



## **FOOD SECURITY FOR SUSTAINABLE DEVELOPMENT: THE CASE OF BOMET COUNTY, KENYA**

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### **ABSTRACT**

*The focus of the government had been to change Kenya into an industrialized middle income nation that is built on three pillar outlined in the Kenya Vision 2030. The sessional paper No.1 of 1965 promised to reduce or eliminate poverty, ignorance and disease. The three (3) key pillars in Vision 2030 are economic, social and political that are anchored on the fundamentals of macroeconomic stability; infrastructural development; Science, Technology and Innovation (STI); Land Reforms; Human Resources Development; Security and Public Sector Reforms. According to the Kenya 2010 constitution the right to food is a fundamental human right that should be focus of all or most governmental activities. The role of women in ensuring food security in relation to sustainable development is the focus for this study. Women experiences, knowledge and perception on food security is important since it focuses on sustainable development and gender mainstreaming in food security programmes. The study analyzed demographic characteristics of selected households, methods used to preserve food, sources and challenges of accessing food in Bomet County. Using purposive sampling respondents were selected who responded to a questionnaire. The household food security indicator is three (3) meals a day. The results revealed that there is need to give a gender perspective in food security. The main source of accessing food was own production, high cost of farm inputs, land fragmentation due to land inheritance and cultural practices that make agricultural land uneconomical among farming communities and large families. The study recommends the inclusion of women in food security issues which aim at ensuring sustainable development.*

Keywords: gender, food security, sustainable development

### **Introduction**

Food is a basic fundamental need and without it many other human rights cannot be enjoyed (Josanthony, 1999). However to be able to access this food in the desired quantity and quality throughout the year remains a dream for many people around the world (Sen, 1995). Food security is a global concern matter especially those in the third world and developing countries. Kenya has about 80% of its population living in the rural area. They engage mostly in agriculture which is the backbone of Kenya's economy (National Food and Nutrition Policy, Republic of Kenya, 2011). Women are the ones who are involved in agricultural activities. Despite the efforts the Kenyan government and population puts in place, according to the 2010 Economic Review of Agriculture, 51% of the population is facing inadequate access to food which is closely linked to

poverty that is estimated at 42% (Economic Review, World Bank, 2013). In fact this is against what the Constitution of Kenya (2010) Article 43(1) (c), states that *“every person has a right to be free from hunger, and to have adequate food of acceptable quality”*.

About a third of Kenya’s population is considered food insecure which translates to over 10m people in Kenya who suffer from chronic food security and between two and four million people require emergency food assistance at any given time (National Food and Nutrition Policy, Republic of Kenya, 2011). About 30% children in Kenya are undernourished and micronutrient. This study focuses on food security and the role of women in this process. According to FAO (2005) the frequency and magnitude of hunger in Kenya is a major impediment and catastrophic to the national development agenda. The Food and Agriculture Organization of the United Nations (FAO) (2010) recommendations at least 1,800 kilocalories a day as a minimum required to live a healthy and productive life for all human beings. The focus of vision 2030 is to improve the well-being of humanity and alleviation of poverty and sustainable economic growth which lead to sustainable development.

### **Food Insecurity**

The concept of food security draws different definitions. The world Food summit (1996) defines food security as the physical, political and socio-economic, determinants to procure and consume food. “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”. Inversely food insecurity exists when people do not have adequate physical, social or economic access to food as defined above (FAO 2010). Although the food crisis was triggered by drought, it was rather politics that turned it into a severe emergency (Hurni 2011).

### **Problem of Research**

Kenya over the years has had food insecurity as a result of the prevalent high food and non-food prices, crop failure, livestock diseases and conflict have compounded food insecurity (Joseph, 2004). Kenyans have changed their habits of food consumption, production and food market. Moreover, due to the influence of these factors, disadvantaged people are forced to further reduce their food intake, change to less balanced and nutrient diets, consequently negatively affecting their health (GoK, 2011). This is why it is important to clarify why food insecurity is still present in Kenya and if what is the prime reason preventing it to achieve the desired state of food security. The persistent and chronic nature of the food problem in sub-Saharan Africa is in contrast to the 1996 World Food Summit Commitment, revised in 2002 to reduce global hunger by half by 2015. The trend calls for drastic measures to arrest the situation (FAO, 2006). In Kenya, the strategic objective is to cut the food insecure people by 600, 000 annually (Wanjama, 2002). A concerning problem of food insecurity in Kenya is concentrated in the rural areas. In 2000, 51 percent of the rural Kenyan households were food insecure, compared to 38 percent in urban areas (GoK, 2000). At national level, the problem is reflected in: Growing dependence on food imports Kenya has been getting increasingly dependent on food imports (Nyangito et al., 2004). To meet the growing demand for food, the government has to import cereals against scarce foreign exchange. It is estimated that between 1995 and 2005, per capita cereal production grew by about 11% while the commercial imports rose by 32, 0%. At the household level, the effects of the high food prices and environmental issues such as drought (GoK, 1986; Mbogoh, 2000; Tiffens, 2002) has affected access to adequate food by many people. In April, 2008, about 3.5 million people in the country were reported to be in need of emergency food aid (USAID, 2009). At the same time, the inflation rate on food reached 44.2%, the highest increase rate among all commodities. The effect was a rise in overall food insecurity to a

predicted 70 percent of the population (OCHA, 2008). In general, food insecurity is linked to declining agricultural productivity (Nyangito et al., 2004) and general poverty (GoK, 2001; 2008). It is therefore necessary to carry out research to find out the role of women in matters food security for sustainable development. The research focuses on establishing the status of food security in the country with special focus on Bomet County. The study will explore the citizen's participation in development of food security initiatives while documenting women's experiences, knowledge and perception in relation to food security.

## Literature Review

This study is based on the dependency theory which stipulates that there is dependency between the colonized and the colonizer. According to Matuhnu (2011) dependency is the integration of periphery in the global system by which underdeveloped countries and former colonies are exploited in terms of economics and their underdevelopment is preserved. This kind of exploitation is impossible without economic and political domination. The political power is needed to design and maintain dependency. However the level of dependency is determined by the level of economic exploitation (Soete, 1981). This theory is applicable in this study in that due to food insecurity people are dependent on handouts and abject poverty which leads to unsustainable development.

## Kenya Food security intervention

The Kenyan government has attempted to address food insecurity through formulation of a number of sessional papers such as *Sessional Paper No. 4 of 1981* and *Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth*, the *Poverty Reduction Strategy Paper (PRSP) of 2001* and *Economic Recovery Strategy (ERS) for Wealth and Employment Creation, 2003-2007*, the *Strategy for Revitalizing Agriculture (SRA) 2004-2014* which evolved into the *Agriculture Sector Development Strategy ASDS (2010-2020)* aimed to maintain broad self-sufficiency in major foodstuffs and ensure equitable distribution of food of nutritional value to all citizens. This was enhanced by regulation of the price of some food stuff, provisions of fertilizer subsidies. Kenya Vision 2030 also ranked agriculture and rural development as the topmost Government priority, with food security listed as one of five key sub-sectors. The Vision 2030, under the economic and social pillars emphasizes the enhancement of productivity of crops and livestock, incomes, and food security and nutrition.

The passing of the new constitution of Kenya in 2010 with the inclusion of Article 43(1) c which guarantees *freedom from hunger and access to adequate food of acceptable quality* as a basic human right was the culmination of many attempts to address food insecurity and the dignity of the Kenyan citizens. The basis of rights-based approach to ensuring adequate food is empowering poor people and those who are food insecure in the area of concern (IFRI, 2010). Empowerment is an integral part in strategies implemented, and should focus on enabling the people to feed themselves while avoiding overdependence, which is a burden to the government. It requires the early identification of hunger pockets and, more importantly of why people are food insecure. This approach requires a perspective that addresses not only the consequences of food insecurity but also its causes. In 2011, Kenya developed the National Food and Nutrition Security Policy (FNSP) with the aim of adding value, building synergies and assisting with the implementation of existing national and sectoral policies and strategies to effectively address issues of food insecurity and malnutrition in Kenya. Efforts so far have not successfully managed to address issues of malnutrition comprehensively, therefore the need to have an overarching policy that integrates food and nutrition security initiatives. The Kenya Vision 2030 is one of the significant government policy documents that aims to boost food security in the country through various flagship projects such improvement of infrastructure, creation of more employment opportunities and development of irrigation schemes among others. The Vision for the agricultural sector is to

be “innovative, commercially-oriented and modern farm and livestock sector” (Republic of Kenya, 2007). If the Kenya Vision is properly implemented it will mitigate food insecurity in the country considerably.

### **Food Security**

Food security refers to the ability of the people to access adequate supply of nutritious, safe and culturally appropriate food. Food Security also means that the people who produce food are able to earn a decent, living wage growing, catching, producing, processing, transporting, retailing, and serving food. Food security is a broad concept that includes issues related to the nature, quality, food access and security of the food supply (Iram and Butt 2004). The World Food Summit of 1996 defined food security as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”. Further they say that food security is built on three pillars: availability, accessibility and usability. Food availability refers to sufficient quantities of food available on a consistent basis. Food accessibility is having sufficient resources to obtain appropriate foods for a nutritious diet and food use is the appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation. Food security is linked to health through malnutrition, sustainable development, environment and trade. Food insecurity is seen as a problem of acquisition and utilization. Households should have the ability acquire all the food it need and the ability to utilize that capacity to the fullest. According to Omolo (2011) the government is trying to increase food security through trade liberalization policies. Kenya’s food security is overly dependent on international trade. This lessens country’s capacity to handle the external shocks, such as overproduction or harvest failures in other countries. It needs to be noted that Kenya does not have vast capacities of increasing domestic agricultural production; hence it is left with the international trade as a mean to ensure country’s food security. Literature reveals that food consumption has large seasonal volatility according to Mallick and Rafi (2010). A study in rural Pakistan by Khan and Gill (2009) analyzed the determinants of three components of food security that is food availability, accessibility and absorption. Food availability contends that all people should have sufficient quantities of food. Accessibility of food is attained by having enough resources to acquire food. Food utilization refers to having sufficient energy from diet and access to clean water and sanitation according to Khan and Gill (2009).

Female headed households are more vulnerable to food insecurity because of the cultural restrictions on the woman’s ability to participate fully in food production (Kabeer 1990). McLanahan (1985) found that children in female headed households have a lower rate of economic attainment than children in male headed households. Kennedy and Peter (1992) found that the proportion of income controlled by women has a positive influence on household caloric intake. Babatunde et al. (2008) conducted a gender-based analysis of vulnerability to food insecurity in Nigeria. They found that female headed households were more vulnerable to food insecurity than male headed households.

Food insecurity is linked to high food prices, poverty and low agricultural productivity (Nyangweso et al., 2007; Misselhorn, 2005; GoK 2008; Dávila 2010; Lewin 2011). Dávila found that higher prices for maize affected Mexican household living standard and food security both in urban and rural areas, with the poorest net buyers of maize were most affected. In Malawi, Lewin shows that a 25 % increase in the price of maize flour would increase the likelihood of food insecurity in Northern Malawi by 12 percent, while a similar increase in fertilizer prices would increase food insecurity by 30 percent in the central region. Using dietary diversity among household in a poor Vihiga district in Kenya, Nyangweso et al. found that household income, number of adults, ethnicity, savings behavior and nutritional awareness are critical when addressing the question of food security from the demand side.

Kenya has implemented a number of policies that were hoped to ensure food self-sufficiency through improved domestic supply of basic food stuffs. Nyangito (1997) outlines some of the key policy constraints that have hampered the sector and hence reduced the domestic production of maize. Although market liberalization policies had an objective of increasing the general productivity and efficiency in production, they have contributed to a decline in food production in Kenya (Mbithi, 2000). This is because the policies were mainly price oriented (output and input pricing), but did not consider non price factors such as institutional framework, infrastructure and the development of private sector. Increase in real maize producer prices during the market liberalization policies did not offer enough incentives to maize farmers to produce more because price is not the only factor attaining maize profitability.

Another cause of food insecurity is political conflicts that reduce farming activity. Food production in tribal clashes hit areas in 1992-1993 including Nakuru, Bungoma, Uasin Gishu and Narok districts with high agricultural potential declined and this made food security vulnerability to increase in the areas which were not considered to be chronically vulnerable (FEWS 1995). Northern and Eastern areas of Kenya were characterized by local conflicts and this restricted the movement of vulnerable communities towards better grazing and water.

Environmental causes of food insecurity are largely due to deficient rainfall. For example the study by Kigutha (1995) shows that even in high potential areas of Rift valley a uni-modal rainfall pattern subjects households to food insecurity during certain months of the year. The impact of drought or low rainfall in food crop production in Kenya is aggravated by the fact that food production in Kenya is rain-fed (Mbithi 2000). The water hyacinth weed proliferation on Lake Victoria reduced the food security of the fishing households. Fishermen who had no access to large boats could not reach fish in the weed-covered shorelines. Fishing households therefore suffered income loss. The weeds led to severe flooding on the lakeshores, which further led to severe destruction of crops during the 1997/1998 short rains (FEWS, 1998). The worst affected areas included Kisumu, Homa Bay, Rachuonyo, Siaya and Busia.

Socioeconomic causes of food insecurity include the inability for the huge populace to afford basic food and non-food items. Narayan and Nyamwaya (1995), found that the proportion of female headed households ranked as 'very poor' was high than that of male-headed households as contrasted to the larger proportion of male-headed households ranked rich in every district. It has been shown that AIDS has adverse effects on agriculture including loss of skilled and unskilled labor supply, decline in labor productivity and loss of remittance income due to AIDS. A study of HIV/AIDS on agriculture in three commercial agro-estates in Nyanza, Rift Valley and Eastern revealed that the cumulative cases of AIDS in the agro-estates accounts for as high as 30% of workforce in Nyanza, 12% in the Rift Valley and 3% in Eastern province (NASCOP, 1999). Morbidity and mortality in the households had led to decrease in acreage, loss of income, increased dependency ratio and general increase in food insecurity. During 1997, Livestock raiding affected food security in the pastoral districts of Rift Valley, Eastern and North Eastern provinces. The worst affected districts were the Samburu, Turkana, West Pokot, Isiolo, Wajir, Marakwet, Keiyo and Garissa (FEWS Kenya, 1998; FEWS Kenya, 1999). The severity of the raids was exacerbated by increased availability of weapons supplied from neighboring countries in times of turmoil. Livestock raiding occurred in areas of good pasture, browse and water, where animals had concentrated. As a result pastoralists were displaced from favorable pastures to depleted lowlands after suffering heavy livestock losses. Insecurity itself impedes the marketing of livestock, as movement of animals to markets becomes risky. Prices in livestock therefore decline while prices of cereals and other foodstuffs appreciate, as traders are kept away from the risky markets. As a result, the pastoralists' terms-of-trade decline and their purchasing power is eroded away. Ellis (2000), showed that the extent of post

harvest losses in Kenya is wide and varies, and has an average of about 10-15 % (weight loss). Major causes of post harvest losses in Kenya include unexpected natural circumstances such as heavy rains, poor harvest management and insects. These factors affect the amount of household on-farm foods and therefore affects household food security.

### Background information on Bomet County

Bomet County comprises of five (5) constituencies namely: Bomet East, Bomet Central, Sotik, Chepalungu and Konoin which border Kericho County in the North, Narok in the South and Nyamira in the North West in the former Rift Valley Province. The County has a population of about 585,072, 51% are female while 49% are male. Out of the total population, at least 47% are 14 years and below, 49.7% between the ages of 15 to 64 years and 3.3% over 65 years. The county has mean monthly temperature of 18°C with an annual rainfall ranging between 1100mm and 1500mm. Main economic activities in the county are Tea and coffee farming, horticulture and cattle rearing. Some of agricultural products in the county include dairy products, maize, beans, Irish potatoes and sweet potatoes. The poverty level in the county is 58.7% with age dependency ratio of 100:101.

### Conceptual Framework

Conceptually, food security has three pillars of Availability, Accessibility and Utilization. The three pillars rest on a fourth dimension of stability as illustrated in **Figure 1** below.

*Figure 1: Conceptual Framework of Food Security*



Adopted from FAO World Food Summit (1996)

### Methodology of Research

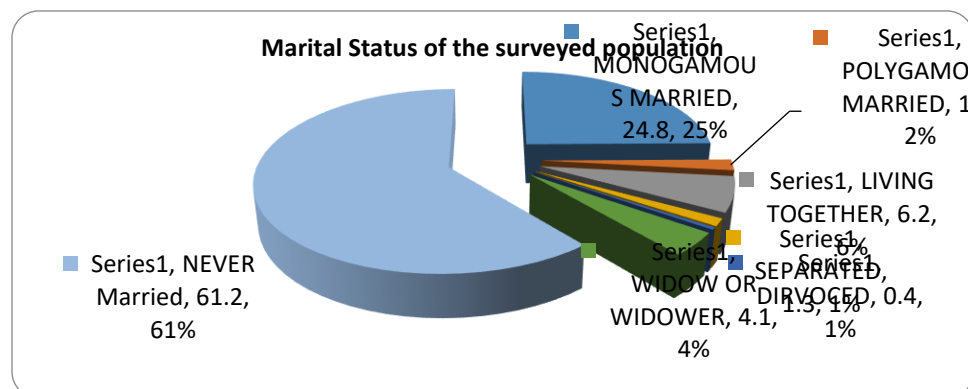
The study randomly sampled respondents where...households were interviewed on their food security status using a hunger module that assessed their experiences in the last ten (10) months. The topics interrogated included food availability, accessibility, utilization and sustainability. Opinion leaders were also interviewed using key informant questionnaire, focus group discussion and debriefing sessions. The questions included availability questions such as whether any household member eat a limited variety of foods due to lack of choices in the market and whether any other household member eat fewer meals in a day because there was not enough Food. Sustainability question was on whether any household worry that they would not have

enough food. Accessibility question include whether any household member eat food that they preferred not to eat because of a lack of resources to obtain other types of food, whether any other household member eat smaller meals in a day because of lack of resources to obtain enough and whether there a time when there was no food at all in the household because there were not enough resources to go around. For utilization question dealt on whether any household member not able to eat the kinds of foods they preferred because of lack of resources. These questions were adopted from the AWSC/KNBS Baseline Household Survey on Food Security June 2013.

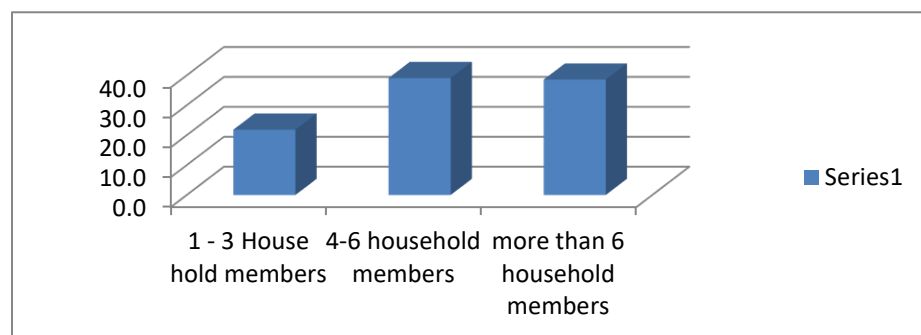
## Research Findings

The study sampled 50.3% female and 49.7% male. 79% were headed by male while 21% were headed by female. Concerning the marital status of the surveyed population, 25% were in a monogamous marriage, 2% were in a polygamous marriage while 4 percent were widows or widowers. 61% had never married. As shown in Figure 3 , majority of the households had 4-6 members at 39.1% while 38.6% had more than 6 household members. Only 21 percent of the households had less two members.

**Figure 2: Marital status of the surveyed population in Bomet County**



**Figure 3: Household family sizes**



80% of the women interviewed indicated they could read and write while 17.5% could neither read nor write. Among those who could read and write, 45% had acquired primary education, 22.5% had received secondary education, 10% had been to tertiary institutions while 5 percent had acquired university education.

## Manifestation of hunger/food insecurity in Bomet County

The hunger module below was used to determine the status of food security at the household level in Bomet County. Below is a presentation of selected tables from the research findings;



**Table 1: Manifestation of hunger in the last 10 months in Bomet County**

	Never	Sometimes	Often	Always
Did you worry that your household would not have enough food?	25.9%	51.3%	15.2%	7.6%
Were you or any household member not able to eat the kinds of foods you preferred because of lack of resources?	19.4%	55.1%	21.4%	4.1%
Did you or any household member eat a limited variety of foods due to lack of choices in the market?	30.5%	48.7%	18.3%	2.5%
Did you or any household member eat food that you preferred not to eat because of a lack of resources to obtain other types of food?	25.9%	55.8%	13.7%	4.6%
Did you or any other household member eat smaller meals in a day because of lack of resources to obtain enough?	22.3%	62.9%	11.7%	3.0%
Did you or any other household member eat fewer meals in a day because there was not enough Food?	23.9%	61.9%	11.2%	3.0%
Was there a time when there was no food at all in your household because there were not enough resources to go around?	46.4%	47.4%	5.1%	1.0%
Did you or any household member go to sleep at night hungry because there was not enough food?	71.6%	24.9%	2.5%	1.0%

These eight hunger module were analyzed according to age. The results showed as indicated in table 2 below

**Table 2: Manifestations of Hunger according to Age**

Age	questions							
	1	2	3	4	5	6	7	8
	%	%	%	%	%	%	%	%
<b>15-24</b>	20	20	20	20	20	20	0	20
<b>25-34</b>	26.4	23.7	15.8	18.4	13.2	15.8	5.2	0
<b>35-44</b>	9.3	16.7	20.4	16.7	13.0	9.3	3.7	1.9
<b>45-54</b>	21.9	22.6	15.6	6.2	9.4	9.4	9.7	3.1
<b>55-64</b>	45.0	50	40	30	35	25	10	5.0
<b>Above 64</b>	27.3	27.3	22.7	22.7	13.6	15.9	6.8	6.8
<b>Average</b>	<b>24.9</b>	<b>26.7</b>	<b>22.4</b>	<b>19.0</b>	<b>17.36</b>	<b>15.9</b>	<b>5.9</b>	<b>6.1</b>



**Table 2** above demonstrates that the household heads in the age group of 55-64 years are more food insecure than those in all the other age brackets as an average of 45% of respondents in the category indicated they often or always worry about not having enough food compared to the county average of 24.9%. Respondents in the youthful age groups of 15-24 years and 25-34 years had averages of 20.0% and 15.8% respectively that often or always worried about not having enough food. Those in the age group of 15-24 years consistently at 20% indicated that they ate limited variety of and often and always went to sleep hungry. The highest percent of those who indicated that they often and always went to bed hungry was among those aged 15-24 years at 20% followed by those aged 64 and above at 6%. The results show that persons in the extremes of the ages are the most affected by hunger.

Bomet County was also analysed in terms of manifestations of hunger according to marital status as shown in table 3:

**Table 3: Marital Status and Hunger**

Marital Status	questions							
	1	2	3	4	5	6	7	8
	%	%	%	%	%	%	%	%
<b>Monogamous</b>	17.0	18.7	18.5	17.1	11.1	10.4	4.5	0.7
<b>Polygamous</b>	50.0	60.0	30	10.0	30.0	40.0	0	0
<b>Separated</b>	66.7	66.7	66.7	33.3	33.3	33.3	33.3	0
<b>Divorced</b>	50.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Widow or Widower</b>	32.4	41.1	20.5	17.6	17.7	17.6	5.9	8.8
<b>Never married</b>	20.0	20.0	40.0	40.0	40.0	20.0	20.0	20.0

The research findings illustrated in **Table 3** above reveal that monogamous households and those headed by unmarried persons are more food secure. The Most affected category by hunger was the divorced group recording consistently higher percentages (100%) on the eight questions asked on the hunger module. Among those in monogamous marriages, only 17% said they worried about not having enough food for their households while 20 percent in the un-married group worried with 66.7% of the separated also worrying. Among those who often or always slept hungry, those in the polygamous family and separated recorded none while only 0.7% in the monogamous marriages slept hungry. Households in polygamous marriages are more food insecure than those in the monogamous marriages as 33.3% from the monogamous marriages indicated “there was a time when there was no food at all in the household” compared to 4.5% from polygamous households. The separated and the widowed seemed to have revealed almost the same level of food insecurity and their food security status are also comparable to those of their polygamous and monogamous married counterparts.

The hunger module revealed the following results on the manifestations according to educational levels show in table 4:

**Table 4: Manifestations of hunger according to levels of education**

	Question							
	1	2	3	4	5	6	7	8
	%	%	%	%	%	%	%	%
<b>Pre-School</b>	34.7	90.4	21.1	26.9	23.1	21.2	9.6	1.9
<b>Primary</b>	20.6	72.0	17.7	14.6	13.2	18.0	1.5	1.5
<b>Secondary</b>	9.7	66.0	16.1	6.5	6.5	3.2	6.7	3.2
<b>University Diploma &amp; Degree</b>	0	10.0	0	0	0	0	0	0

**Table 4 above** demonstrates the households whose heads had the least education were more food insecure. Those who scored the highest percent on the hunger module were those with pre-primary education 34.7% indicating that they always and often worried about not having enough food for the household members while 9.6% indicated there is always or often no food at all in the household. None among the University degree/diploma educated indicate that they slept hungry or worried about food.

Using the hunger module manifestation of hunger according to gender was as follows:

**Table 5: Manifestations of hunger according to gender**

Gender	QUESTION							
	1	2	3	4	5	6	7	8
	%	%	%	%	%	%	%	%
<b>Male</b>	19.3	20.9	20.1	17.2	13.1	13.1	4.2	2.1
<b>Female</b>	32.5	50.0	30.0	27.5	25.0	22.5	15.0	10.0
<b>Average</b>	<b>25.9</b>	<b>35.5</b>	<b>25.0</b>	<b>22.4</b>	<b>19.0</b>	<b>17.8</b>	<b>9.6</b>	<b>6.05</b>

An illustration in **Table 5** above reveal that female headed households were more food insecure than the male headed ones with an average 32.5% female respondents indicating they worry about not having food for their households compared to 19.3% for their male counterparts. To measure severity of hunger among the male headed households and those headed by women responses to the question “whether there was a time when there was no food at all in the household because there were not enough resources to go round”, only 4.2% of the male respondents answered in the affirmative unlike the 15% responses from the female respondents. On the question on “whether there was a time when they ate smaller meals because of lack of resource to obtain enough food”, again the female respondents were most affected as 25% answered in the affirmative as opposed to 13p% of their male counterparts which can be attributed to the fact that mothers always ensure other household members are fed before they themselves can eat.

Analysis on the manifestations according to household size in Bomet County revealed as shown in Table 6 below:

**Table 6: Manifestations of Hunger According to Household Size**

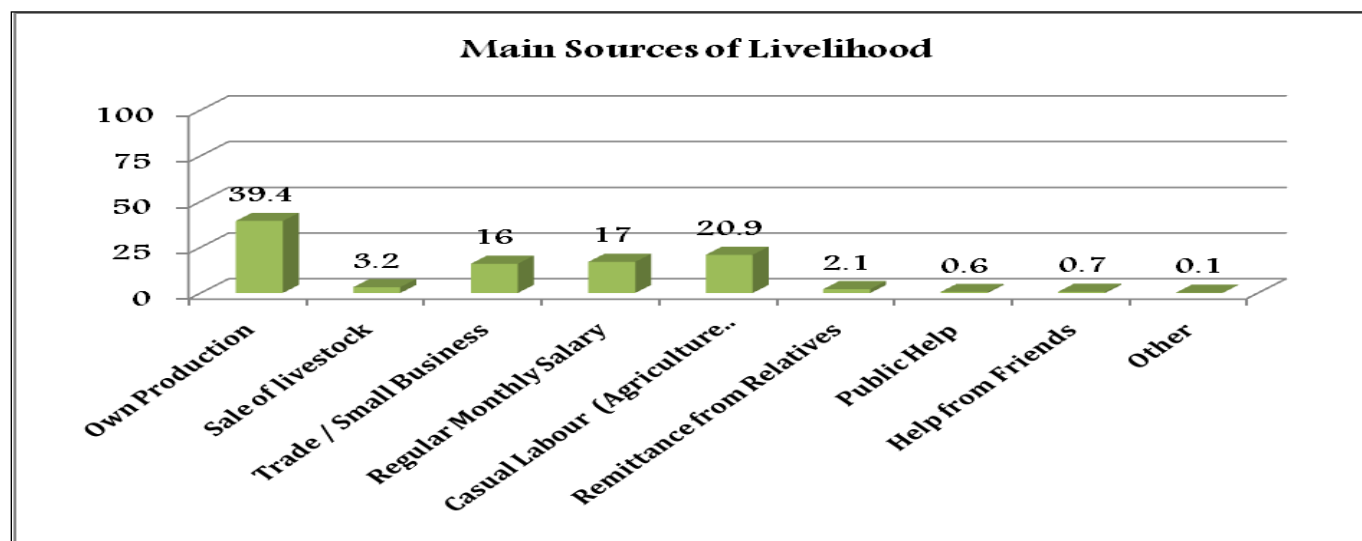
Household Sizes	Question							
	1	2	3	4	5	6	7	8
	%	%	%	%	%	%	%	%
<b>1 - 3 Persons</b>	16.3	23.3	21.0	13.9	18.6	16.3	4.7	8.0
<b>4-6 Persons</b>	22.1	23.4	19.5	22.9	13.0	15.6	9.1	2.6
<b>More than 6 persons</b>	27.6	29.3	22.4	17.1	16.0	12.0	4.0	2.6

**Table 6** above indicate that Bomet County respondents when asked “whether there was a time when there was no food at all in houses because there were not enough resources” the average responses for often or always were 16.3% for respondents with 1-3 persons in household against 22.1% of their counterparts with 4-6 persons and 27.6% for households with more than 6 members. Responding to “whether there was no food at all in the household, ”, 4.7% of households with 1-3 members answered in the affirmative while 9.1% and 4.0% of households with 4-6 and more than 6 members, respectively gave a **YES** answer. Generally, households with more members were more affected with food insecurity based on the eight questions of the hunger module administered.

### Main Sources of livelihood in Bomet County

Majority of Bomet residents grow their own food. 39.4% of the respondents indicated they produce their own food while 20.9% acquired food by money received from casual labour. 16% acquired food through trade in small businesses while 17% purchased food from their salaries.

**Figure 4: Main Sources of Livelihood**



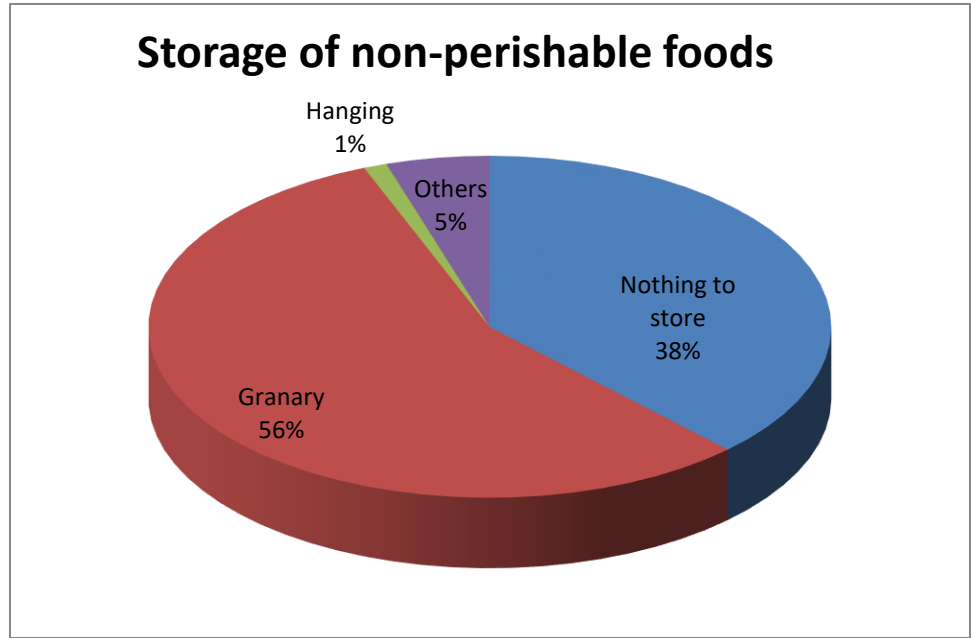
### Food storage in Bomet County

Perishable foods were stored in granaries 2%, while 1% used other non-specified methods of food storage as shown in figure 5. Most of the respondents (97%) said that they did not have food to store. These methods of

storing perishable foodstuffs are old-fashioned and unreliable and often lead to expiry of food before consumption.

Figure 5 shows that majority of people 56% use granaries to store non-perishable food, 1% hang foodstuffs inside their houses and 5% used other methods, while 38% said they had nothing to store. This implies that most households only had little food for immediate consumption and nothing to store for future use. Therefore, there is a high level of food unsustainability in the county, which is a manifestation of food insecurity.

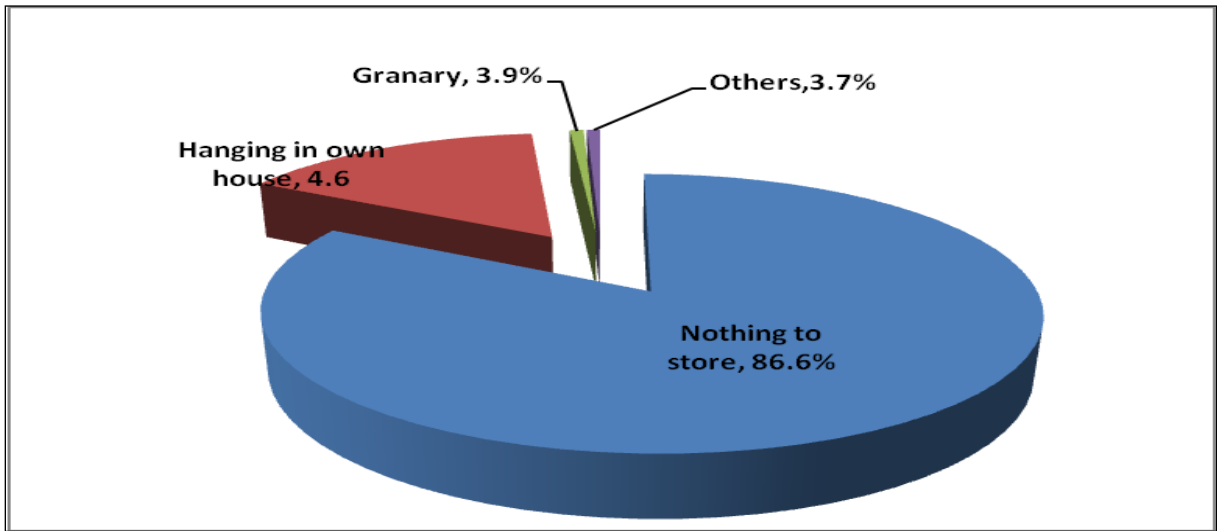
**Figure 5: Methods of storage of perishable and non- perishable foods in Bomet County**



**Preservation and Storage Methods:**

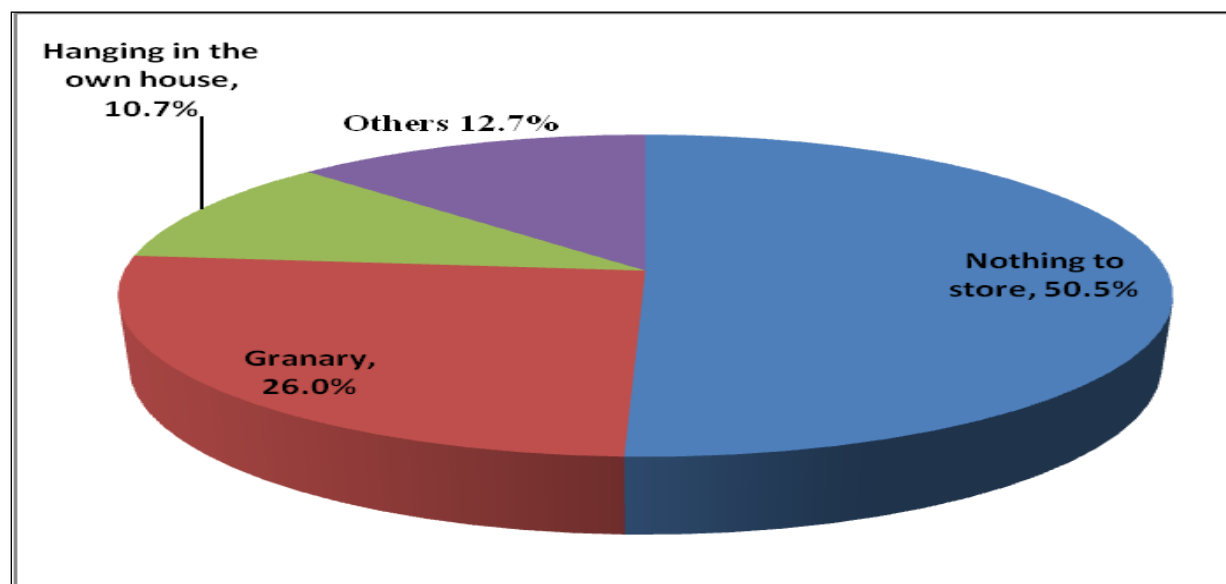
**Figure 6** below shows the methods of storing both perishable foods such as vegetables, fruits, meat and milk; while **Figure 5** shows the methods of storing non-perishable foods such as cereals, pulses, roots and tubers.

**Figure 6: Methods of food storage (perishable)**



The research findings also show that a majority of the respondents have nothing to store with 86.6% saying they have nothing perishable to store while 51 percent said they have no non-perishable foods i.e. cereals and pulses including beans, cow peas, maize, rice and rice, to store.

**Figure 7: Methods of food storage (non-perishable)**



## DISCUSSION

### Demographic characteristics and food security

From the finding above under education and food security were closely linked in Bomet County.

Food insecurity and under-education are closely linked and are widespread in many parts of the country including Bomet County. Households in Bomet had also relatively high number of household members; with many own children and a number of other dependants mainly relatives. For instance, households with 4-6 members were 39% while 38.6% had more than six members. Many household members mean there more mouths to be fed. This reflected in the findings of the study which for instance indicate that among those who said there was a time when there was no food at all in the household were 9.1 had between 4-6 members in the household while none the category of 1-3 households reported absence of food in the household.

In Bomet County, among the households surveyed, majority were headed by males. The female headed households were worried more about not having food compared to their male counterparts. Decisions on what to grow, when to grow, where to grow, how much to sale mainly in Bomet County mainly belong to men. This deprives the women a free hand to organize and use factors of production to optimal levels. Some women in FGDs revealed that their male spouses would only allocated a small portion for food production while the rest of the farm is for cash crop yet the cash accrued from cash crops will be used on other non-food items which does not benefit the family.

Households whose heads were in the age group of below 14 years are more food insecure than those in the age brackets of 15-24 and 25-34 years. Some children aged between 12-14 years were household heads due to early marriages and some became household heads after the death of their parents; hence, they were more vulnerable to food security because they had little capacity to produce or access enough food. On the other hand, household

heads in the age group of 15 -34 years are stronger (youthful) and probably have better education which enables them to engage in various productive activities. Hence, they are more food secure than those in the age bracket of below 14 years. The age of the household head has a negative sign showing an inverse relationship between the age of household head and food security. It indicates that an increase of age year in the age of household head decreases the chances food security. For instance, the household heads in the age groups of 35-44, 45-54 and 55-64 years and more than 64 years are more food insecure than those in the age brackets of 15-24 and 25-34 years. This could be attributed to the fact that the youth have a greater productivity potential than the elderly. Household heads in the age bracket of 55-64 and those more than 64 years are the most food insecure and their vulnerability to food insecurity is not surprising when considered in the context of life for older adults. For instance, their income is often limited with many depending on pension and Social Security benefits, with the majority of seniors not working or retired. Further, older adults often experience disability or other functional limitations. In addition to lacking money to purchase food products, older adults face unique barriers less often experienced by other age groups in accessing enough food and adequate nutrition. Research has shown that food insecurity in older adults may result from one or more of the following: functional impairments, health problems, and/or limitations in the availability, affordability, and accessibility of food (Lee & Frongillo, 2001). Additional contributing factors to food insecurity among the elderly include lack of mobility due to a lack of transportation and an inability to use food because of health problems or disability.

Research findings in Bomet also showed that households whose heads were unmarried worried less about not having food for the household than those whose heads were married. The results were similar with those who slept hungry and who had no food at all in the household. Aidoo et al (2013) also found out households headed by unmarried people are more likely to be food secure than those headed by married people. They attributed this findings to the fact that households with married people as heads may have larger household sizes and thus many mouths to feed. Although this finding was contrary to findings by Haliu et al. (2007) in Ethiopia and Kaloi et al. (2005) in Uganda, it is quite reasonable. Kaloi et al (2005) in a food security study in Mwingi, Kenya found that marital status of the household head was significant ( $P < 0.1$ ) with a positive but very small coefficient of 0.00317 indicating that married couples were likely to be more food secure than single headed households.

### **Manifestation of food insecurity in Bomet County**

In Bomet County when households were asked the eight questions in the hunger module assess the four dimensions of food security (availability, accessibility, utilization and sustainability), many of them responded that they worried about not having food; others ate fewer meals while others said there were times where there was no food at all in the household. In Bomet County availability of food was through own production and households ate a limited variety of food due to lack of choices in the market, fewer meals in a day and not having enough food. In Konoin ward, people get money from tea, but not enough food to buy. To some extent the male domination and control over how family land is used also contributes to food insecurity due to different priorities as informed by gender roles performance. Low production was also attributed to changing climatic conditions and dwindling natural resources needed for the production of food (Prague Global Policy Institute, 2013).

Respondents confirmed that despite having cash crops, they don't store for future sustenance because it is not enough due to low crop yields and lack of resources to purchase food. Farmers reported that they did not have proper food storage facilities and had limited access to markets to sell their produce. These challenges compel farmers to sell their produce at low prices to cartels. This in turn compromises food sustainability in the county.

Those who did not produce their own food, mainly urban dwellers or those who produced less food, accessed food by purchasing using proceeds from monthly salary, casual labour which was mainly agricultural labour, trade in small businesses and sale of livestock and livestock products. The most cited reason for eating small meals was lack of adequate resources and inadequate food. High food prices especially in urban areas and tea growing areas were cited as the main challenges to accessing food. The household heads mentioned that they slept hungry since they lacked income to buy food. Some casual workers on tea estates narrated how some days they had waited for their daily payments to no avail and forced to sleep on hungry stomachs.

The findings revealed that the respondents were not able to eat the kinds of food they preferred because of lack of resources, insufficient income and limited variety of food in markets and poor transport infrastructure. From the findings, Bomet County got their livelihood through sale of agricultural produce, operating stalls in markets, peddling food stuff, monthly salary income, livestock produce, and rural temporary/casual labour.

In production of cereals like maize, beans and other non-perishable food stuffs, most of the households in Bomet are accustomed to directly consuming what little quantity they grow from season to season. Others sell directly after harvest to cater for other family needs like school fees, clothing and medical expenses. This was underscored by the high percentage of households who mentioned that they have nothing to store. This situation is partly attributed to poor crop production and limited capacity to buy and store enough food for future consumption. Lack of food to store is also caused by post-harvest losses before storage among other constraints. However, some have a little to store which again is not properly stored and hence vulnerable to aflatoxins causing organisms and other storage pests. This in turns worsens the already bad situation of food insecurity.

As for perishable commodities like vegetables and potatoes, most of it goes to waste during peak season because there is little market, poor accessibility network and lack of cold storage facilities. Some farmers in areas like Ndanai and Chepalungu narrated how it was difficult to access Mulot market due to bad roads. After they reached the market, they would leave everything they had not sold to the market to rot instead of going back with at home because it would be very expensive to do so. The research team from AWSC also witnessed heaps of cabbages rotting on roadside on the way to Sotik. Dairy farmers also reported that most of their milk was going to waste due to lack of cooling facilities.

There are concerns for general insecurity in the area - with thieves stealing grain from stores. This has the effect of discouraging women from storing quantities of grain for the family use hence the tendency to sell the entire harvest then buy as per daily needs. Unemployment - contributes to the insecurities, drunkenness, and idleness, especially among youth and men in general.

Lack of proper storage is one the factors contributing to food insecurity not only in Bomet but also in other counties across the county. Absence of proper storage basically means households are unsure of where they next meal will come from because either nothing has been store or the little store has been spoiled. If markets are available and accessible, may be the farmers could also convert the produce into cash that can be used at a later stage. Value addition can also enhance fetching of better prices for the farm produce.

The respondents outline the following as the reasons/causes for food insecurity in Bomet County:

- a. Sub-divisions of land into small parcels due to population pressure. Farmers are compelled to reduce their level of food production and livestock rearing.
- b. Recent maize disease outbreak in the last two years which has wiped out maize, the staple crop.



- c. Increase in prices of inputs like seeds and fertilizers
- d. There is prevalence of counterfeit farm inputs such as seeds and fertilizers
- e. High prices of food in tea growing areas. It is assumed that cash is in plenty there which is not always true as majority of the residents there are just tea pickers but not owners of the vast tea estates.
- f. Little money to purchase food as most respondents depend on casual labour as a source of income.
- g. Land ownership and decision making on land belongs to the man. Sometimes little or no portion is allocated for food production. In case of tea growing, the man pockets all the proceeds and is sometimes not put into good use for family benefits
- h. There is general insecurity in the region. Even the little food produced is prone to stealing
- i. No food programmes available for vulnerable groups like widows, orphans and the elderly.
- j. Inaccessibility to water. Long-time spend by women in fetching water especially in Longisa, Siongiroi and Sotik.
- k. Unemployment for youth and women
- l. Lack of extension information on what seeds to plant and advice lacking on livestock production
- m. High Costs of agricultural Services and artificial insemination
- n. Spoilage of milk due to lack of cooling facilities
- o. Cultural stereotypes about growing of certain crops
- p. Overreliance on maize crop as a staple food
- q. Laziness and drug abuse have reduced productivity among the youth in Bomet who are supposed to engage in income generating activities
- r. Majority of farmers are not aware of modern farming techniques like micro-farming, organic farming, use of fertilizers, modern food storage techniques as well as value addition on farm produce.
- s. Poor road networks affect food distribution
- t. Lack of good market for agricultural produce.

From this study, residents of Bomet County gave various actions and proposals which they believed that when implemented, will mitigate food insecurity in the county based on the causes of food insecurity. The proposals are summarized below:

- I. Lobby and advocacy to policy makers both at national and county levels to reintroduce agriculture extension services. Create awareness on appropriate methods of farming. Advice on improved dairy farming methods, improved and recommended breeds for the region, information on feeds etc. Advice farmers to adopt contemporary farming technology e.g. the use of greenhouses, and keeping dairy cows and goats.

- II. Provision of irrigation water in dry areas like Longisa to enable growing of food and other horticultural crops during drought season. Create awareness on water harvesting, distribution, and storage. This will enhance irrigation activities.
- III. In Sotik and Chepalungu women requested for completion of the piping and water supply, an exercise which had been started by stalled along the way
- IV. Improved seed varieties especially for maize that are resistant to maize diseases
- V. Subsidy of the prices of farm inputs like seeds and fertilizers. Organize farmers into SACCOS to enable them access farm inputs, credit facilities, markets for their produce, and agricultural skills.
- VI. Revamping of the collapsed NCPB facility in Bomet. This will assist famers in marketing their maize produce.
- VII. Provision of storage facilities for perishable products like milk and vegetables
- VIII. Food processing and value addition like making of crisps from potatoes and milk products from milk.
- IX. Improve road network to help access food markets and also sale of farm produce
- X. Provision of employment at a county level especially to the youth and the women. Also sensitize the youth to take farming as a source of employment.
- XI. Empowerment of people, especially women and youth to start up small enterprises. Provide Village Polytechnics to equip youth with employable skills.
- XII. Capital investment in youth and women with improvement in accessibility to Women and Youth Enterprise funds. Women suggested that funds should be given to individuals as opposed to groups and the amount increased to make economic sense
- XIII. Funds advancement and support programmes to the vulnerable groups like the orphans, elderly, widows in a transparent and regular manner.
- XIV. Bursaries for needy students to enable them complete their education

## **RECOMMENDATIONS TO IMPROVE FOOD SECURITY IN BOMET COUNTY**

Below is a summary of recommendations to improve food security in Bomet County. They recommended

- a. Support Programmes for Hungry Households that Depend on Own Production
- b. Targeting Own Producers (70 percent
- c. Rain Water Harvesting
- d. Capacity Building on Agriculture ( targeting the 70 percent own producers).
- e. Value addition and Markets
- f. County Storage and Strategic Food Reserves
- g. Provision of Improved seed varieties especially for maize and better control of pests and diseases.
- h. Improve road network to help access food markets and also sale of farm produce.

- i. Provision of employment at a county level especially to the youth and the women.
- j. Access to credit and financial support
- k. Funds advancement and support programmes to the vulnerable groups.

## CONCLUSION

In conclusion the area can be self-sufficient in food production if issues raised by residents of the county in this study are addressed. The area is gifted with good soils, good rainfall and hardworking men and women. Food security is a basic sector cross-cutting issue, with its implementation cutting across different economic sectors and policies of a country. For Bomet County and Kenya as whole, food security is crucial in the achievement of Vision 2030 in relation to the economic, social and political pillars and in relation to article 43 of the new constitution. It is also important in attainment of the MDGs. *Food security should become an integral part of the country's various policies.* No Kenyan should go to bed hungry!!!

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