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Impacts of Conflict on Food Security in Bunkpurugu District of North-Eastern Ghana, the Moderating Role of Humanitarian Aid

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There is a dearth of literature on the relationship between conflicts and food insecurity, the extent to which this relationship is moderated by foreign food aids and humanitarian donations has not received adequate attention. This study employed a cross sectional design to solicit data from 384 participants using questionnaires and interview guides. The data which was analysed within the framework of system theory revealed that conflicts in Bunkpurungu district led to the destruction of food crops, burning of farm produce, displacement and killing of farmers and prevention of farming activities, these invariably affected food productions. The supply of food aids was, however, minimal and played an insignificant moderating role in the relationship between conflict and food insecurity. The study concluded that conflict in the district aggravated household food insecurity in spite of aids that came from outside the district. The study therefore recommended that the Government of Ghana may like to liaise with the Mamprugu Traditional Council to address the causes of the numerous ethnic conflicts in the district and provide a framework for their final resolution, the Ministry of Food and Agriculture may provide storage centres for farmers at the District Assembly so that harvested food may be spared from destruction during conflict, the Northern Regional House of Chiefs and the Overlord of Mamprugu Kingdom may like to take steps to address the continuous outbreak of chieftaincy conflicts in BunkpuruguYunyoo District and the District and Regional Security Council may like to intensify efforts at preventing conflicts and also ensuring that farms and food stores are protected from destruction during conflicts.

Introduction

Food insecurity has attracted several definitions from different scholars, organisations and institutions that are interested in the concept of food security. The World Bank (2015) defined food security as *"access by all people at all times to enough food for an active and healthy life*". This definition, though contextually limited, addresses the issues of availability, accessibility, as well as utilisation of food for a healthy living. The Food and Agricultural Organisation (2016) expanded this definition to include nutritional value and food preferences of individuals and households. It defines food security as a situation where everyone, at all times, can access and buy sufficient, safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life. Going by this definition, it will mean that many households in sub-Saharan Africa are either food insecure or at the threshold of food insecurityBrokeloh et al (2019). The question is what constitutes sufficient, safe and nutritious food? Perhaps, the Ministry for Food and Agriculture in Ghana answered this when it defined food security as having access to "*good quality nutritious food hygienically packaged, attractively presented, available in sufficient quantities all year round and located at the right place at affordable prices*"

Brokeloh et al (2019) point out that people become food insecure in the absence of food security and this applies to a wide range of phenomena ranging from famine to periodic hunger as well as uncertain food supply. In effect, food insecurity is simply the inability of a household or individuals to meet their daily required food consumption levels in the face of fluctuating production, food price and income (Moharjan and Chhetri, 2006). AS observed by Bruck and d'Errico (2019), food insecurity can be associated with a variety of factors such as drought, soil fertility, political instability, violent conflicts and climatic changes. For this study, food security is used to referto the adequacy of food supply; a situation where food supply becomes high so much so that household food access is emboldened and people become increasingly well nourished (PSIN, 2018).

Violent conflict as used in this article refers to a situation where factions pick arms against each other, kill and maim, destroy properties and displace many others. Messer and Cohen (2012) attribute the causes of such violence in rural areas to ethnic rivalries, competition over resources such as land, water and crazing fields.

Statement of the Research Problem

From the early 1980s till date, some households within what is now called Bunkpurugu District (BD) have experienced severe seasonal food shortages (Yosef, 2010). Malnutrition has remained a major concern in this district (GHS, 2018). According to the Ghana Statistical Service (2017) Bunkpurugu district is one of the districts that have the highest number of food insecure households in Northern Ghana. Surveys have consistently indicated Northern Ghana as the poorest in the country. This invariably limits their purchasing power. A survey

carried out by the CFSVA in 2018 reveals that, in the three northern regions of Ghana 16% of all households or more than 680,000 people, were either severely or moderately food insecure. Of these, 140,000 were severely food insecure, having a very poor diet consisting of staple foods, some vegetables and oil, and little else (MOFA, 2012). Ghana as a whole is reported to have about 1.2 million people who are food insecure (GSS, 2018).

The entire West African region is said to have over 133 million people who are at the risk of being food insecure, (FAO, 2019). One million children are estimated to be at the risk of severe malnutrition (AFDB, 2019). In Central Africa, changing weather conditions and persistent civil strife has affected food production in the region (). In Southern Africa, pockets of households are said to be food insecure (UNDP, 2017). The erratic and inconsistent rainfalls in 2016 and early 2017 intertwined with the political instability in the Maghreb which started with the Arab Revolution in 2011 has affected agricultural activities amongst other activities thus, reducing food supply in that region (FAO, 2018;FAO (2018)

Available statistics indicates that sub-Saharan Africa as a whole suffers acute food shortage. Since 2000, Africa has experienced several episode of acute food insecurity with increased loss of lives and livelihoods (UNDP, 2018). The Food and Agricultural Organisation, (2017), reports that 28 out of 35 countries that require external assistance for food are in Africa. More than one in four Africans is under-nourished and food insecure (UNDP, 2016). Bruck and 'Errico (2019) observe that global food insecurity falls and rises in a similar fashion as do violent conflicts. Statistics from the FAO (2018) shows that over 1.2 billion people were under nourished globally between 1991 and 1992. This figure went down to 991 million in the early 2000s. By the close of 2017, only 821 million people were reported to be undernourished (FAO et al, 2018). PSIN (2018) however, finds that the number of those facing acute food deprivations has increased over the last two years as over 124 million people were reported to have experienced shortage in food supply in 2018. Most of these were from conflict torn zones of very fragile states such as South sudan, Somalia, Yemen and North-East Nigeria.

Existing literature suggests a linear causal link between violent conflict and food insecurity. Arezki et al (2014), however, Suggests the existence of a reciprocal relationship between violent conflicts and food security. A view supported by Bellemare (2015, Beraznella et al (2013), Bessier et al (2010) and Bush et al (2017). They argue that high food prices in urban areas may trigger socio-political unrest. They, however, failed to consider how poor harvests caused by climatic changes or soil infertility have the tendency to increase land grabbing which comes with competition and subsequent conflicts. While establishing the causal relationship between conflict and food insecurity, many researchers did not consider the fact that sometimes conflict may increase household food security transfers may come from friends and families as well as philanthropists and Non-Governmental Organisations (NGOs). In establishing the causal link between food security and conflict, it is important that such externalities are considered. This is the gap the study hopes to fill.

The main objective of the study is to establish the causal link between violent conflicts and food security in Bunkpurugu district of North-Eastern Ghana as moderated by humanitarian aids and transfers from friends and relative outside the district. The study addresses a number of questions:

- What are the effects of conflict in Bunkpurugu district?
- How does conflict affect Food production?
- What is the nature of food supply in Bunkpurugu during conflicts?

Answers to these questions will provide a framework for policy formulation and implementation which may address the food security challenges that arise during the outbreak of conflicts in the district.

Theoretical Review

The Social Problems theory was adopted to give a framework for deductive analysis. The theory, as espoused by Bunder (1961) and expatiated by Spector and Kituse(1970) posits that social problems arise as a result of the activities of individuals and those of others around them. This is to say social problems are socially constructed (Sneider,2018). Applying this to the study of food security, it explains the fact that food security is rooted in social and structural factors such as politics, the economy, globalisation, demographic changes, conflict, culture development and social stratification but not as purely biological, environmental or natural phenomena (Trevino, 2018). Explaining the dimensions of food security, Jrad et al (2019) emphasises that the four dimensions of food security are all social in nature. He explains food availability as the physical presence of food which may come from own production, purchases from internal market or import from overseasall of which are largely determined by both micro and macroeconomic indices of a state. Explaining food access, *Jrad* et al (2019) says it refers to the ability to obtain sufficient food of good quality and quantity to meet nutritional requirements of all household members.Kuwornu et al (2019) also support this view when they explain that accessibility of food requires that food should be at right place at the right time and people should have

economic freedom or purchasing power to buy adequate and nutritious food. This means that food access is determined by physical and financial resources, as well as by social and political factors.

Food Utilization was used by Jrad et al (2019) to refer to the consumption and absorption of adequate and quality food for the upkeep of good health. This means appropriateorganic use of food, requiring a diet that contains adequate energy and indispensable nutrients, as well as knowledge of food storing, handling, basic nutrition and illness management.This dimension can be very much affected by the culture of a people as well as their level of education or exposure to other cultures. The last dimension of food security that is explained by Jrad et al (2019) isstability of food supply. By this they mean the continuous supply of adequate food all year round without shortages. In the mist of growing population, unfavourable government policies, growing demand for biofuel use and protracted armed conflicts; constant supply of food will depend on improved productivity and availability of proper storage facilities. All these variables that may determine the stability of food supply are social rather than biological in nature. Thus, like the social problem theorists, one canconclude that food insecurity is social in nature.

Methodology

Research Design

A cross-sectional design which is descriptive and explanatory in nature was adopted for the study. This provided an opportunity for the researcher to utilise both qualitative and quantitative tools for data collection and analysis. The collection of both qualitative and quantitative data provided room for data validation through triangulation of results from both qualitative and quantitative analysis before interpretation

Target Population

The target population for the study was all residents of BD who were eighteen years and above. People within this category were considered matured and reasonable enough to be able to explain the variability in food production at normal times and when the conflict was introduced or at least explain the variability in household food supply between the two periods of conflict and cooperation.

SamplingTechniques

Cockran (1963) formula for sample determination of unknown population was used to select three hundred and eighty-four participants as follows:

$\cap = \frac{z^2pq}{e^2}$

Where:

e = margin of error = 5% and gives 0.05

p = estimated portion of the population which has attributes in common (have assumed to have believed a correlation exists between conflict and food securty =0.5)

q=1-p

z=95% confidence level which gives 1.96 from the z score

Deducing the values $\cap = \frac{(1.96)^2(0.5)(0.5)}{(0.5)^2}$ =384

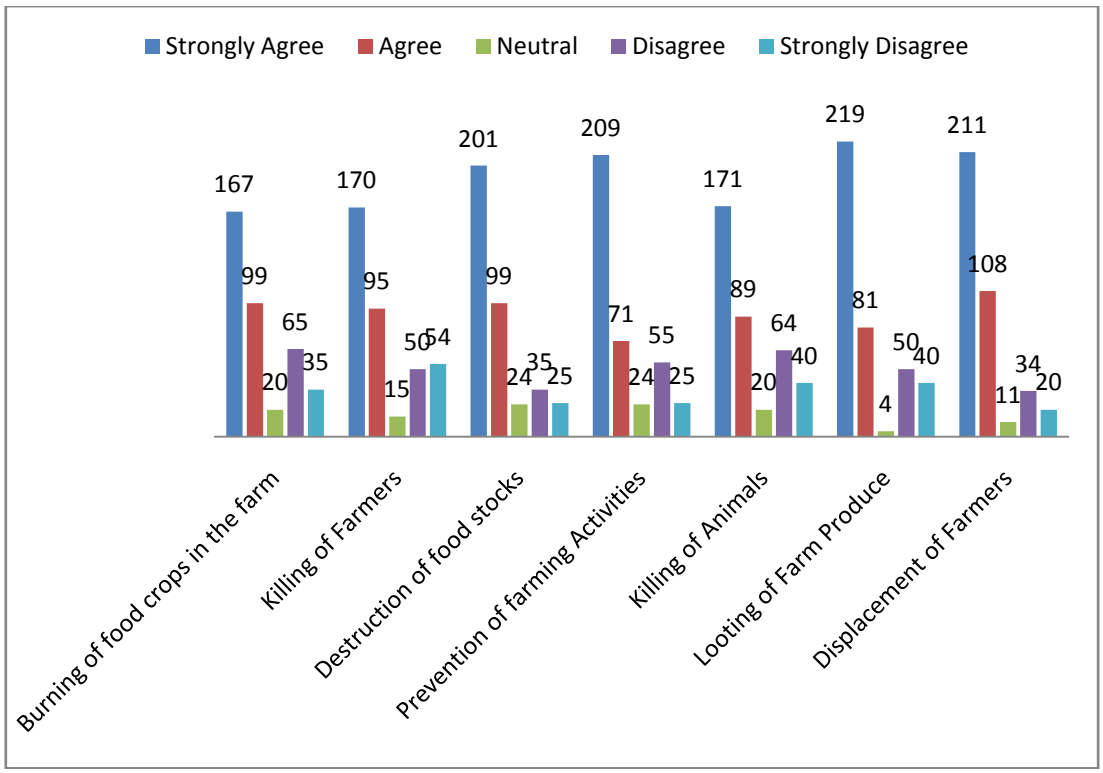
Stratified and simple random samplings were used to select 385 participants. The entire population was divided into four categories based on the characteristics of the participants. The major tribes in the district are Bimobas, Konkombas and Maprusis. Some minority tribes like Frafras, Chokosis and Mosis also reside within the district. These ethnic groups were constituted into clusters. The Clusters were labelled A-D. Cluster A consisted of Konkombas, Cluster B consisted of Bimobas, and Cluster C consisted of Mamprusis and Cluster Dconsisyed of other tribes. The entire sample size was divided by four to give the number that will be selected from each cluster. Ninety-six participants were selected from each cluster using simple random sampling technique.

Data Presentation and analysis

The analyses were done using descriptive and inferential statistics run through the Statistical Product of Social Science Software version 20. The data was described in terms of frequencies, percentages mean and standard deviation and presented in tables and graphs. A multiple linear regression was run to determine how the independent variables of food destruction, killing of farmers, prevention of farmers from going to farm,burning stocked food and killing of animals predict food insecurity.

Effects of Conflict in BYD

A multi likert scale was used to gather data on the effects of conflict on agricultural activities in Bunkpurugu Yunyoo District. The items on the scale were used for analysis. A reliability statistics was used to determine the suitability of the itemsfor the analysis. The Cronbach's Alpha was 0.83 which was considered reliable. The study then continued with the analysis as follows.



Source: Field Data, 2020

As indicated in figure 1.1 above, a hundred and nineteen respondents, representing 57.6% of the total respondents strongly agreed that looting of farm produce takes place during conflicts, eighty respondents, representing 21.1% of the total respondents agreed to that, only four respondents could not say whether or not looting takes place during conflicts but fifty respondents, representing 12.9% of the total respondents disagreed with the statement while forty respondents, representing 10.3% of the total respondents strongly disagreed with the statement.

Two hundred and eleven respondents, representing 54.8% of the total respondents strongly agreed that farmers are displaced during conflicts, a hundred and eight respondents, representing 28.1% of the total respondents agreed to the statement. Eleven respondents could not take a position on this while thirty-four respondents, representing 8.8% of the total respondents disagreed and twenty respondents, representing 5.1% of the total respondents strongly disagreed. Majority of the respondents agreed to the statement. This means looting takes place during conflict.

On whether or not conflict prevents farming activities, two hundred and nine respondents, representing 54.3% of the total respondents strongly agreed that it does, seventy-one respondents, representing 18.4% of the total respondents agreed that conflict prevents farming activities, as many as twenty-four respondents, representing 5.7% of the total respondents could not state if conflict prevents farming activities or not. Fifty-five respondents, representing 15.4% of the total respondents disagreed with the statement, and twenty-five respondents, representing 5.8% of the total respondents strongly disagreed with the statement.Majority of the respondents agreed to the statement that conflict prevents farming activities.

On the issue of the destruction of stocked food during conflicts, two hundred and one respondents, representing 52.2% of the total respondents strongly agreed that foods that are harvested and stored are destroyed during conflicts, ninety-nine respondents, representing 25.7% of the total respondents agreed to the statement, twenty-four respondents remained neutral, however, thirty-five respondents, representing 9.1% of the total respondents agreed to the statement and twenty-five, representing 5.8% of the total respondents strongly

disagreed that food stocks are destroyed during conflicts. Majority of the respondents agreed that food stocks are destroyed during conflicts.

Animals serve as a great source of protein for household consumption, explaining how animal production is affected during conflicts, a hundred and seventy-one respondents, representing 44.4% of the total respondents strongly agreed that animals are killed during conflicts by combatants for food or simply out of destructive tendencies. Eighty-nine respondents,representing23.1% of the total respondents agreed to the statement, twenty respondents remained neutral, but sixty-four respondents, representing 16.6% of the total respondents disagreed with the statement while forty respondents, representing 10.3% of the total respondents strongly disagreed to the statement. Majority of the respondents agreed to the statement.

On the issue of killing farmers, a hundred and seventy respondents, representing 44.1% of the total respondents strongly agreed that farmers are killed during the conflict, ninety-five respondents, representing 24.7% of the total respondents agreed to the statement, fifteen respondents were neutral. Fifty respondents, representing 12.9% of the total respondents disagreed while fifty-four respondents, representing 14.2% of the total respondents strongly disagreed to the statement. Majority of the respondents agreed to the statement.

A hundred and sixty-seven respondents, representing 43.4% strongly agreed that food crops are burnt in the farm during conflicts. Ninety-nine respondents, representing 25.7% of the total respondents agreed to the statement. Twenty respondents, representing 5.3% of the total respondents could not say if food crops were burnt in the farm or not during conflicts. Sixty-five respondents, representing 16.9% of the total respondents, however, disagreed with the statement and thirty-five respondents, representing 9.1% of the total respondents strongly disagreed that food crops are burnt in the farm during conflict.

Discussion

The analysis of the data revealed that majority of the respondents hold the view that conflicts affect agricultural activities in many ways because farm crops are burnt down, food stocks destroyed, farming prevented as farmers fear for their lives, farmers killed or displaced, and animals killed and farm produce looted. This finding corroborates that of Marfo et al (2016) when they employed a descriptive case study to assess the impacts of conflict on farming activities in Northern Ghana. They found that most of the conflicts in Northern Ghana are fought in the villages were farming activities are disrupted, farmers displaced, others killed and food stuff set ablaze. Yaro and Tseer (2019) also conducted a study on the effects of conflicts on farmers in Central Nigeria. They employed a descriptive case study involving two hundred and twenty seven participants. Their study revealed that many farmers were prevented from going to their farms due to the fear of being killed. Their food crops were destroyed by marauding herdsmen, some were killed and others displaced. Tonah (2002) also found that conflicts between herdsmen and farmers in Tumu led to the destruction of food crops and reduction on agricultural harvests due to loss of man power as well as destruction of food crops by cattle. Aggyemang (2019) found that herdsmen destroyed food crops in the farms, prevented farming activities, grazed on farm lands and prevented farmers from going to farm due to insecurity in Ashanti Agogo. Olaniyan et al (2015) also carried out a study on the impacts of conflict on farmers in Ashanti Region involving four hundred participants. The study revealed that farmers often flee from their farmstead whenever there is conflict. This gives the combatant opportunities to loot and destroy what is left as a way of getting at their opponents. He concluded that conflicts affects food production. Kuusuuna and Bukari (2015) also made similar finding in North-Akim district when they found that farming activities were disrupted during the Farmers-Herders conflict in the Afram Plains. It therefore suffices to conclude that conflict impacts on agricultural activities.

How Conflicts Affects Food Security

Haven determined how conflict affects agricultural activities; the study proceeded to determine how any of these effects of conflict predicts food security. A multi-linear regression analysis was carried out to determine how the independent variables: destruction of food crops, killing of farmers, prevention of farming activities, killing of animals, looting of food stuffs and displacement of farmers predict the dependent variable; food security. The results of the regression were as shown below.

Table 1.1. Impacts of Conflict on Food Security in BD

R	R Square	Adjusted R Square	Std. Error of the Estimate
.787[a]	0.619	0.563	0.566

	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.291	8	0.911	1.242	.324[a]
Residual	15.409	21	0.734		
Total	22.7	29			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.344	0.656		2.048	0.053
Burning of Farm Produce	0.039	0.214	1.039	3.181	0.228
Killing of Farmers	0.355	0.351	0.298	1.011	0.324
Destruction of stocked food	1.019	1.03	1.721	0.616	0.144
Prevention of Farming Activities	1.009	1.149	1.012	-0.062	0.351
Killing of Animals	0.033	0.092	0.072	-0.361	0.321
Looting of Farm produce	-0.288	0.247	-0.256	-1.167	0.256
Displacement of Farmers	0.343	0.208	0.383	1.646	0.115

Source: Field Data, 2020

Table 4.1 above shows that the F statistics is significant at 0.32 which means that the model was fit for the analysis. R-Square is 0.619 which means that the independent variables predict 62% of the variability in food security in BYD. At a margin of error of 5%, the Coefficient values for all independent variables show their level of predictability of the dependent variable. At 5%, the p values for burning of food crops is 0.228, killing of farmers is 0.324, destruction of stocked food is 1.44, prevention of farming activities is 0.351, killing of animals is 0.321, looting of foodcrops is 0.256 and displacement of farmers is 0.115. These are all statistically significant indicating that all the independent variables predict food security. If all the dependent variables are products of conflicts and they all predict food security, it means that conflict impacts on food security. This finding is corroborated by the findings of IEP (2016) who carried out a study in South Sudan to explore the impact of conflict on food security. The study found that between 2004- 2010, South Sudan had consistently produced at least 1.2 million tonnes of rice annually, but between 2013-2019 South Sudan had produced rice below 500 000 tonnes. They concluded that conflict affected the production of rice. In another study in Northern Nigeria, Bressinger et al (2014) conducted a study using a descriptive case study involving two hundred and forty participants. They found that household food consumption among households dropped by 65% at the peak of the banditry activities of the Boko Haram Islamic sect as 52% of households cut meals to a single meal a day and 51% of households had no options to vary the diet that was being consumed. They concluded that the conflict affected food security.

A Study conducted by by UNDP (2018) reveals that between 1991 and 2000, violent conflict decreased drastically but pick up again in the last five years after fallowing for over ten years as did food insecurity over the same period. Alhassan et al (2017) finds that the number of conflict related deaths decreased between 1990s

to the early 2000s but have increased from its lowest recorded figures of 19,601 in 2006 to 102, 000 in 2016. The number of violent conflicts also rose from 33 in 2006 to 49 in 2016. Bruck et al (2018) observes that all nineteen states that were identified by FAO in 2017 as being under severe food insecurity in 2017 experienced one form of conflict or the other during that same period. For instance the UNDP (2018) finds that South-Sudan, Nigeria, Somalia and Yemen have had a total of 9000 conflict related deaths in 2017. Nillegen (2018) was emphatic of the fact thatconflict stops farming activities, dispel and displace large number of people who may seek refuge in other countries which are already facing pre-existing pressure on cultivable land. The influx of refugees only makes the situation even worst. He, however, failed to consider the fact that migrants may also add to existing labour force of some host communities or even nations and rather increase food production in some instances. Alluding to the war in Syria, Baliki et al (2018) supported the views of Nilligen (2018) by adding that the war in Syria caused over million people to flee to other locations in the country thereby putting pressures on existing resources including food supply.

Conflict and External food Supply in Bunkpurugu

The study further examined how the linear relationship between conflict and food security is moderated by the external support from humanitarian organisations and philanthropist and even government agencies. To arrive at this, a binary linear regression was run between conflict and external support to see how conflicts predict the supply of food to BYD from outside sources like NGOs, Notational Disaster Management Agencies, Church Organisations and Civil society Organisations. The results of the regression analysis is presented n Table 1.4 below

Table 1.4 Relationship between Conflict and External Food Supply in BYD

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.367[a]	0.135	0.104	0.83746		
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.062	1	3.062	4.367	.046[a]
	Residual	19.638	28	0.701		
	Total	22.7	29			
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.225	0.446		2.748	0.01
	Conflict	0.437	0.209	0.367	2.09	0.546

Source: Field Data. 2020

From the table above the F statistics shows that the model is fit for the analysis. R-squared is 0.135 which means that conflict explain only 14% of the external food supply in BD. At 5%, the coefficient and the p value for the independent variable are 0.367 and 0.546 respectively. This means that there is no significant relationship between conflict and external food supply as indicated by the p value. This is to say that while conflict in BD district attracts external support, such supports are often insignificant and may not alter the relationship between conflict and food security as earlier established. This finding contradicts that of d'Errico et al (2015) after they carried out a descriptive survey of household food security during conflict in Mozambique. Theirstudy which involved two hundred and thirty participants selected across households through stratified sampling revealed that households had access to more nutritious foods during the conflict due to food aids that were supplied from the international community. They concluded that conflict does not always negatively impact on household food security.

Conclusion

The study established a closed association between conflict and food security. It was established that conflicts bring about the halting of farming activities, destruction of stocked food or food crops in the farm, looting of farm produce, killing of animals and even farmers. This combine to reduce food availability as each of these effects predicts food supply.Humanitarian aids to the district during conflict are often inconsequential in remedying the impact of conflict on food security.In order jurisdictions, food supply from other sources other than own production may augment the quantity that was loss due to lack of production but in BD, no much humanitarian assistance was received and the little that was received was not adequate to address the impacts that came with the conflict.The study established that the linear relationship between conflict and food security is not moderated by food aids from the government and humanitarian agencies.

Recommendations

The Government of Ghana may like to liaise with the Mamprugu Traditional Council to address the causes ofthe numerous ethnic conflicts in the district and provide a framework for their final resolution.

The Ministry of Food and Agriculture may provide storage centres for farmers at the District Assembly so that harvested food may be spared from destruction during conflict.

The Northern Regional House of Chiefs and the Overlord of Mamprugu Kingdom may like to take steps to address the continuous outbreak of chieftaincy conflicts in BunkpuruguYunyoo District

The District and Regional Security Council may like to intensify efforts at preventing conflicts and also ensuring that farms and food stores are protected from destruction during conflicts.

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