.0	60.0	40.0
Chansegu	40.0	20.0	40.0
Yong	60.0	40.0	0.0
Jonshegu	20.0	60.0	20.0
Composite Percentage	22.5	60.0	17.5

Source: Field Survey, August 2006

3.3. Households Access to Food

Although it has been established that food production levels among households in the study communities are low, that in it self does not indicate that households are food insecure. Since other options for meeting household food needs (such as buying) are available, the food security status of households can only be established after assessing the all year-round availability of food. The accessibility dimension of food security usually seeks to determine the extent to which households are able to meet their food requirements. It seeks to establish among other things, whether households are able to meet their food requirements from their own production. If not, whether there exist external sources from which food could be acquired to supplement households' own production and more importantly, whether the households are able to acquire the said food. This is done through an assessment of food shortage durations in households within a particular period (mostly in a year) as well as what the households do to cope with the shortage during the said period.

Tables 13 and 14 present the mean number of food shortage months in households by community. It is clear that peri-urban households experience longer periods of food shortage as compared to urban households. The reason probably is limited diversification in peri-urban sources of livelihood. Urban households in most instances are engaged in other minor occupations (especially in the area of commerce). For peri-urban households, diversification is mostly limited. Most households are completely dependent on agriculture for survival. Declines in agricultural productivity in most cases greatly affect their food consumption patterns. Among the urban communities, Tutingli, Buglanfong, Gbambaya and Songnayilli are the most affected in terms of food shortage. Households

in these communities experience food shortage for up to a third of the year. Similar situations exist in 75% of communities in the peri-urban area. This is a confirmation that food insecurity does exist in urban areas and even in more severe dimensions than experienced in some rural areas.

Table 13: Number Food Shortage Months in Urban Households by Community

Community	Mean Number of Food Shortage Months	Standard Deviation
Songnayilli	3.6	1.8
Gbambaya	3.8	3.2
Buglanfong	4.0	2.1
Buipiela	2.0	1.7
Nyohini North	2.6	0.5
Tutingli	4.2	1.6
Choggu Manayilli	2.3	1.0
Average Food Shortage Months (Urban Households)	3.2	

Source: Households Survey, August 2006

Table 14: Number Food Shortage Months in Peri-urban Households by Community

Community	Mean Number of Food Shortage Months	Standard Deviation
Dungu	4.1	1.3
Katiriga	3.5	0.6
Kasalgu	3.7	1.2
Dimala	4.0	1.6
Dabogshie	4.3	1.2
Chansegu	4.0	1.7
Yong	2.0	0.0
Jonshegu	3.0	0.0
Average Food Shortage Months	3.6	

Source: Households Survey, August 2006

3.3.1. Households Coping Strategies in Food Shortage Situations

The strategies households adopt in times of food shortage to a great extent describe the nature of the food shortage situation as well as the ability of households to cope. Even though the most important issue is assessing whether households are able to cope with the situation or not, it is equally important to critically analyse the ‘body of strategies’ that households employ in order to cope with food shortage situations. Obviously, the

strategies households adopt often have cultural, economic and even health implications. Strategies that are unacceptable on the grounds of culture and health are most often not used by households unless the food shortage situation is critical. The Consumption Coping Strategy Index (CSI) is a tool that has been used in recent times to assess households coping strategies.

The CSI involves the question “What do you do when you don’t have enough food and don’t have enough money to buy food?” The more people have to cope, the less food secure they are. Household food managers (usually, though not always, women) organize the resources at their disposal to limit the short-term effects of not having enough to eat. Households generally know how much is “enough” and seek the best option for ensuring that they eat enough. People start to change their consumption habits when they anticipate a problem. They don’t wait until food completely runs out.

Typically, food insecure households employ four types of consumption coping strategies:

1. Households may change their diet. For instance, households might switch food consumption from preferred foods to cheaper, less preferred substitutes.
2. Households can attempt to increase their food supplies using short-term strategies that are not sustainable over a long period. Examples include borrowing or purchasing food on credit. More extreme examples are begging or consuming wild foods, immature crops, or even seed stocks.
3. If the available food is still inadequate to meet the needs, households may then adopt unconventional measures to reduce the number of people they have to feed by sending them to eat elsewhere (in some societies to neighbours at meal times).
4. This is the most common. Households can attempt to manage the shortfall by rationing the food available to the household (cutting portion size or the number of meals, favouring certain household members over other members or skipping whole days without eating).

It is clear that all these types of behaviour indicate a problem of household food insecurity, but not necessarily problems of the same severity. A household in which one does not eat for an entire day is clearly more food insecure than one in which people have simply switched from consuming rice to cassava. The basic idea is to measure the frequency of the coping behaviour (how often is the coping strategy used?) and the severity of the strategies (what degree of food insecurity indicates?). Information on the frequency and severity is then combined in a single score, the Coping Strategy Index, which is an indicator of the household food security indicator. Households with higher CSI are more food insecure than those with lower CSI.

Tables 15 and 16 present the coping strategy index of the various communities. All peri-urban households have higher CSI as compared to urban households. Katiriga, Kasalgu, Dimala, Chanshegu and Jonshegu in Peri-urban Tamale have average CSI values over

and above 100 as compared to only Gbambaya in Urban Tamale. The coping strategy indices seem to suggest rising food insecurity in the study area with households in peri-urban Tamale being worse-off. The problem of poverty and food insecurity is no more a rural phenomenon. There is urgent need for interventions to improve agricultural productivity especially in peri-urban locations.

Table 15: Consumption Coping Strategy Index of Urban Households by Community

Community	Mean Consumption Coping Strategy Index (CSI)	Standard Deviation
Songnayilli	93.0	6.4
Gbambaya	130.4	18.4
Buglanfong	62.6	41.8
Buipiela	61.0	55.5
Nyohini North	132.6	20.3
Tutingli	84.6	10.3
Choggu Manayilli	109.6	32.2
Average CSI	96.3	

Source: Field Survey, August 2006

Table 16: Consumption Coping Strategy Index of Peri-urban Households by Community

Community	Mean Consumption Coping Strategy Index (CSI)	Standard Deviation
Dungu	88.4	42.2
Katiriga	139.8	14.3
Kasalgu	112.6	31.4
Dimala	104.5	57.6
Dabogshie	75.2	24.9
Chansegu	142.2	13.5
Yong	79.0	9.5
Jonshegu	116.4	41.1
Average CSI	107.3	

Source: Field Survey, August 2006

3.4. Financial and Social Intermediation in Tamale Communities

The Policy of many governments in recent times has been directed towards improving productivity and incomes of the poor particularly in developing countries. The premise is that, rural households can improve upon their main sources of livelihood (mainly farming) if they had access to small loans. With the provision of credit, the cost of (capital intensive) technology and assets will be reduced relative to family labour. Thus, instead of growing low yielding local varieties with low level of fertiliser, access to credit

may allow for use of improved varieties, fertilizer and high yield per unit labour and land. It is therefore important to examine households' access to credit in these communities as well as their investments in the various sources of livelihood they undertake. Tables 17 and 18 present the proportion of households in urban and peri-urban Tamale respectively that have had access to credit within the last three cropping seasons. Households in peri-urban Tamale seem to have more access to credit as compared to households within the urban periphery. On the average, about 53% of households located within peri-urban Tamale have participated in some form of credit programme as compared to 40% of households in urban Tamale.

Table 17: Households Access to Credit in Urban Tamale

Community	Percentage of Households	
	Frequency	Percentage
Songnayilli	3	60.0
Gbambaya	3	60.0
Buglanfong	2	40.0
Buipiela	2	40.0
Nyohini North	1	20.0
Tutingli	1	20.0
Choggu Manayilli	2	40
All Communities	14	40.0

Source: Households Survey, August 2006

Table 18: Households Access to Credit in Peri-urban Tamale

Community	Percentage of Households	
	Frequency	Percentage
Dungu	4	80.0
Katiriga	3	60.0
Kasalgu	3	60.0
Dimala	2	40.0
Dabogshie	3	60.0
Chansegu	3	60.0
Yong	1	20.0
Jonshegu	2	40.0
All Communities	21	52.5

Source: Households Survey, August 2006

Although there seem to be a fairly good outreach in terms of credit delivery, it is important to analyze the sources of this credit as well as the amount households are able

to borrow. This gives an indication as to whether the conditions under which the credit is received and the amounts borrowed could bring about improvements in the livelihoods of the beneficiaries. Tables 19 and 20 present main sources of credit and the amounts beneficiaries borrow respectively. About 57% of households in the urban area borrowed from family friends/relatives as compared to about 48% in peri-urban communities. Credit for about 36% of urban households and 48% of peri-urban households is provided by Non-governmental Organizations (NGOs) or through their facilitation. Over 4% of peri-urban households get their credit from informal moneylenders.

There is no much difference between the amount of credit obtained from family friends or relatives and that from NGOs (see table 20). Urban households appear to borrow (or get access to more credit in terms of amount borrowed) as compared to peri-urban households. The level of financial intermediation in the communities gives reason to the low investments in their sources of livelihood. The amounts borrowed by households are simply inadequate and cannot bring about any significant changes in livelihood investments.

The median divides the population into two halves. For example, a median of ₺510,000 indicates the amount half the beneficiaries borrowed. This is an indications that majority of households borrow amounts far less than the average for the community. During focus group discussions, it was revealed that even though credit from NGOs is normally better in terms of repayment schedules, such loans are not always readily available and sometimes come at times often too late for any meaningful farming activity. It is for this reason that several households depend on family friends and relatives. Participants in the discussion also indicated that both the number of credit providers as well as the amount of credit available has significantly declined in recent times (see tables 21 and 22).

Table 19: Sources in Urban and Peri-urban Tamale of Credit

Source of Credit	Urban Communities	Peri-urban Communities
	Percentage of Households Borrowing from Source	Percentage of Households Borrowing from Source
Family Friend/Relative	57.1	47.8
NGO	35.7	47.8
Commercial Banks	7.1	-
Informal Money Lenders	-	4.3
Total	100	100

Source: Households Survey, August 2006

Table 20: Average Household Borrowing by Loan Source by Location

Source of Credit	Urban Communities			Peri-urban Communities		
	Amount Borrowed (Cedis)			Amount Borrowed (Cedis)		
	Mean (SD)	Median	Percentage of Total Credit	Mean (SD)	Median	Percentage of Total Credit
Family Friend/Relative	920,000 (1085804)	510,000	52.9	387,272 (148935)	230,000	34.3
NGO	520,000 (286356)	500,000	29.9	448,181 (141479)	400,000	39.6
Commercial Banks	300,000 (0.0)	300,000	17.2	-	-	-
Informal Money Lenders	-	-	-	295,000 (0.0)	295,000	26.1
Total	1,740,000		100	1,130,453		100

Source: Households Survey, August 2006

Table 21: Perceived Changes in Number of Providers and Amount of Credit Available in Urban Communities

Community /Location	Increased	Decreased	Remained the Same
Songnayilli	40.0	40.0	20.0
Gbambaya	40.0	20.0	40.0
Buglanfong	20.0	80.0	0.0
Buipiela	20.0	60.0	20.0
Nyohini North	0.0	100.0	0.0
Tutingli	0.0	80.0	20.0
Choggu Manayilli	60.0	20.0	20.0
Composite Percentage (Urban)	25.7	57.1	17.1

Source: Households Survey, August 2006

Table 22: Perceived Changes in Number of Providers and Amount of Credit Available in peri-urban Communities

Community /Location	Increased	Decreased	Remained the Same
Dungu	20.0	60.0	20.0
Katiriga	20.0	80.0	0.0
Kasalgu	20.0	60.0	20.0
Dimala	40.0	60.0	0.0
Dabogshie	0.0	40.0	60.0
Chansegu	0.0	80.0	20.0
Yong	0.0	100.0	0.0
Jonshegu	0.0	60.0	40.0
Composite Percentage (Peri-urban)	12.5	67.5	20.0

Source: Households Survey, August 2006

3.4.1. Households Expenditure and Investments in Livelihood Activities

Investment in farming is a sine qua non for improved farm productivity. Given the nature of production resources at the disposal of households in the study communities, households obvious need to make reasonably significant investments especially in their farming activities in order to produce at acceptable minimum levels. Access to farmland in the communities is limited. Soil fertility is poor coupled with limited access to improved technology and technical assistance. Taking this into consideration, households do not only have to purchase inputs (such as fertiliser and improved varieties) that would improve the productivity of their land but also in some instances pay to facilitate their access to technical assistance that should otherwise be provided by some organizations and institutions.

Table 23 presents investment expenditure of households by activity or item. In both urban and peri-urban communities, significant proportions of household's income are expended on festivals and funerals. In urban communities, over 24% of household expenditure is on funerals and festivals as compared to about 15% for peri-urban households. Performance of funerals and festivals are social obligations in the societies under study and in some cases are the objectives of income generation. Some researchers and development practitioners wrongly attribute the high incidence of poverty in some of these communities to their supposedly huge expenditures on funerals and festivals. Even though some form of moderation in expenditure on these activities may be required, low productivity or poverty in these communities should not be attributed to these phenomena. In the first place if income levels were high, households expenditure on funerals and festivals will not constitute such a significant proportion of their income. Among urban households, farming-related expenditure (investment on livestock, expansion of farm sizes and purchase of farm implements) constitutes about 17% of household expenditure. In peri-urban households it constitutes about 20% of household

spending. It is therefore wrong to assume that households do not invest significantly into farming. The major reason for low productivity in the urban areas is policy failure, probably due the assumption that the poor live in rural areas and the believe that agriculture is a rural enterprise. This has led to the neglect of poor urban farming households. In peri-urban areas, up to 20% of their income is spent on food purchases. An indication that the level of food production at the household level is too low relative to their food needs. Strategies that would place capital at the disposal of households in the study communities are extremely necessary. This would bring about significant increases in investment and thereby improve farm output.

Table 23: Households Expenditures and Investments

Expenditure (Investment) Item	Urban Areas		Peri-Urban Areas	
	Mean (SD) Amount Spent (Cedis)	Percentage of Total Expenditure	Mean (SD) Amount Spent (Cedis)	Percentage of Total Expenditure
Housing	2272866 (1099395)	13.1	1374166 (1425811)	13.6
Education	1198620 (180312)	6.9	1375370 (1664507)	13.6
Health Care	1616785 (3393833)	9.3	1001607 (1172506)	9.9
Livestock	1000000 (707106)	5.8	972500 (1342287)	9.6
Food Purchases	1850000 (212132)	10.6	2028571 (1903964)	20.1
Expand Farm size	907500 1061802	5.2	230000 (1514762)	2.3
Purchase farm implements	1062222 (1283255)	6.1	784444 (388908)	7.8
Purchase Household Assets	748333 (737189)	4.3	700000 (401002)	6.9
Other Income Generation	2500000 (0.0)	14.4	135000 (134350)	1.3
Funerals/Festivals	4230000 (1088944)	24.3	1500000 (0.0)	14.8
Total	17,386,326	100.0	10,101,658	100

Source: Field Survey, August 2006

3.5 Capacity Building and Agricultural Extension Support in Communities

In recent times, building the capacity of local farmers has become a major concern for most development organizations and institutions. The formation and animation of farmer groups has become a core activity of most organizations especially NGOs. Constituting farmers into groups does not only allow for easy delivery of extension but also facilitates the access of these groups to external development assistance. Thus in communities where there is good extension services delivery and several development interventions, vibrant farmer-based organizations are always present. This section assesses the extent of capacity building and extension services delivery in the various communities.

Tables 24 and 25 present the setting under which livelihood activities are carried out in the communities. The results in these tables indicate limited activity in terms of farmer groupings and organizations. Over 70% of all livelihood activities in the study area are carried out under individual setting only. This is a clear indication that households in the study communities are not well organized thus making the delivery of extension services and other intervention packages extremely difficult. Since it is almost practically impossible to target individuals in the administration or delivery of intervention and assistance packages, the organization of households into livelihood activity groups should be given priority attention.

Table 24: Settings Under Which Livelihood Activities are conducted

Community /Location	Percentage of Households					
	Group Setting only		Individual Setting only		Both Group and Individual Settings	
	Freq.	%	Freq.	%	Freq.	%
Songnayilli	0	0.0	3	60.0	2	40.0
Gbambaya	0	0.0	4	80.0	1	20.0
Buglanfong	0	0.0	2	40.0	3	60.0
Buipiela	1	20.0	3	60.0	1	20.0
Nyohini North	0	0.0	5	100.0	0	0.0
Tutingli	0	0.0	5	100.0	0	0.0
Choggu Manayilli	1	20.0	3	60.0	1	20.0
All Communities	2	5.7	25	71.4	8	22.9

Source: Households Survey, August 2006

Table 25: Settings Under Which Livelihood Activities are conducted

Community /Location	Percentage of Households					
	Group Setting only		Individual Setting only		Both Group and Individual Settings	
	Freq.	%	Freq.	%	Freq.	%
Dungu	0	0.0	5	100.0	0	0.0
Katiriga	0	0.0	3	60.0	2	40.0
Kasalgu	0	0.0	2	40.0	3	60.0
Dimala	0	0.0	3	60.0	2	40.0
Dabogshie	0	0.0	3	60.0	2	40.0
Chansegu	0	0.0	5	100.	0	0.0
Yong	1	20.0	3	60.0	1	20.0
Jonshegu	0	0.0	5	100.0	0	0.0
All Communities	1	2.5	29	72.5	10	25.0

Source: Households Survey, August 2006

Obviously there are problems associated with carrying out livelihood activities under group setting. Respondents have outlined some of the problems usually encountered in table 26. Notable among the problems is weak linkage with development organizations or institutions. It is therefore important to ensure that in the formation and animation of farmer groups in these communities, mechanisms are put in place to allow for continuous interaction between the groups and development organizations. The lack of interaction between farmer groups and development organizations is the major cause of the demise of most farmer groups. The majority of farmer-based organizations in the communities had some form of collaboration with external development

Table 26: Problems Associated Livelihood Activities Carried Under Group Settings

Problem/Difficulty	Percentage of Households			
	Urban Communities		Peri-urban Communities	
	Frequency	Percentage	Frequency	Percentage
Weak or lack of linkage with development institutions	29	82.9	32	80.0
Lack of Unity	2	5.7	4	10.0
Limited access to inputs	2	5.7	3	7.5
Ineffective groups	2	5.7	1	2.5

Source: Households Survey, August 2006

organizations (see table 27). About 30% and 27% urban and peri-urban communities respectively had a linkage with Actionaid, Ghana. Close to 20% of the farmer groups in urban communities and 27% in peri-urban communities had links with GDCP. Interactions during group discussions it was revealed that the relationship between farmer groups and these development organizations have grown weaker over time leading to the demise of most the groups. There exist to a reasonable degree consultation between community local authorities and individuals within the various communities (see tables 28 and 29). Over 70% of individuals within the various communities participate in community decision-making. This could be exploited to introduce several development intervention packages, notably demarcating land for urban agriculture. .

Table 27: Groups Affiliation with Development Organizations

Institution/Organization	Percentage of Households			
	Urban Communities		Peri-urban Communities	
	Frequency	Percentage	Frequency	Percentage
CCFC	1	10.0	2	18.1
MoFA	3	30.0	2	18.1
Action Aid, Ghana	3	30.0	3	27.3
B. R. B.	1	10.0	1	9.1
G.D.C.P	2	20.0	3	27.3
GTZ	1	10.0	0	0.0
Total	10	100.0	11	100.0

Source: Households Survey, August 2006

Table 28: Involvement of Urban Households in Community Decision Making

Community	Households Consulted in Decision Making	
	Freq.	%
Songnayilli	3	60.0
Gbambaya	3	60.0
Buglanfong	4	80.0
Buipiela	4	80.0
Nyohini North	4	80.0
Tutingli	4	80.0
Choggu Manayilli	4	80.0
All Communities	26	74.3

Source: Households Survey, August 2006

Table 29: Involvement of Peri-urban Households in Community Decision Making

Community	Households Consulted in Decision Making	
	Freq.	%
Dungu	5	100.0
Katiriga	3	60.0
Kasalgu	4	80.0
Dimala	3	60.0
Dabogshie	4	80.0
Chansegu	3	60.0
Yong	3	60.0
Jonshegu	3	60.0
All Communities	28	70.0

Source: Households Survey, August 2006

3.5.1 Extension Services Delivery in Communities

Dissemination of Improved farming techniques and technology is very crucial under any farming system, especially in areas where output levels are low, production technology is rudimentary and where the producing households are to a large degree resource constrained. Under such conditions, farm output per unit factor of production can only be improved through the dissemination of economically efficient, technically feasible, environmentally sound and culturally acceptable innovations. It is therefore important the extent to which households in the study communities get access to improved farming technology.

Tables 30 and 31 present various improved techniques that have been tested/adopted by households and the sources of these technology. Even though many households regard the keeping of livestock as a farming enterprise, they still do not have the capacity to maximize gains from the enterprise. In all peri-urban households, livestock is not provided any form of supplementary feeding (see table 31). Only 16% of urban households provide supplementary feeding to livestock. Since livestock in most cases acts as a security against crop failure, efforts should be made to improve livestock keeping in the communities. Composting is the most widely tested innovation in peri-urban communities. About 23% of households in peri-urban communities have made and applied compost. In all, only 43% and 50% of urban and peri-urban households have had access to improved technology. This suggests the need to enhance extension services delivery so as to effectively disseminate improved farming techniques to households. The greater majority of households in both urban and peri-urban communities are very dissatisfied with the extension service delivery (see table 32)

Table 30: households' Access to Improved Farming Technology/Assistance (Urban)

Technology/ Assistance	Source of Technology/Assistance						Percentage of all Households	
	NGOs		MoFA		Media		Freq.	%
	Freq.	%	Freq.	%	Freq.	%		
Improved crop varieties	0	0.0	1	14.3	1	16.7	2	5.7
Record keeping	0	0.0	1	14.3	1	16.7	2	5.7
Row planting and spacing	0	0.0	1	14.3	0	0.0	1	2.9
Composting	1	50.0	0	0	0.0		1	2.9
Organic farming	0	0.0	2	28.6	2	33.3	4	11.4
Chemical weed control	0	0.0	1	14.3	1	16.7	2	5.7
Supplementary Feeding of livestock	0	0.0	0	0.0	1	16.7	1	2.9
Deworming of livestock	1	50.0	0	0.0	0	0.0	1	2.9
Bunding	0	0.0	0	0.0	0	0.0	0	0.0
Chemical Fertilizer Application	0	0.0	1	14.3	0	0.0	1	2.9
All Technology/ Assistance	2	13.3	7	46.7	6	40.0	15	42.9

Source: Field Survey, August 2006

Table 31: Households' Access to Improved Farming Technology/Assistance (Peri-urban)

Technology/ Assistance	Source of Technology/Assistance						Percentage of all Households	
	NGOs		MoFA		Media		Freq.	%
	Freq.	%	Freq.	%	Freq.	%		
Improved crop varieties	1	25.0	2	16.7	0	0.0	3	7.5
Record keeping	1	25.0	0	0.0	0	0.0	1	2.5
Row planting and spacing	0	0.0	1	8.3	1	25.0	2	5
Composting	2	50.0	5	41.7	2	50.0	9	22.5
Organic farming	0	0.0	1	8.3	0	0.0	1	2.5
Chemical weed control	0	0.0	0	0.0	1	25.0	1	2.5
Supplementary Feeding of livestock	0	0.0	0	0.0	0	0.0	0	0
Deworming of livestock	0	0.0	1	8.3	0	0.0	1	2.5
Stone Bunding	0	0.0	1	8.3	0	0.0	1	2.5
Chemical Fertilizer Application	0	0.0	1	8.3	0	0.0	1	2.5
All Technology/ Assistance	4	20.0	12	60.0	4	20.0	20	50.0

Source: Field Survey, August 2006

Table 32: Households Impression of Technology/ Technical Assistance Delivery

Impression of Technology/ Technical Assistance Delivery	Percentage of Households			
	Urban Communities		Peri-urban Communities	
	Frequency	Percentage	Frequency	Percentage
Very Satisfied	1	2.9	1	2.5
Satisfied	1	2.9	5	12.5
Not Satisfied	33	94.3	33	82.5

Source: Field Survey, August 2006

3.6 Land Issues and Urban Agriculture

Land as a key factor in agricultural production, is an economic good in limited supply and its maintenance as a source of increased crop production and income growth hinges on increased use of facilitating inputs through investments to improve land productivity (de Janvry and Sadoulet, 2005). Credible security of access to land either through formal mechanisms such as legal title and enforcement, or through informal mechanisms such as community recognition and enforcement of rights, is necessary for attracting investment and interventions in agricultural production.

Taking into consideration the fact that the study communities are located either within or at the periphery of the city; were there exist varied and competing land use forms, it is important that issues relating to land be properly assessed in order to design mechanisms that would facilitate access to farmland within the metropolis.

As already indicated the population of Tamale grew by about 49% between 1984 and 2000. The rapid population growth has not only increased the non-farm demand for land but has also brought about legal implications as far as agriculture is concerned. The local government Act, Act 462 section 51(3b) indicates that farming activities carried out in any settlement of population of more than 5,000 requires prior permission from local government authorities. Incidentally, the lower threshold for an urban centre in terms of population is 5,000. The act could be loosely interpreted as follows:

- All farming activities (small-scale vegetable and flower gardening exclusive) within the Tamale metropolis is illegal unless was by permission from the metropolitan authorities.
- Households that depend entirely on farming for survival should diversify, relocate or starve if they fail to acquire permission to carry out their livelihood activity.

- And more strongly, the Act suggests that urban communities should not farm but depend on rural communities for food supplies. It also seems to suggest that rural communities should not (or aspire to) become urban centres.

City authorities could be better placed to grant permission for agriculture within the metropolis if there exists a well-outlined spatial land use framework that integrates agriculture as one of the legitimate land use forms. In the case of Tamale, does such a framework exist? Are there processes or at least plans to design a land use framework that incorporates agriculture into urban planning and development in Tamale? Consultations with stakeholders on the issues raised indicated that not much is being done if anything at all to integrate urban agriculture into the planning process of the metropolis. The Tamale Metropolitan Assembly had the following standpoints on issue of urban agriculture:

- Agriculture is acceptable within the metropolis but should be incorporated into the planning process. Very little is however being done to implement this standpoint of the assembly.
- On the issue of regulation (including legal restrictions), the Assembly is totally dependent on the local government Act. The Assembly by-laws are silent. There is however the need for location or community-specific regulations for the metropolis.
- There are no provisions for agriculture in the zoning plans of Tamale. Issues of by-laws to protect agricultural zones from encroachment should therefore not even arise.
- There are however derelict public lands within Tamale for which short to medium term licenses could be granted for such lands to be used for agriculture. The assembly indicated it could initiate negotiations with traditional authorities for release of such land if need be.
- Almost all green belts (except the few forests) within the metropolis have been encroached upon. The assembly authorities have expressed the need to clear all encroached green belts. The will to execute this task however does not exist.

The land administration project currently in progress could help address some of these issues. Efforts should be made to highlight the issue of urban agriculture.

In general, farm holdings among various households have been declining over the past few years and more rapidly within the last four years. In order to assess changes in household farmland holding, it is necessary to examine the two states in which farmland could be held. Since virgin lands have not been encountered in the study communities, farmland could either be under cultivation or fallowed. There is decrease in holding when for example, cultivated land is declining and fallow land is not increasing. The quantum of loss is even higher if both cultivated and fallowed lands are declining. Figures 2 and 3 present average farmland holding in the communities between the period of 2004 and 2006. In all urban communities, the size of land cultivated has declined by an average of about 28% (see table 33). On the average, cultivated land declines at an annual rate of 7%. Fallowed land on the other hand has been declining at an annual rate of 9.3%. Given

this trend, urban households will exhaust all their fallowed land in ten years and cultivated land in fourteen years if nothing is done. In peri-urban areas, the decline in cultivated land is slower at about 3% per annum (see table 34). Fallowed land however declines at about 8% per annum.

Figure 2: Average Household Farmland Holdings in Urban Tamale

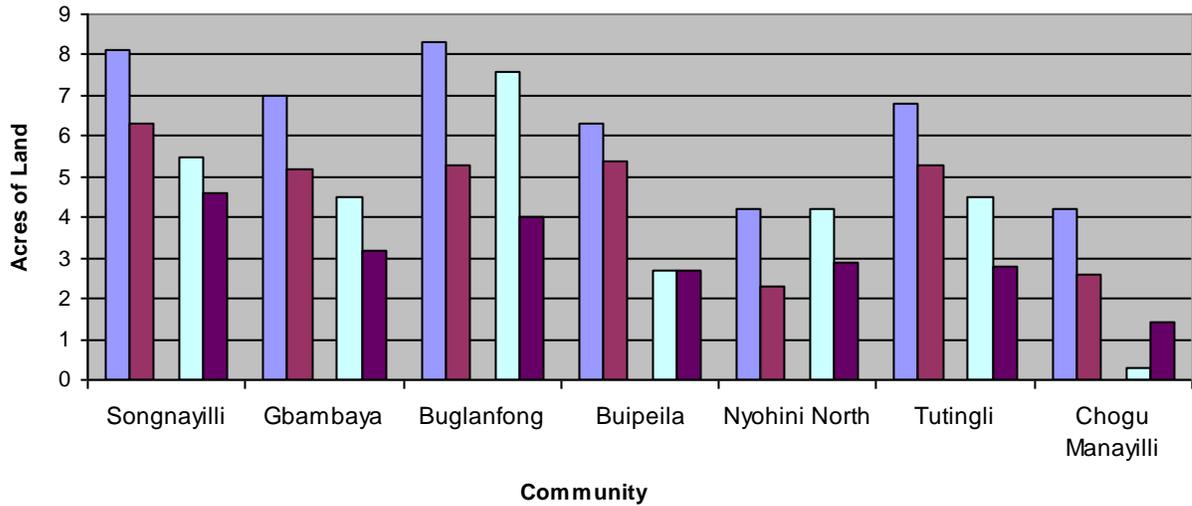


Figure 3: Average Household Farmland Holdings in Peri-urban Tamale

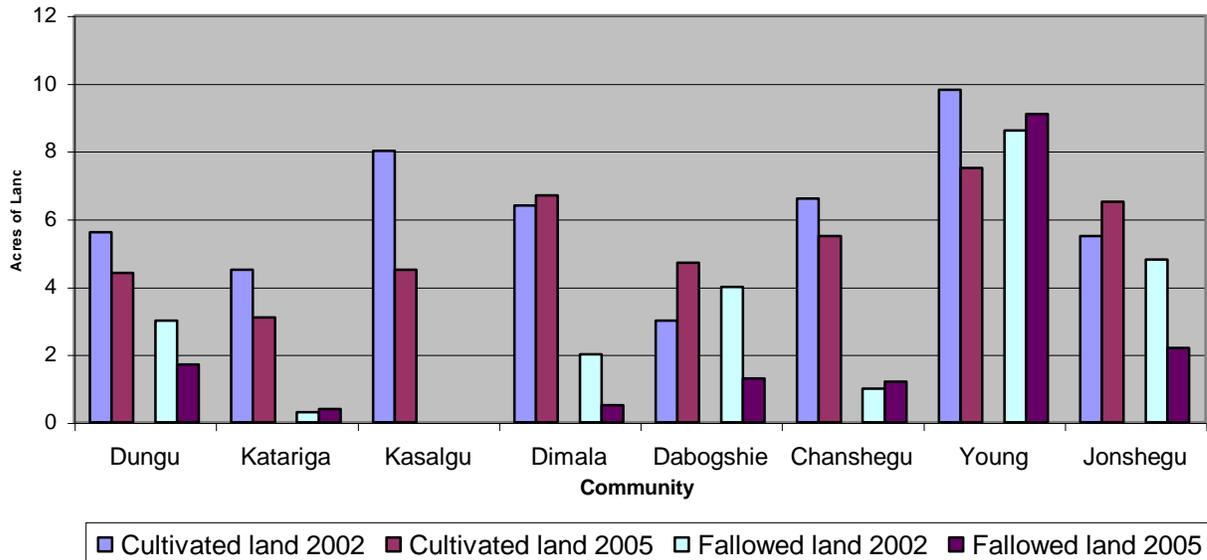


Table 33: Changes in Household Farmland Holdings in Urban Tamale

Community	Change in Cultivated Land between 2002-2005		Change in Fallowed Land between 2002-2005	
	Percentage Change	Annual Rate of Change	Percentage Change	Annual Rate of Change
Songnayilli	-22.2	-5.6	-36.4	-9.1
Gbambaya	-25.7	-6.4	-17.8	-4.4
Buglanfong	-36.1	-9.0	-72.4	-18.1
Buipiela	-14.3	-3.6	77.8	19.4
Nyohini North	-45.2	-11.3	-59.5	-14.8
Tutingli	-22.1	-5.5	-48.9	-12.2
Choggu Manayilli	-38.1	-9.5	-33.3	-8.3
All Communities	-27.8	-7.0	-37.5	-9.3

Source: Households Survey, August 2006

Table 34: Changes in Household Farmland Holdings in Peri-urban Tamale

Community	Change in Cultivated Land Holdings between 2002-2005		Change in Fallowed Land Holdings between 2002-2005	
	Percentage Change	Annual Rate of Change	Percentage Change	Annual Rate of Change
Dungu	-21.4	-5.3	-43.3	-10.8
Katiriga	-31.1	-7.8	33.3	8.3
Kasalgu	-43.6	-10.9	0	0
Dimala	4.7	1.2	-75.0	-18.8
Dabogshie	56.7	14.2	-67.5	-16.9
Chansegu	-16.7	-4.2	20.0	5.0
Yong	-23.5	-5.9	5.8	1.5
Jonshegu	18.2	4.5	-54.2	-13.5
All Communities	-13.2	-3.3	-30.8	-7.7

Source: Households Survey, August 2006

4.0 Policy and Intervention Options

As mentioned, credible security of access to land either through formal mechanisms such as legal title and enforcement, or through informal mechanisms such as community recognition and enforcement of rights, is necessary for attracting investment and interventions in agricultural production. It is therefore necessary to initiate processes that would guarantee reasonable security of access to land from either of these options or both. In all urban communities, almost all parcels of land are put to one use or the other. The zoning and demarcation of agricultural land is therefore almost impossible due to the economic, legal and other implications of such an activity. Facilitating urban households' access to land may require the acquisition of temporary rights for use of idle public lands. The metropolitan assembly has expressed support for such an exercise. The major task now is to conduct a detail profile of possible locations for possible action. In the case of peri-urban areas, the possibility of zoning and demarcating agricultural land still exists. However, such a process should start at the community level. Policy makers in Ministries and state Departments especially the Department of Town and Country Planning, the Tamale Metropolitan Assembly, the Ministry of Food and Agriculture could then be introduced into the process at some stages.

At the community level, the demarcation process could begin with community mapping. This should be done by communities and should highlight priorities of communities in terms of land use. In such maps community members through a participatory process would outline the sites they intend for various infrastructure including agriculture or farming zones. The desire of communities to execute such plans is further explored through consultations with community leaders and pressure groups. The possibility of developing these sketches into standard maps could then be explored with various stakeholders. This is a process that could take time and requires enormous amount of resources. It is however important to begin somewhere.

The facilitation of households' access to farmland is extremely necessary. However, it is important to note that access to farmland without accompanying complementary inputs will affect agricultural production since continuous use of land affects its productivity. The complementary factors could include credit, insurance, product and factor markets, infrastructure, research and extension, water reservoirs (dams) and even land contract enforcements. These issues must be given priority attention in order to improve agricultural productivity and food security in the study area.

There have been several advances in the field of agriculture. Through research and development, enormous amount of technology have been developed which when made available to households could significantly improve output levels. It is common

knowledge that there are several assumptions concerning urban livelihoods, the first being that urban households are not intensely farming households and secondly, the over emphasis on the poor living in rural areas to the neglect of the urban poor. This situation has led to limited urban agriculture support systems especially extension services. The finding of this study on households' access to improved technology and technical assistance attests to this assertion.

As an institution with the objective of improving urban livelihoods through agriculture, one of the core activities should be in the area of technology dissemination with the aim of improving agricultural productivity through improved access to farm technology. In both urban and peri-urban communities, MoFA remains the number one source of improved farming technology. Collaboration with MoFA to facilitate the delivery of extension services could prove very effective. These should however involve specific and well-targeted packages of information and technology with clearly defined performance (delivery) monitoring indicators. Sustainable soil fertility improvement interventions and veterinary support services are urgently needed. Formation and animation of farmer groups should however be the preceding activity.

Household income levels in the study communities are extremely low (in most cases less than a dollar a day) as indicated. The effects of low income levels on agricultural productivity are reflected in households' cash investments in agriculture. In order to improve agricultural productivity, there is the need for significant improvements in the levels of investments in agricultural activities. This can only be done through injection of funds from external sources in the form of credit. Even though most credits programmes have failed to bring the needed change in households, a situation that has led to the collapse of many microcredit entities, it is still possible design credit schemes that would minimize the risks of default and still improve households' access to financial intermediation. Further research in this area is required.

The problem of poverty and food insecurity is no more a rural phenomenon. There is urgent need for interventions to improve agricultural productivity especially in peri-urban locations. The coping strategy indices suggest rising food insecurity in the study area with households in peri-urban Tamale being worse-off. A major failure in the household livelihood system is in the area of output management. Interventions in these areas could go a long way to reduce food insecurity in households. Construction of granaries and grain banking schemes in some context could still be useful.

As indicated in the methodology, the thrust of this study is to make recommendations that would allow for advocacy leading to the implementation of pathway three (3) in figure 1. This pathway recommends improvements in households' access to factors of production as a means of improving food security. The implementation of some (if not all) of the policy recommendations of this study will in no doubt improve households access to production resources and hence improve food security in the study area.

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