COMMUNITY RESILIENCE CAPACITY, ENVIRONMENTAL FACTORS AND PERFORMANCE OF FOOD SECURITY PROJECTS IN LOIMA SUB-COUNTY, TURKANA KENYA

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DECLARATION

This thesis is my own work and has not been submitted before for any other degree at any other institution.

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DEDICATION

I dedicate this thesis to my beloved family; my wife Joyce, and children Maureen, Daisy, Natasha, and Dennis who endured my time away in study rooms and for their constant and unwavering motivation, encouragement, immeasurable love and affection.

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ABBREVIATIONS AND ACRONYMS

FAO   Food Aid Organization

WFP   World Food Programme

MDGs   Millennium Development Goals

SOFI   State of Food Insecurity

IMF   International Monetary Fund

ASALs   Arid and Semi-Arid Areas

KNBS   Kenya National Bureau of Statistics

KVDA   Kerio Valley Development Authority

WHO   World Health Organization

GoK   Government of Kenya

KFSSG   Kenya Food Security Steering Group

FCS   Food Consumption Score

rCSI   Reduced Coping Strategy Index

UNICEF   Unite Nations Children Education Fund

SAM   Severe Acute Malnutrition

HH   Household

ABSTRACT

This research study wass designed to examine community resilience capacity on the performance of food security projects as moderated by environment factors in Loima sub-county, Turkana County, Kenya. The study was anchored on social identity theory, resource dependency, the theory of constraints and the organization control theory. The study adopted mixed research approaches to examine how community resilience capacity on the performance of food security projects. Correlational and descriptive research designs were adopted for this study. The study sample size is 491 respondents who were randomly selected from a target population of 16,517 households using the Slovin's formula. Data was collected from the respondents using questionnaires, interview guides, and focused group discussions. Qualitative data was analyzed by checking for themes and patterns then linking them to the objectives and hypothesis. Quantitative data was analyzed for both descriptive and inferential statistics. Presentation of descriptive data was mainly in percentages, frequency tables, arithmetic means and standard deviation. The inferential statistics was obtained using Pearson's Product Moment correlation and from simple and multiple regressions while F-test was used to test hypotheses. The findings showed that for objective one $r = 0.275$ indicating that there was a weak positive correlation between social capital and performance of food security projects. The adjusted $R^2 = 0.2055$ implying that social capital explains 20.55% of the variations in performance of food security projects, an F-value of 37.12 which was statistically significant since $p = 0.000 < 0.05$. This was an indication that there was a statistical significant relationship between social capital and performance of food security projects, hence the null hypothesis was rejected. The second objective had $r = 0.203, R^2 = 0.1757, F = 30.49, p = .0000$, hence the second hypothesis was rejected and concluded that social safety nets has a significant influence on performance of food security projects. For objective three $r = 0.315, R^2 = 0.1589, F = 26.94, p = .0000$, hence the third hypothesis was rejected and concluded that disaster management skills has a significant influence on performance of food security projects. For objective four $r = 0.268, R^2 = 0.1835, F = 32.39, p = .0000$, hypothesis four was rejected and concluded that community resources capacity has a significant influence on performance of food security projects. For objective five, $r = 0.458, R^2 = 0.1633, F = 21.10, p = .0000$, hypothesis five was rejected and concluded that environmental factors has a significant influence on performance of food security projects. For objective six $r = 0.219, R^2 = 0.2349, F = 43.57, p = .0000$, hypothesis six was rejected and concluded that community resilience capacity has a significant influence on performance of food security projects and lastly for objective seven $r = 0.651, R^2 = 0.2296, F = 25.56, p = .0000$, hence hypothesis seven was rejected and concluded that the relationship between community resilience capacity and performance of food security projects depended on environmental factors. In conclusion, the study findings indicated that for better performance of food security projects in Loima Sub County aspects of community resilience have to be comprehensively addressed. It is therefore, recommended that in order to build a resilient community, investments should be prioritized for social capital strengthening, improved social safety nets interventions, establishment of disaster management skills and promotion and effective utilization of the productive assets. Local food production, processing and transformation for a stabilized food system should be prioritized to enhance self-reliance and improve overall community resilience in the long term. Consequently, a similar study but with probably a longitudinal approach and with different study sample and contextual factors should be carried out to explore more resilience determinants beyond the variables in this study.

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

The United Nations Food and Agriculture Organization's 2017 study shows a rise in the number of people suffering from long-lasting hunger in the world, and the number of people undernourished has also risen from 777 million to 815 million in 2015. Parts of Sub-Saharan Africa, South Eastern and Western Asia witnessed the deteriorating condition of food security (SOFI, 2017). It is important to note here that Sub-Saharan Africa is home to some of the most food insecure people in the world with key drivers of food insecurity being climate change effects as seen in increased floods, droughts and conflict. The demand for food over the next 15 years is anticipated to increase by a minimum of 29 percent, with largest increases expected in Sub-Sahara Africa, South and East Asia (FAO, 2017). Drought conditions worsened across some countries affected by conflicts. As of March 2017, FAO data identified, whose populations face food insecurity (World Bank, 2017).

Food security is commonly defined as the ability of all individuals to physically and economically access adequate food all the time to fulfill their nutritional needs and desires for a productive and balanced life (Upton et al . , 2016).Food security thus is hinged on four processes which are different but interconnected. Firstly, is food availability, which is guaranteeing availability of food for consumption from farms or marketplace? Secondly, food access refers to the ability of households to have the required physical and financial resources to get these foods in addition to not suffering boundaries to their access stemming from customs or traditions. Third and vital to nutrition is food utilization, which refers to the ability and resources required for use and food storage appropriately to sustain healthy diets. The fourth and final process is food stability and the ability to deal with shocks and susceptibilities both in the short and long terms.

Conventionally, a lot of research in food security focused on coming up with and refinement of the methods of analysis selected to forecast precisely the possibility of facing upcoming loss of adequate food (Davis *et al*., 2016). Nevertheless, lately a new idea has been proposed to relate resilience to food insecurity, that is the ability of the household to sustain a certain degree of well-being (for example, food security) weathering shocks and stresses, relying on the options existing

to the household to make a living and its ability to handle risks (Quinlan *et al.,* 2016). Resilience analysis seeks to look at the several responses adopted by a household and capture the changing aspects of the adopted strategies. A resilience approach considers both how a system (household or community) is influenced by disturbances and changes and how its functionality in meeting these needs might change.

Since the beginning of 2011, there has been a humanitarian emergency in Kenya due to the drought experienced in the Horn of Africa. At the same time, a hike in commodity prices internationally coupled with persistent strong local demand have increased inflation and ballooned the current account deficit, creating extra balance of payment risks (IMF, 2011). In order to provide some durable solutions, the government in Kenya reconsidered disaster risk reduction as an important aspect in disaster management as opposed to the traditional approach of emergency management. This is reflected in the Kenya National Disaster Management Policy. Quite often the negative consequences of emergency relief are evident. Local producers quite often cannot compete with free food during the relief phase through price fluctuations and market instability (GoK, 2004).

In order to boost food security in drought stricken Turkana County, some of the initiatives in the region include: supply of food aid, provision of free drought tolerant seed varieties to local farmers. However, it seems these interventions have not done enough to cushion majority of the households against food insecurity. The existing literature shows that the trend has not changed thus the perennial food crises continue to be experienced in the region (Akwango *et al.*, 2017). Thus sustainable interventions are needed to create and enhance the needed resilience in the drought stricken ASAL regions of Kenya.

Therefore, it is important to identify key community resilience factors that influence the performance of food security projects. The current attention in resilience is founded on the need to control risk and prepare against the effects of disasters. In Kenya, for example, many studies related to food security emphasize on food insecurity causes and vulnerability measurement. This study applied a post hoc strategy basing on the fact that high resilience reduces vulnerability while low resilience increase vulnerability. It was relevant to explore factors which influence household resilience to food insecurity in a pastoralist region of Turkana county, Kenya.

1.1.1 Performance of Food Security Projects

In order to enable organizations to do what they do in a better way, to boost their ability to expand and evolve, massive investments are made globally in projects. To this consequence, it is important that the project's success is not only calculated on the basis of time , expense and scope, but also that the desired results are achieved and the organizational challenges are solved (Bryson, 2018). When executed on time and with the right budget, a project is successful. In addition, it should achieve set goals in an appropriate manner while attracting recipient satisfaction (Muchelule, 2018).

Food security projects are essential in enhancing food security and their success is of vital importance for a healthy and productive society. The food security projects are successfully implemented if the beneficiaries are food secure that is; food is available, accessible, utilized, and there is food stability. The failure of food security initiatives are largely attributed to lack of satisfaction by the beneficiaries. Savolainen's (2012) definition on project success did recognize that for a project to be successful, it must fulfill customers' needs in a timely manner. Equally, Pinningtons' (2014) defines a successful project as the one which delivers according to the expectations of the stakeholders.

Over the years, the government of Kenya through the Ministry of Agriculture in collaboration with development partners has initiated several projects to address food insecurity, poverty and unemployment in Turkana County. Some of the projects include; Kerio Valley Development Authority (KVDA) irrigation project, Napuu Irrigation project, Nakamane Irrigation project, and Naremit Irrigation project (Östberg & Caretta, 2017).

Despite the initiation of these projects to boost food security in drought stricken Turkana County, 68% of the communities in the County are still food poor thus depend on relief food each year for their survival (GoK, 2017). Despite revolving around the idea of boosting livelihoods and food security, the projects have not done enough to solve the issue of food insecurity in the county.

1.1.2 Community resilience capacity

Resilience is a complex process that has had no single definition for this varied on geographical contexts and study disciplines. However, the provision of a clear, concise, readily operationalized definition of what is to be measured in resilience is key to sound measurement.

Many efforts have been put into this as resilience use continue to be adopted in both humanitarian and development spheres. A notable accomplishment of the Resilience Measurement Technical Working Group in 2013, was the ability of agreeing on a resilience definition. The group first defined resilience as the capacity that guarantees stressors and shocks do not have long-lasting adverse development consequences (Constats, Frankenberger, & Hoddinott, 2014). In a critical viewpoint, this definition pinpoints resilience as an explanatory variable in a model, among the many that may predict some development consequence such as food security or poverty.

Resilience originated in literature relating to ecology (Quinlan, 2016) and was proposed as a way of looking at the relative tenacity of diverse states in multifaceted dynamic systems, including socio-economic ones (Bene *et al*., 2016). Estimation of a resilience capacity measure for a unit is key in establishing resilience at a given point in time. The construction of resilience variables using estimation procedures are based on; resilience multidimensionality, resilience as a latent variable and resilience as an index as the analytical principles

Resilience just like many variables measured in poverty and food security studies is multidimensional (Lombe *et al*., 2018). This means that resilience must be considered as a function of several dimensions that can be context and time-specific. This means when constructing variables, the selection of the dimensions should be based on empirical work, theory and programmatic contexts. The identification of resilience dimensions is not arbitrary. The capacities and characteristics representing resilience may not be observable; this leads to the second principle that has consequences on the estimation of resilience variables. Resilience cannot be measured directly under the assumption of multidimensionality since it is a latent variable. It can, however, be measured with an underlying structure indirectly. This assumption, and related assumptions about measurement, should be clearly stated. If resilience is a latent variable, we cannot observe – and, consequently measure – resilience directly. However, we can represent resilience as clusters of indicators and look at each of the clusters separately.

Several methods have been proposed to combine the different dimensions of resilience into a single measure: a resilience index. Advantages for using an index to represent a complex multidimensional construct include: allowing for a more succinct description and facilitation of comparability, targeting, ranking, and summation across settings. Secondly, it can be incorporated easily into other modeling procedures. An index constitutes a composite that can be used to represent and measure resilience. There should be a statistical or conceptual explanation to the computational or conceptual use of an index or individual variables. The use of indices is not universally acceptable in as much as their use does not preclude the use of individual variables. For instance, an index can be used for resilience measurement then an investigation be done on how the individual variables/indicators explain the heterogeneity observed in the index. An aggregative procedure should be defined for resilience to be represented as a multidimensional index. A conceptual framework for measurement of resilience should put into consideration all the possible pathways to well-being in the face of shocks.

The focus of the indicators used to measure resilience revealed a fair amount of variation across the studies reviewed. Béné *et al*. (2012) have been credited with the recent description of the principal resilience components. They expound on the Walker *et al*. (2004) proposed framework in addition to proposing new dimensions of absorptive, adaptive, and transformative capacity to the resilience framework. FSIN Technical Working Group on Resilience Measurement (2014a and 2014b) also supported this description. FAO supported the validity of the description theoretically but they required a more practical classification which can eventually serve as basic for deep analysis. In this sense, they developed RIMA-II given as:

$$Res_h = f(P_1, P_2, \dots, P_n)$$

Where a household's resilience capacity h depends on several pillars. This was in turn adopted as a regressor for food insecurity given by

$$Food\ Insecurity_h = f(Res_h, x_1, \dots, x_n, \epsilon)$$

where the outcome (food security) depends on household resilience and on various other variables. This remains in line with the original FAO's analytical framework (FAO, 2012).

Based on the review on community resilience to shocks and stressors, this research will adopt the following indicators of resilience; social capital, social safety nets, community resource capacity, asset ownership, disaster management skills and environmental factor influence.

1.1.1.1 Social Capital

According to Tietenberg and Lewis (2016), social capital is an interdisciplinary concept. It's genesis is based on the idea of individuals in community deciding to come together for them to invest and use resources existing in their social networks (Elison and Vitak, 2015). It can further be defined as the sum of the real or potential resources that are connected to having a long-lasting network of relationships (Aldrich and Meyer, 2015). Social capital theorists have discussed the roles of self-interest and status attainment and whether social capital should be considered as an individual, collective, or multi-level asset (Manning and Sun 2015). Theorists have also discussed the extent to which people actively aim at increasing their social capital (through investment) or whether, on the contrary, it comes from structural positions, families, and friendships (Olsson *et al.,* 2015). Quite a bit has been written about network structures, which we group here under the umbrella of social capital.

Social capital influences the level of community resilience (Aldrich and Meyer, 2015). Communities can grow their social capital particularly during crisis or stress situations by working together to share information or participation in decision making or rebuilding efforts (Aldrich, 2015). Social capital also has community-level benefits if communities in disaster affected areas call on connections from outside the community in areas unaffected by the disaster to ask for support. In contrast, factors such as high-level corruption, poor governance structures, and lack of leadership can lead to a decline in the resilience of a community (Smith and Hunt, 2018). Aldrich (2015) identifies three distinct but connected forms of social capital; bonding, bridging, and linking, each of which are categorized by different types of formal and informal interactions with distinct but interconnected horizontal and vertical links. Horizontal associations, often found in bonding and bridging social capital, exist between people and groups who are at the same level in terms of status and authority. Vertical associations, found in linking social capital, are tiered relationships, that exist between some form of authority existing at government levels and a network.

Aldrich (2015) defines bonding social capital as the horizontal association that exists between members of the same family, neighbors and close friends. Characteristically, it exists in a group of people who share norms and expectations and have demographic, geographic, and ethnic similarities as well (Alaniz, 2017). Bonding social capital is premised on trust, mutuality, and collaboration and assumes a high level of acquaintance, often at the expense of discretion. Bonding

social capital can aid households respond to idiosyncratic shock (i.e. short-term, small-scale events with negative impacts) since they can ask for and receive aid from households not affected (Osei, 2016). After a major shock such as a natural disaster, communities that work together to cope and recover tend to increase the extent and quality of their bonding social capital (Kerr, 2018). On the flipside, emphasis on in-group identity as well as strong ties, may hamper relations with individuals outside the network and perhaps create indifference or suspicion toward non-members (e.g., nationalism, patriotism, xenophobia).

Bridging social capital connects members from diverse groups or communities, often boing beyond the ethnic/racial lines and geographic boundaries and can help communities via resources access, new perspectives, and assets, including remittances (Aldrich, 2015). Bridging social capital enables individuals to learn each other's interests hence reducing between groups conflicts. It also leads to sharing of information and best practices, that encourages people to take in practices that are new (Osei, 2016). When locals lack resources, they may use their bridging social capital to ask for support, information, or resources from people in other communities, which is important in bolstering resilience of the community (Smith and Frankenberger, 2018). Bridging social capital is particularly effective in dealing with covariate shocks since the affected communities can ask support from unaffected communities (Osei, 2016).

Linking social capital connects social networks with some type of authority in the social sphere, regularly across institutionalized and formal societal limits. Such vertical links are important since they can provide limited resources and information and are therefore key for resilience and economic development (Aldrich, 2015). Feedback loops from seemingly independently operating entities working on projects that overlap thematically or geographically can be created by linking social capital (Osei, 2016).

Compared with those with zero or just one, societies with higher levels of the three forms of social capital are more robust (Aldrich and Meyer, 2015). As independent social capitals may respond to various shocks and create relationships of different types, none of the types of social capital are essential than the others; there must be simultaneous growth and sustenance to ensure community resilience (Osei, 2016). While social networks are critical to pastoralists' livelihoods, not much high-profile literature has delved into them (Shackleton et al., 2015). This spreads to help provider

organizations. In fact, during the formulation of relevant livelihood policies in their region, Turkana individuals say a deliberate overlook of their networking behavior was done. They claim that the cultivation and maintenance of social ties is a prepared livelihood policy and a method of dealing with livelihood shocks and specifically refers to non-market transfers of goods and services between households. In history, the role of social networking plays in pastoral livelihoods is known. The fundamental role of social ties in the survival of pastoral livelihoods was recognized by previous ethnographers looking at African pastoralists.recognized the fundamental role played by social relations in the sustainability of pastoral livelihood (Nuer Evan-Pritchard (1940); Turkana Gulliver (1951,1955); Somalis Lewis (1961); Maasailand Jacobs (1965); Samburu Spencer (1965,1973); Karamoja Dyson-Hudson (1966)). During the pre-colonial period, the groups worst affected by droughts, raids, or diseases were compelled to ask the neighboring tribes for assistance. For example, the Pokot provided food to the Karamajong (Dietz1987b), while the Turkana communicated with the country of Dassenetch (Sobania, 1992) The Dassenetch allowed the immigrants from Turkana to grow food along the lake and the Omo River delta. These relationships have taken decades to create. In his research, Philip Salzmann (1981) noted that pastoralists are not single-minded but rather "foxes" of multi-interest which follow many ends where social networks play an integral role. Otieno (2015) agrees and argues that pastoralists have multi-resource economies and have engaged in numerous economic activities throughout their history, using various resources within their scope and adapting their animal production to their demands.

In Turkana household financial and human capitals are weak while land is communally owned (Otieno, 2015). Having social capital and livestock as their main assets in a communal property regime, it is not clear if the several livelihood strategies pursued by the pastoralists can shield them from market shocks and drought, which in turn make the community food insecure. In view of the perennial hunger in Turkana affecting most of the households, there is the question as to whether social capital can shield households from the adverse effects of the shocks. Information on such and its determinants would be important if more households are to be encouraged to join it. Unfortunately, information in this regard is scanty and cannot be inferred from studies done elsewhere because each locality has its peculiarities.

1.1.1.2 Social Safety Nets (SSN)

Social security networks are described as programs that provide the most needy and disadvantaged members of a community with payments that may be in kind, cash or vouchers to stay out of extreme poverty. The goals of social transfer systems are people on the verge of poverty who could, if not helped, easily slip back into their old lifestyle. The services protect the vulnerable against unforeseeable emergencies (Brunson, 2017). These social transfer schemes may also be altered to meet a country's needs, and are not limited to countries with such levels of income. Increased technology increases productivity by helping to recognise and encourage people in need of assistance.as well as facilitating the rate at which people receive the aid (Bryson, 2018). The safety net quite often acts as an insurance against some risks, cushioning vulnerable populations from adverse impacts (Giuffrida *et al.*, 2017).

Viterbo (2018) claims that in the early 1990s, the term social safety net was used frequently, particularly by Bretton Woods' institutions regarding structural adjustment programs associated with their lending programs. As such social safety nets were introduced by developing countries to control the social impact of structural adjustments measures on groups with low income which were started for poverty alleviation and adjusting programs to be more politically acceptable and institutional reforms (Diaz *et al.*, 2016).

Drawing from field experience, practitioners recognized that development of social safety net program was important since regular ad-hoc and short-term responses to vulnerability and hunger expensive and inefficient in building long term resilience to shocks. The social safety nets programs are based on the recognized need to give regular and expectable assistance in the form of cash-transfers to the underprivileged people and those most susceptible to disaster with emphasis not on status but on need and need alone. As a safety net, the approach moved away from reliance on the implementation of unreliable, unpredictable and emergency focused food-based interventions. This was particularly critical in a framework where poverty and susceptibility were intertwined with frequency of natural hazards reportedly high.

1.1.1.2 Disaster Management Skills

Disaster management skills focus on prevention, mitigation and recovery aspects of the community and households affected by the disaster. The degree to which communities or households deal with risks is defined by their livelihoods and vulnerability levels. Focus is usually placed on a community's or household's ability to prevent a shock or a negative event from occurring; or to lessen and mitigate the aftermath of a shock that might occur or deal with a problem that has already occurred when developing intervention strategies (UNDP, Human Development Report, 2014)

Prevention strategies and mechanisms seek to minimize the chances of an adverse event such as a disaster from occurring. These strategies come in the form of medium and long-term development approaches. Prevention strategies can be rural infrastructure improvements such as roads, and irrigation systems and markets which then lessen the possible impacts of acute rainfall on food access and availability. In many cases prevention strategies are broad-based public efforts include small-scale community and household measures. Prevention initiatives geared towards increasing household income would most probably enhance households' purchasing power to food and non-food items even when unfavorable weather affects household production.

Mitigation strategies are established to minimize the potential impact of a hazardous event that may occur and allows households to respond better to shocks and stresses. A case in point is the planting of drought-resistant crops which can reduce the food shortage that a household might experience in year of scarce rains. Mitigation and prevention strategies which are known as 'ex ante,' are implemented before a shock takes place.

Coping methods are 'ex post' interventions as they aim to minimize the effect of a previously occurring traumatic incident (Lovendal and Knowles, 2005). Many of the solutions here come in the form of relief, emergency response, or net safety interventions that may include assistance to improve access to food for a family.

1.1.1.3 Community Resource Capacity

The resource capacity of a community refers to link between the existing human capital and other resources in the community. These resources if put into maximum use can help in solving

community problems as well as maintaining their wellbeing. In most cases the community resource capacity exists in informal social processes brought about by individuals' efforts in a social network among community members (Monica, James, Kenneth, Angela, Barbara, Michael, 2009). The community resources include; assets owned, basic services availability, information sharing among others.

Access to basic services encompasses both access to services and the quality of access to services. Some of the important services in the community include health care, education, housing, water and waste disposal. These basic services like health, education, markets and others are key resilience aspects in a community. However, factors such as market access, public policy and public service provision affect the resilience capacity of a community (Spangenberg, 2017). For example, livestock sales at the county market can result in varied households' revenues. Additionally, road network penetration of road network influences access to markets as well as aid distribution efficacy in disaster response (Holguin-Veras *et al*., 2016). Well-functioning market access and participation is key to vulnerable population resilience building. To ensure that pastoralists and small-scale farmers have reliable access to input and produce market as well as income streams there should be strengthening of linkages with local markets. Improving access to markets needs availability of market infrastructure such as roads and market facilities as well as access to information on prices in addition to supporting assets and financial services to engage in value chains. Increasingly, technology has allowed far-flung pastoralist and agro-pastoralist populations to access information on price and utilize financial resources efficiently. Current evidence supports the positive relationship between basic services access pre disaster and recovery rate post disaster (Del Ninno *et al*., 2016).

The quality of access to these services on the other hand is based on services monetary cost. Watts *et al*. (2015), claims that increase in the cost of education and health affects the vulnerability of households. The quality of access can also be based on subjective indicators like the perception of the public on the quality of services received among households in a community. The poor nature of development and maintenance of transport infrastructure, sources of energy, and telecommunications in Turkana County inhibits the integration of these areas into the regional and national economy. The commercialization of the rural economy as well as emergency relief operations are hindered by the inadequate road and communications network. The road network

density in developing countries gives an impression of how reaching people with services and their participation in markets economy is (Whelan, 2016). Even after spirited efforts by non-state actors, access to clean water supply is still an unattainable bonus for most rural inhabitants in Turkana County. Providing services to the nomadic and semi-nomadic pastoralists populations is difficult and hence, they are always the ones with deplorable health services and least education (Musa, 2016). Resilience to food security and the cognitive as well as long-term physical development of the region is affected by a combination all these indicators with malnutrition and poor access to safe water.

Despite decades of local and global consistent rural development and agriculture funded development programs and continual inflow of food aid and emergency relief operations, food insecurity, abject poverty, periodic famines, and undernourishment are still portrayed in the lives of most of the Turkana County population. The deteriorating and degraded resource base in Turkana County combined with the ballooning population makes the living conditions of the populace intrinsically difficult. It is a harsh natural environment where mere survival is an achievement. The problem of food insecurity in Turkana County cannot be solved within the agricultural sector alone. It is a complex and multifaceted task; it is because of this that this research study wishes to find out whether the access to basic services has any relationship with the perennial food insecurity experienced in the area.

Assets refer to capital or resources stocks that can be converted directly or indirectly to survival means for sustenance of material well-being at several levels beyond survival (Rakodi, 2014). Assets can exist as intangible assets such as human capital or tangible assets such as houses, trees, and land. They can as well be financial such as savings, access to credit, and cash. Some other kinds of assets come into existence when a surplus is produced between production and consumption, which can be invested in future production capacity (Doss and Meinzen-Dick, 2015). Assets also come in as a backup when there is a change to enable individuals adapt to the changes. For example, disabilities or unemployment are unforeseen risks that can lead to a sudden reduction or even complete loss of income, but with availability of assets as a cushion, households may not suddenly reduce consumption to the same degree (McKernan, Ratcliffe, and Shanks, 2011). Assets play a key role, particularly in developing countries with no access to market credit and where the poor rural households have difficulty obtaining insurance or loans. Thus, dependent on the ease of

converting the assets into food and its derivatives, households can depend on existing assets to smoothen consumption in times of stress and shock (Ngigi *et al.*,2015).

Using homeownership as a measure of household asset, Olabiyiand McIntyre (2016) showed that households inhabiting rented residences had higher chances of facing food insecurity as opposed to those living in their own residence. After regulating socio-demographic characteristics, Liu (2014) showed that homeownership and liquid assets cushioned against the vagaries of food insecurity. Homeownership has some added advantages mitigating the risk of being food insecure. Gebrehiwot and van der Veen (2014) indicated that, when there is variability in income, people living in their own dwellings can smooth out consumption and reduce the likelihood of food insecurity by drawing on accumulated equity. In as much as assets owned by households play a key role in mitigating the vagaries of food insecurity and other forms of material hardships (St-Germain and Tarasuk, 2017), few studies have critically looked at the role played independently by household assets in food security (Shah and Dulal, 2015). There could be two reasons accounting for this. First, assets and income are considered economic resources from a consumption perspective and they only differ in form. Income has long been considered a key well-being economic factor. Household income, is usually used as a proxy for consumption, and the independent household assets role in promoting well-being mostly goes unnoticed. Loopstra (2018) did show that household assets and income differ in several ways. In comparison to household income, the assets of a household provide a unique and reliable measure of well-being (Black et.al., 2015). Secondly, low income households are considered not to be having any assets for backup when faced with food insecurity and depend on food assistance programs for the public.

When looking at the several factors that contribute to food insecurity, Oemichen and Smith (2016) found that being food secure is more likely in households with savings than those without. Another study established that households with little asset income were more likely to drift into food insufficiency, but assets seem not to have a clear bearing on food insufficiency (Lamos et.al., 2016). Apart from financial assets, there existed a positive correlation between household food security and vehicle and home ownerships (Ali and Erenstein, 2017). Probably, the home owners who have paid their mortgages could be having more disposable financial resources hence being a position to purchase food, and individuals with a vehicle can find and maintaining a job that supplies stable income for food purchases.

As indicated by Davies (2016) diminished resources among family units builds their vulnerability to destitution, craving and ailing health. He guarantees that weakness to food instability is shown by a low resource status. Browne et al (2014) underpins Davies' recommendation and reasons that the plan of fitting estimation devices ought to incorporate resource markers. Correspondingly, Seaman et al (2014) contended that, responsibility for by family units can be a marker of food security. Nelson et al(2016) sets that dangers and an absence of flexibility prompts weakness to hunger. During seasons of pressure, families' advantages and privileges give liquidity consequently padding them against antagonistic effects debacles (Martens, 2015). Consequently, resource possession is jumped at the chance to food security; the higher the advantage a family claims, the lower the probability of the family to be food shaky (Smith and Frankenberger, 2018). In their conversation on weakness estimation, Bene et al (2016) suggest that the estimation of advantages can be utilized as an intermediary of a family's capacity to adapt to stuns. They portray resources as a key piece of the executives of danger since they can be help smooth utilization, and admittance to resources impacts the family's capacity to forestall, moderate, and adapt to stuns.

Past writing demonstrates that the presence of danger may prompt neediness, while improved strength beats destitution. Resources have a significant influence in the capacity of a family to manage hazard. Consequently, if the responsibility for could be "estimated" the outcome would give an away from of family unit's versatility. Files dependent on resources have been utilized in strength estimation by a few researchers in their examinations (Filmer and Pritchett, 2001; Rutstein and Johnson, 2004; McKenzie, 2005; Gwatkin, et al., 2007). It is additionally accepted by a few examinations around there that benefits assume a basic function in shielding family units from questionable salary stuns that emerge from circumstances, for example, ailments, separation, or joblessness. The pay lack and smoothing of utilization is filled by resources (Schwan, 2018). While the protecting outcome of benefits is without a doubt noted, it should be logically tried in a model. In light of the proof that the advantage possession level demonstrates a family unit's capacity to manage stressors and stuns, a benefit based record can be applied in assessing the financial status score to show the general versatility of a family unit and thus network to food instability. While there exists a lot of writing on person's flexibility to food frailty, there is a shortage of studies that experimentally address other likely supporters of food instability at the family unit level after some time. Little has been done on the connection between network strength limit and versatility to food weakness in Turkana County.

1.1.3 Environmental Factors

All organizations exist within an environment. The project environment consists of the total surroundings that may have an influence either directly or indirectly on the functioning of the project. There are two kinds of environments, the internal and external environment. The internal environment of an organization is made up of the elements within the organization, such as current employees, management, and particularly corporate culture, which defines employee behavior. Porter (1985) claims that the internal environment is made up of all elements that are endogenous to the project, which are affected to a great extent and totally controlled by it. On the other hand, there are many different external factors which influence a firm's choice of direction and action which in turn influences its structure and internal processes and these are collectively known as the firm's external environment.

It is possible to further subdivide the external reality into the operational environment, the manufacturing environment and the remote environment. According to Pearce & Robinson (2007), the operating environment involves variables in the competitive environment that affect the success or failure of an organization. These considerations include an organization's competitive position, the composition of the client, its credibility with creditors and suppliers, as well as its capacity to hire qualified employees. Robinson & Pearce (2007) The industry environment is further defined as the general conditions for competition which affect all undertakings providing similar products and services. The third and last aspect of a project's external environment is the remote environment. It is described by Dess, Lumpkin and Eisner (2012) as consisting of factors that arise outside, and typically regardless of, the operating situation of any single project. These factors can be grouped into five categories, namely economic, social , political, technological and ecological factors.

Monetary elements inside the far off condition remember the nature and course of the economy for which a firm works. Dess, Lumpkin and Eisner (2012) illuminate us that the economy affects all undertakings. Social elements are additionally another segment of the distant condition that activities should asses. Social variables incorporate qualities, convictions, sentiments and ways of life of people in the association's outer condition. These variables result from the strict, social, segment, instructive and biological underpinnings (Dess, Lumpkin and Eisner, 2012). A portion of the particular factors that make up this classification incorporate instruction levels, religion and

convictions, family size and structures, social classes present, age circulation and future. This would imply that associations ready to set up a task in a specific region, for instance, a district that has a transcendently pastoralist populace, for example, Turkana would need to execute unexpected techniques in comparison to a locale that is comprised of an overwhelmingly rancher populace. This is on the grounds that pastoralist and ranchers have various convictions which must be regarded. The following segment of the far off condition is the political factor. Political elements characterize the lawful and administrative boundaries inside which ventures must work. These incorporate duty programs, reasonable exchange choices, antitrust laws, the lowest pay permitted by law enactment, arrangements overseeing costs of merchandise and ventures and other approach systems for securing nature, the buyers, the representatives and the bigger public (Pearce and Robinson, 2007). Downey (2013) advises us that political elements incorporate government guidelines, for example, work laws, charge arrangements and even political soundness of the administration itself ought to be thought of. Somalia has endured a long term's affable war that was the consequence of political unsteadiness. Certain areas of Turkana County are pretty much stable because of the continuous steers stirring with the neighboring provinces and nations. This might be the single greatest issue that ventures in Turkana need to fight with seeing that political precariousness influences all different aspects of their tasks.

The final component of the remote environment comprises of the ecological factors. These have to do with the relationship between projects and the ecology. Downey (2013) informs us that specific concerns include global warming, loss of habitat and biodiversity, as well as air, water, and land pollution. Projects need to be cognizant of the ecological factors at play in a certain environment as they seek to set up activities in those areas. Floods and famine are some of the ecological factors that projects have to contend with in Turkana.

1.1.4 Food Security Trends

Food security, according to Upton et.al. (2016) is the state in which all people, all the time, have economic, social, and physical access to enough, safe, and nutritious food that meets their dietary needs and preferred food for a healthy and active life. Food insecurity on the other hand, is defined as a condition where people lack access to enough, safe, and nutritious food for normal growth and development and a healthy and active life (Burchi & De Muro 2016). Food insecurity has several triggers, such as; unequal distribution of food among household members, lack of food,

and expensive food. FAO measures food insecurity using the Food Insecurity Experience Scale (FIES) which is a global reference scale. It is based on scarce quantity or quality food. Moderate food insecurity is linked with incapability to eat healthy nutritious diets. High frequency of moderate food insecurity is hence a critical indicator of poor quality of diets, and growth of health results like deficiencies of micronutrients. Severe food insecurity is greatly associated with insufficient food quantity (energy) and hence greatly associated with undernourishment or hunger.

According to a report titled The State of Food Security and Nutrition in the World 2017 (SOFI), the global hunger rate seems to have risen after being on the decline in the past two decades. Global hunger changed from 777 million in 2015 to 815 million people in 2016, implying that undernourishment exists in one in every nine people. In 2017, the Global report on Food Crises indicated that approximately 108 million people faced food insecurity at crisis level in 2016 and needed urgent humanitarian aid, and about 80 million in 2015 were in a similar situation. More than 60% of the undernourished people in the world are in Asia and Africa accounts for a quarter of the global numbers. The percentage of the hungry people is however greater in Africa (33%) as compared to Asia (16%). In 2017, FAO indicated that out of the 22 countries where undernourishment was prevalent, 16 of them were in Africa, with an undernourishment prevalence rate of 35% showing that the situation of food security and nutrition in getting worse in Africa.

Over the past decade, there have been several episodes of acute food insecurity in Africa, which have resulted in many lives being lost as well as livelihoods being destroyed. According to the 2014 – 2016 projections, the rate of undernourishment in Sub-Sahara Africa was 23%. Food security situation in 2016 deteriorated sharply in Sub-Sahara Africa, particularly in places with conflicts, and aggravated by droughts and floods linked to the El Nino phenomena. Nevertheless, peaceful areas have also experienced worsening food security states, particularly in places where the slowdown of the economy drained fiscal revenues and foreign exchanges, impacting both availability through reduction in capacity of import and access via reduction in fiscal space of food to protect vulnerable households against the rising prices of foods domestically.

The most vulnerable people to food insecurity in Kenya reside in the informal urban settlements and in the arid and semi-arid areas that account for 80% of the land area of the country. Close of a quarter of the Kenyan population reside in these areas, which are characterized by underdevelopment structurally, poverty, diseases, and conflicts. The situation is further exacerbated by droughts and unreliable rain patterns in the arid and semi-arid areas. In February 2018, the Kenya Food Security Steering Group (KFSSG) conducted a short rains assessment that projected the food security outcomes through April 2018 (Muthee, 2018). Indicator data on household food security was collected from several sources to show the outcomes at the level of the county, they included; Food Consumption Score (FCS) and the reduced Coping Strategy Index (rCSI). According to GoK (2018), the data collected from the sentinel early warning sites of NDMA on Food Consumption Score indicated that about 53% - 68% of the agro-pastoralists had the recommended food consumption score, with the Kajiado and Baringo having the highest percentage of households with poor food consumption at 10% and 11% respectively.

The World Food Programmes (WFP) Food Security Outcome Monitoring (FSOM) indicated that highest percentage of households with poor food consumption lived in the marginal agricultural livelihood zones at coast, accounting for 25.3%, while the southern marginal as well as the northeast pastoral zones accounted for 78% and 89% respectively having recommended food consumption score. In Turkana County, according to a SMART survey conducted in 2017, close to 23% of the people had poor food consumption, while the sub-counties of Marsabit such as North Horr and Laisamis which border Turkana county had a lower value of 18.5%. The survey further revealed that rCSI in the zones was highest in Marsabit county (22%), followed by the Coastal zone (21%), and lastly, in the pastoral northwest Garissa and Tana River (20%) (Gok, 2018).

The UNICEF's humanitarian outlook for Kenya predicted a surge in the number of children below the age of 18 years who are at risk of being severely food insecure to 1.8 million in comparison to 1.1 million recorded in March 2018 and 1.6 million in August 2017. The number of children estimated to required treatment for acute malnutrition is 482,882, including 104,614 suffering from Severe Acute Malnutrition (SAM). Out of these children, 88% live in the 23 Arid and Semi-Arid Land (ASAL) counties, the humanitarian brief shows. People in arid and semi-arid areas adopt harmful coping strategies such as selling their sole money-earning assets, undertake environment degrading income generating activities like charcoal burning, and withdraw children from schools

as a means of responding to livestock and crops loss due to drought. The acute malnutrition peaks at 1 in every 3 children in worst hit areas, with approximately 337,000 children under the age of 5 suffering in arid and semi-arid areas. Under nutrition is the leading cause of death among under 5 children (UNICEF, 2018). Prolonged droughts caused by low rainfall, poor food consumption with greater than 30% of households below poor consumption category, limited access to food markets and high prices of foodstuffs have affected the food security situation in Turkana County. Turkana County is classified as Crisis (IPC Phase 3) with parts of Turkana Central Sub-Counties classified as Stressed (IPC Phase 2) (LRA, 2017).

1.2 Statement of the Problem

USAID (2017) indicated that close to 2.6 million people in Kenya were food insecure, with more than 2.3 million people experiencing Crisis (IPC 3)-acute food insecurity, according to the Government of Kenya-led seasonal assessment, the inflation rate on food reached 15.17% during the same period. This resulted in a surge in general food insecurity to approximately 70 % of the population (OCHA, 2017). The food insecurity spread across regions but was worse in the ASAL regions where the situation escalated into famine. This was driven by the low agricultural productivity in the ASAL regions coupled with overreliance on pastoralism thus low purchasing power among households when drought strikes (Muyanga, 2004). After independence, the Kenyan political philosophy was that of eradicating poverty, illiteracy, diseases and hunger.

There is evidence that the goals have never been achieved more than fifty years after independence. The country is estimated to have lost Ksh.450 million to drought which affects both human lives and livestock. As much as various sectors put up efforts to ensure assistance is at hand when needed, data to support and guide their efforts has been scanty and personnel to respond to the same if any mechanisms were unregulated and uncoordinated. In Turkana County, there is an increase in number of households affected by recurrent cycles of drought (Opiyo *et al*., 2015). The region has continued to witness an increase in number of households surviving on charcoal burning as the alternative source of livelihood to earn income. The pastoral communities of Turkana in northern Kenya prefer nomadic pastoralism to other livelihood strategies. This is the strategy that has satisfied their economic, social and cultural life for ages. Since droughts have now become annual events in Turkana area, age-old livelihood strategies need some adjustments. This is necessary in

order to reverse the annual pattern of hunger, starvation and destitution arising from drought (Schrijver, 2017).

Turkana County has continued to experience hunger and starvation majority of the households; this is despite continuous efforts by the Kenyan authorities and their development partners to provide relief food to the people of the County for decades (Action AID, 2012). Perennial drought has led to loss of livestock an important source of food and income among the Turkana pastoralists. Rain-fed farming is also virtually impossible among majority of the households, other key challenge accelerating vulnerability to food insecurity is the region is cattle rustling and theft which despite leading to loss of livestock, also leads to death of household heads during the struggle with the raiders (Tolossa, 2018).

Moreover, there exist research gap on comparison of communities on their levels of resilience to disasters. This study was geared towards filling the existing research gap by exploring the vulnerabilities and capacities of households to food insecurity in Turkana County. The study dug deeper into the concepts of disaster resilience among pastoralist community in view of understanding their underlying factors in order to support planning, management, decision making, and policy formulation.

1.3 Purpose of the Study

The purpose of this study is to examine the influence of community resilience capacity on food insecurity in Turkana County, Kenya. It further seeks to determine the moderating influence of environment factors on the relationship between community resilience capacity and food insecurity in Turkana County, Kenya.

1.4 Objectives of the Study

This study was guided by the following research objectives:
    i.   To establish how social capital influences performance of food security projects in Loima Sub County.
    ii.   To determine how social safety nets influences performance of food security projects in Loima Sub County.
    iii. To examine how disaster management skills influences performance of food security projects in Loima Sub County.

iv.   To determine how community resource capacity influences performance of food security projects in Loima Sub County.

v.   To establish the influence of combined community resilience capacity on performance of food security projects in Loima Sub County.

vi.   To determine how environmental factors, influence performance of food security projects in Loima Sub County.

vii.   To establish the moderating influence of environmental factors on the relationship between community resilience capacity and performance of food security projects in Loima Sub County.

1.5 Research Questions

The study was geared towards answering the following research questions:

i.   How does social capital influences performance of food security projects in Loima Sub County?

ii.   How does social safety nets resilience influences performance of food security projects in Loima Sub County?

iii.   How does disaster management skills influence performance of food security projects in Loima Sub County?

iv.   How does community resource capacity influences performance of food security projects in Loima Sub County?

v.   How does combined community resilience capacity influence performance of food security projects in Loima Sub County?

vi.   How does environmental factors influence the performance of food security projects in Loima Sub County?

vii.   How does environmental factors moderate the relationship between community resilience capacity and the performance of food security projects in Loima Sub County?

1.6 Hypothesis of the Study

This study sought to test the following research hypothesis

i. H_1 Social capital has significant influence on the performance of food security projects in Loima Sub County.

ii. H_1 Social safety nets have significant influence on the performance of food security projects in Loima Sub County.

iii. H_1 Disaster management skills have significant influence on the performance of food security projects in Loima Sub County.

iv. H_1 Community resource capacity has significant influence on the performance of food security projects in Loima Sub County.

v. H_1 Community resilience capacity has a significant influence on the performance of food security projects in Loima Sub County.

vi. H_1 Environmental factors have significant influence on the performance of food security projects in Loima Sub County.

vii. H_1 Environmental factors have significant moderating influence on the strength of the relationship between community resilience capacity and the performance of food security projects in Loima Sub County.

1.7 Significance of the Study

The finding of this study is important to different groups and individuals in various dimensions; support stakeholders in food security find appropriate solution to food insecurity among drought stricken pastoralist communities. Non-Governmental Organizations and donor agencies can use the study findings to guide their interventions on enhancing the resilience capacity of communities to food insecurities in the face of climate change and related disasters.

The study findings can as well be beneficial to the local communities in food insecure areas by informing them on the existing community structures and how they can influence public spending like the Constituency Development Funds (CDF) and other devolved money to enhance community resilience. Last but not least, the findings can be used as a basis for other future studies on food security/ insecurity in ASAL counties.

1.8 Limitations of the Study

This study had several limitations; some households were still receiving relief aid even when they are not in danger of starvation, it was therefore challenging to ascertain whether some households were food secure or they had received relief food during the study period. Even though they were assured that their identity will remain anonymous, some respondents gave socially correct responses to please the researcher. To counter that, the researcher distributed the questionnaires randomly to get non-biased response.

During the interviews, some respondents took a lot of time to respond to the questions, this was due to high level of illiteracy in the study area. In such cases, the researcher translated the questionnaire to local language. Some limitations in responding to questionnaires were addressed by the focused group discussions which mostly were conducted in a language and modalities favourable to the local community members.

1.9 Delimitation of the Study

This study is delimited to the influence of community resilience capacity to food insecurity in Turkana County, Kenya. This region is within the dry parts of the larger Rift valley where many households have been receiving relief aid for many years. This avails an opportunity of response from the households who are perennially food insecure.

1.10 Assumptions of the Study

The study explored how community resilience capacities influence performance of food security projects. During the study, it is assumed that the information given by the respondents were truthful and objective and that other factors not investigated in this study did not influence the relationship between study variables on food security and combined community resilience components.

1.11 Definition of Significant Terms
Community Resilience Capacity

This is the capacity to predict, plan for, reduce the impact, cope with and recover from the consequences of shocks and stresses without undermining the long-term prospects of societies subjected to catastrophes, crises and underlying weaknesses.

Resilience

Resilience is the capacity of a population or society that is exposed to hazards to withstand, endure, tolerate and recover from the effects of a hazard such as droughts , floods in a timely and efficient manner, including by maintaining and restoring its critical basic structures and functions. Because of their degree of resilience, various societies are affected differently by hazards. Others have greater levels of planning, adaptation, reaction and recovery in the event of shocks and stresses than others.

Social capital

It constitutes the networks, common norms , values, and understandings that promote cooperation among or within groups of individuals. Therefore, social capital forms the basis of networks of relationships between individuals who live and work in a community , allowing community to operate effectively.

Social safety nets

Social safety nets are a broad set of arrangements and instruments designed to protect members of society from shocks and stresses over their lifecycle. They come in the form of transfers both in kind and cash/voucher to address specific needs of a given population to cushion them against external shocks and stresses. In this study social safety nets come in the form of cash and food transfers to address short and medium-term food gaps.

Disaster Management Skills

Whereas disaster management is the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular to preparedness, response and recovery in order to lessen the impact of a disaster, disaster management skills is a set of acquired means and ways to handle these disasters at various stages (prevention, mitigation, recovery) while demonstrating ingenuity, creativity, flexibility and adaptability.

Environment factors

This constitutes all factors outside the control of the project manager that are assumed to have an effect on the performance of the food security projects. They include the political, economic, and social factors.

Performance of food security projects

This is the measure of success against established objectives and goals of food security projects which are generally aimed at addressing both chronic and acute food insecurity. The main indicators for measurement in this study include timeliness, cost effectiveness, efficiency and quality.

Food security

The situation in which, over a given period of time, a population has physical, social , and economic access to healthy and nutritious food to satisfy nutritional requirements and desires for an active life. In other words, access to ample food for an active , healthy life for all people at all times, which requires at least the ready availability of nutritionally appropriate and nutritious food for active , healthy lives.

Food insecurity

Limited or uncertain availability and access of nutritionally adequate and safe foods or uncertain ability to acquire acceptable foods in socially acceptable ways.

Food Availability

The amount of food in the immediate reach by the households and largely depends on domestic food production and storage.

Food Access

The ability of a household to obtain food from the market and depends on its purchasing power which varies in relation to market integration, prices and temporal market conditions.

Food utilization

The proper biological use of food and is determined by the safety and quality of food, intra-household distribution and health status.

Food Stability

The constant supply of food on household level during the year and in the long-term. Stability describes the temporal dimension of food and nutrition security.

1.12 Organization of the Study

This study report is categorized into five chapters. Chapter one covers the introduction with the following main parts as sub-headings: background of the study, statement of the problem, research purpose, objectives and research questions, hypotheses of the study, significance of the study, limitations, delimitation and the assumptions of the study, definition of significant terms and organization of the study. Chapter Two covers the review of relevant literature, theoretical underpinnings, conceptual framework, and summary of research gaps. Chapter Three covers the methods used in data collection and data analysis. Chapter Four covers data presentation, analysis, interpretation and discussions. Chapter Five covers summary of study findings, conclusions, recommendations and suggestions for further research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

In this chapter, literature relevant for the study is reviewed. The main literature reviewed focuses on food security, social capital, social safety nets, community based disaster management, community resource capacity, environmental factors and community resilience capacity. The chapter also covers the theoretical and conceptual frameworks on which the study is anchored.

2.2 Performance of Food Security Projects

Different people define project success differently. The performance of the food security projects in recent years has not been comprehensively reviewed through classified reports. According to Parida *et al*. (2015) performance measurement entail quantification of the efficiency and effectiveness of actions. Alternatively, Mir and Pinnington (2014) defines performance measurement as the determination on how successful projects have been attaining their objectives. On the other hand, Project performance management is understood as a closed loop controlled system whereby policies and strategies are closely monitored and feedback is obtained from various organizational levels with the aim of managing the performance of an organization.

Financial measures and business drivers were incorporated in performance network frameworks for improved measurements on the performance of projects (De Villiers et.al, 2016). For instance; the matrix on performance measurement; the pyramid on performance in relation to project duration, cost and scope (De Villiers et.al., 2016); the balanced scorecard; and the "Baldrige" Award. Improving the collaboration and participation of stakeholder is key in the achievement of short-term project performance objectives and long-term competitive advantage to improve the performance of projects. Bano and Zowghi (2015), argued that additional factors like, stakeholder's relationship quality and flexibility influence greatly the success of projects. Project performance measurement based on the "iron triangle" aspects of time, cost, and quality is insufficient.

Several factors are globally used in project performance measurement. This study being on measurement of performance of food security projects will look at the measurement in terms of food availability, accessibility, utilization, and stability, basing on the FAO criterion.

2.3 Social Capital and Performance of Food Security Projects

Social capital entails the role of social networks in a community and their importance in access to resources (MacIntyre *et al.*, 2002). Thus, social capital is created and employed by a social actor due to their social networks. It is not a resource, but as capital its use allows an individual access to resources. The connection between social capital and food security has gained recognition among social science researchers (Dean and Sharkey 2011; Walker *et al.*, 2007). Studies on social capital and food security have had varied approaches and conclusions on the subject; majority of the studies have focused on social capital, social relationships and inclusion as important factors to reduce food insecurity and hunger.

In their research on adult residents of rural Texas, Upton et al (2016) found that individual levels of social networks correlated with their food insecurity / food safety rates. Studies such as this one demonstrate the value of social capital for food security. Similarly, Lin (2008) highlighted the ties between social capital and food security; according to him, social capital increases access to essential resources that can cushion food insecurity for a person, a household or a society. (2007) by Walker et al in their study on women participating in WIC found that, household food insecurity was inversely associated with social capital among women living in WIC households. From this Walker *et al.* (2007) concluded that individuals and families that know and trust their neighbors may be more inclined to share food or transportation to the supermarket, as well as share child-care responsibilities, enabling and empowering individuals to network and form their own support programs and projects with their community.

Blay-Palmer (2016) notes, communities with strong civic engagement can enhance food security of its members because active institutions collaborate to support and maintain the local food safety net system. While using the sample size of (734) to study the link between social capital and food security among pregnant women in Ilam province, Nasibeh *et al.* (2018) found a significant relationship between social networks among the pregnant women and food insecurity/ food security. While using a sample size of (330) to find the link between social capital and food security

among low income households in Hartford, Martin *et al*. (2004), found out that social capital which existed mainly inform of reciprocity among neighbors, contributes to household food security among the poor households. Based on the findings, their conclusion was that; "the root of poverty is not just lack of money, but also lack of social networks (Martin *et al*., 2004). In his in-depth interviews with children and youths, Connell (2005) found that; sharing amongst youth and their families was a significant factor in reducing the impact of food insecurity.

In their study on the link between social capital and food security among African-Americans, Power et al., (2017) found that, the high levels of social capital were negatively associated with risk of malnutrition. In an urban sample from Hartford, Connecticut, high social capital at the individual-household and neighborhood levels was positively associated with a decreased risk of hunger (Martin, Rogers, Cook, and Joseph, 2004), (Bickel, Nord, Price, Hamilton, and Cook, 2000). In their study on the maternal social capital and the nutritional status of children, De Silva and Harpham, (2007) found that; cognitive social capital was positively associated with greater nutritional status among children in Peru, Vietnam, Ethiopia, and the State of Andhra Pradesh in India.

In their analysis of household food security, Hadley *et al*. (2008) noted that; during shocks, parents absorb the greater part of risk to food insecurity by shielding their children from severity of food insecurity. This clearly shows how important social capital in alleviating food insecurity among children at the households level. In their analysis of the relationship between social capital, poverty, limited food accessibility, and food insecurity among pupils attending a middle school in Northwest Arkansas, Don and Kevin (2017) observed that; various indicators of social capital have a significant relationship with food insecurity/food security. In addition, significant moderating effects reveal the unique capability of two-parent households to buffer the impact of poverty and limited accessibility.

In their survey of 478 subsistence farmers in Lilongwe Central region of Malawi, Dzanja, Christie, Fazey, and Hyde (2013) concluded that social capital has positive influence on household food security; however, the effects vary depending on the nature of social capital. Social capital can have a positive or negative effect on community's' resilience capacity to disasters (Coates, 2015). Equally, networks and trust among community members and across communities can allow

sharing of resources among members for coping with common disasters that the community might experience. The negative part of social capital may exist when a closely-knit community exclude and deny others who are not members of their community to affiliate with them to benefit from community resources or initiatives to support resilience building. Allowing only those in a closely-knit community to benefit from resources and initiatives that are geared towards building resilience to disasters may jeopardize the coping capacity of the excluded group.

Manyena (2014) affirms the negative consequences of closed social networks which widen the distinction between bonding and bridging effects. The bonding component of social capital can result in a situation whereby the distribution of benefits exists only within communities but remaining closed to outsiders. The bridging component of social capital exists in a situation where the networks contribute to cross-cultural and intergroup linkages. Bridging capital has the ability to have a better outcome in terms of benefiting communities cope with impacts of disasters. Too much bonding capital with very low bridging capital in a community can enhance cohesion and micro-level resilience but can be a recipe for exclusion from the larger community and competitive macro-level politics which can destabilize the community hence they become vulnerable to perennial hazards (Manyena, 2014). We believe the present study fills some of these gaps in the extant research.

2.4 Social Safety Nets (SSN) and Performance of Food Security Projects
Social safety nets are programs structured in such a way that the beneficiaries, who are mainly the poorest and most vulnerable in society are able to graduate from extreme poverty. The beneficiaries are always at the edge of poverty and if not supported well can fall back into their old lifestyle very quickly even if they had initially benefited from the program. Social safety net programs can also cushion the vulnerable from unexpected crises like drought, crop failure or when a family member gets sick. For decades, social safety nets have been used as one of the most important strategy to uplift the poor and marginalized groups of the society out of extreme poverty. Social protection has been employed differently in different countries across the globe. Among the countries in the European Union for example, social protection exist in forms such as: cash benefits with minimum income programs, rent subsidy, special cash for lone parents, advanced cash guarantee for child support, maternity or parental benefits, credit towards old age pensions among others (Kamerman and Gabel, 2006).

Although Latin America and the Caribbean records the highest number of social safety net programs, the program is equally spreading quickly in other parts of the world. For instance; in the past decades, social safety net strategies such at the emergency social funds, social investment funds, and social action programs only existed in Latin America and the Caribbean. However, in recent times, the initiatives are being implemented in other 45 countries in Africa, Asia, Latin America and the Caribbean (Reddy 1998). In Latin America, the recent social protection initiative is the conditional cash transfer program which is implemented in thirteen countries in the region. The initiative is supported by the Inter-American Development Bank (IADB) (Inter-American Development Bank, 2006). The initiative successfully managed to support women working in informal sector in 15 countries out of the 36 countries in the Latin America region. Through the initiative, Latin America is now known to have high number of families with allowances; in fact it is second after Europe (Kamerman and Gabel 2006).

Across Africa, a comprehensive study by Barrientos and Hulme (2008) shows that social protection schemes started in 1970s and has continued to evolve with time. However, most of the social protection initiatives in Africa are short term and are coupled with vices such as bribery nepotism and corruption in their implementation. Traditionally, social protection in Africa was meant to address short term humanitarian needs, the initiatives include: emergency food aid, emergency medical assistance among others. However, the short term strategies were unsustainable thus the need to have a long term solutions. Recently in countries such as Kenya, Uganda, Zambia, Malawi, Ghana, and Nigeria, social protection programs have started to transform into long term approaches that include human development (Devereux, 2016).

Bronchetti, Christensen and Hoynes, (2018) used an instrumental variables technique and find that SNAP participants do not face higher rates of food insecurity after controlling for selection. Allard *et al* (2017) use the Current Population Survey Food Security Supplement linked across years to trace out dynamic patterns of very low food security relative to SNAP entry. They find that food security appears to deteriorate in the 6-8 months prior to entering SNAP, but that after SNAP receipt begins, the likelihood of VLFS declines by about one third within a month or so. Bonanno and Li (2014) use recent state-level changes in SNAP rules to instrument for SNAP participation, and also find that SNAP reduces LFS and VLFS.

Gundersen, Kreider, and Pepper (2017) use state administrative error rates and self-reported loss of benefits while still eligible in an instrumental variables framework and find that participation in SNAP lowers rates of food insecurity. Kim (2016) examines the temporary increase in SNAP benefits in the economic stimulus package of 2009 reduced food insecurity among SNAP-eligible families relative to non-eligible families. Safety nets also have broader economic impacts through increased productive activities by households. Furthermore, vulnerable categories, such as children, receiving social transfers tend to be generally better nourished (Brown *et al.*, 2017). Thus, benefits spread to the local economy.

In Kenya, Turkana County has a high poverty index exacerbated by high prevalence of food insecurity and conflict (KIHBS, 2007) and thus the need for workable mechanisms for combating further escalation. Being in the northern frontier of Kenya, Turkana County has faced, socio-economic and political marginalization from successive regimes in Kenya. This led to underdevelopment of both human resource and infrastructure in the region. Thus coupled with frequent climate change related disasters, households in this region have always been vulnerable to food insecurity. For decades they have relied on relief food for their survival which has only increased their dependence culture on external aid. According to Kenya National Bureau of Statistics (KNBS, 2017); approximately 87.5% of the population in Turkana County live below the poverty line, they are also not able to meet their basic food and nutrition needs. Social safety net programs have become an important initiative to bridge the gap between overdependence on humanitarian aid and self-sustainable development of the society. Through social protection, households in crisis-prone county can be able to rebuild their livelihoods thus able to meet their basic food needs.

Case studies of Ethiopia, Kenya and Uganda, as well as wider social protection literature, confirm there is currently an evidence gap when it comes to social protection's contribution to long-term adaptation and resilience to food insecurity. While adaptation does not necessarily have to be an explicit objective of social protection programmes, contributions to adaptive capacity can potentially come from linkages with programmes that aim to build resilience to shocks and stressors that lead to food insecurity, which the HSNP framework in Kenya, for example aims for. This however can be a challenge in contexts where solid complementary programmes still have to

be developed and put in place. To derive a sense of effect, there is need to explore a relationship between social safety net programs and performance of food security projects.

2.5 Disaster Management skills and performance of food security projects

Disaster management requires operations to prevent, plan, respond to and recover from the effects of an accident or accident. Activities for disaster management are divided into: disaster preparedness, disaster response, disaster recovery, epidemiological monitoring after disasters, environmental management, and disaster mitigation.

Disaster preparedness is characterized as a state of preparedness to respond to a disaster, crisis, or other emergency situation of some sort. More generally it is stated as leadership, preparation, readiness and exercise support, and technical and financial assistance to reinforce the emergency workers of individuals , communities, state , local and tribal governments as they plan for the disaster, alleviate the impact of the disaster, respond to community needs after a disaster, and implement successful recovery efforts (www.fema.gov).

Disasters pose direct and indirect threats to the smallholder farmers' livelihoods and food security. The number of people requiring food aid often increases after disasters occur, particularly when vulnerable communities are affected. For example, the droughts and floods associated with El Niño in 2015–2016 seriously affected the food security and nutritional status of over 60 million people worldwide (FAO , 2016). The uncertainty associated with the observed increase in the frequency and intensity of disasters in many developing countries can drive poor farmers to invest in low-risk but low-returning agricultural production technologies and techniques (Cole *et al*., 2013). In turn, low investments can lead to lower future farm profits and increased food insecurity (Aimin, 2010). Furthermore, the impact of disasters on reduced food consumption, education and healthcare can lead to long-term negative effects in terms of income generation and future food security (FAO, 2015c).

Food insecurity and disaster risk reinforce one another. Disasters have catastrophic implications for food security, and food insecurity increases vulnerability, contributing to a downward spiral that is rapidly eroding rural livelihoods (Garschagen et al., 2015). In disaster circumstances, people with food insecurity could be forced to take urgent action to resolve immediate needs, frequently

risking their livelihoods and increasing their vulnerability and exposure. For example , extreme droughts can cause food-insecure farmers to over-exploit common property resources with negative medium- and long-term advice, such as community forests, pasture, wetlands, river banks and groundwater, with negative medium- and long-term consequences for agricultural productivity and food security (Pandey *et al.*, 2007).

A case study in Mozambique has shown that the government of Mozambique increased the disaster preparedness by issuing timely alerts so that people can improve their preparedness and to make funds available through established contingency plans and mechanisms to initiate response activities. As a result of a good early warning system and the activation of contingency and response plans, the impact of these floods, even if devastating for material goods, was relatively small in terms of the number of people who died (OCHA, 2013).

Among the pastoralists, disaster mitigation and preparedness skills include: purchase of livestock during good rainy season (positive income shock) and selling off the livestock in response to drought (negative income shock). However, these strategies are unpredictable and re faced with other economic factors such as fluctuation in market price of livestock, cattle rid among others. Kochar (1999) found that in India, rural households smooth their consumption in response to production shocks, men were also engaged in alternative labor market as a response.

For risk mitigation, one review assessed the evidence on heat adaptation and heat prevention measures, such as heat warning systems (including awareness and communication), air conditioning etc. conducted in an urban area (Boeckmann and Rohn, 2014). Another paper undertook a systematic review of Ecosystem based Adaptation (EBA) research in urban environments. It defined EBA as 'use of the range of opportunities for the sustainable management, conservation and restoration of ecosystems to provide services that enable people to adapt to the impacts of climate change. It aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change. Ecosystem-based adaptation is most appropriately integrated into broader adaptation and development strategies' (Brink et al., 2016). Both of the adaptation measures were reviewed in the urban context.

2.6 Community Resource Capacity and performance of food security projects

Assets ownership is an important coping mechanism during periods of hardship as they are part of the household's capital. The importance of assets has been showed by Szabo *et al*., (2014). In their study in the southwest coast of Bangladesh, they investigate the effect of soil salinity and wealth on household food security and find that the impact of household wealth is strong, in particular when considering the richest strata of the society (the effect of household wealth is approximated by an asset index constructed using PCA). Ceteris paribus, the odds of being food-insecure for the richest households are approximately 0.26 times the odds for poorest households. A study by Aboubakr, Adama and Tobias in Niger in 2015, on factors affecting rural households' resilience to food insecurity in Niger, using a sample 9354 rural households confirmed the hypothesized principle that households owning more assets are more likely to have high resilience level because the assets can be used to cushion them against shocks (Quandt, 2018).

In Bangladesh, analysis of secondary data from the 2011 Demographic and Health Survey (DHS) reveals that households in the highest wealth bracket (based on the quintile distribution of their assets) are considerably less likely to suffer from food insecurity compared to poorest households (NIPORT *et al*.,2013). For example, a relatively recent study based on the analysis of 2005 HIES data showed that both education and wealth were significant predictors of household food security in Bangladesh (Szabo, 2016). The Otto et al (2017) reported that loss of assets can push poor households into chronic poverty traps as they do not have the necessary income to rebuild houses, replace assets, and cope with negative health outcomes.

Assessment of the relationship between household assets and food security is sparse at least in the quantitative literature. Only a handful of studies have examined the role of owning other types of assets to explain food security. For example, in their study of Michigan welfare recipients, Schmeer*et al*. (2015) found that mental health and low financial resources were associated with food insecurity, where income instead of assets represented households' financial resources. Guo (2011) found that the values of households' savings, mutual funds, and stocks were negatively associated with the risk of food insecurity, controlling for income. In addition to home and vehicle ownerships, Guo expanded the value of total savings and ownership of mutual funds/stocks to understand food insecurity using the 2002 Survey of Program Dynamics. Guo also argued that especially among low-income households it was assets (especially savings), and not income, that

mattered. Whereas Guo's study provided evidence of negative correlations between financial asset holdings and food insecurity at the mean, it neither considered the role of household debts nor provided specific information on whether following certain financial ratio-based guidelines would help avoid food insecurity.

In household finance literature, several asset-based concepts and measurements have been used to describe the financial status of a household. Some studies have used the total asset value or net worth as a measure of accumulated wealth available for emergency or for retirement (Guo 2011; West and Price 1976). However, given the highly skewed distribution of household wealth, total household asset holdings measured at the mean may not be very useful in describing the problems experienced by financially- constrained households in meeting their basic consumption needs such as food.

Grazing and water resources in the ASALs are scarce and highly variable and unpredictable across space and time (Opiyo *et.al*., 2015). As a result, livestock production systems depend on short-term 'boom and bust' cycles and are more dynamic relative to other agricultural systems. In terms of markets, this means that there can be unpredictability in supply. The variability in quality of forage has an implication on production and the quality of livestock products, particularly milk. This in turn, can have knock on effects on nutrition and price. Thus, the timing of sales matter to producers and is still driven primarily by household needs to buy food when milk and feed access are at their lowest. Although there are patterns of buying and selling that have not changed significantly in past 30 years (Little, 2015), with the right structures and processes in place, markets can be harnessed to support these production systems.

Fixed markets are not well placed for grazing, especially during drought, so trucking becomes only option unless bring feed and water in. There is greater demand for male animals for markets, especially exports, but most subsistence herds are dairy operations. Bush traders can be found throughout the ASALs in Kajiado and Borana sourcing male animals for agents to sell for export (Little, 2015). Therefore, there is a conflict in herd management for subsistence and commercial purposes, which can have an impact on household resilience.

Access to markets is one of the biggest barriers to participation in the livestock sector for producers. This is recognized explicitly in the CPF. Lack of market integration is a distortion that leads to increased poverty and vulnerability. Market integration can be improved by improved physical and information integration (Jouanjean, 2013). Key informant interviews suggest that it is widely accepted in policy circles at donor, national and county levels that if infrastructure, primarily the road network, is expanded and improved, livestock markets will benefit. However, there is little provision for the complementary hard and soft infrastructure (e.g. sanitary and phytosanitary regulations) that must accompany road-building if this assumption is to hold. The Arusha-Namanga-Athi River Road Development Project has identified that   (Matsushita, 2013).

2.7 Environment factors and Performance of Food Security Projects

External environment comprises all forces and events outside the project that impinge on its activities (Palmer and Bob, 2002). External environment consists of two interrelated sets of variables that play a principal role in determining the opportunities, threats and constraints that projects face and obviously that affect their performance. First, variables originating beyond a project's operating situation such as economic, political, social and technological forces, form the external environment. These are also referred to as macro environment (Pearce and Robinson, 2007). Second, variables influencing a project's immediate competitive situation also referred to as micro environment or industry factors. These constitute the external operating environment. These factors are said to either promote or restrict the achievement of set goals and also affect the main internal functions of the organization and possibly its objectives and strategies (Gupta, 2009).

Tolbert and Hall (2009) conceptualize external environment from five main dimensions of environment capacity, heterogeneity, environmental concentration, domain consensus and, environmental uncertainty. Environment capacity focuses on the level of resources available to a project. Heterogeneity refers to the degree to which the organization faces different demands from different stakeholders (Dowell, 2006). Environmental concentration is the distribution of resources used by the projects (Aharonson, Baum and Feldman, 2007), while domain consensus represents the degree to which there is agreement among related projects and other groups in the society which projects have the right to provide particular goods/services. Environmental uncertainty relates to environmental instability/change that is associated with broad environmental aspects such as the technology, political-legal and demographics (Tung, 1979). Other scholars including

Scott and Meyer (1983) classify external environment into task and general environments. Task environment consists of the specific individuals and organizations that interact directly with the organization and can affect goal achievement, such as suppliers.

The project environmental factors identified by Walker (1989) and Hughes (1989) as constituting environment of projects are political, legal, institutional, cultural, sociological, technological resources, economic, financial, and physical (infrastructure). Both studies directed attention to some factors within the environment that pose greater challenges to projects, management and organizational structure than others and suggested that these factors should form the focus for the management of the projects environment. The economic and financial aspect zeroes on the level of general economic activity, as well as the resources available to carry out the work and it includes the economic competition of various degrees around the appointment of all the parties of the project. Financial limits always seem to exist on projects according to Obalola, (2006) whose study clarified that financial environment forces are distinguished from economic ones on the basis that economics is to do with the deployment of resources, whereas financial limitations are strictly to do with money. A challenging task for any project manager is to ensure that a project is financially viable within a fluctuating economic environment (Odeh and Battaineh, 2004).

Political environment is concerned with government policy and the effect of political decisions upon construction projects. As observed by Mansfield et al. (1994), governments may invoke their powers to initiate or stop projects on political, social and environmental grounds. Political stability, national unity and good political leadership are thus crucial to national development. Thomas and Martin (2015) believed that no project exists in a vacuum but is rather subject to an array of influences from regulatory control to political and industrial intervention and opined that managers of the construction project will take cognizance of the political aspect that can produce an uncertain environment such as unstable government, unpredictable shifts in the economy and unexpected changes in consumer demand. The socio-cultural dimensions of the environment consist of customs, lifestyles, and values that characterize a society (William, 2002) while population demographics, rising educational levels, norms and values, language and attitudes towards social responsibilities are examples of socio-cultural variables (Engobo, 2009). These variables have the potential to influence or affect projects that operates within the society. Therefore, environmental scanning plays a central role in the project's decision-making processes and its strategic adaptations.

Although this is true for many projects, performance of projects in Kenya remains wanting due to constraints originating from external environment and lack of expertise in monitoring and analyzing environment (Odindo, 2009).

2.8 Theoretical Framework

Theoretical framework allows the interpretation of specific components of the research as well as general understanding of theories applied in the study. This study is built on the basis of the following key theories: the theory of constraints, resource dependency theory, social identity theory and organizational control theory. These theories were used in interpreting key components of resilience and their relation on food security among the pastoralist community.

2.8.1 Theory of Constraints

The theory of constraints (TOC) is a management based philosophy brought about by Eliyahu (1984) with the aim of helping projects achieve their goals. According to the theory, every project has a constraint or a bottleneck that hinders it from achieving the targeted goals. The core concept is that every process has a single constraint and that total process can only be improved when the constraint is improved. A very important concept of the theory is that; spending time optimizing non-constraints will not provide significant benefits; only improvements to the constraint will further the goal.

Thus, TOC seeks to provide precise and sustained focus on improving the current constraint until it no longer limits throughput, at which point the focus moves to the next constraint. The underlying power of TOC flows from its ability to generate a tremendously strong focus towards a single goal and to removing the principal impediment (the constraint) to achieving more of that goal. In fact, Goldratt considers focus to be the essence of theory of contraints.

In food security projects the main constraints are related to; accessibility, and availability. This study uses theory of constraints to identify the level of influence of resilience capacities challenges on performance of the food security projects and suggest measures that key players in the sector can adopt.

2.8.2 Resource Dependency Theory

The resource dependency theory emerged with the seminal work of Pfeffer and Salancik (2003). This theory will help in understanding the food security case as well as establish a framework for exploring and interpreting the empirical data on food security. The theory explores how external constraints affect the organization and the ways to manage organization in order to manage these constraints (Irani *et al*., 2015). The proponents of this theory argue that the main task of the management is to adapt in order to secure essential resources and strive to maximize self-sufficiency, in light of environmental demands. Oliver (1991) offers an array of strategic response which organization can use to cope with institutional pressure and argues that organizations may react in a variety of ways from passive compliance to active defiance of an institutional environment. Organizational change is recognized as an effect of an organizations interaction with its environment. Thus the study seeks to use the resource dependency theory as a guide to explain the determinants of resilience to food insecurity in Turkana County, a semi-arid area.

2.8.3 Social Identity Theory

The Social Identity Theory (SIT) is built on the principle of self-esteem. According to the theory, people show solidarity within groups and discrimination against out-groups. This is part of social identity whose main goal is to create a positive self-esteem and self enhancement. Thus in most cases, people associate themselves with certain values and groups where they feel a sense of belonging, this is what Tajfel and turner (1979) referred to as social identity. The associations among individuals based on certain attributes and value system is what brought about the social groups in society. Some scholars who are known to be proponents of this theory include; Oakes (1987) and Oakes, Turner, & Haslam (1991).

Motivation forms an important component of the Social Identity Theory; each and every one must have specific motives for him/her to join a certain social group. The motivation can either be external or internal, internal motivational factors entail individuals' needs which are influenced by their own behavior, on the other hand external motivation factors include the individual motive in relation to factors which are consistence with their self-identity such as demographic factors, culture, religion and experience (Dwivedula and Bredillet, 2010); (Ravikiran*et al*., 2013). In summary, Social Identity Theory and Self-Determination Theory are based on the same concept of individuals gravitating towards a group that has similar values to that of their own (Young,

2017). Social identity is known to enhance ones commitment in an organisation which is important in enhancing productivity of an organization. The results can also be the same or different in informal social organizations hence performance of food security projects can be enhanced or reduced. Integration of the theory with the fault line model, clearly show that splitting a social group into sub-groups results in a situation where individuals tend to associate themselves more with the sub-group than the larger group. From a Social Identity Theory perspective, when community members do not share the predominant traits of the group, they may face negative consequences, such as exclusion or fewer interactions, bias and discrimination (Rutland and Killen, 2015). These negative consequences further impact on the relationship between different households and may negatively impact on the performance of food security projects.

2.8.4 Organization Control Theory

Organization Control Theory is linked to Max Weber (1947) whose main thesis was on control of power in organizations. The theory advocates the need for effective functioning of all the sub-sections in an organization. In line with the theory, managers in an organization are supposed to run the organization based on the formal rules and not personal whims and wishes. Mangers should therefore aspire to level the social classes to promote social equity in an organization. In (1949), Henry Fayol modified the Organization Control Theory. Fayol brought in practical realism in management which encompasses the key components of principles of management subject for effective control of an organisation. Some of the key principles relevant for this study include: equity, scalar chain, remuneration of personnel, and unity of direction, division of labour, discipline and unit of command.

In (1979), Ouchi came up with a framework which has been adopted in many studies that focuses on organizational control and management. Ouchi (1979) highlighted the main determinants for managers to choose the project control modes. They include: specification of the steps that need to be followed and the ability to measure outputs. Both Ouchi (1979) and Max Weber (1949) are in agreement on the fact that, information necessary for task completion in an organization should be contained in rules on behavior control. This makes it easy to manage planned tasks.

2.9 Conceptual Framework

Figure 2.1 show the conceptual framework model developed to guide the study. The key components of resilience were used to develop the independent variables in the conceptual model while the dependent variables involve the various dimensions on the performance of food security. The moderating variables include the social, economic and political factors.
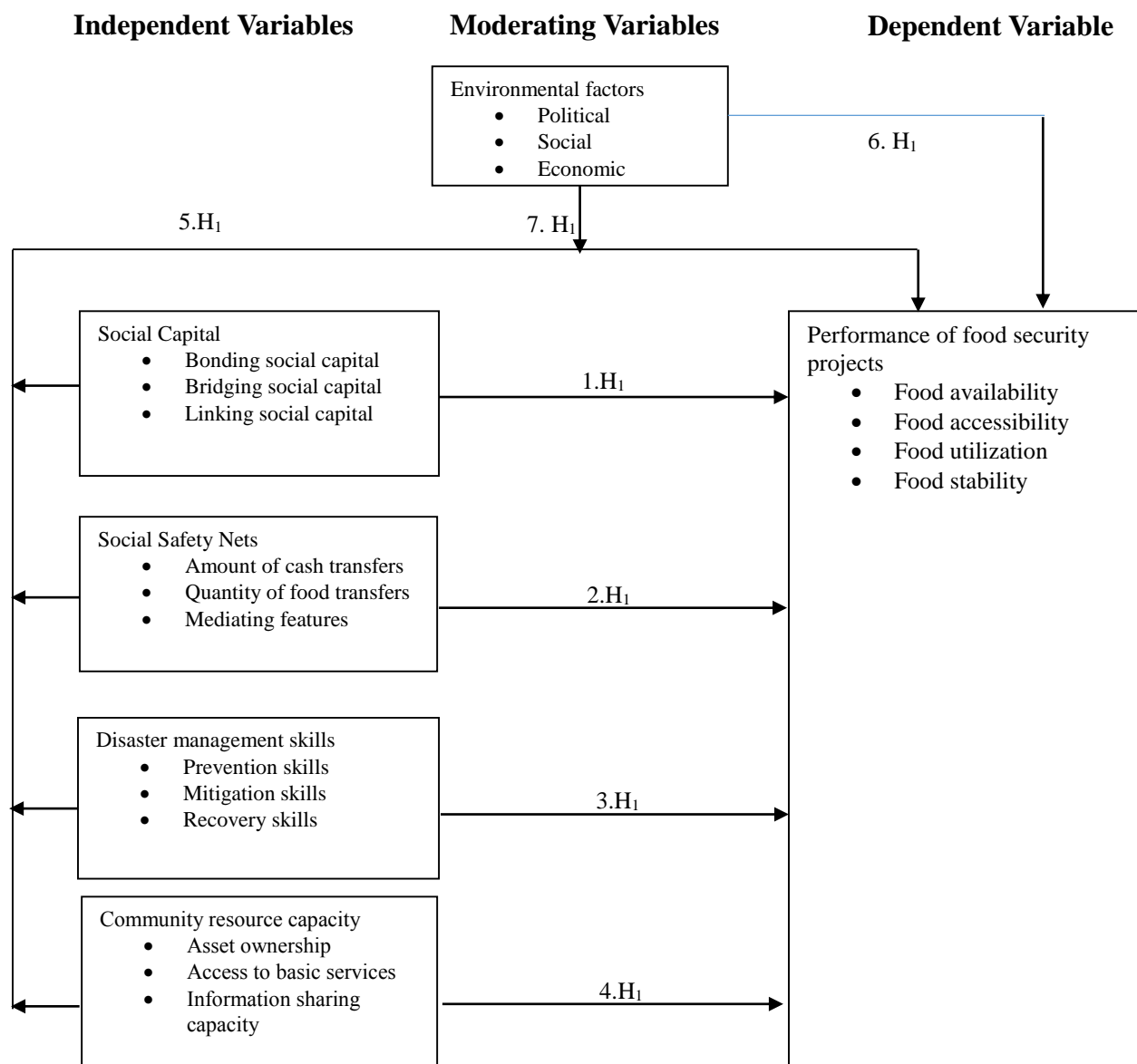
Independent Variables   **Moderating Variables**   **Dependent Variable**

Environmental factors
- Political
- Social
- Economic

6. H_1

5.H_1 7. H_1

Social Capital
- Bonding social capital
- Bridging social capital
- Linking social capital

1.H_1

Performance of food security projects
- Food availability
- Food accessibility
- Food utilization
- Food stability

Social Safety Nets
- Amount of cash transfers
- Quantity of food transfers
- Mediating features

2.H_1

Disaster management skills
- Prevention skills
- Mitigation skills
- Recovery skills

3.H_1

Community resource capacity
- Asset ownership
- Access to basic services
- Information sharing capacity

4.H_1

Figure 2.1: Conceptual Framework for community resilience capacity, environmental factors and performance of food security projects.

2.10 Summary of Literature Review

The chapter covers the relevant literature reviewed, the theoretical frameworks and the conceptual framework that informed the study. Literature review was based on the study variables which include: literature on performance of food security projects, social capital and performance of food security projects, social safety nets and performance of food security projects, disaster management skills and performance of food security projects, and lastly community resource capacities and performance of food security projects in Turkana County, Kenya.

The theories which informed the study include: social identity theory and resource dependency theory. The adoption of Social identity theory was based on the existing social networks among the pastoralists which cushions them against shocks before the external assistance. When people do not share the predominant traits of the group, they may face negative consequences, such as exclusion or fewer interactions, bias and discrimination (Rutland and Killen, 2015). Organization dependency theory was employed because organization (community) members depend on each other for a living.

Table 2.1 Summary of Research Gaps

Objective	Author	Focus	Methodology	Findings	Gaps	Focus of the Current Study
To establish the extent to which social capital influences performance of food security projects	Dean and Sharkey (2011)	The study examined the influence of social functioning on food insecurity	The study explored the influence of social functions in the households on food security among urban adults in Texas	Found in their study of adult residents of rural Texas that "individual level measures of collective social functioning are important correlates of food insecurity	The study findings were key but did not look at the influence on performance of food security projects	The influence of social capital on performance of food security projects in Turkana county, Kenya.
	Dzanja, Christie, Fazey and Hyde (2013)	The study examined the influence of social capital on household food security	The study conducted a household survey of 478 small holder farmers in Lilongwe the central region of Malawi.	Concluded that social capital has positive influence on household food security	The study emphasis that the effect varies depending on the nature of social capital	The influence of several indicators of social capital on performance of food security projects
	Don and Kevin (2017)	Examined the relationship between social capital, poverty, limited food accessibility, and food insecurity	Using survey data that overcomes methodological limitations of previous research on youth food insecurity and regression analysis	They found that various indicators of social capital have a significant relationship with food insecurity even after controlling for multiple sociodemographic and circumstantial factors	The study used only fifth graders, aged between 10 and 14 years.	The influence of social capital on performance of food security project in Turkana county, Kenya.
To establish the extent to which social safety nets influences performance of food security projects	Mykerezi and Mills (2010)	Impact of food stamp participation on household food security		Two strategies are used to identify the causal effect of the program. First, endogenous treatment effect models are estimated using state-level errors in	The paper finds that program participation lowers food insecurity by at least 18% but does not look at performance of projects on food security	The influence of social safety nets on performance of food security projects in Turkana county, Kenya.

				payments of benefits as instruments.		
	Nord and Prell (2011)	Food security of SNAP recipients	Cross-section design	After these enhancements, SNAP participation and inflation-adjusted food spending by low-income households increased.	After these enhancements, SNAP participation and inflation-adjusted food spending by low-income households increased.	
To establish the extent to which disaster management skills influences performance of food security projects	Aboubakr, Adama and Tobias (2015)	The study on factors affecting rural households' resilience to food insecurity in Niger	The study used a sample 9354 rural household	Confirmed the hypothesis that the more assets a household owns, the higher its level of resilience is	The study findings were key however they need to be re-tested in a different set up to confirm their generalization and how they influence performance of food security projects	The influence of assets ownership on performance of food security projects in Turkana county, Kenya.
	WorldBank (2000)	The study examined the influence of assets on household food security	The study conducted a household survey	Reported that loss of assets can push poor households into chronic poverty traps	The study emphasis on influence of loss of assets but not how assets relate to performance of food security projects	The influence of assets owned on performance of food security projects
To establish the extent to which community resource capacity influences performance of food security projects	Faridi and Wadood (2010)	Predictors of household food security	Analysis of 2005 HIES data	Showed that both education and wealth were significant predictors of household food security in Bangladesh	The study findings can't be generalized to performance of food security projects	The influence of assets ownership on performance of food security project in Turkana county, Kenya.
	Elizabeth Carabine, Marie-Agnes Jouanjean and	Security and food security	The study explored the influence of community security on food security	Stakeholders confirmed that insecurity is a major challenge	The study findings were key but they did not look at them in relation to	The influence of access to basic services on performance of food security projects in Turkana county, Kenya.

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	Josephine Tsu (2015)			throughout the ASALs and a primary concern for producers	performance of food security projects	
	Matsushi (2013)	The study examined the influence of infrastructure on food security	The study conducted on the Arusha-Namanga-Athi River Road Development Project	Identified that hard infrastructure policies coupled with intervention in soft infrastructure will improve market access, and additionally improve livestock and land choices and therefore overall enhanced resilience	The study was on road infrastructure only	The influence of several indicators of access to basic services on performance of food security projects

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research philosophy, research paradigms and design that underpin this research study. Additionally, the sampling procedures, research instruments and data collection methods are also discussed. The chapter equally contains methodological regression equation models which are used to address the study hypotheses.

3.2 Research Paradigm

The choice of a paradigm for a research study is based on factors related to its nature of reality, value, knowledge and methodology. This study was guided by pragmatism paradigm since in terms of ontology and epistemology, pragmatism is not committed to any reality or philosophy system and also the choice of the mixed method research design makes it ideal. Mertens (2014) considers a paradigm to be a collection of variables, ideas and problems together with the corresponding methodology and research tools. The use of both qualitative and quantitative methods allowed triangulation of results as well as generation of new insights in the assessment of household resilience.

According to Merriam and Tisdell (2015) a research paradigm therefore, provides the researcher with a clear way of conducting research by providing the researcher with methods and ways of defining data. In this research study, the pragmatic research paradigm is adopted from Morgan (2007) argument that paradigms entail beliefs as well as practices which can guide a researcher on the choice of research methods.

3.2.1   Research Design

This research adopted descriptive and correlational research designs. In descriptive, the researcher provides, observes and describes the research elements without influencing anything (Thomas, Silverman and Nelson, 2015). Descriptive research design can be quantitative and qualitative, quantitative descriptive research simply tells us what it is, rather than determining the cause and effect. Descriptive research design was employed to inform the existing status on food security and community resilience capacities. Because descriptive design cannot conclusively ascertain the relationship between study variables, correlational research design was used to measure the relationship between community resilience capacity and food security in the study area.

3.3 Target Population

The composition of the target population was 38,311 households in Loima Sub County which was calculated through dividing the total population (229,863) of Loima Sub County by 6 which was the average number of individuals per household in Turkana County according to the 2009 census in Kenya. The unit of analysis was the households since data was analyzed at the household level.

Table 3.1 shows sub-locations in Loima Sub County.

Table 3.1 Target Population

	Sub-Location	*Population*	*No. of HHs = Population/6*
1	Namoruputh	15,000	2,500
2	Lochor Edome	4,500	750
3	Lochor Ekuyen	4,000	667
4	Puch	23,000	3,833
5	Lokiriama	9,865	1,644
6	Lochor Alomaala	6,907	1,151
7	Atalokamusio	4,532	755
8	Urum	8,000	1,333
9	Nakwapua	4,000	667
10	Lorengippi	3,825	638
11	Loya	2,600	433
12	Kaemanik	2,700	450
13	Nakurio	2,100	350
14	Lodwat	2,400	400
15	Lobei	8,000	1,333
16	Lorugum	11,200	1,867
17	Kalemunyang	14,000	2,333
18	Kotaruk	3,925	654
19	Naipa	4,502	750
20	Lokipetot arengan	3,000	500
21	Kaakalel	4,000	667
22	Turkwel	19,700	3,283
23	Nadapal	25,000	4,167
24	Napeikar	5,500	917
25	Tiya	9,107	1,518
26	Kawalase	4,000	667
27	Lomeyan	5,500	917
28	Kaapus	5,200	867
29	Nachuro	6,100	1,017
30	Napililim	4,700	783
31	Nasiger	3,000	500
		229,863	**38,311**

Source: www.turkana.go.ke

3.4 The Sampling Strategy and the Sample Size

This section gives a detailed discussion on the sampling strategy and the sample size used in the study. According to Gentles *et al* (2015) sample size is simply the number of individuals or items selected from the general population for easier examination. Sampling strategies on the other hand are different techniques employed in selection of the items/ population for the study.

3.4.1   Sample Size

The sample size for the research was determined scientifically based on Slovin's formula. First, the researcher determined the number of sub-locations on which research was carried out, the researcher took 35% of the 31 sub locations to be representative enough since Mugenda and Mugenda (2003) recommends at least 30% of the accessible population as being good enough. Therefore, the number of sub locations on which the research wass carried out is 11, which were randomly selected.

The Slovin's formula was used to calculate the sample size for the households. The formula had a 0.05 acceptable margin of error as illustrated in the following equation by Alemeda *et al* (2010):

$$\text{Sample Size(n)} = \frac{N}{1+Ne^2}$$

Where:

$$n = \text{Number of samples}$$

$$N = \text{Number of Households}$$

$$e = \text{Marginal error (0.05)}$$

Calculating the sample size,

$$\text{Sample Size(n)} = \frac{16,517}{1+16,517*0.05^2} = 390.54 \cong 391$$

An extra 100 households were added so as to take care of the sampling errors. The attained sample size was proportionately allocated to the 11 sub-locations as shown in table 3.2

Table 3.2 Sample size

	Sub-location	Population	No. of hh	Sample size
1	Kotaruk	3,925	654	25
2	Naipa	4,502	750	28
3	Turkwel	19,700	3,283	88
4	Napeikar	5,500	917	32
5	Lorugum	11,200	1,867	54
6	Nadapal	25,000	4,167	99
7	Kawalathe	4,000	667	26
8	Lochor-edome	4,500	750	28
9	Lochor-ekuyen	4,000	667	26
10	Lochor-alomala	6,907	1,151	27
11	Lokiriama	9,865	1,644	49
		99,099	**16,517**	**491**

3.4.2 Sampling Procedures

The sampling unit for the study was the beneficiaries of the food security projects. The sample design was a combination of purposive sampling and simple random sampling to obtain the sample size for the research. Simple random sampling was used to select the sub-locations where the research was carried out and also in determination of the households to take part in the study. Purposive sampling was used to identify key informant interviewees who in this case are the project managers.

In the current study, to select the sub-locations where the research was carried out, numbers were assigned to the sub-locations and then mixed in a pot, after which the researcher will randomly select 11 papers from the pot and carry research on the sub-locations in the selected papers. After selection of the sub-locations has been done, the researcher will then determine the number of households where the research was carried out in the sub-locations, this was done systematically, whereby the households were mapped, then numbered and heads of the households selected systematically chosen to respond to the questionnaires.

According to Sekaran (2003), systematic sampling strategy gives a sample size that is more representative with reduced sampling error. Application of purposive sampling is supported by

Mertens (2014) who argues that purposive selection of participants for the study help the researcher understand the real problem as well as saving time. The argument is further affirmed by Merriam (1998) who view purposive sampling strategy as an important component for a researcher to discover, understand and gain insights into the research problem.

3.5 Research Instruments

Data collection tools for this study include: questionnaires, interview guides and observation check lists. The administration of these data collection tools was done by the researcher who was supported by trained research assistants.

Questionnaires for project beneficiaries

Semi – structured questionnaires were used to collect data from the respondents. This method was preferred since the targeted number of respondents was large and both quantitative and qualitative data was collected, it also gave the respondents the chance of appreciating the study. The questionnaires collected information on the demographics of the respondents, performance of food security projects which was the dependent variable. The independent variable was split into social capital, social safety nets, disaster management skills and community resource capacity, the last section was on the moderating variable which was environmental factors.

Interview Guides for project beneficiaries

Interview guides were mainly used to collect qualitative data during the focus group discussion and key informant interviews so as to get key information regarding the research variables. Bhattacherje (2012) contends that interviews offer a more personalized mode of data collection tan the questionnaires, hence making the respondents appreciate the research more since the interviewer has the chance of clarifying grey areas in the research to the respondents. The majority of the qualitative data collected using interview guides were used to enrich the quantitative collected using questionnaires.

3.5.1 Pilot Testing of the Research Instruments

A pilot study was conducted in Kalemunyang sub-location of Loima sub-county, the area was chosen since it had the same characteristics in terms of respondents, projects and topography to the areas where the actual research was carried out. A total of 10 questionnaires were administered

and two interviews carried out. According to Connelly (2008), a pilot study sample size should be 10% of the projected study sample size. The purpose of the pilot test was to ensure that the questions being asked are clear and well understood by the respondents. The Cronbach alpha technique was used to determine the validity and reliability of the data collection tools.

3.5.2 Validity of the Research Instruments

The research instruments were checked for validity to ensure that they measure correctly the intended constructs. The main validity aspects checked were; content validity, construct validity, and criterion validity. Content validity checks if the instrument covers the content it is supposed to (Heale and Twycross, 2015), this was achieved by having experts in the research areas and research supervisors critically review the instruments and make suggestions for improvement. Construct validity refers to the ability of a research instrument measuring what it purports to measure (Henseler, Ringle and Sarstedt, 2015), this was achieved by checking whether a relationship exists between the variables based on the data collected from the pilot study. Validity of the interview guide is ensured by respondent validation that is checking and commenting on the transcribed manuscripts after the pilot test.

3.5.3 Reliability of the Research Instruments

Reliability of the research instrument is based on precision, repeatability, and consistency of a test (Ledford and Gast, 2018). Reliability of the research instruments was ensured by computing a Cronbach alpha value, which is a coefficient of reliability based on the pilot study responses. A Cronbach's alpha coefficient above 0.7 is said to be reliable. In this study the reliability of the instruments was taken at Cronbach's alpha coefficient of 0.8, since it is greater than 0.7.

3.6 Data Collection Procedures

All the required procedures governing data collection in Kenya were adhered to. The research approvals were obtained from relevant bodies among which include: University of Nairobi School of Graduate Studies, The Kenya National Commission for Science, Technology and Innovation, the Turkana County Government and the Sub-County commissioners. Data collection was done with support from research assistants who were first trained on research modalities before they embarked on data collection. Because majority of the households were not familiar with English

language, the research assistants were recruited from the local community. They were mostly the college students who were able to translate the questionnaires in local dialect.

Consent was first sought from the respondents before they were allowed to participate in the study; they were further informed of the purpose of the study and that information provided will only be used for academic purpose and not to solicit for funds on their behalf. They were also informed on the confidentiality of the information provided.

3.7 Data Analysis Techniques

Both inferential and descriptive techniques were used to analyse the data collected. Descriptive statistics informed the understanding of the respondents' characteristics, while inferential statistics informed the testing of hypothesis for the generalization of the study findings in the entire population. Using the SPSS version 22 software, the   inferential tests include: Kolmogorov-Smirnov test statistic (KS-test) and Shapiro-Wilktest (SW-test) for normality; Variance Inflation Factor for multicollinearity test, as well as Test for homoscedasticity and heteroscedasticity prior to estimation of regression coefficients and testing of hypotheses. It is important to note that Variance Inflation Factor values greater than 10 indicate severe multicollinearity (Garcia et al 2015; Field, 2009).

Descriptive analysis entail: measure of percentages, frequency, central tendency, dispersion, mean and standard deviation. Qualitative data obtained from questionnaire, in-depth interviews and observation was broken down into thematic areas that correspond to the study objectives for easier reporting. According to Merriam and Tisdell (2015), qualitative analysis of data entails giving research meaning to the data through coding, synthesis and search for   specific patterns to identify and explain the links across variables from the collected data.

The strength of association between community resilience capacity and food security components was determined using the Pearson's Product Moment Correlation Coefficient (r). According to Samuel and Okey, (2015); Pearson's Product Moment Correlation Coefficient (r) is the most appropriate tool to determine the linear strength between two variables. A two-tail test was carried out to determine the influence of community resilience capacity on food security.

Further correlational analysis of the combined community resilience capacity indicators and the food security indicators was done using the linear and multiple regression models. The model

allowed testing and interpretation of the study hypotheses. In a weak correlation, "r" ranges from + 0.10 to + 0.29; in a moderate correlation, "r" ranges from + 0.30 to + 0.49; while in a strong correlation, "r" ranges from +0.5 to +1.0 (Bowling *et al.*, (2015).

Sobel test was used to explore the relationship between independent and moderating factors. The Sobel test basically provides a method to determine whether the reduction in the effect of the independent variable, after including the moderator in the model, leads to a significant reduction, and therefore, whether the mediation effect is statistically significant.

3.7.1   Regression Models

To analyze the relationship between the dependent and independent variables, regression models were developed. This study adopted the conceptual and statistical regression models for simple moderation as proposed by Mertens (2014) who defined a moderator as a variable that as an influence on the nature and strength of relationship between the predictor and criterion variable.

They depicted both the conceptual and statistical models as shown in Figure 3.1

The conceptual model   The statistical model
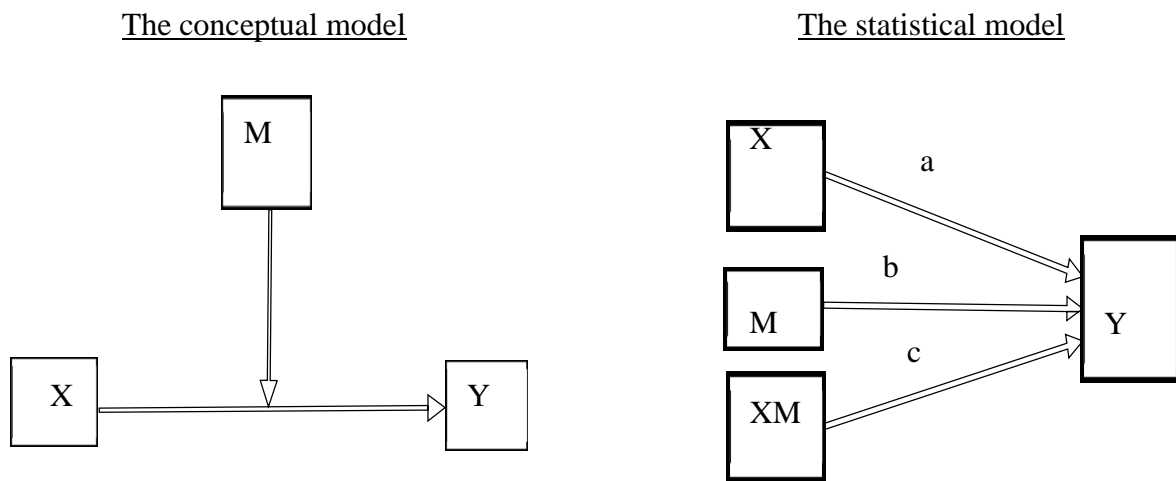
X=predictor variable, M=moderator variable, Y=criterion variable, XM = interaction term, Path a,b,c = regressions

Figure 3.1: Regression Model

Source: Baron and Kenny (1986)

Figure 3.1indicates a conceptual model to be used in the current study to test the influence of the moderator on the relationship between the dependent and independent variable while the statistical model indicates regressions to be carried out in that '*path a* as the predictor influencing on Y, '*path b*'as the moderator influencing on Y while '*path c*'as the interaction term influencing on Y. The moderator hypothesis is supported when the interaction (*path c*) is significant.

The variables were denoted as follows:

Dependent variables:

$$Y \quad - \qquad \text{Performance of food security projects}$$

Moderating variable:

$$X_1 \quad - \qquad \text{External Environment}$$

Independent variables:

$$X_2 \quad - \qquad \text{Social Capital}$$

$$X_3 \quad - \qquad \text{Social safety nets}$$

$$X_4 \quad - \qquad \text{Disaster management skills}$$

$$X_5 \quad - \qquad \text{Community resource capacity}$$

$$\beta_0 \quad - \qquad \text{Constant term}$$

$$\beta_1 \beta_2, \dots, \beta_n - \qquad \text{Weight of the independent variable}$$

$$\epsilon \quad - \qquad \text{Error term}$$

Regression Model for Objective One

Objective One was linear hence the following regression model guided the data analysis;

Model 1

Social capital significantly influences performance of food security projects in Turkana County, Kenya.

Performance of food security projects = f (Social Capital)

$$Y = f(X_2, \epsilon)$$
$$Y = \beta_0 + \beta_2 X_2 + \epsilon$$

Regression Model for Objective Two

Objective Two was linear hence the following regression model guided the data analysis;

Model 2

Social safety nets significantly influence performance of food security projects in Turkana County, Kenya.

Performance of food security projects = f (Social safety nets)

$$Y = f(X_3, \epsilon)$$
$$Y = \beta_0 + \beta_3 X_3 + \epsilon$$

Regression Model for Objective Three

Objective Three was linear hence the following regression model guided the data analysis;

Model 3

Disaster management skills significantly influences performance of food security projects in Turkana County, Kenya.

Performance of food security projects = f (Disaster management skills)

$$Y = f(X_4, \epsilon)$$
$$Y = \beta_0 + \beta_4 X_4 + \epsilon$$

Regression Model for Objective Four

Objective Four was linear hence the following regression model guided the data analysis;

Model 4

Community resource capacity significantly influences performance of food security projects in Turkana County, Kenya.

Performance of food security projects = f (Community resource capacity)

$$Y = f(X_5, \epsilon)$$
$$Y = \beta_0 + \beta_5 X_5 + \epsilon$$

Regression Model for Objective Five

Objective Five was linear hence the following regression model guided the data analysis;

Model 5

Environmental factors significantly influence performance of food security projects in Turkana County, Kenya.

Performance of food security projects = f (Environmental factors)

$$Y = f(X_1, \epsilon)$$
$$Y = \beta_0 + \beta_1 X_1 + \epsilon$$

Regression Model for Objective Six

Objective Six was nonlinear hence the following regression model guided the data analysis;

Model 6

Environmental factors significantly moderate the relationship between community resilience capacity and performance of food security projects in Turkana County, Kenya.

Performance of food security projects = f (environment factors (Social capital, social safety nets, disaster management skills and community resource capacity))

$$Y = f(X_1(X_2 X_3 X_4 X_5, \epsilon)$$

Regression Model for Objective Seven

Objective Seven is multilinear hence the following regression model will guide the data analysis;

Model 7

Community resilience capacity significantly influence the performance of food security projects in Turkana County, Kenya.

Performance of food security projects = f (Social capital, social safety nets, disaster management skills and community resource capacity)

$$Y = f(X_2 X_3 X_4 X_5, \epsilon)$$

3.8 Ethical Consideration

Ethical considerations governing social science research were strictly observed. The first step involved acquiring of research permit from the Kenya National Commission for Science, Technology and Innovation. Other permits and authorizations were sought from the County government of Turkana, and local provision administration.

Consent was also sought from the respondents before they were allowed to take part in the study. They were further informed on the objective of the study and importance of them providing objective and truthful information. They were also informed on the purpose of the study which was purely for academic purpose with no intention of soliciting for funds on behalf of the community. Personal information was handled confidentially and only persons of 18 years and above were allowed to participate in the study. Ethical considerations were informed by Rubin and Babbie (2016) who argued that the researcher is obliged to respect the rights, needs, values and desires of the respondents. Values such as honesty and cultural sensitivity were observed.

During data analysis and reporting, the researcher ensured accuracy to the required academic standards.

3.9 Operationalization of Variables

This section covers the operationalization of the study variables which are in lined with the specific objective of the study. The dependent variable was performance of food security projects. The independent variable was community resilience capacity which has been operationalized as social capital, social safety nets, disaster management skills and community resource capacity. The moderating variable was environmental factors.

Table 3.3: Operationalization of Variables

Objective	Variables	Indicators	Measurement	Measuring Scale	Statistical analysis	Analysis techniques
	Dependent variable; Performance of food security projects	Food availability Food accessibility Food utilization Food stability	A composite index is obtained by calculating the average of the total sum of the responses of each respondent over the indicator items measuring this variable	Ordinal	Parametric	Descriptive analysis
			Observation Open ended questions		Non- parametric	Descriptive analysis
To establish the extent to which social capital influences performance of food security projects in Turkana County, Kenya.	**Independent variable:** Social Capital	Bonding social capital Bridging social capital Linking social capital	A composite index is obtained by calculating the average of the total sum of the responses of each respondent over the indicator items measuring this variable	Ordinal	Parametric	Descriptive analysis, Pearson's Correlation and Linear regression analysis
			Observation Open ended questions		Non- parametric	Descriptive analysis
To establish the extent to which social safety nets influences performance of food security projects in Turkana County, Kenya.	**Independent variable:** Social Safety Nets	Cash transfers Food transfers Mediating structures	A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the three indicator items measuring this variable	ordinal	Parametric	Descriptive analysis, Pearson's Correlation and Linear regression analysis
			Observation Open ended questions		Non- parametric	Descriptive analysis
To establish the extent to which disaster management skills performance of food security projects in Turkana county, Kenya.	**Independent variable:** Disaster management skills	Prevention skills Mitigation skills Recovery skills	A composite index is obtained by calculating the average of the total sum of the responses of each respondent over the indicator items measuring this variable	Ordinal	Parametric	Descriptive analysis, Pearson's Correlation and Linear regression

						analysis
			Observation Open ended questions		Non- parametric	Descriptive analysis
To establish the extent to which community resource capacity influences performance of food security projects in Turkana county, Kenya.	**Independent variables:** Community resource capacity	Asset ownership Access to basic services Information sharing capacity	A composite index is obtained by calculating the average of the total sum of the responses of each respondent over the indicator items measuring this variable		Parametric	Descriptive analysis, Pearson's Correlation and Linear regression analysis
			Observation Open ended questions		Non-parametric	Descriptive analysis
To investigate the extent to which environmental factors influences the performance of food security projects in Turkana count, Kenya	**Moderating variable** Environment factors	Political environment Cultural environment Economic environment	A composite index is obtained by calculating the average of the total sum of the responses of each respondent over the three indicator items measuring this variable	Interval	Parametric	Descriptive analysis
To investigate the extent to which community resilience capacity influence the performance of food security projects in Turkana county, Kenya.	**Independent variables:** Community resilience capacity	Social capital Social safety nets Disaster management skills Community resource management	A composite index is obtained by calculating the average of the total sum of the responses of each respondent over the three indicator items measuring this variable	Interval	Parametric	Multiple regression analysis

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter covers the presentation of study results and discussions of the findings. The results are arranged based on the specific objectives of the study. The chapter is divided into four sub-sections which are: the response rate of the respondents, the demographic profiles of respondents, tests of statistical assumptions and data from the Likert-scale and the discussions of findings respectively. Descriptive and inferential analysis of study data was based on the specific objectives of the study. Qualitative data from the questionnaires, observation checklists and in-depth interviews were interpreted, synthesized and presented in report format.

4.2 Questionnaire Return Rate

Questionnaires were administered to a sample of 491 residents of Turkana County spread over 11 selected sub locations. The number of questionnaires duly filled and returned was 483 which accounts for 89.2% of response. According to Kothari and Gang, (2014) a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent; therefore, this response rate was excellent.

4.3 Socio-Demographic Characteristics of the Respondents

This section provides the socio-demographic information of the respondents in the study area. The socio-demographic profile of the respondents was important in understanding the underlying vulnerabilities and capacities in relation to food security. The following forms part of the socio-demographic profile analyzed: the respondents' village, gender and education level.

4.3.1 Distribution of Respondents by Village

With the aim of analyzing distribution of households with different vulnerabilities and capacities, the respondents were asked to indicate their village of residence within Loima sub-county; the findings are represented in Table 4.1.

Table 4.1: Distribution of Respondents by Village

	Frequency	Percent
Kotaruk	14	3.2
Lochor-alomala	31	7.1
Lochor-edome	19	4.3
Lochor-Ekuyen	18	4.1
Lokiriama	42	9.6
Lorugum	44	10.1
Nadapal	92	21.1
Naipa	18	4.1
Nakwamekwi	35	8
Napeikar	39	8.9
Naurenpuu	3	0.7
Nawoitorong	2	0.5
Ng'ilukumong'	2	0.5
Turkwel	78	17.8
Total	**437**	**100**

Table 4.1 shows that the majority of the respondents were located in Nadapal, Turkwel, Lorugum and Lokiriama given by 92(21.1%), 78(17.8%), 44(10.1%) and 42(9.6%) respectively. These are the areas in Turkana County where major irrigation schemes are found. Villages like Naurenpuu 3(0.7%), Nawoitorong 2(0.5%) and Ng'ilukumong' 2(0.5%) had the least number of respondents since they are sparsely populated.

4.3.2 Distribution of Respondents by Gender

In order to understand gender dimension on food security among the pastoralists, respondents were asked to state their gender, the findings are indicated in Table 4.2.

Table 4.2: Distribution of Respondents by Gender

	Frequency	Percent
Female	187	42.8
Male	250	57.2
Total	**437**	**100**

Table 4.2 reveals that 187(42.8%) of the respondents who were part of the research study were female, while 250(57.2%) were male. The information therefore points to the fact that there

was an almost equal gender representation in the study. This is expected to enrich the outcome of the research study since sufficient information from both divides of the gender would be captured.

4.3.3 Distribution of Respondents by Education Level

Education level plays an important role in the quality of response gotten from the study respondents. The study therefore, sought to establish the education level of the respondents in this research study. The respondents were asked to indicate the highest level of education attained. The findings are as indicated in Table 4.3.

Table 4.3: Distribution of Respondents by Education Level

	Frequency	Percent
None	372	85.1
Primary School	22	5
Certificate	25	5.7
Ordinary Level Diploma	14	3.2
Higher National Diploma	1	0.2
Bachelor's Degree	1	0.2
Master's Degree	2	0.5
Total	**437**	**100**

Table 4.3 shows that majority of the respondents 372(85.1%) did not have any formal education, 22(5%) had primary level education, 25(5.7%) had certificate level education and only 14(3.2%) had ordinary level diploma. The rest, which accounts for 0.9% of the total respondents had higher national diploma and above. This is attributable to the fact that Turkana County was a marginalized region for several years. Turkana county residents are also nomads in nature hence contributing to the low education level of the respondents.

4.4 Tests for Statistical Assumptions and Analysis of Likert Type Data

This section explains how tests of normality, multicollinearity, homoscedasticity and heteroscedasticity were carried out.

4.4.1 Normality Tests

Violation of normality assumptions in research can lead to reporting of inaccurate inferential statistics. As Ghasemi and Zahediasl (2012) report, the validity of parametric tests depends on

normality of the data, hence the need for checking if the dataset satisfies the assumptions for normality. To check for normality in this research study, visual inspection was done using box plots while Kolmogorov-Smirnov test (KS-test) and Shapiro-Wilk test (SW test) were carried out on SPSS v23 to provide inferential statistics on normality. The Kolmogorov Smirnov test calculates the difference between the empirical distribution and the theoretical distribution in terms of distance and expresses the test statistic as the supremum of the set of those distances. The advantage of this is that the same approach can be used for comparing any distribution, not necessary the normal distribution only. For both KS-test and SW-test, a normal distribution is assumed if the P-Value of the test is larger than 0.05, otherwise, we do not assume a normal distribution (Ghasemi, 2012). The results for both the KS-test and the SW-test as shown in Table 4.4.

Table 4.4: Test for Normality

Variable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Performance of Food Security Projects	.089	433	.200[*]	.957	433	.106
Social Capital	.110	433	.200[*]	.939	433	.054
Social Safety Nets	.099	433	.200[*]	.977	433	.663
Disaster Management Skills	.103	433	.200[*]	.983	433	.715
Community Resources Capacity	.092	433	.200[*]	.969	433	.086

[*] This is a lower bound of the true significance

Lilliefors Significance Correction

Table 4.4 shows that the Kolmogorov-Smirnov test shows that all the variables follow a normal distribution with giving a p-value of 0.200 which is greater than 0.05. Table 4.4 further indicates that the Shapiro-Wilks test shows that all the variables are normally distributed with p-values greater than 0.05, confirming the results from the Kolmogorov-Smirnov test.

4.4.2 Multicollinearity Tests

Multiple linear regression estimates the linear relationship between dependent and independent variables. In cases where non-linear relationships occur, examination of non-linearity is essential. It was therefore important that the nonlinear aspects of the relationship be accounted for in order to best assess the relationship between variables. Multicollinearity is usually

reported when there exists a strong relationship between independent variables in a regression model and this in turn possess a problem in multiple linear regression. To check for multicollinearity, a Variance Inflation Factor (VIF) is usually computed. Much divergence exists in the literature regarding the VIF value to be used as the threshold for collinearity (Cenfetelli and Bassellier, 2009; Kline, 1998; Petter, Straub, and Rai, 2007). Commonly recommended values are 10, 5, and 3.3; meaning that a VIF equal to or greater than the threshold value would suggest the existence of collinearity among the variables. Such divergence is problematic, because it makes it difficult to derive clear-cut methodological guidelines for researchers, and is in part due to the different contexts in which these values were proposed. Hair et.al. (2009) state that a common threshold is a VIF value above 10. But, at the same time, they also state that each researcher must determine the degree of collinearity that is acceptable, because most defaults or recommended thresholds still allow for substantial collinearity. The indirect message buried in such ambiguous advice is that a threshold of 10 should probably be considered a minimum threshold in multivariate models, in general, and that lower thresholds may be advisable under certain conditions. For this research study, a collinearity diagnostic test was run on SPSS v23 and returned a VIF value of 1.000, indicating there was no correlation between the predictor variables of study.

4.5 Food security and Insecurity in Loima sub-county

4.5.1 Food Security Status in Loima Sub County

The analysis began by first examining the food security status of the residents in Loima Sub County. To examine the household food security levels, coping strategy index (CSI) was calculated for the households under study. The CSI was categorised into food secure (1-9), moderately food insecure (10-22) and highly food insecure (22-46) (Table 4.5).

Table 4.5: Household Food Security Status

Household Food Security Levels	Percentage (%)
Food Secure	5.57%
Moderately Food Insecure	58.89%
Highly Food Insecure	35.54%
Total	**100**

A larger proportion of the households in Loima Sub-County are moderately food insecure (58.89%). 35.54% are highly food insecure and only 5.57% are food secure. This is attributed to low diversification of livelihoods in the study area. Overdependence on pastoralism as a form of livelihood could lead households to use harmful coping strategies when they do not have enough food or enough money to buy food during droughts. Series of unpredictable, poor or failed rainy seasons and deadly livestock disease affected households' ability to cope thus unable to meet their basic food needs. To further understand the magnitude of the food security status in the sub-county, a number of in-depth questions were posed to the respondents. They were asked to state their level of agreement or disagreement with the various statements. A scale of: Never, Rarely, Sometimes, Often, and Always was used to measure the responses from the study respondents. Table 4.6 presents the descriptive statistics finding.

Table 4.6: Descriptive Analysis of Food Security

Statements	Mean	Standard Deviation
In the past month, how often did you or any HH member go to sleep at night hungry?	4.15	1.13
In the past month, how often did you worry that your HH would not have enough food?	4.05	1.13
In the past one month how often has your household disposed of productive assets to meet basic needs such as food?	3.30	1.14
In the past one month how often has the household relied on food assistance from external sources?	4.14	0.93
In the past one month how often do you rely on market as the main source of food	3.32	1.01
Composite mean	**3.792**	**1.068**

Five statements on performance of food security were rated on a scale ranging from never (1) to always (5) as shown in the table 4.6. On average the respondents indicated that sometimes they had to sleep hungry at night within the past one month (mean=2.65, SD=1.13), they worried that their household would not have enough food (mean=3.05, SD=1.13), their household had to dispose of productive assets to meet basic needs such as food (mean=2.80, SD=1.40), their household relied on food assistance from external sources (mean=3.14, SD=0.93) and they relied on market as the main source of food (mean=3.32, SD=1.01).

4.5.2 Food Insecurity in Loima sub county

The respondents were asked to suggest the possible primary causes/drivers of food insecurity in their household in regard to access, availability and stability. Majority of the respondents mentioned that climate shocks and natural hazards are the main primary causes of food insecurity in Turkana County (60.6%) as seen on Table 4.7:

Table 4.7: Causes of Food Insecurity

Causes of Food Insecurity	Frequency (n = 424)	Percentage (%)
Conflicts and Insecurity	112	26.5
Climate shocks and Natural hazards	256	60.6
Economic crises	52	12.3
Others	4	0.6

A greater percentage also said that Conflicts, insecurity, Climate shocks and natural hazards are the primary causes of food insecurity in the region (60.6%). Some respondents believed that conflicts and insecurity are the main causes of food insecurity in the region. Only 12.3% of the respondents believed that economic crises are the main cause of food insecurity in Turkana County. Other causes of food insecurity mentioned included laziness as well as extravagant nature of some households. The results also showed that 2.23% of the respondents indicated that conflict, insecurity and economic crises are the primary causes of food insecurity in Turkana County.

4.5.4 Coping Strategy

The respondents were also asked to provide their responses regarding the strategies they employed to avert food insecurity. The results are indicated on Table 4.8.

Table 4.8: Descriptive Analysis for Coping Strategy

Coping strategy	Never	1-2 days/week	3-6 days/week	Daily
Percentage of households				
Rely on less preferred and less expensive food	1.7	44	39	15.3
Borrow food or rely on help from relative (s) or friend(s)	10.8	55.6	33	0.7
Limit portion size at meals	4	48.5	38	9.4
Restrict consumption by adults for small children to eat	10	51.5	38.5	0
Reduce number of meals eaten in a day	7.4	48.8	38.1	5.7

Table 4.8 indicates that less preferred and less expensive food as a coping strategy was the most frequently used by majority of the residents 1-2days per week (44%), 15.3% use it daily, 39% use it 3-6days per week and only 1.7% do not use this as a food insecurity coping strategy. Borrowing or relying on help from relatives or friends is mostly used 1-2 days per week (55.6%), 33% borrow food 3-6days per week, 0.7% use this strategy daily and 10.8% never borrowed food as a coping strategy.

Limiting portion size at meals is another coping strategy mostly used 1-2 days per week by Turkana County residents (48.5%). 38% of the residents used this strategy 3-6 day per week, 9.4% limit portion size at meals daily and only 4% never used this as a coping strategy. On the other hand, restricting consumption by adults for small children to eat is used 1-2days per week by the residents (51.5%). 38.5% used this strategy 3-6 day per week and only 7.4% never used this strategy. Majority of the households reduce meals eaten in a day 1-2 days per week to cope for food insecurity (48.8%). 38.1% used this strategy 3-6 day per week, only 5.7% use this strategy daily and 7.4% never used this food insecurity coping strategy. Table 4.5 basically shows that the various coping strategies were employed by the respondents 1-2 days per week.

4.6 Food Security Projects and their Performances.

4.6.1 Food security projects

After understanding the food security and insecurity status of the respondents, the respondents were asked to give information on the projects that were implemented in Loima Sub-County that were aimed at alleviating food insecurity in the Sub County. Broadly, the projects were either short term projects, medium to long run and development projects. The findings are as presented in Table 4.9:

Table 4.9: Projects promoting food security

Type of Project	Percentage (%)
Short term	66.63
Medium to Long-term	10.00
Development	21.28
None	1.79
Total	**100**

Table 4.9 indicates that the major type of projects that were implemented in Loima Sub County are short-term projects as indicated by 66.63% of the study respondents. The short term projects included, relief food distribution, vouchers, and cash distribution. Development projects were the second popular projects in the area of study given by 21.28%, they included; natural resources management, income generation projects, skill and knowledge building and youth and women empowerment. Medium to long term projects accounted for 10% of the total respondents, these projects were; assets creation, savings and loans schemes, and irrigation schemes. The remaining 1.79% of the respondents indicated that no food insecurity alleviation projects were implemented. The results generally indicate that, the kind of projects implemented in the county are short term projects meant to cushion the food insecure against the vagaries of food insecurity.

4.6.2 Performance of the food security projects

This section presents a descriptive analysis of performance of food security projects which was the dependent variable for the research study. Performance of food security projects was measured in terms of food availability, food accessibility, food utilization and food stability. These are the standard measures of food security, the research study assumes that if the

respondents are food secure then the food security projects would be considered to be successful.

4.6.2.1 Food Availability

The main aspect being investigated on food availability was functionality of markets involved in the food items. The major element about markets was price. To this regard, respondents were asked to give their views about the stability of food prices in their markets. Majority of the respondents were affirmative about this. Nonetheless some of the respondents were of the view that, as a result of cash injection into the local markets there were serious inflation rates. This could be explained by the fact that the cash transfers increased their purchasing power thus increasing demand for the food items. The respondents were also asked to comment on whether the local markets were well functioning and whether all items needed were found. The responses on this aspect was mixed. Some of the respondents were of the view that some items that they needed were not there in the markets. Further a number complained that the markets are not always opened, rather there are specific days which markets do open up. These responses are a reflection of a mixed picture of preferences from the community members of Loima Sub County.

4.6.2.2Food Consumption Score

Food consumption scores were calculated for the households in the study using the food consumption frequency and the weights for each food categories. The food consumption score was categorised in poor (1-21), borderline (21.5-35) and acceptable (>35) (Table 4.10).

Table 4.10: Household Food Consumption Score

Food Consumption Status	Percentage (%)
Poor	48.97
Borderline	29.23
Acceptable	21.79
Total	**100**

According to the result in Table 4.10, 48.97% of the households in Loima Sub-County have poor food consumption status with only 21.79% having acceptable food consumption status. This can be attributed to high poverty index exacerbated by high prevalence of food insecurity, drought and conflict. The pastoralism form of livelihood in Loima is frequently affected by droughts, flash floods, cattle rustling and livestock diseases. With effect on livelihoods,

households remain depending on relief food for their survival. Sometimes relief foods received are less nutritiously dense food with low kilocalorie thus majority of the households recording poor food consumption status.

4.6.2.3 Dietary Diversity Score

The study sought to find out the main diet of the households in Loima Sub-County, the respondents were also asked to give information on their main daily diet. The findings are as presented in Table 4.11:

Table 4.11: Main Diet Consumed

Food Group	Percentage (%)
Main Staples (Cereals and oil)	49 %
Dairy products	12%
Meat/Fish	27%
Vegetables	9%
Fruits	3%
Total	100

The results shown in Table 4.11 shows that cereals and oil formed the main part of households' staple daily diet in Loima Sub-County. Fruits, vegetables and fish were least consumed. Other food consumed in the study area include dairy products, and meat. High consumption of cereals and oil is attributed to the relief food supplied to the community. Loima is in a drought stricken area thus relief food is among the strategies used to support food security in the study area. Low consumption of fruits and vegetables can be explained by the harsh climatic condition that does not favour growing of fruits and vegetables. However, from the FGDs, members stated that these products were available in the local market although their prices were unaffordable to most of the locals.

4.6.2.4 Food stability

A determination of food supply in terms of the temporal dimension over the short and long term was carried out through a descriptive analysis of the respondent's feedback. The results were as shown on the table below.

Statements	Mean(±SD)	Rating
Local food production is adequate for all our needs over the year	2.34(±1.05)	Disagree
We mainly rely on food supply from external sources (relief and imports from nearby counties and countries)	3.63(±1.35)	Strongly agree
The local markets are functioning, and all items are found	2.94(±1.14)	Disagree
There is constant and regular supply of food commodities over the year	3.22(±1.06)	Disagree
There are adequate food stocks/reserves at the sub county	2.65(±1.13)	Disagree

Due to the fact that local food production is at small scale, often through irrigation schemes practiced along river Turkwel, the amount of food commodities produced is not enough for the entire population of the sub county. At the same time, the sub county doesn't have adequate food stocks/reserves for the population and relies on the county. The shortages are supplemented with supplies from nearby counties and countries. Food availability is therefore not optimum as shown in the responses from the functionality of the local markets where constant supply is often hampered by poor road infrastructure and changing commodity prices. As a result, there was no adequate food stability in the sub county.

4.7 Social Capital and Performance of Food Security Projects

The first objective of the research study was to establish the extent to which social capital influence the performance of food security projects in Loima Sub County. To achieve the objective one, respondents were asked to respond to questions by indicating their level of agreement with some given statements. The items were based on a 5-point Likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and lastly 1 = Strongly Disagree. The responses are summarized in Table 4.12.

Table 4.12: Social Capital

Statements	Mean	Standard deviation
I belong to social groups	4.15	0.92
I trust my neighbors for support	3.29	1.34
I feel safe in the village	4.38	1.13
We stand for each other in times of need	4.48	1.08
I relate well with fellow community members	3.47	1.39
I can ask my friends for help	3.93	1.21
We communicate freely and empower each other	3.63	1.35
Our community is hospitable	4.07	1.12
I can leave my children with a neighbor when going to the market	3.44	1.17
We talk about problems affecting the community	4.38	1.09
Composite mean	**3.91**	**0.43**

Results in Table 4.12 shows that the respondents agree that they belonged to social groups with a mean of 4.15 and a standard deviation of 0.92. This indicates that the respondents lived in harmony together. To check whether the respondents trusted their neighbors, the study findings gave a mean score of 3.29 and a standard deviation of 1.13, showing that the respondents were generally not sure whether they trusted their neighbors or not. Feeling safe in the village, standing with each other in times of need and talking to each other about problems affecting the community gave strong means of 4.38(1.13), 4.48(1.08) and 4.38(1.09) respectively, which indicates that respondents agreed with those statements. Statements relating to good relationship with community members and being capable of leaving children with a neighbor when going to the market returned a mean of 3.47(1.39) and 3.44(1.17), showing that the respondents were neutral in their responses. The mean of social capital, computed after putting all the constructs together was found to be 3.91 and a standard deviation of 0.43, this shows that the respondents agreed with most of the statements regarding social capital.

The researcher wanted to know whether respondents think they live in a food insecure community or not. The results indicated that 53.3% said yes while 46.7% said no. Respondents were further asked to give the type of social capital that exists in their community to ascertain the exact nature of the social capital. The responses are presented in Table 4.13.

Table 4. 13: Type of Social Capital

Type	N	Frequency	Percentage
Bonding	418	380	90.9
Bridging	418	148	35.4
Linking	418	108	25.8

Table 4.13 indicates that bonding social capital which entailed horizontal links between family members, close friends and relatives was the most common type of social capital with 90.9% of all the 418 respondents indicating that it existed in their community. Bridging capital which was conceptualized as a network that connects members across communities and groups returned a 35.4% indicating that it also existed but not majorly among the community members. Linking capital which connects social networks vertically with some form of authority in the social sphere existed the least with only 25.8% of the respondents indicating that it existed.

The study also sought to establish the contribution of knowing each other in the community towards food security. The results are as presented in table 4.14.

Table 4.14: In what way does knowing each other contribute to food security?

	N	Frequency	Percentage
Hospitable intercommunity and cross border migration	418	351	84.0
Market access and trading	418	190	35.4
Sharing of community resources	418	133	31.8
Sharing of information and knowledge	418	181	43.3

Table 4.14 shows that 84% of the respondents believe that knowing each other leads to hospitable intercommunity and cross border migration which can enable people to move from one area to another in times of disaster, hence helping reduce food insecurity. Market access and trading was also seen as being important by 35.4% of the respondents, sharing of community resources and sharing of information and knowledge between communities and individuals were also important with 31.8% and 43.3% respectively.

The study sought to establish if the social networks had grown stronger as compared to the previous year (2018), 56% said no while 44% said yes, indicating that the social networks among the community members were getting weaker. Some of the reasons for the weakening of the social networks are as presented in Table 4.15.

Table 4.15: Reasons for weakening of Social Networks

	N	Frequency	Percentage
Erosion by modern ways of life	418	227	54.3
Establishment of boundaries	418	144	34.4
Migrations	418	140	33.5
Insecurity	418	141	33.7
Politicizations and segregation	418	332	79.4

Table 4.15 shows that the major cause of weakening of the social networks is politicization and segregation giving 79.4%, then followed by erosion by modern ways of life with 54.3% of the respondents agreeing to it, establishment of boundaries was chosen by 34.4% of the respondents while insecurity and migration were the least causes with 33.7% and 33.5% of the respondents choosing them respectively.

The study further sought to establish the social norms and beliefs in the community that affect food security. Table 4.16 presents the findings.

Table 4.16: Social norms and beliefs affecting food security

	N	Frequency	Percentage
Eating habits and preferences	418	396	94.7
Polygamous marriages	418	154	36.8
The role of seers/prophets	418	119	28.5
Overreliance on pastoralism	418	147	35.2

Table 4.16 shows that the eating habits and preferences of the community members is the biggest contributor to food insecurity with 94.7% of respondents agreeing. 36.8% of the respondents believe that polygamous type of marriages contributes to food insecurity, while 35.2% are of the opinion that overreliance on pastoralism affects food security and finally 28.5% believe food security in their community is affected by the role of seers and prophets.

To determine the direction and magnitude of the relationship between social capital and performance of food security projects in Turkana County, a Pearson correlation analysis was conducted. Social capital was a composite of three indicators: Binding, Bridging and Linking. The results are presented on table 4.17:

Table 4.17: Correlation between social capital and performance of food security projects

		Binding	Bridging	Linking
Performance of food security projects	**Pearson Correlation**	0.2246*	0.3753*	0.2249*
	Sig. (2-tailed)	0.000	0.000	0.000
	N	420	420	420

From table 4.17 all the variables of social capital were statistically correlated with performance of food security projects. Though the correlations are weak, they are positive, implying performance increases with an increase in levels of binding, bridging and linking among the social communities. In terms of the magnitudes, bridging seem to have a larger weight compared to binding and linking. Correlations however do not imply causation, thus to capture causation a regression analysis is warrantied. The regression model for social capital and performance of food security projects coincides with hypothesis 1.

Hypothesis 1

H_0: Social capital does not significantly influence the performance of food security projects in Turkana County, Kenya.

Regression model

The mathematical model used for testing the null hypothesis was as follows:

Social capital = f (food security projects)

$Y = f (X_1, \varepsilon)$

$Y = \beta_o + \beta_1 X_{1 +} \varepsilon$

Where

Y = Performance of food security projects

X_1= Social capital

β_o = Constant term

β_1 = Beta Coefficient

Social capital was measured using three variables; Bonding (BO), Bridging (BR) and Linking (LN). Using ordinary least squares model, the data was regressed and results presented in Table 4.18 below:

Table 4.18: Social Capital and Performance of Food Security Projects

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
	0.275	0.2111	0.2055	0.73926

Predictors: (Constant) Bonding, Bridging, Linking

ANOVA

Model	Sum of squares	Df	Mean Square	F	
Regression	60.85	3	20.28	37.12	0.000
Residual	227.35	416	0.55		
Total	288.20	419			

Dependent Variable: Performance of Food Security Projects
Predictors: (Constant) Bonding, Bridging, Linking

Coefficients

Model	Standardized Coefficients		Unstandardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.633	0.111		32.720	0.000
Bonding	0.102	0.061	0.193	1.670	0.095
Bridging	0.496	0.056	0.587	8.790	0.000
Linking	0.142	0.066	0.233	2.130	0.034

Dependent Variable: Performance of Food Security Projects

Table 4.18 shows r = 0.275 indicating that there is a weak positive correlation between social capital and performance of food security projects. The adjusted R^2 = 0.2055 implying that social capital explains 20.55% of the variations in performance of food security projects while the other percentage is explained by other variables other than social capital. Bonding, Bridging and Linking were the individual parameters of social capital. Individually all of them were statistically significant at 10% and 5% level of significance since their p values were less than 0.1 and 0.05. For bonding, p = 0.095<0.1, bridging p = 0.000<0.05 and linking p = 0.034<0.05.

For the Beta coefficients, bonding 0.102 was statistically significant since p = 0.095<0.1. The implication for this was that bonding, statistically had a positive influence on performance of food security projects. Bridging had a beta coefficient of 0.496 and it was statistically significant since p = 0.000<0.05. The implication for this was that bridging as an indicator of social capital had a statistically positive influence on performance of food security projects. Linking had a beta coefficient of 0.142 which was statistically significant at 5% level of significance since p = 0.034<0.05. An implication for this was that linking, as an indicator of social capital had a positive influence on performance of food security projects. In terms of comparison, bridging had the strongest influence (0.496), followed by linking (0.142) then bonding (0.102).

In terms of the composite indicator of social capital, the overall F statistic of F = 37.12 was statistically significant since p = 0.000 < 0.05. This was an indication that there was a statistical significant relationship between social capital and performance of food security projects. In respect of this, the null hypothesis that was being tested was rejected and conclude that social capital has a significant influence on the performance of food security projects in Loima Sub County. Using the statistical findings on table 4.18 the regression model can be written as:

$$Y = 3.633 + 0.102BO + 0.496BR + 0.142LN$$

Where;

Y =   Performance of food security projects

BO =   Bonding

BR =   Bridging

LN =   Linking

These findings are in tandem with those of many authors. Walker et al. (2007) notes that those individuals and families that know and trust their neighbors may be more inclined to share food or transportation to the supermarket, as well as share child-care responsibilities, enabling and empowering individuals to network and form their own support programs and projects with their community. These findings are also in agreement with those of Upton et al (2016) who argue that individual-level measures of collective social functioning are important

explanatory variables for food security. Blay-Palmer (2016) further notes that communities with strong civic engagement can enhance food security of its members because active institutions collaborate to support and maintain the local food safety net system. Other authors like Dzanja, Christie, Fazey, and Hyde (2013) (Coates, 2015), Kevin (2017) also observe that there is a positive relationship between social capital and food security in different countries.

In terms of integration of the three factors of social capital; bonding, bridging and linking, the findings of this study are in line with that of Manyena (2014) who also observe that the bonding effect of social capital occurs when social networks result in the distribution of benefits within communities but remaining closed to outsiders. The bridging effect of social capital happens when networks contribute to cross-cultural and intergroup linkages. Such linkages have the potential to generate far more positive outcomes that benefit different communities exposed to disasters. Resilient communities that lack bridging social capital may, therefore, create greater cohesion and enhanced resilience at a micro level.

4.8 Social Safety Nets and Performance of Food Security Projects

The second objective of the research study was to establish the extent to which social safety nets influence the performance of food security projects in Loima Sub County. To achieve objective two, respondents were asked to respond to questions by indicating their level of agreement with some given statements. The items were based on a 5-point Likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and lastly 1 = Strongly Disagree. The responses are summarized in Table 4.19.

Table 4.19: Social Safety Nets

Statements	Mean	Standard Deviation
The cash for the elderly caters for all my household needs	2.34	1.05
The relief food items I get sustains us till the next distribution	2.31	0.99
The in-kind transfers help me to be more food secure	3.06	1.17
The amount of cash given is enough for my basic needs including food purchases	2.40	1.10
The period for transfers coverage is enough for my household	2.47	1.05
The targeting process was fair and transparent	3.01	1.11
There were no inclusion and exclusion errors in the registration and targeting process	3.17	0.97
The transfers are quite often provided on a timely basis	3.15	1.26
The local markets are functioning and all items are found	2.44	1.14
As a result of cash injection into the local markets there were no serious inflation rates	3.22	1.06
Composite mean	**2.76**	**0.39**

Table 4.19 shows that the respondents generally disagreed with most of the statements on social safety nets. In particular, when asked whether cash for the elderly caters for all household needs, a mean of 2.34 was returned with a standard deviation of 1.05, this indicates that the respondents feel the amount of cash disbursed for the elderly is not sufficient to cater for all the household needs. To check whether the relief food caters for the respondents until the next distribution, the responses gave a mean of 2.31 with a standard deviation of 0.99 to show that they disagreed with the given statement. The respondents also disagreed with statements on amount of cash being enough to cater for basic needs including food purchases, the period of coverage being enough for households, and local markets are well functioning posting means of 2.40, 2.47 and 2.44 respectively. Respondents were however, not sure or neutral on statements regarding in-kind transfers helping them be food secure with a mean of 3.06(1.17), fairness and transparency in the targeting process with mean 3.10(1.11), lack of inclusion and exclusion errors in the targeting process with mean 3.17(0.97), timely provision of transfers with mean 3.15(1.26) and lastly the effect of cash injection on local markets inflation with mean 3.22(1.06). All the statement put together gave a combined mean of 2.76 and a standard deviation of 0.39 for social safety nets, indicating that respondents were not sure on statement regarding social safety nets in general.

The study sought to establish the percentage of respondents who belonged to social safety nets. The data indicated that only 14.4% (60) of the respondents had enrolled in a social safety net programs while the remaining 85.6% (356) were not enrolled in any social safety nets programs. The research sought to establish the challenges faced with respect to the available social safety nets programs and the findings are as presented in Table 4.20.

Table 4. 20: Challenges facing Social Safety Net programs

Challenges	Frequency (N=416)	Percentage (%)
Frequent disbursement delays	168	40.4
Low amounts	242	58.2
Physical access	313	75.2
Inclusion and exclusion errors	119	28.6

Findings on Table 4.20 indicate that the greatest challenges faced by the respondents with regard to social safety nets programs is physical accessibility giving 75.2% (313), Low amounts being disbursed with 58.2% (242) of the respondents mentioning it, this was followed by frequent delays in disbursements are indicated by 40.4% (168) respondents and lastly, inclusion and exclusion errors in listing of the respondents was the least challenge with only 28.6% (119) of the respondents mentioning it.

The impact of the social safety nets programs on the livelihoods and resilience of the respondents to food insecurity was also measured and the findings are indicated on Table 4.21.

Table 4.21: Impact of Social Safety Nets

Impact	Frequency (N=416)	Percentage (%)
Low	193	46.4
Fair	192	46.2
High	31	7.5

Table 4.21 shows that almost an equal number of the study respondents felt that social safety nets had a low and fair impact on their livelihoods and resilience to food insecurity with frequencies of 46.4% (193) and 46.2% (192) respectively. Only a paltry 7.5% (31) of the respondents felt that the social safety nets programs had a high impact on their livelihoods and resilience to food insecurity.

A correlation analysis was conducted to establish the direction and magnitude of the relationship between social safety nets and performance of food security projects in Turkana County. Social safety nets was a composite of the following indicators: Amount of cash transfers, Quantity of food transfers and Mediating features. The results of the analysis are presented on table 4.22:

Table 4.22: Correlation between social safety nets and performance of food security projects

		Amount of cash transfers	Quantity of food transfers	Mediating features
Performance of food security projects	**Pearson Correlation**	0.0807	0.3083*	0.219*
	Sig. (2-tailed)	0.1004	0.000	0.000
	N	420	420	420

Table 4.22 shows that both quantity of food transfers and mediating features are positively and significantly correlated with performance of food security projects in Turkana County since their p-values are less than 0.05. In terms of the magnitude, mediating features is weakly correlated but quantity of food transfers is moderately correlated. Amount of cash transfers is not significantly correlated with performance since its p-value is greater than 0.05. As correlation does not imply causation, a regression analysis was conducted to verify which variable causes performance. To this, hypothesis two was tested.

Hypothesis 2

H_0: Social safety nets do not significantly influence the performance of food security projects.

Regression model

The mathematical model that was used for testing the null hypothesis was as follows:

Social safety nets = f (food security projects)

$Y = f (X_2, \varepsilon)$

$Y = \beta_0 + \beta_2 X_2 + \varepsilon$

Where

Y = Performance of food security projects

X_2 = Social safety nets

β_o = Constant term

β_2 = Beta Coefficient

Social safety nets was measured using three variables; Amount of cash transfers (ACT), Quantity of food transfers (QTF) and Mediating features (MF). Using ordinary least squares model, the data was regressed and results presented in Table 4.23 :

Table 4.23: Social Safety Nets and Performance of food Security Projects

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
	0.203	0.1817	0.1757	0.75465

Predictors: (Constant) ACT, QTF, MF

ANOVA

Model	Sum of squares	Df	Mean Square	F	
Regression	52.09	3	17.36	30.49	0.000
Residual	234.64	412	0.57		
Total	286.72	415			

Dependent Variable: Performance of Food Security Projects
Predictors: (Constant) ACT, QTF, MF

Coefficients

Model	Standardized Coefficients		Unstandardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.415	0.169		20.240	0.000
Amount of cash transfers	0.471	0.067	0.513	7.060	0.000
Quantity of food transfers	0.381	0.067	0.423	5.690	0.000
Mediating features	0.217	0.074	0.259	2.950	0.003

Dependent Variable: Performance of Food Security Projects

From Table 4.23 it is observed that r = 0.203, an indication that there was a weak positive correlation between social safety nets and performance of food security projects in Loima Sub County. The adjusted R^2 = 0.1757 implied that social safety nets explained 17.57% of the variation of performance of food security projects while the other percentage was explained by other variables different from social safety nets. All the variables of social safety nets were statistically significant since their p-values were less than 0.05.

The implication for this was that amount of cash transfers, quantity of food transfers and mediating features were important explanatory variables for performance of food security projects in Loima Sub County. In terms of the magnitude, amount of cash transfers was the superior variable with a Beta coefficient of 0.471, followed by quantity of food transfers with Beta of 0.381 and finally mediating features with a Beta coefficient of 0.217.

The composite indicator of social safety nets was statistically significant the F –Statistic, (F = 30.49) had a p value of less than 0.05. This was an indication that there was a statistically significant relationship between social safety nets and performance of food security projects. In respect of this, the null hypothesis that was being tested was rejected and conclude that social safety nets has a significant influence on the performance of food security projects in Loima Sub County. Using the statistical findings on Table 4.23 the regression model can be written as

$$Y = 3.415 + 0.471ACT + 0.381QTF + 0.217MF$$

Where:

Y =   Performance of food security projects

ACT =   Amount of cash transfers

QTF =   Quantity of food transfers

MF =   Mediating features

The findings of this study are in line with a number of other studies in literature. Kamerman and Gabel (2006) observes that; social assistance such as cash benefits with minimum income programs, subsidize the costs of living. Most of these social assistance in many SSNs come in form of conditional cash transfer programs, in most cases with support from the Inter-

American Development Bank. Brown et al (2017) observe that children, receiving social transfers tend to be generally better nourished. SNAP have as well been observed to reduce food security in different countries. This is well noted by authors like Bonanno and Li (2014), Kim (2016), Gundersen, Kreider, and Pepper (2017, Bronchetti, Christensen and Hoynes, (2018). Notably, Kim (2016) argued that temporary increase in SNAP benefits in the economic stimulus package of 2009 reduced food insecurity among SNAP-eligible families relative to non-eligible families. Safety nets also have broader economic impacts through increased productive activities by households.

4.9 Disaster Management Skills and Performance of Food Security Projects

The third objective of the research study was to establish the extent to which disaster management skills influence the performance of food security projects in Loima Sub County. To achieve objective two, respondents were asked to respond to questions by indicating their level of agreement with some given statements. The items were based on a 5-point Likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and lastly 1 = Strongly Disagree. The responses are summarized in Table 4.24.

Table 4.24: Disaster Management Skills

Statements	Mean	Standard Deviation
We have mechanisms to foretell a disaster is coming	3.58	1.24
We prepare to face a disaster when it is coming	3.53	1.16
We tend to absorb the shocks and stresses that combine to create disaster impact whenever it occurs	3.61	1.07
We tend to adapt to the recurrent shocks and stresses that create a disaster	3.42	1.07
Quite often we get better after a disaster strikes	2.96	1.19
We have preparedness and response structures in place	3.24	1.15
We have mitigation mechanisms in place to reduce or avoid the impact of disaster	3.63	1.22
We have access to trained personnel on disaster preparedness and response	2.96	1.16
We practice both modern and traditional coping and adaptation mechanisms to survive effect of the shocks and stresses	3.85	1.18
We have low physical and economic damage as a result of disasters	2.98	1.17
Composite mean	**3.376**	**1.161**

Table 4.24 shows that the respondents generally agreed with most of the statements on disaster management skills. The respondents specifically agreed with statements regarding, having mechanisms to foretell a disaster is coming with a mean of 3.58(1.24), facing a disaster when it is coming with a mean of 3.53(1.16), absorption of shocks and stresses that combine to create a disaster with mean 3.42(1.07), having mitigation mechanisms in place to reduce the impact of a disaster with mean 3.63(1.22) and lastly, practicing both modern and traditional coping and adaptation mechanism to survive the effect of the shocks and stresses with mean 3.85(1.18).

However, the respondents were neutral on some of the statement regarding disaster management skills, this statements were, having low physical and economic damage as a result of disaster with mean 2.98(1.17), having access to trained personnel trained on disaster preparedness and response with mean 2.96(1.16), having preparedness and response structures in place with mean 3.24(1.15) and lastly, adapting to current shocks and stresses that cause a disaster with a mean of 3.42(1.07).

The study sought to establish the kind of man-made and natural disasters that affect the people of Turkana County. The findings are presented on Table 4.25.

Table 4.25: Types of Disasters

Disaster	Frequency (N=413)	Percentage (%)
Disease outbreaks	279	67.6
Drought	102	24.7
Conflict/insecurity	389	94.2
Landslides	112	27.1
Floods	208	50.4
Earthquakes	147	35.6

Table 4.25 shows that the major disaster affecting the people of Loima Sub County conflict/insecurity as depicted by 94.2% of the respondents. This was followed by disease outbreaks at 67.6%, then floods at 50.4% of the respondents agreeing to it. The research did show that drought was considered as the least affecting disaster as depicted by only 24.7% of the respondents. To further understand more about the disaster management skills in Turkana County, the study sought to establish how the respondents were responding to the disasters that affect them. The findings are shown on Table 4.26.

Table 4.26: Response to Disaster

Challenges	Frequency (N=416)	Percentage (%)
Government and NGOs Support	348	84.3
Evacuation and relocations	179	45.3
Community members support	119	28.8
Self-reliance/absorbing	191	46.2

The findings on table 4.26 show that the most popular response to disaster was Government and NGOs Support as shown by 84.3% (348) of the respondents. This was followed by self-reliance/absorbing the effect of the disaster with 46.2%, then Evacuation and relocations was an option that was considered by 45.3% of the respondents. The least popular disaster response method was Community members support at 28.8%.

A correlation analysis was conducted to analyze the magnitude and direction of the relationship between disaster management skills and performance of food security projects in Loima Sub County. The variable disaster management skills was a composite of the following indicators:

Prevention skills, Mitigation skills and Recovery skills. The results of the correlation analysis are presented on Table 4.27

Table 4.27: Correlation between Disaster management skills and performance of food security projects

		Prevention skills	Mitigation skills	Recovery skills
Performance of food security projects	**Pearson Correlation**	0.3800*	0.3346*	0.2291*
	Sig. (2-tailed)	0.000	0.000	0.000
	N	413	413	413

Results from Table 4.27 show that all the indicators of disaster management skills are positively correlated with performance of food security projects in Turkana County. In terms of the magnitude, prevention skills and mitigation skills are moderately correlated, while recovery skills are weakly correlated with performance of food security projects in Turkana County, Kenya. To establish which variable causes performance, a regression model under hypothesis 3 was conducted.

Hypothesis 3

H_0: Disaster management skills do not significantly influence the performance of food security projects.

Regression model

The mathematical model that was used for testing the null hypothesis was as follows:

Disaster management skills = f (food security projects)

$Y = f (X_3, \varepsilon)$

$Y = \beta_o + \beta_3 X_{3} + \varepsilon$

Where

Y = Performance of food security projects

X_3= Disaster management skills

β_o = Constant term

β_3 = Beta Coefficient

Disaster management skills was measured using three variables: Prevention skills, Mitigation skills and Recovery skills. Using ordinary least squares model, the data was regressed and results presented in Table 4.25 :

Table 4.28: Disaster management skills and Performance of Food security Projects

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
	0.315	0.1650	0.1589	0.7649

Predictors: (Constant) Prevention skills, Mitigation skills, Recovery skills

ANOVA

Model	Sum of squares	Df	Mean Square	F	
Regression	47.27	3	15.76	26.94	0.000
Residual	239.27	409	0.59		
Total	286.55	412			

Dependent Variable: Performance of Food Security Projects
Predictors: (Constant) Prevention skills, Mitigation skills, Recovery skills

Coefficients

Model	Standardized Coefficients		Unstandardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.922	0.127		30.96	0.000
Prevention skills	0.301	0.067	0.320	4.470	0.000
Mitigation skills	0.139	0.063	0.158	2.210	0.028
Recovery skills	0.082	0.060	0.101	1.360	0.174

Dependent Variable: Performance of Food Security Projects

From Table 4.28, it is observed that R = 0.315, an indication that there was a moderate positive correlation between disaster management skills and performance of food security projects in Loima Sub County, Kenya. The adjusted R^2 = 0.1589 implied that disaster management skills explained 15.89% of the variation of performance of food security projects while the other percentage was explained by other variables not in the model. Among the variables being analyzed, prevention skills and mitigation skills were statistically significant since their p-values were less than 0.05. Recovery skills was not statistically significant since its p-value was greater than 0.05.

The contribution of the individual variables to performance was checked using the beta coefficients. The beta coefficients show that prevention skills had a beta coefficient of 0.301 and it was significant since its p value 0.000 was less than 0.05. The implication to this was

that prevention skills as an indicator of disaster management skill had a positive significant contribution of 0.301 to performance of food security projects in Loima Sub County. The beta coefficients of mitigation skills was 0.139 and it was statistically significant at 5% level of significance and implication that mitigation skills as an indicator of disaster management had positive significant contribution of 0.139 to performance of food security projects in Loima Sub County. Recovery skills did not have a significant relationship with performance of food security projects in Loima Sub County.

The composite indicator of disaster management skills was statistically significant the F – Statistic, (F = 26.94) had a p value of less than 0.05. This was an indication that there was a statistically significant relationship between disaster management skills and performance of food security projects. In this respect, the null hypothesis that was being tested was rejected and conclude that disaster management skills has a statistically significant influence on the performance of food security projects in Loima Sub County. Using the statistical findings on table 4.28 the regression model is written as:

$$Y = 3.922 + 0.301PS + 0.139MS + 0.082RS$$

Where

Y = Performance of food security projects

PS = Prevention skills

MS = Mitigation skills

RS = Recovery skills

The observation of a positive relationship between disaster management skills and food security is also observed in literature. Cole et al., (2013) argues that uncertainty associated with the observed increase in the frequency and intensity of disasters in many developing countries can drive poor farmers to invest in low-risk but low-returning agricultural production technologies and techniques. This argument follows that of Garschagen et al. (2015) who argue that disasters may have shattering consequences on food security, and food-insecurity increases vulnerability, leading to a downward spiral in which rural livelihoods are increasingly eroded. Further, Pandey et al. (2007) are of the opinion that disaster situation may

push food-insecure people to find themselves forced to take desperate measures to address immediate needs, often compromising their livelihoods and increasing their vulnerability and exposure. Cases of severe droughts, for instance, may force food-insecure farmers to overexploit common property resources such as community forests, pasture, ponds, riverbanks and groundwater, with negative medium- and long-term consequences for agricultural productivity and food security.

Governments are observed to play important roles in helping communities to manage disaster. This may be through information dissemination as noted by OCHA (2013) for the case of Mozambique. Management may be inform of social agreements, as observed in India, by Kochar (1999) who notes that rural households in India smooth their consumption following production shocks by the increased participation of male household members in the labor market. Technology may be used in other situation to manage disasters as observed by Boeckmann and Rohn, (2014) who notes that heat adaptation and heat prevention measures, such as heat warning systems may help to boost food security in urban areas. The findings in line with studies by international bodies like FAO (2015c) who states that, the impact of disasters on reduced food consumption, education and healthcare can lead to long-term negative effects in terms of income generation and future food security.

4.10 Community Resource Capacity and Performance of Food Security Projects

The fourth objective of the research study was to establish the extent to which community resource capacity influence the performance of food security projects in Loima Sub County. To achieve objective two, respondents were asked to respond to questions by indicating their level of agreement with some given statements. The items were based on a 5-point Likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and lastly 1 = Strongly Disagree. The responses are summarized in Table 4.29.

Table 4.29: Community Resource Capacity

Statements	Mean	Standard deviation
Assets that were built or rehabilitated in the community protect my household, its belongings and its production capacities (fields, equipment, etc.) from floods/drought	2.93	1.29
Assets that were built or rehabilitated in the community have allowed my household to increase or diversify its production (agriculture / livestock / other)	2.77	1.11
The assets that were built or rehabilitated in your community have decreased the day-to-day hardship	2.96	1.25
The assets that were built or rehabilitated in your community have improved your natural environment	3.43	1.14
There is adequate access to basic services such as health, education, water etc in your area	3.56	1.18
There is adequate functioning and well-maintained infrastructure such as roads, education and health facilities	3.27	1.15
There is good communication and information sharing on community needs and priorities	3.61	1.24
There is adequate human resources in the community to manage basic services and food security needs	3.36	1.07
Community and household resources and assets such as livestock help to cushion against food security shocks.	3.56	1.06
All community members have equal access to the use of available natural resources such as land, forests, water etc	3.89	1.11
Composite Mean	**3.334**	**1.16**

Table 4.29 shows the level of agreement with the statements on community resource capacity. On average, the respondents were not sure whether assets that were built or rehabilitated in the community protect their household, its belongings and its production capacities (fields, equipment, etc.) from floods/drought (mean=2.93, SD=1.29). They were also not sure whether assets that were built or rehabilitated in the community have allowed their household to increase or diversify its production (agriculture or livestock or other) (mean=2.77, SD=1.11), whether the assets that were built or rehabilitated in their community have decreased the day-to-day hardship (mean=2.96, SD=1.25), whether the assets that were built or rehabilitated in their community have improved their natural environment (mean=3.43, SD=1.14), whether there is adequate functioning and well-maintained infrastructure such as roads, education and health facilities (mean=3.27, SD=1.15) and whether there is adequate human resources in the community to manage basic services and food security needs(mean=3.36, SD=1.07).

Majority of the respondents agreed that, there is adequate access to basic services such as health, education, water in their area (mean=3.56, SD=1.18), there is good communication and information sharing on community needs and priorities (mean=3.61, SD=1.24), community and household resources and assets such as livestock help to cushion against food security shocks (mean=3.56, SD=1.06) and all community members have equal access to the use of available natural resources such as land, forests, water among others (mean=3.89, SD=1.11). the overall mean of community resource capacity was found to be 3.33 with a standard deviation of 0.35.

The study sought to establish the kind of resources available in the community. The findings are as presented on Table 4.30.

Table 4.30: Types of Community Resources

Resource	Frequency (N=421)	Percentage (%)
Land	410	97.4
Water	218	51.8
Minerals and Oils	118	28.0
Forests	248	58.9
Livestock	242	57.5
Human labor	135	32.1
Financial capacity	122	29.0

Table 4.30 shows that the major community resource owned by the people in Turkana County is land with 97.4% (410) of the respondents mentioning it. Forests, livestock and water were also mentioned by more than half the study respondents, that is, 58.9% (248), 57.5% (242) and 51.8% (218) respectively. The least mentioned community resources were human labor 32.1% (135), financial capacity 29% (122) and lastly, minerals and oils 28% (118).

To establish the direction and magnitude of the relationship between community resource capacity and performance of food security projects, a correlation analysis was conducted. The indicator community resource capacity was a composite of the following variables: Asset ownership, Access to basic services and Information sharing capacity. The results of the correlation analysis are shown on Table 4.31

Table 4.31: Correlation between community resource capacity and performance of food security projects

		Asset ownership	Access to basic services	Information sharing capacity
Performance of food security projects	**Pearson Correlation**	0.0456	0.4059*	0.3518*
	Sig. (2-tailed)	0.3508	0.000	0.000
	N	420	420	420

Table 4.31 shows there was a moderate positive significant correlation between performance of food security projects and access to basic services and Information sharing capacity. The correlation of the two variables were statistically significant since their p-values were less than 0.05. For Asses ownership, the p-value 0.3508 was larger than 0.05 and implication that asset ownership was not correlated with performance of food security projects in Turkana County. To establish which category caused performance greater than the other, a regression analysis under hypothesis 4 was conducted.

Hypothesis 4

H_0: Community Resource Capacity does not significantly influence the performance of food security projects in Loima Sub County.

Regression model

The mathematical model that was used for testing the null hypothesis was as follows:

Community Resource Capacity = f (food security projects)

$Y = f (X_4, \varepsilon)$

$Y = \beta_o + \beta_4 X_{4+} \varepsilon$

Where:

Y = Performance of food security projects

X_4= Community Resource Capacity

β_0 = Constant term

β4= Beta Coefficient

The indicators measuring community resource capacity were Asset ownership (AO), Access to basic services (ABS) and Information sharing capacity (ISC). Using ordinary least squares model, the data was regressed and results presented in Table 4.32 :

Table 4.32: Community Resource Capacity and Performance of Food security projects.

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
	0.268	0.1894	0.1835	0.7494

Predictors: (Constant) AO, ABS, ISC

ANOVA

Model	Sum of squares	Df	Mean Square	F	
Regression	54.58	3	18.19	32.39	0.000
Residual	233.62	416	0.56		
Total	288.20	419			

Dependent Variable: Performance of Food Security Projects
Predictors: (Constant) AO, ABS, ISC

Coefficients

Model	Standardized Coefficients		Unstandardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.748	0.142		26.430	0.000
Asset ownership	0.163	0.051	0.215	3.190	0.002
Access to basic services	0.330	0.071	0.382	4.630	0.000
Information sharing capacity	0.144	0.066	0.196	2.180	0.030

Dependent Variable: Performance of Food Security Projects

From Table 4.32, it is observed that r = 0.268, an indication that there was a weak positive correlation between community resource capacity and performance of food security projects in Loima Sub County. The adjusted R^2 = 0.1835 implied that community resource capacity explained 18.35% of the variation of performance of food security projects while the other percentage was explained by other variables not in the model. All the variables forming resource capacity were statistically significant since their p-values were less than 0.05. Beta

coefficients of the variables show that access to basic services was the greatest influence at 0.330, followed by asset ownership at 0.163, then finally information sharing capacity at 0.041. The implication of these findings were; asset ownership, access to basic services and information sharing capacity had a significant influence on performance of food security projects in Turkana County.

The composite indicator of community resource capacity was statistically significant since the F –Statistic, (F = 32.39) had a p value of less than 0.05. This was an indication that there was a statistically significant relationship between community resource capacity and performance of food security projects. In respect of this, the null hypothesis that was being tested was rejected and conclude that community resource capacity has a significant influence on the performance of food security projects in Turkana County, Kenya. Using the statistical findings on Table 4.32 the regression model can be written as:

$$Y = 3.748 + 0.163AO + 0.330ABS + 0.144ISC$$

Where:

Y =   Performance of food security projects

AO =   Asset ownership

ABS =   Access to basic services

ISC =   Information sharing capacity

The positive association between community resource capacity and food security in literature, is widely established. A study by Aboubakr, Adama and Tobias (2015) for the case of Niger shows that the more assets a household owns the higher the level of resilience. The high number of assets can be used to cushion against shocks. This argument is same to that of Otto et al (2017) who argue that that loss of assets can push poor households into chronic poverty traps as they do not have the necessary income to rebuild houses, replace assets, and cope with negative health outcomes. The situation is the same even for developed nations as noted by Schmeeret al. (2015) who found that mental health and low financial resources were associated with food insecurity, where income instead of assets represented households' financial resources in Michigan.

Education and wealth have observed in literature to be significant factors that explain food security in countries. This is observed in developing countries like Bangladesh (Szabo, 2016). Ceteris paribus, the odds of being food-insecure for the richest households are approximately 0.26 times the odds for poorest households. Households in the highest wealth bracket are considerably less likely to suffer from food insecurity compared to poorest households (NIPORT et al., 2013). In East Africa, Matsushita (2013) argue that hard infrastructure policies coupled with intervention in soft infrastructure well improve market access, and additionally improve livestock and land choices and therefore overall enhanced resilience.

4.11 Community Resilience Capacity and Performance of Food Security Projects

The fifth objective of the research study was to establish the extent to which community resilience capacity influence the performance of food security projects in Loima Sub County. Community resilience capacity comprised of the variables; Social capital, Social safety nets, Disaster management skills and Community resource capacity. First, a correlation analysis of the variables was conducted to check the direction and magnitude of the relationship between community resilience capacity and performance of food projects in Turkana County. The results of the correlation analysis are presented on Table 4.33.

Table 4.33: Correlation of community resilience capacity and performance of food security projects

		Social capital	Social safety nets	Disaster management skills	Community resource capacity
Performance of food security projects	**Pearson Correlation**	0.3121*	0.1722*	0.3753*	0.3206*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000
	N	420	420	413	420

From Table 4.33, all the variables of community resilience capacity were positively correlated with performance of food security projects in Loima Sub County. Disaster management skills had the highest correlation coefficient then followed by community resource capacity, social capital and finally social safety nets. The correlation of social safety nets was weak but for the other variables of community resilience capacity, correlation was moderate. To analyse the

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contribution of the independent variables on performance of food security projects, regression was done under hypothesis 5.

Hypothesis 5

H_0: Community resilience capacity has no significant influence on the performance of food security projects in Turkana County, Kenya.

Regression model

The mathematical model used for testing the null hypothesis was as follows:

Performance of food security projects = f (Community resilience capacity)

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$

Where:

Y= Performance of food security projects

X_1= Social Capital

X_2= Social safety nets

X_3= Disaster Management skills

X_4= Community resource capacity

β_0 = Constant term

$\beta_1, \beta_2, \beta_3, \beta_4$ = Beta coefficients

ε = Error term

For the above model, data was analyzed using ordinary least square method and the results of the regression model are presented in Table 4.34

Table 4.34: Community resilience capacity and performance of food security projects

Model Summary				
Model	R	R square	Adjusted R Square	Std. Error of the Estimate
	0.458	0.1714	0.1633	0.7629

Predictors: (Constant) Social capital, Social safety nets, Disaster management skills, Community resource capacity

ANOVA					
Model	Sum of squares	Df	Mean Square	F	
Regression	49.11	4	12.28	21.10	0.000
Residual	237.44	408	0.58		
Total	286.55	412			

Dependent Variable: Performance of Food Security Projects
Predictors: (Constant) Social capital, Social safety nets, Disaster management skills, Community resource capacity

Coefficients					
Model	Standardized Coefficients		Unstandardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.8536	0.1745		22.08	0.0000
Social capital	0.0899	0.0630	0.0932	1.4300	0.1540
Social safety nets	0.2274	0.0741	0.2307	3.0700	0.0020
Disaster management skills	0.3240	0.0719	0.3273	4.5000	0.0000
Community resource capacity	0.1759	0.0758	0.1792	2.3200	0.0210

Dependent Variable: Performance of Food Security Projects

Table 4.34 shows that all the variables produced an r value of 0.458 showing that performance of food security projects has a moderate positive correlation with community resilience capacity. The adjusted R^2 statistic is 0.1633 an indicator that community resilience capacity explains 16.33% of the variance in performance of food security projects in Loima Sub County while the other percentage is accounted by other variables not included in the research study. In terms of significance levels, the only variable that is not statistically significant is social capital since its p value = 0.1540 is greater than the threshold of 0.05. All the standardized beta coefficients are statistically significant at 5% level of significance except social capital. The criterion is the p-value, in which case all the p-values are less than 0.05. Among the indicators of community resilience capacity, disaster management seem to have the largest influence

0.3240 on performance of food security projects followed by social safety nets 0.2274 and finally community resource capacity 0.1759. When all the factors are considered in unison, social capital seems to have no influence on performance of food security projects in Loima Sub County.

The F statistic of 21.10 was statistically significant at 5% level of significance ($p = 0.000 < 0.05$) implying that all the variables in unison are statistically important explanatory variables to performance of food security projects in Turkana. The fact that they are statistically significant implies we have enough evidence to reject the null hypothesis and conclude that community resilience capacity has a significant influence on performance of food security projects in Loima Sub County, Kenya. Using the findings on Table 4.34 the regression equation can be written as:

$$Y = 3.854 + 0.0899\,X_1 + 0.2274\,X_2 + 0.3240\,X_3 + 0.1759\,X_4$$

Where:

Y =   Performance of food security projects

X_1 =   Social capital

X_2 =   Social safety nets

X_3 =   Disaster management skills

X_4 =   Community resource capacity

4.12 Environmental Factors and Performance of Food Security Projects

The sixth research objective was to establish the extent to which environmental factors influence the performance of food security projects in Turkana County. To achieve objective six, respondents were asked to respond to questions by indicating their level of agreement with some given statements. The items were based on a 5-point Likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and lastly 1 = Strongly Disagree. The responses are summarized in Table 4.35.

Table 4.35: Environmental Factors

Statement	Mean(SD)	Standard deviation
Clan and ethnic politics is strong	3.00	1.35
When disputes or conflicts occurred, participants first looked to how the project would benefit the whole community instead of themselves	2.10	0.99
Strong leadership is shown by project leaders and the project management committee.	2.22	1.21
Project cannot succeed in its work without positive government relations	2.24	1.25
Government bureaucracy is a major hindrance to project implementation	2.21	1.15
Projects need to be sensitive to the local cultural beliefs	2.63	1.21
Knowledge of local language by project staff is important	2.70	1.27
Knowledge of local culture is important for project staff	2.68	1.29
The local leadership is incompetent and corrupt	3.38	1.22
What happens within the community and outside in relation to security influence greatly project execution	1.95	1.01
Combined Mean	**2.511**	**0.45**

Table 4.35 shows that the respondents agreed with most statements on local leadership being incompetent and corrupt with mean 3.38(1.22) and also on clan and ethnic politics being strong with mean 3.00(1.35). They were neutral on all the other statements on environmental factors.

Environmental factors were further divided into four parts; political, cultural, economic and legal. The factors were studied independently and findings presented. The first factor was political factor whose findings are presented in Table 4.36.

Table 4.36: Political Factors

Statement	Frequency	Percent
Political decisions on the choice of projects, target location and beneficiary selections	395	91.0
Political interference in running of projects	172	39.6
Demand for kickbacks for continuous support	130	30.0

The findings on Table 4.36 show that 91% (395) of the study respondents believe that political decisions on choice of projects, target location and beneficiary selections influence the

performance of food security projects. Interference in running of the projects by politicians followed with 39.6% (172) of the respondents mentioning it while demands for kickback by local leadership for continuous support of the projects was last with 30% (130) of the respondents choosing it.

The research sought to establish what the respondents thought was the influence of cultural factors on the performance of food security projects. The findings are presented in Table 4.37.

Table 4.37: Cultural Factors

Statement	Frequency	Percent
Failure to adapt to change for livelihoods diversification	380	87.6
Local beliefs and values attached to livestock	178	41.0
Role of men and women in food security projects	166	38.2
Eating habits, traditional lifestyle and early marriages	129	29.7

Table 4.37 shows that failure to adapt to change for livelihoods diversification was the biggest impediment to the performance of food security projects, with 87.6% (380) respondents choosing it. Local beliefs and values attached to livestock was chosen by 41%(178) respondents, the role of men and women in food security projects was picked by 38.2%(166) respondents and lastly eating habits, traditional lifestyle and early marriages was considered to have the least contribution to performance of food security projects with only 29.7%(129) of the respondents choosing it.

The study also sought to establish the influence of economic factors which considered part of the project environment on the performance of food security projects. The findings are presented in Table 4.38.

Table 4.38: Economic Factors

Statement	Frequency	Percent
Price fluctuations of basic commodities	264	60.8
Low purchasing power	195	44.9
Lack of functioning markets	157	36.2
Poor infrastructure	226	52.1
Inadequate skilled labor	143	32.9
Lack of access to finance	149	34.3
Lack of farming inputs	140	32.3

Table 4.38 findings indicate that fluctuations of prices of basic commodities has a major influence on the performance of food security projects as supported by 60.8%(264), poor infrastructure and low purchasing power were also seen as influencing performance of food security projects with 52.1%(226) and 44.9%(195) of the respondents choosing them respectively. The factors that were considered to have least effect on the performance of food security projects were lack of farming inputs, inadequate skilled labor, lack of access to finance and lack of functioning markets with 32.3%(140), 32.9%(143), 34.3%(149) and 36.2%(157) of the respondents choosing them respectively.

The last indicator of project environment was legal factors, the study therefore sought to establish the influence of legal factors on the performance of food security projects and the findings are presented on Table 4.39.

Table 4.39: Legal Factors

Statement	Frequency	Percent
Lack of adequate legislation to promote access and production of food	332	76.5
Lack of enforcement of existing legislation that promote food security	176	40.6
Lack of enabling policy that promotes investment in food security	168	38.7
Lack of awareness at HH level on basic policies, regulations and laws that promote access to food as a basic human right	177	40.8

Table 4.39 shows that lack of adequate legislation to promote access and production of food has the biggest influence on performance of food security projects as depicted by 76.5%(332) of the respondents. Lack of awareness at household level on basic policies, regulation and laws that promote access to food as a basic human rights and lack of enforcement of existing legislation that promote food security were mentioned by 40.8%(177) and 40.6%(176) of the respondents respectively. Lack of enabling policy that promotes investment in food security was considered to have the least influence on performance of food security projects as mentioned by only 38.7% (168) of the study respondents.

The strength of relationship between environmental factors and performance of food security projects was also sought. To achieve that, a correlation coefficient was computed using the Pearson's method. Environmental factors in terms of analysis were categorized in the form of political factors, cultural factors and economic factors. The findings are presented on Table 4.40.

Table 4.40: Correlation between Environmental Factors and Performance of Food Security Projects

		Political	Cultural	Economic
Performance of food security projects	**Pearson Correlation**	0.2021*	0.1589*	0.2974*
	Sig. (2-tailed)	0.000	0.0011	0.000
	N	417	417	417

Table 4.40 shows a weak positive correlation between political factors, cultural factors, economic factors and the performance of food security projects. All the correlation coefficients were statistically significant since their p-values were less than 0.05. In terms of the magnitude, economic factors had the highest correlation rank at 0.2974 followed by political factors at 0.2021 and finally cultural factors at 0.1589. Correlation however does not imply causation, thus to determine causation a regression analysis was conducted.

Hypothesis 6

H_0: Environmental factors have no significant influence on the performance of food security projects in Turkana County, Kenya.

Regression model

The mathematical model that was used for testing the null hypothesis was as follows:

Performance of food security projects = f (environmental factors)

$Y = f(X_6, \varepsilon)$

$Y = \beta_o + \beta_6 X_{6+}\varepsilon$

Where

Y = Performance of food security projects

X_6 = Environmental factors

β_o = Constant term

β_6 = Beta Coefficient

ε = Error term

Environmental factors that were analyzed were: political factors, cultural factors and economic factors. The model was analyzed using the ordinary least square method and the result of the regression model are presented in Table 4.41

Table 4.41: Environmental factors and performance of food security projects

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
	0.219	0.2404	0.2349	0.7262

Predictors: (Constant) Political, Cultural, Economic

ANOVA

Model	Sum of squares	Df	Mean Square	F	
Regression	68.93	3	22.98	43.57	0.000
Residual	217.79	413	0.53		
Total	286.73	416			

Dependent Variable: Performance of Food Security Projects
Predictors: (Constant) Political, Cultural, Economic

Coefficients

Model	Standardized Coefficients		Unstandardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.748	0.142		26.430	0.000
Political factors	0.433	0.048	0.441	8.980	0.000
Cultural factors	0.074	0.039	0.082	1.890	0.050
Economic factors	0.580	0.065	0.588	8.980	0.000

Dependent Variable: Performance of Food Security Projects

From Table 4.41, it is observed that r = 0.219, an indication that there was a weak positive correlation between environmental factors and performance of food security projects in Turkana County, Kenya. The adjusted R^2 = 0.2349 implied that environmental factors explained 23.49% of the variation of performance of food security projects while the other percentage was explained by other variables not included in the model. All the variables forming environmental factors were all statistically significant since their p-values were less than 0.05. Beta coefficients of the variables show that economic factors was the largest at 0.580, followed by political factors at 0.433, then finally by cultural factors at 0.074.

The composite indicator of environmental factors was statistically significant since the F – Statistic, (F = 43.57) had a p value of less than 0.05. This was an indication that there was a statistically significant relationship between environmental factors and performance of food

security projects. In respect of this, the null hypothesis that was being tested was rejected and conclude that environmental factors have a significant influence on the performance of food security projects in Loima Sub County, Kenya. Using the statistical findings on Table 4.41 the regression model can be written as:

$$Y = 3.748 + 0.433PF + 0.074CF + 0.580EF$$

Where:

Y =   Performance of food security projects

PF =   Political factors

CF =   Cultural factors

EF =   Economic factors

The positive association between environmental factors and performance of food security projects is acknowledged in literature by several other authors. For instance, Thomas and Martin (2015) believe that community projects don't exist in a vacuum but are subjected political, economic, cultural and other societal influences. Thus organizations supporting community resilience projects should take into cognizant the political, economic, cultural aspects of the community. For instance, political instability can produce an uncertain environment for investments. Unpredictable shifts in the economy can affect demand, supply and purchasing power of consumers. Political stability, national unity and good political leadership are crucial for sustainable development.

4.13 Community Resilience Capacity, Environmental Factors and Performance of Food Security Projects

It is expected that environment factors have important roles in moderating the influence of the relationship of community resilience capacity on performance of food projects. In moderation, or interaction, the strength of the relationship between two variables is affected by a third variable (Morgan-Lopez and MacKinnon, 2006). The general approach in moderation analysis to what is commonly called linear-by-linear interaction is to estimate a regression model in which the dependent variable – performance of food security projects is regressed on community resilience capacity in the first step then the moderating variable is introduced in

the second step. Changes on the coefficient of determination (adjusted R^2) are then observed. This analysis was in line with hypothesis 7.

Hypothesis 7

H_o: Environmental factors have no significant moderating influence on the strength of the relationship between community resilience capacity and the performance of food security projects in Turkana County, Kenya.

Regression model

The mathematical model used for testing the null hypothesis was as follows:

Performance of food security projects = f (Social capital, Social safety nets, Disaster management skills, Community resource capacity, Environmental factors)

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$

Where:

Y= Performance of food security projects

X_1= Social Capital

X_2= Social safety nets

X_3= Disaster Management skills

X_4= Community resource capacity

X_5= Environmental factors

β_0 = Constant term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Beta coefficients

ε = Error term

Step One: Influence of community resilience capacity on performance of food security projects

In step one, the independent variable community resilience capacity was regressed on performance food security projects in Turkana County. The results of step one of the regression model are as presented in Table 4.42:

Table 4.42: Community resilience capacity and performance of food security projects

Model Summary				
Model	R	R square	Adjusted R Square	Std. Error of the Estimate
	0.458	0.1714	0.1633	0.7629

Predictors: (Constant) Social capital, Social safety nets, Disaster management skills, Community resource capacity

ANOVA					
Model	Sum of squares	Df	Mean Square	F	
Regression	49.11	4	12.28	21.10	0.000
Residual	237.44	408	0.58		
Total	286.55	412			

Dependent Variable: Performance of Food Security Projects
Predictors: (Constant) Social capital, Social safety nets, Disaster management skills, Community resource capacity

Coefficients					
Model	Standardized Coefficients		Unstandardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.8536	0.1745		22.08	0.0000
Social capital	0.0899	0.0630	0.0932	1.4300	0.1540
Social safety nets	0.2274	0.0741	0.2307	3.0700	0.0020
Disaster management skills	0.3240	0.0719	0.3273	4.5000	0.0000
Community resource capacity	0.1759	0.0758	0.1792	2.3200	0.0210

Dependent Variable: Performance of Food Security Projects

All the results on Table 4.42 are similar to those on hypothesis 5 for community resilience capacity and performance of food security projects, in which case all the variables were statistically significant except social capital.

Step Two: Influence of environmental factors and community resilience capacity on performance of food security projects

On the second step of analysis, the moderating variable, environmental factors were introduced on the regression model between community resilience capacity and performance of food security projects. The results are presented on Table 4.43

Table 4.43: Environmental factors, community resilience capacity and performance of food security projects

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
	0.651	0.2390	0.2296	0.73199

Predictors: (Constant) Social capital, Social safety nets, Disaster management skills, Community resource capacity, Environmental factors

ANOVA

Model	Sum of squares	Df	Mean Square	F	
Regression	68.47	5	13.69	25.56	0.000
Residual	218.07	407	0.54		
Total	286.55	412			

Dependent Variable: Performance of Food Security Projects
Predictors: (Constant) Social capital, Social safety nets, Disaster management skills, Community resource capacity, Environmental factors

Coefficients

Model	Standardized Coefficients		Unstandardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.4393	0.1811		18.9900	0.0000
Social capital	0.2770	0.0680	1.078	4.0700	0.0000
Social safety nets	0.2021	0.0728	1.0031	2.7800	0.0060
Disaster management skills	0.2649	0.0697	1.0659	3.8000	0.0000
Community resource capacity	0.1536	0.0721	0.9546	2.1300	0.0340
Environmental factors	0.4053	0.0674	1.2063	6.0100	0.0000

Dependent Variable: Performance of Food Security Projects

Table 4.43 shows that the r statistic is 0.651, implying all the variables have a strong positive correlation performance of food security projects. Introduction of environmental factors to the

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model has made all the variables to be statistically significant, including social capital and environmental factors itself. This significance is observed on the p-values where all of them are below the threshold of 0.05. In terms of comparison of the variables, environmental factors seem to be strong moderating variable. Comparing the study variables results using step one and step two, it is observed that the adjusted R^2 statistic increased from 0.1633 to 0.2296, which is a reflection of 6.63% improvement. This increase implies that the interaction between environmental factors and community resilience capacity explain 6.63% of the variance in performance of food security projects have an important moderating effect on community resilience capacity and thus the null hypothesis is subsequently rejected. Using the regression results from Table 4.43 the regression equation can be rewritten as:

$$Y = 3.44 + 0.277X_1 + 0.202X_2 + 0.265X_3 + 0.154X_4 + 0.405X_5$$

Where:

Y = Performance of food security projects

X_1 = Social Capital

X_2 = Social safety nets

X_3 = Disaster Management skills

X_4 = Community resource capacity

X_5 = Environmental factors

Table 4.44: Summary of Hypothesis Testing - Results

Objective	Hypothesis	Results	Resulting Model	Conclusion
To establish the extent to which social capital influences performance of food security projects in Turkana County, Kenya.	Social capital has significant influence on the performance of food security projects in Turkana County, Kenya.	**Adjusted R^2 = 0.2055** **F = 37.12** **P = 0.000<0.005**	Y = 3.816 + 0.300BO + 0.532BR + 0.495LN	Reject the null hypothesis
To determine the extent to which social safety nets influences performance of food security projects in Turkana County, Kenya.	Social safety nets have a significant influence on the performance of food security projects in Turkana County, Kenya.	**Adjusted R^2 = 0.1757** **F = 30.49** **P = 0.000<0.005**	Y = 3.415 + 0.471ACT + 0.381QTF + 0.217MF	Reject the null hypothesis
To examine the extent to which disaster management skills influences performance of food security projects in Turkana County, Kenya.	Disaster management skills have a significant influence on the performance of food security projects in Turkana County, Kenya.	**Adjusted R^2 = 0.1589** **F = 26.94** **P = 0.000<0.005**	Y = 3.922 + 0.301PS+ 0.139MS+ 0.082RS	Reject the null hypothesis
To determine the extent to which community resource capacity influences performance of food security projects in Turkana County, Kenya.	Community resource capacity has significant influence on the performance of food security projects in Turkana County, Kenya.	**Adjusted R^2 = 0.1835** **F = 32.39** **P = 0.000<0.005**	Y = 3.748 + 0.163AO + 0.330ABS + 0.144ISC	Reject the null hypothesis
To establish the influence of combined community resilience capacity on performance of food security projects in Turkana County, Kenya.	Community resilience capacity has a significant influence on the performance of food security projects in Turkana County, Kenya.	**Adjusted R^2 = 0.1633** **F = 21.10** **P = 0.000<0.05**	Y = 3.854 + 0.0899 X_1 + 0.2274 X_2 + 0.3240 X_3 + 0.1759 X_4	Reject the null hypothesis

To determine the extent to which environmental factors influence performance of food security projects in Turkana County, Kenya.	Environmental factors have a significant influence on the performance of food security projects in Turkana County, Kenya.	**Adjusted R^2 = 0.2349** **F = 43.57** **P = 0.000<0.005**	Y = 3.748 + 0.433PF + 0.074CF+ 0.580EF	Reject the null hypothesis
To assess the moderating influence of environmental factors on the relationship between community resilience capacity and performance of food security projects in Turkana County, Kenya.	Environmental factors have a significant moderating influence on the strength of the relationship between community resilience capacity and the performance of food security projects in Turkana County, Kenya.	**Adjusted R^2 = 0.2296** **F = 25.56** **P = 0.000<0.05**	Y= 3.44 + 0.277X_1 + 0.202X_2 + 0.265X_3 + 0.154X_4 + 0.405X_5	Reject the null hypothesis

Key

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights the summary of the findings from analysis, conclusions, recommendations for policy and practice and finally suggestions for further research. Summary of findings are discussed in line with the specific objectives of the study. The conclusions presented in this section were guided by the research objectives, and informed by the findings, analysis, interpretation and discussions in the current study. Finally, recommendations are derived from the findings of the study and possible future areas of research are outlined.

5.2 Summary of Findings

This section presents the summary of findings based on the various thematic areas drawn from the objectives of the study. The main purpose of the study was to determine the influence of community resilience capacity on the performance of food security projects as moderated by environmental factors in Loima Sub County. Study hypotheses were developed based on the seven specific objectives of the study. Regression models were employed in the testing of the study hypotheses. Data was collected through the use of questionnaire, in-depth interviews and observation. There were 437 and 491 questionnaires were administered. This gave a response rate of 89.2%. Out of these, 42.8% were female and 57.2% were male.

Food security status, a large percentage (58.89%) were moderately food secure, followed by those who were food secure (35.54%) and finally those highly food insecure at 5.57%. These distributions indicated that a majority of the respondents in Loima Sub County were somewhat food insecure. In terms of causes of food insecurity in the Sub County, majority of the respondents were of the view that climate shocks together with natural hazards, conflicts and insecurity were the major causes of food insecurity in the area. This is evident by the fact that the major agricultural activity in the area is pastoralist farming. This activity is usually exposed to these kind of risks which in the end enhance the levels of food insecurity in the Sub County.

The common coping strategies that were reported were: Relying on less preferred and less expensive food together with borrowing food or relying on help from relative (s) or friend (s).

In terms of food security projects carried out in the area, the respondents were of the view that the main projects were short term relief projects. These projects entailed activities like foods and voucher transfers, cash distributions and social safety nets. Performance of these food security projects were scaled in terms of: food availability, accessibility, utilization and stability. Food availability, concerned markets and prices. It was observed that food prices do actually fluctuate in the area. Further, cash transfers sometimes spiked the price levels of food items do to an increase in demand. Food accessibility was scaled in terms of food consumption scores. The scores showed that majority (48.97%) of the community members had poor food consumption status, while a somewhat average number (29.23%) were observed t have acceptable food consumption status. Food utilization was observed using dietary diversity scores. The results showed that cereals and oil formed the main part of households' staple daily diet while Fruits, vegetables and fish were the least consumed.

The study's first objective was to establish the extent to which social capital influences performance of food security projects in Loima Sub County. To that end the null hypothesis to be tested was Social capital has no significant influence on the performance of food security projects in Loima Sub County, Kenya. The alternative hypothesis was Social capital has significant influence on the performance of food security projects in Loima Sub County. The results were F = 37.12, P=0.000<0.005, r =0.275, adjusted R^2 = 0.2055. Though there was a positive weak correlation, the F statistic was however statistically significant thus the null hypothesis was rejected and was concluded that social capital influences the performance of food security projects in Loima Sub County. The weak positive correlation is a clear indication that not all the three social capital components were strong in the study area. Bonding capital was the strongest while linking social capital was weaker. The strong bonding capital can be attributed to the mutual support mechanisms developed by the community to cushion them against the adverse effects of the disaster. The weak linking social capital can be as a result of weak associations between the state and non-state actors who implement food security projects in the area.

The second objective of the study was to determine the extent to which social safety nets influences performance of food security projects in Loima Sub County. The null hypothesis tested was, social safety nets has no significant influence on the performance of food security projects in Loima Sub County. The alternative hypothesis was Social safety nets has significant influence on the performance of food security projects in Loima Sub County. The results were $F = 30.49$, $P=0.000<0.005$, r=0.203, adjusted R^2=0.1757. Just like the first objective, there was a positive weak correlation, but the F statistic was statistically significant and as such the null hypothesis was rejected and was concluded that social safety nets had a positive influence on performance of food security projects in Loima Sub County. This is clear indication that although social safety nets programmes were helping to cushion against food insecurity in the study area, they were not sufficient to cater for every vulnerable households. Some existing challenges include late disbursement, corruption in enrollment and insufficient amount. However, there exists opportunity to re-design social safety net program in the study area by using it as an incentive for community members to diversify agriculture to promote food security thus reduce overreliance on relief which has been counterproductive in the study area.

The third objective of the study was to examine the extent to which disaster management skills influences performance of food security projects in Loima Sub County. The null hypothesis tested was, disaster management skills has no significant influence on the performance of food security projects in Loima Sub County. The alternative hypothesis was, disaster management skills has significant influence on the performance of food security projects in Loima Sub County. The results were $F=26.94$, $P=0.000<0.005$, r =0.315, adjusted R^2=0.1589. The results show there was a moderate positive correlation between disaster management skills and performance of food projects. The F statistic was also statistically significant an implication that the null hypothesis was rejected and was concluded that Disaster management skills influences performance of food security projects in Loima Sub County. This is an indication that communities in Loima were exposed to frequent droughts, livestock diseases, insecurity and flash floods. Thus disaster management skills were key for their survival during disasters. These skills entailed foretelling the impending disasters to preparing for the disaster up to recovery. These skills were gained through communities' experiences with the disasters as well as through trainings by relief agencies.

The fourth objective of the study was to determine the extent to which community resource capacity influences performance of food security projects in Loima Sub County. The null hypothesis tested was, community resource capacity has no significant influence on the performance of food security projects in Loima Sub County. The alternative hypothesis was, community resource capacity has significant influence on the performance of food security projects in Loima Sub County. The results were F=32.39, P=0.000<0.005, r =0.268, adjusted R^2=0.1835. The correlation was weak but the F statistic was statistically significant an implication that the null hypothesis was rejected and it was concluded that community resource capacity influences performance of food projects in Loima Sub County. This is an indication that the main resource in the study area was livestock. Livestock based assets are vulnerable to the impacts of climate change. During droughts community members would migrate long distance in search of water and pasture, this nomadic way of life doesn't favour the pastoralists to accumulate other non-livestock assets thus their vulnerabilities. Equally, that residents of Loima being pastoralists, face high vulnerability to, capital losses from normal economic activity in livestock trading and weather vagaries from sudden onset of drought events leading to food insecurity.

The fifth objective of the study was to establish the influence of community resilience capacity on performance of food security projects in Loima Sub County. The null hypothesis tested was community resilience capacity has no significant influence on the performance of food security projects in Loima Sub County. The alternative hypothesis was, community resilience capacity has a significant influence on the performance of food security projects in Loima Sub County. The results were F = 21.10, p=0.000<0.05, r = 0.458, adjusted R^2= 0.1714, Adjusted R^2 =0.1633. The null hypothesis was rejected and it was concluded that community resilience capacity influences performance of food security projects in Loima Sub County. This can be explained by the fact that, despite recurrent drought in the study area, there existed some community components that helped in returning the community livelihoods back to normal. However, households with diverse livelihoods were more resilient than those who over-relied on a single livelihood which is pastoralism. Resilience component like social networks helped community members share resources among the network to cushion members during disasters.

The sixth objective of the study was to determine the extent to which environmental factors influence performance of food security projects in Loima Sub County. The null hypothesis tested was, environmental factors have no significant influence on the performance of food security projects in Loima Sub County. The alternative hypothesis was, environmental factors has significant influence on the performance of food security projects in Loima Sub County. The results were F=0.43.57, P= 0.000<0.005, r =0.219, adjusted R^2=0.2349 The correlation was weak but the F statistic was statistically significant an implication that the null hypothesis could be rejected and was concluded that environmental factors have an influence on the performance of food security projects in Loima Sub County. Food security projects were influenced by political, legal, cultural as well as economic decisions. These factors either promoted or restricted the achievement of food security. Political decisions influenced those who were to be the beneficiary in the food security projects. Failure to adapt to change for livelihoods diversification was the biggest impediment to the performance of food security projects. Disaster relief operations as well as development projects were highly influenced by clan politics in the study area. Some of these political tussles created conflicts which in the long run inhibited co-operation and even sustainability of projects.

The final objective of the study was to assess the moderating influence of environmental factors on the relationship between community resilience capacity and performance of food security projects in Loima Sub County. The null hypothesis tested was, environmental factors have no significant moderating influence on the relationship between community resilience capacity and the performance of food security projects in Loima Sub County. The alternative hypothesis was, environmental factors have a significant moderating influence on the relationship between community resilience capacity and the performance of food security projects in Loima Sub County. The results were F = 21.10, p =0.000<0.05, r = 0.458, R^2 = 0.1714, Adjusted R^2 =0.1633 before introduction of environmental factors. On introduction of environmental factors to the model, there were various changes, particularly, the correlation coefficient, increased from 0.458 to 0.651, which was an improvement of 19.3%.This implied that environmental factors boosted the influence of community resilience capacity on performance of food security projects thus the null hypothesis was rejected and was concluded that the relationship between community resilience capacity and performance of food security projects was moderated by environmental factors. External environment factors such as

policies to support diversification of pastoral livelihoods impacted on community resilience capacity which influenced performance of foods security projects. For instance, with recognition of pastoralism as the main source of livelihood in Loima, agencies have started promotion of animal husbandry in the region. Other practices being promoted include crop agriculture which is aimed at enhancing community resilience capacity to frequent droughts.

5.3 Conclusions

This study had seven objectives and consequently seven hypotheses to be tested. The first objective was establishing the extent to which social capital influenced performance of food security projects in Loima Sub County. The second was determining the extent to which social safety nets influenced performance of food security projects in Loima Sub County. The third was examining the extent to which disaster management skills influenced performance of food security projects in Loima Sub County. The fourth was determining the extent to which community resource capacity influenced performance of food security projects in Loima Sub County. The fifth was to establish the influence of combined community resilience capacity on performance of food security projects in Loima Sub County. The sixth was determining the extent to which environmental factors influenced performance of food security projects in Loima Sub County and finally the seventh was to assess the moderating influence of environmental factors on the relationship between community resilience capacity and performance of food security projects in Loima Sub County. To achieve all these objectives data was collected from community members in Loima Sub County and analyzed using both descriptive and inferential statistics.

On the first objective, inferential statistics indicated that all the indicators of social capital were significantly positively correlated with performance of food security projects. In terms of the degree, bridging was the highest with r = 0.3753 followed by linking with r = 0.2249 and finally binding with r = 0.2246. Though the correlation coefficients between social capital and performance were positive, they were majorly weak. These weak correlations are in line with the views from FGD group responses. One of the respondents was of the view that the relationship between the community members was not that strong as to impact a positive security outcome to the locals. Another one was of the view that the community has not been equipped with basic skills to help them be more food secure. To improve this state of situation,

a number of suggestions were proposed, among them were a need to create career in agriculture for young people and women, take a balanced landscape approach to agriculture and help in construction of borehole that makes water available. The negative aspect was not shared by all the respondents, some were of the view that the relationship between the community members was intact and stronger and was characterized by their tendency to spread information to each other faster. This relationship and unity helped to curb food insecurity.

The overall F statistic of F = 37.12 was statistically significant since P=0.000<0.005. This is an indication that there is a statistical relationship between social capital and performance of food security projects in Loima Sub County. From this, the null hypothesis that was being tested was rejected and concluded that social capital has an influence on performance of food security projects in Loima Sub County. An implication of this is that, the County should come up with measures to promote social capital in Turkana County. Particularly it ought to come with strategic policies that can promote bonding, bridging and linking of community members in the County. Bonding as an element of social capital which entailed horizontal links between family members, close friends and relatives was the most common type of social capital with 90.9% of all the 418 respondents indicating that it existed in this community. Perhaps more emphasis should be placed on bridging and linking as other important elements of social capital. By increasing the levels of linking social capital, the community members can be in a position of accessing those in authority and hence be capable to access resources and power, which can eventually have an effect on food security. The benefits of bridging social capital are far-reaching and can include increased ability to gather information, ability to gain access to power or better placement within the network, or ability to better recognize new opportunities. Because bridging social capital traverses social boundaries it tends to increase tolerance and acceptances of different people, values, and beliefs through contact with diverse others. Bridging social capital allows different groups to share and exchange information, ideas and innovation and builds consensus among the groups representing diverse interests. Overlapping networks may make accessible the resources and opportunities which exist in one network to a member of another. This indicates that increase in bridging social capital will have a positive influence on food security.

The second objective was to determine the extent to which social safety nets influences performance of food security projects in Loima Sub County. Social safety nets were defined as programs that help the poorest and most vulnerable people stay out of extreme poverty by providing them with transfers which could be in kind, vouchers or cash. The targets of social transfer programs are people on the edge of poverty who could fall back into their old lifestyle quickly if not helped. The sub themes under the theme social safety nets include provision of basic needs, provision of cash, improved living standards and no impact. Majority of the respondents indicated that the vulnerable were provided with food, water, education and other basic needs. Further, according to a number of the respondents, the social safety nets programs provides the vulnerable such the old and the poor with cash. A respondent from the FGD mentioned that safety net programs improves living standards of the vulnerable, *'They uplift the living standard of the vulnerable in the community'*. The positive picture was not shared by all the respondents, one respondent from the FGD group said that, most social safety net programs have not benefited the vulnerable in the society, *'most groups in the society haven't benefited from the program'*. This showed that from the discussion groups, there was a mixed picture about the relationship between social safety nets and food security projects.

Analytically, Social safety nets was measured in terms of; Amount of cash transfers, Quantity of food transfers and Mediating features. Among these elements, the ones which were positively correlated with performance of food projects were Quantity of food transfers with r = 0.3083 and Mediating features with r = 0.219. The correlation between quantity of food transfers with performance was moderate while with mediating features was weak. Overall F statistic F = 30.49 was statistically significant since p = 0.000<0.05 implying there was no enough evidence to reject the null hypothesis a further implication that social safety nets influences performance of food security projects in Loima Sub County. In particular, when asked whether cash for the elderly caters for all household needs, a mean of 2.34 as seen from table 4.15 was returned an indication that the respondents felt the amount of cash disbursed for the elderly was not sufficient to cater for all the household needs. The respondents also disagreed with statements on amount of cash being enough to cater for basic needs including food purchases and the period of coverage being enough for households. This provides an avenue for policy address to the stakeholders who can be able to provide the community with social safety nets.

In summary, social safety nets have a significant relationship with performance of food security projects in Loima Sub County, where the respondents were of the view that the safety nets; have made sure that the weak and the vulnerable have access to food and water and food, have ensured that the nutritionally vulnerable group are accessing food and other basic needs that can better their lives, are providing the locals with food and other basic items, have bettered the livelihood of the locals through provision of cash and have uplifted the living standard of the vulnerable in the community.

The third objective of the study was to examine the influence of disaster management skills on food security projects in Loima Sub County. Disaster management skills focused on prevention, mitigation and recovery aspects of the community and households affected by the disaster. Majority of the respondents from FGD indicated that they possess disaster management skills. A respondent noted that they got the skills from organized training done on different occasions. Nonetheless, a number of the respondents were also of the opinion that they lacked training on emergency responses. The respondents were asked whether everyone is affected in the same way or differently whenever a disaster occur. Majority of the residents said that, when a disaster occurs, the poor are more likely to be affected than the rich. On the other hand, a few of respondents from the FGD believed that the effect of the disaster on the locals do not vary. Though social status may not vary, disasters vary, it was noted that different disasters affect people in their own unique way. Some disasters affect all people in general and some disaster like drought affect certain people like pastoralist forcing them to evacuate to other places in search for pasture and water. Poverty is a major contributor to vulnerability poor people are more likely to live and work in area exposed to potential hazard, while they are less likely to have the resources to cope when disaster strike. It was however, observed that since most people here are pastoralists and the main disaster is drought.so whenever a disaster occurs, most people are affected uniformly and the local resilience towards the disaster is almost the same.

Analytically, to verify the impact of disaster management skills on food security projects, disaster management skills was divided into three indicators: prevention skills, mitigation skills and recovery skills. Descriptive statistics showed that the most popular response to disaster was Government and NGOs, followed by self-reliance/absorbing, then evacuation and

relocation was an option that was considered by some respondents and finally the least popular disaster response method was community member's support. The implication of these results was that the community heavily relied on external help during disasters. Inferential statistics showed that all the variables forming disaster management skills were positively correlated with performance of food security projects. In terms of magnitude, prevention skills, had the highest correlation rank r = 0.3800 which was statistically significant. It was followed by mitigation skills at r = 0.3346, then finally recovery skills at r = 0.2291. The overall F statistic, F = 26.94 was statistically significant since p = 0.000<0.05 implying that the null hypothesis was rejected. The implication to this was that disaster management skills influences performance of food security projects in Loima Sub County.

The fourth objective was to determine the extent to which community resource capacity influences performance of food security projects in Loima Sub County. The respondents were asked their opinion on how people use their assets in improving the performance of food projects. A respondent mentioned that those with assets empower those with none. Further, those with assets foster agricultural practices in the community. It was noted that that those with assets should educate those with none on how to acquire assets. From the discussions, it was observed that people with assets come together and discuss on other possible ways to end the insecurity issues in the society. This in turn helps them to be more secure in terms of food availability. The same assets are used in food production processes. In terms of their livelihoods and lifestyles, it was noted that pastoralism was the key livelihood carried out here and this livelihood adversely affected them because during drought season, they are forced to evacuate to a long distance to look for water and pasture for their animals. These activities make them vulnerable to shocks and stress.

The main resources analyzed were: Land (97.4%), Water (51.8%), Minerals and Oils (28%), Forests (58.9%), Livestock (57.5%), Human labor (32.1%) and financial capacity (29%) as seen from table 4.26. The main resource that owned by the respondents was land and the least was minerals and oils. A number of respondents reported to own at least more than one resource. To analytically analyze the impact of resource capacity, the variable community resource capacity was divided into three: Asset ownership, Access to basic services and Information sharing capacity. Inferential statistics shown on table 4.27 shows that there was a

very moderate correlation r = 0.4059 between Access to basic services and performance of food security projects. Information sharing capacity had a moderate significant positive correlation with performance of food security projects. Notably asset ownership had no statistical correlation with performance of food projects in Loima Sub County.

The F-statistic F = 32.39 from the regression analysis on table 4.28 was statistically significant since p = 0.000<0.05. The implication of this statistic was that the beta coefficients used on the analysis were not statistically equal to zero an implication that there was no enough evidence to reject the null hypothesis. The conclusion for this was that, community resource capacity has a significant influence on the performance of food security projects in Loima Sub County. An important observation is that access to basic services is a very important aspect of community resource capacity to the locals in Loima Sub County, thus a need for the government both County and national to ensure that there is adequate services to the locals and ensure that those services are actually accessible.

The fifth objective was to examine the impact of community resilience capacity on performance of food security projects in Loima Sub County. The main resilience determinants that were identified on FGDs were; their pastoral nature, the culture of the people, their indigenous way of weather forecasting, their ability to afford the available food stuffs, irrigation practicing and the unity of the entire community. In terms of the resilience capacity trends, the main observations were; the community's dependence on relief foods, their indigenous practicing of pastoralism over the years and the community long indigenous culture where during drought they are able to evict to a long distance in search of water and pasture for their cattle. Analytically, community resilience capacity was an aggregate of the variables; social capital, social safety nets, disaster management skills and community resource capacity. As seen from Table 4.32, all the indicators of community resilience capacity were positively and statistically correlated with performance of food security projects in Loima Sub County. In terms of magnitude, the highest was disaster management skills, followed by community resource capacity, then social capital and finally social safety nets. The F-statistic, F = 21.10 was statistically significant since p = 0.000<0.05 an implication that the null hypothesis was rejected and concluded that community resilience capacity has a significant influence on performance of food security projects in Loima Sub County.

Research objective six was to determine the extent to which environmental factors influence performance of food security projects in Loima Sub County. The main environments are internal and external environments. Environmental factors were further divided into four parts; political, cultural, economic and legal. From table 4.32, it was observed that majority of the respondents 91% believe that political decisions on choice of projects, target location and beneficiary selections influence the performance of food security projects. On cultural factors, majority of the respondents 87.6% were of the view that failure to adapt to change for livelihoods diversification was the biggest impediment to the performance of food security projects. On the economic front on table 4.34, a large proportion 60.8% of the respondents were of the view that fluctuations of prices of basic commodities has a major influence on the performance of food security projects, finally on the legal factors, a large portion 76.5% of the respondents were of the view that lack of adequate legislation to promote access and production of food has the biggest influence on performance of food security projects.

To analytically analyze the impact of environmental factors on performance of food security projects, the variable environmental factors was divided into three: political factors, cultural factors and economic factors. Inferential statistics shown on table 4.37 shows that there was a weak but positive correlation between all the environmental factors and performance of food security projects. Economic factors had the highest correlation at r = 0.2974 followed by political factors with r = 0.2021 and finally cultural factors with r = 0.1589. The F-statistic F = 43.57 from the regression analysis on table 4.38 was statistically significant since p = 0.000<0.05. The implication of this statistic was that the beta coefficients used on the analysis were not statistically equal to zero an implication that there was no enough evidence to reject the null hypothesis. The conclusion for this was that, environmental factors have a significant influence on the performance of food security projects in Loima Sub County.

The final objective of the study was to assess the moderating influence of environmental factors on the relationship between community resilience capacity and performance of food security projects in Loima Sub County. To test this objective, the analysis was conducted in two steps. The first was running a regression model where the only explanatory variable was community resilience capacity, then in the second step, environmental factor as a composite indicator was introduced on the regression model. Step one showed that adjusted R^2 was

0.1633 with a standard error of 0.7629. The implication for this was that, community resilience capacity only explained 16.33% of the variation of food security projects in Turkana County. In the second step, the adjusted R^2 increased to 0.2296 while the standard error reduced to 0.73199. The implication for this result was that, environmental factors increased the explanatory effect of community resilience capacity by 6.63% (0.2296 – 0.1633). Thus, confirming that environmental factors have a significant moderating influence on the relationship between community reliance capacity and performance of food security projects in Loima Sub County. Implying the null hypothesis was rejected.

5.4 Contributions of the Study to Knowledge

The research study has established that community resilience capacity influences the performance of food projects. This is particularly so in pastoralists communities like the Turkana. The relationship between community resilience capacity and performance of food security projects is moderated by environmental factors. Literature reviewed showed inter-linkages between the elements that form community resilience capacity together with performance of food security projects but none showed how or whether environmental factors moderates this relationship. Further, the elements that form social capital, social safety nets and disaster management have not been dealt with in depth in literature. This study contributes to knowledge by investigating these elements together with the moderating effect of environmental factors. The summary on how the study contributes to knowledge is shown in Table 5.1.

Table 5.1 Contributions of the Study to Knowledge

Objective	Findings	Conclusion	Contribution to Knowledge
To establish the extent to which social capital influences performance of food security projects in Turkana County, Kenya.	Social capital has an influence on performance of food security projects in Turkana County.	Bonding, Bridging and linking are important elements of social capital and they have a significant effect on performance of food security projects in Turkana County.	The empirical study findings showed that social capital in general has an important influence on food security projects in one of the pastoralists County in Kenya.
To determine the extent to which social safety nets influences performance of food security projects in Turkana County, Kenya.	Social safety nets have an influence on performance of food security projects in Turkana County.	Amount of cash transfers, quantity of food transfers and mediating features are important explanatory variables for social safety nets and they influence performance of food security projects in Turkana County	The results provided an empirical evidence that social safety nets have a great influence on performance of food security projects in in one of the pastoralists County in Kenya.
To examine the extent to which disaster management skills influences performance of food security projects in Turkana County, Kenya.	Disaster management skills have an influence on performance of food security projects in Turkana County.	Prevention and mitigation skills are the statistical significant elements of disaster management skills which influence performance of food security projects in Turkana County.	The empirical findings prove an existence of an important relationship between disaster management skills and performance of food security projects in one the Pastoralists communities in Kenya
To determine the extent to which community resource capacity influences performance of food	Community resource capacity influences performance of food	Asset ownership, Access to basic services and information sharing capacity	The study findings demonstrated that community resource capacity has an important influence on food

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security projects in Turkana County, Kenya.	security projects in Turkana County, Kenya	have a positive influence on food security projects in Turkana County.	security projects in pastoralists communities in Kenya
To establish the influence of combined community resilience capacity on performance of food security projects in Turkana County, Kenya.	Combined community resilience capacity have an influence on performance of food security projects in Turkana County.	Combined community resilience capacity have a statistically significant influence on performance of food projects in Turkana County, Kenya	The study empirically established that Combined community resilience capacity greatly influences the performance of food projects in the pastoralist's communities in Kenya.
To determine the extent to which environmental factors influence performance of food security projects in Turkana County, Kenya.	Environmental factors on their own do not have a statistical significant relationship with performance of food projects in Turkana County.	Cultural, political and economic factors have a positive influence on performance of food projects unless integrated with community factors.	The study findings have empirically indicated that environmental factors on their own do not have a statistical relationship with performance of food projects in Turkana County.
To assess the moderating influence of environmental factors on the relationship between community resilience capacity and performance of food security projects in Turkana County, Kenya.	Environmental factors have an important moderating effect on relationship between community resilience capacity and performance of food projects in Turkana County.	Environmental factors are very important as they moderate the relationship between combined community resilience capacity and performance of food security projects in Turkana County.	The empirical study findings provided evidence that environmental factors have a moderating influence on the relationship between combined community resilience capacity and performance of food security projects in pastoralists' communities of Kenya.

5.5 Recommendations of the Study

In order to address the underlying food insecurity in agro-pastoralist and pastoralist settings, investments in lives and livelihoods of the local people in the medium to long term is important. This will not only build their community resilience but also improve their food security hence eliminating the chronic vulnerability that has seen these communities regularly fall into deprivation and hunger whenever natural calamities such as drought strike. It is worth noting that factors such as social capital, social safety nets, disaster management skills and community resource capacity have been observed to be important for performance of food security projects in these communities. Thus recommendations for policy and practice on these areas are suggested below.

5.5.1 Recommendation for Policy

The study has shown that various factors are important for performance of food security projects in Loima Sub County. The first factor, social capital has influence on the performance of food security projects. There is a need to promote activities which enhance bonding, linking and bridging of the community members. In order to achieve this, the County government need to promote activities like local meetings amongst community members. These meetings can be through religious platforms, chiefs' gatherings or any other form of gatherings. In such meetings, the government can ensure that the message being passed is building on the bondage among the community members so that it can foster social capital amongst them. This as shown from the findings will promote food security among the members.

Social safety nets' redistributive and poverty-reducing role is well understood, but countries take very different positions about how much redistribution they want in their societies, and whether social safety nets are the right tools to deliver it. Social satefy netss' role in risk management and resilient growth is also powerful, but the evidence for this is being built only slowly and is only beginning to filter out to central ministries, politicians, and the general public. As a result, there is less social consensus around the desirability of safety nets than, for example, around the goals for universal primary education or availability of clean water supply. Social safety nets was found to be an important factor on performance of food security projects in Loima Sub County. There is a need to foster this aspect so as to ensure promotion of food security in this area. The elements of social safety nets; amount of cash transfers, quantity of food transfers and mediating features were

observed to be important in performance of food security projects in the County. There is thus a need for the County government to design programs in which the old and young can benefit from cash transfers. These cash transfers can be offered on condition that the recipients are participating in diverse food security projects. Particularly, the government may engage in promoting other agricultural activities apart from pastoralism by giving the community members these cash and quantity of food transfers as incentives. In doing such, the communities may be cushioned from reliance on one agricultural activity which extremely exposes them.

Disaster management skills was observed to be an important factor affecting food security projects in Loima Sub County. The main skills observed to have a large influence on performance of food security projects were prevention and mitigation skills. There is need to foster the capacity of prevention and mitigation skills in Loima Sub County. This can be enhanced by both the government and NGOs. The government and NGOs also need to prepare the community members on other disaster management skills in the event their direct assistance may not available. This can be done through civic education in different platforms and social status like gender and age. The old people may be given education on how to cushion themselves against disasters, the same can be conducted on women and children who are usually adversely affected during occurrence of any disaster in this County.

Community resource capacity was found to be an important factor affecting performance of food projects in the County. Though resources are scarce and the government may not have much to do about allocations, it may nonetheless concentrate on ensuring that the community members use their endowed resources effectively. There is need to promote other agricultural activities like crop farming in the area so that proper use of land is made. The government and NGOs may intervene by offering aid through construction of irrigation schemes and offering other agricultural extension services like trainings and capacity building. Access to basic services was observed to be an important factor on performance of food security projects, thus there is need for the government to not only offer essential services to the community members but also ensure ease of accessibility to these services. Capacity to share information need to be enhanced in order to boost performance of food security projects in the County.

Finally environmental factors were observed to be important in performance of food security projects. Cultural, political and economic factors were all observed to be important explanatory

variables for performance of food security projects in the County. The factors were also observed to be important when integrated with community resilience capacity. To that end, there is a need to promote cohesion between political, cultural and economic factors with community activities. These activities are those promoting social capital within communities, social safety nets, disaster management skills and community resource capacity. Finally there is a need to invest on building community capacities to absorb, adapt, and transform from the recurrent natural shocks to enhance their resilience hence improved food security

5.5.2 Recommendation for Practice

People in Loima Sub County depend on government and other NGO aids and this has created some degree of dependency over time. This therefore makes them vulnerable to shocks and stresses due to lack of self -reliance hence weak resilience capacities. There is need for the government and all stakeholders to come together to promote investments that enhance resilience and food security of the local people. Together they should come up with multi-sectoral and multi-year programs that help the community to be more resilient and food secure. Such programs should seek to address the causal factors of food insecurity while putting in place mechanisms for sustainable development. Capacity building of local communities in disaster management, is key to enhance base skillsets for addressing shocks and stresses.

Strengthening of the traditional or the so called indigenous early warning systems and enhancing modern ways of disaster detection and communication is key in addressing chronic vulnerability to food insecurity. Timely information sharing in the most simple and understandable ways is important for the local communities' levels of illiteracy are quite high. So in a nutshell disaster prevention and mitigation is fundamental if lives and livelihoods of the vulnerable people are to be protected. Furthermore, involvement of these local communities in project design, formulation and implementation has proved to be significant in the success of food security projects.

Durable solutions to food insecurity ought to be sought with focus on irrigated agriculture for continuous crop production. Investments in modern animal husbandry practices is important to safeguard the livestock sector which is the most predominant livelihood. Additionally more focus on social capital, social safety nets, productive assets creation and revitalization and skills investments will make a difference on people's status of food security.

Food security interventions should be inclusive and sustainable, as well as diversified. Diversified livelihoods are better placed for coping with shocks since communities have wider choices for alternative sources of living. These interventions should aim at reducing suffering while reducing exposure to risks and building resilience over the long term. Finally, to address elements of food dietary diversity, community programs should integrate nutrition and health components.

All these measures should be carried out in a systematic and coordinated approach with proper medium to long term strategies put in place. The food systems approach is highly recommended as the best way of building durable resilience. This will encompass investments in food production, processing and transformation to enhance long term self-reliance and create income generating activities in the agricultural and livestock sectors. Focus should be in enhancing food access, availability, utilization and stability through the food systems approach but with clear specific and time bound project interventions aligned, layered and sequenced along the social capital, social protection, productive assets revitalization and utilization and capacity strengthening in disaster management, as evidenced in the results of this study.

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APPENDIX I: LETTER OF INTRODUCTION

Mark Ekiru

P.O. Box 72-00521

Nairobi

Mobile: +254726765275

Dear Respondent,

REF: RESEARCH QUESTIONNAIRE

I am a doctorate student at university of Nairobi pursuing a degree in project planning and management. This is to introduce you to the academic based research study being conducted on community resilience capacity, environmental factors and performance of food security projects. I hereby seek your assistance in filling the questionnaires for the success of this important study. The information provided will only be used for academic purpose, and the information given will remain confidential. Kindly respond to the questionnaire with objective answers and there is no need to write your name in the questionnaire.

Thank you in advance and I look forward for your cooperation.

Yours sincerely,

Mark N. Ekiru

L83/94317/2014

APPENDIX II: QUESTIONNAIRE

PART 1: DEMOGRAPHICS			
RD 01	Questionnaire serial no.		
RD 02	Date		
RD 04	Village		
RD 05	Respondent's Name (Optional)		
RD 06	Gender	Male	
		Female	
RD 07	Highest level of education	Secondary school	
		Certificate	
		Ordinary level Diploma	
		Higher National Diploma	
		Bachelor's degree	
		Master's degree	
		PHD	
		Other (specify)	

PART 2: PERFORMANCE OF FOOD SECURITY PROJECTS

This section contains questions regarding food security in the household please answer them as truthfully as possible.

How many days in the last 7 days did your HH have to apply any of the following coping strategies due to lack of food.

Coping strategy		Number of days
	Rely on less preferred and less expensive food	
	Borrow food or rely on help from relative(s) or friend(s)	
	Limit portion size at meals	
	Restrict consumption by adults for small children to eat	
	Reduce number of meals eaten in a day	

This section contains statements on food security. Please indicate the level of your agreement with the statements below by ticking the appropriate scale 1-5 among the following: Based on your level of agreement on the statements concerning food security in your household, choose appropriate scale. On a scale of 1-5; (1). Always (2), Very Often (3), Sometimes (4), Rarely (5), Never						
	Statement	**1**	**2**	**3**	**4**	**5**
	In the past month, how often did you or any HH member go to sleep at night hungry?					
	In the past month, how often did you worry that your HH would not have enough food?					
	In the past one month how often has your household disposed of productive assets to meet basic needs such as food?					
	In the past one month how often has the household relied on food assistance from external sources?					
	In the past one month how often do you rely on market as the main source of food					

Could you please tell me how many days in the <u>last 7 days</u> your household has eaten the following foods	**Number of days**
How many days in the last 7 days did your household eat Cereals, roots and tubers: sorghum, millet, corn, wheat, rice, pasta (spaghetti) and bread/pancake, fritters, sweet potato, potato, Yam, other tubers	
How many days in the last 7 days did your household eat Legume/nuts: beans/peas, peanuts, lentils, almond, and/or other nuts	
How many days in the last 7 days did your household drink Milk or eat other dairy products: Fresh milk / sour, yogurt, cheese, other dairy products except margarine/butter or small amounts of milk for tea / coffee (exclude the margarine/butter or small amounts of milk for tea/coffee)	
How many days in the last 7 days did your household eat Meat, fish, eggs: goats, beef, chicken, seafood, also tuna canned, etc	
How many days in the last 7 days did your household eat Vegetables: all	
How many days in the last 7 days did your household eat Fruit: banana, Apple, lemon, Mandarin, mango, papaya, etc	
How many days in the last 7 days did your household eat Oil/fat/butter: cooking, butter, margarine, fat/oil other oil	
How many days in the last 7 days did your household eat Sweet sugar or products: honey, jam, Donuts, candy, biscuits, pastries, cakes and other sweet products	

What are the main primary causes/drivers of food insecurity in your household in regard to access, availability and stability?

Conflicts and insecurity

Climate shocks and natural hazards

Economic crises

Others(Specify)

What are the main projects implemented here to promote food security and nutrition?

Short term relief projects (food, voucher, cash distributions, social safety nets)

Medium to long term projects (asset creation, irrigation, incomes generation, Savings and Loans schemes, youth employment)

Development projects (natural resource management, income generation, skills and knowledge building, capacity strengthening, peace building, youth and women empowerment, employment creation)

None

Are there mechanisms to promote quality and sustainability of these projects at the local and sub-national levels if they exist?

Yes

No

Which of these projects have been a success? Choose any or a combination of the following criteria for project success

The project meets its objectives and the overarching goal

Stakeholder satisfaction

Use of its products and services (crops sales, food production)

Existence of good cooperation and communication

Project delivered within its timeframe(timeliness)

Consistent top management support.

Project delivered within its scope as originally planned

Project delivered within allocated budget

What were the main project challenges? Choose any one or a combination of challenges stated below

Inadequate capacity in project management team

Budgetary constraints leading to some reductions hence impact on project deliverables

Climate related shocks and stresses (floods, droughts)

Political interference

Insecurity leading to displacements and or deaths

Poor beneficiary targeting

Changes in scope leading to additional work or reductions

Regular delays in procurement and implementation

Low level of community and household participation

v) Do these projects focus more on strengthening resilience and livelihoods of the community?[1]

Yes

No

Vi) What is the level of community participation in these projects?

Poor

Fair

Good

Very good

vii) Are there exit strategies and hand over plans after project completion?

Yes

No

---

[1] Note that resilience for this study is defined as the ability of the individuals, households or community to prepare for, adapt and transform from the impact of a disaster or more simply ability to bounce back and build better after the drought or flood effect.

viii) Do you think the food security projects implemented improved

Access to food (yes/No)

Food availability (Yes/ No)

Food utilization (Yes/ No)

Food stability   (Yes/No)

PART 3: ENVIRONMENTAL FACTORS

This section contains questions regarding the project environment, please respond to them truthfully

	Based on your level of agreement or disagreement on the statements concerning environmental factors, choose appropriate scale. On a scale of 1-5; Strongly agree (1). Somewhat disagree (2) Neutral (3) Somewhat agree(4), strongly disagree (5)					
	Statement	**1**	**2**	**3**	**4**	**5**
1	Clan and ethnic politics is strong					
2	When disputes or conflicts occurred, participants first looked on how the project would benefit the whole community instead of themselves					
3	Strong leadership is shown by project leaders and the project management committee.					
4	Projects cannot succeed in its work without positive government relations					
5	Government bureaucracy is a major hindrance to project implementation					
6	Projects need to be sensitive to the local cultural beliefs					
7	Knowledge of local language by project staff is important					
8	Knowledge of local culture is important for project staff					
9	The local leadership is incompetent and corrupt					
10	What happens within the community and outside in relation to security influence greatly project execution					

What political factors do you think affect the performance of food security and nutrition projects? Choose any relevant options below

Political decisions on the choice of projects, target locations and beneficiary selection

Political interference in the running of the projects (determination of the project leadership team and undue influence on how to manage the project, threats and intimidations)

Demands for kickbacks for continued support

What cultural factors do you think affect more the performance of food security projects? Choose any relevant options below

Failure to adapt to change for livelihoods diversification (strong cultural inclination to livestock keeping)

Local beliefs and values attached to livestock (Eating habits, value attachment, dowry payments).

Role of women and men in food security projects (example culturally men tend to look after livestock while women are left to do farming or household chores)

Eating habits, traditional lifestyle, early marriages

iii)   What are the main economic factors that influence performance of food security projects in the household? Choose any relevant options below

Price fluctuations of basic commodities

Low purchasing power due to lack or low incomes and poverty

Lack of functioning markets

Poor infrastructure such as access roads, electricity

Inadequate skilled labour

Inadequate access to financial capital

Frequent migrations (nomadic lifestyle)

Lack/inadequate farming inputs

iv) What are the legal constraints that affect the performance of food security projects at the household level?

Lack of adequate legislation to promote access and production of food at the household level

Lack of enforcement of existing legislations that promote food security at the household level

Lack of enabling policy environment that promotes private and public investments in food security.

Lack of awareness at the household level on basic policies, regulations and laws that promote access to food as a basic human right

PART 4: SOCIAL CAPITAL

This section contains questions on social capital, please provide truthful information

	Based on your level of agreement or disagreement on the statements concerning social capital in your community, choose appropriate scale. On a scale of 1-5; Strongly Agree (1). Somewhat agree (2), Neutral (3),Somewhat disagree (4),Strong disagree (5),					
	Statement	**1**	**2**	**3**	**4**	**5**
1	I belong to different social groups					
2	I trust my neighbors for support					
3	I can get support across the communities in times of need					
4	We stand for each other in times of need at the community level					
5	I relate well with fellow community members					
6	I can ask my friends for help at peer group level					
7	I communicate freely and empower each other					
8	Our community is hospitable					
9	I can get support from higher authorities whenever I want					
10	We share ideas on problems affecting the community					

Do you think you live in a social network?

Yes

No

What kind of social networks/capitals exist in your community? Choose from the list below

Bonding social capital (horizontal links between family members, close friends, and neighbors

Bridging social capital (connects members across communities or groups)

Linking social capital (vertical links that connects social networks with some form of authority in the social sphere)

In what way does knowing each other and relating well across communities contribute to food security in your community?

Sharing of information and knowledge

Sharing of community resources

Hospitable inter-community and cross border migrations

Market access and trading

    iv) Compared to previous years, are the current social networks strong or not?

Yes

No

V) What are the main challenges?

Erosion by the modern way of life

Politicization and segregation

Establishment of boundaries and restrictions for free interactions

Migrations

Insecurity

    vi) What are the main social norms and beliefs that affect food security in your community?

Over reliance on pastoralism

Marriages and polygamous way of life

The role of seers/ prophets

Eating habits and preferences

PART 5: SOCIAL SAFETY NETS

This section contains questions on social safety nets, please provide truthful information.

Based on your level of agreement or disagreement on the statements concerning social safety net programs in your community, choose appropriate scale. On a scale of 1-5; Strongly Agree (1). Somewhat agree (2), Neutral (3), Somewhat disagree (4), Strong disagree (5),

	Statement	1	2	3	4	5
1	The cash for the elderly caters for all my household needs					
2	The relief food items I get sustains us till the next distribution					
3	The in-kind transfers help me to be more food secure					
4	The amount of cash given is enough for my basic needs including food purchases					
4	The period for transfers coverage is enough for my household					
5	The targeting process was fair and transparent					
6	There were no inclusion and exclusion errors in the registration and targeting process					
7	The transfers are quite often provided on a timely basis					
8	The local markets are functioning, and all items are found					
9	As a result of cash injection into the local markets there were no serious inflation rates					
10	Local businesses benefited and there were economic multiplier effects in the community					

What form of safety nets programmes exist here?

Unconditional in-kind transfers

Unconditional cash and voucher transfers

Conditional cash and voucher transfers

Conditional in-kind transfers

Other, specify

Do you belong to any of the social safety nets programme?

Yes

No

If yes, how much per month in KES?

500-1000

1000-2000

2000-3000

3000-4000

(iii)How often do you receive this cash?

After every 1 month

After every 2 months

After every 3 months

After every 4-6 months

 (iv)Are there in kind transfers like food items?

Yes

No

(v)Are there voucher type of modality?

Yes

No

(vi) Are there organized systems and structures like functioning markets in place?

Yes

No

(vii)What is the impact on your livelihoods and resilience to food security shocks and stresses of these social transfers?

Low

Fair

High

(viii)What are the challenges being experienced?

Frequent delays

Low amounts

Physical access

Inclusion and exclusion errors

PART 6: DISASTER MANAGEMENT SKILLS

This section contains questions on disaster management skills, please provide truthful information

Based on your level of agreement or disagreement on the statements concerning your community disaster management skills, choose appropriate scale. On a scale of 1-5; Strongly Agree (1). Somewhat agree (2) Neutral (3), Somewhat disagree (4), Strong disagree (5),

	Statement	1	2	3	4	5
1	We have mechanisms to foretell a disaster is coming					
2	We prepare to face a disaster when it is coming					
3	We tend to absorb the shocks and stresses that combine to create disaster impact whenever it occurs					
4	We tend to adapt to the recurrent shocks and stresses that create a disaster					
5	Quite often we get better after a disaster strikes					
6	We have preparedness and response structures in place					
7	We have mitigation mechanisms in place to reduce or avoid the impact of disaster					
8	We have access to trained personnel on disaster preparedness and response					
9	We practice both modern and traditional coping and adaptation mechanisms to survive effect of the shocks and stresses					
10	We have low physical and economic damage as a result of disasters					

What kind of natural and man-made hazards are common in this particular area?

Floods

Earthquakes

Droughts

Landslides

Disease outbreaks

Conflict and insecurity

How do you respond to the disasters?

Relying on Government and NGOs Support

Evacuation and relocations

Community members support

Self-reliance, absorbing and overcoming the shock and stress

iii) Is there always any external support during a shock?

Yes

No

If the support is there, is it timely

Yes

No

iv) does the household and community have the ability to prepare, adapt and transform from the disaster?

Yes

No

v) What was the traditional way of coping?

Reliance on the social networks

Reliance on indigenous early warning systems

Use of own resources

vi) Are there existing indigenous knowledge early warning systems that help reduce harm or exposure to climate and weather-related shocks and stresses?

Yes

No

Briefly describe types…………………………………………………

PART 7: COMMUNITY RESOURCE CAPACITY

This section contains questions on community resource capacity, please provide truthful information

Based on your level of agreement on the statements concerning your community resource capacity, choose appropriate scale. On a scale of 1-5; Strongly Agree (1). Somewhat agree (2) Neutral (3), Somewhat disagree (4), Strong disagree (5)

	Statement	1	2	3	4	5
1	Assets that were built or rehabilitated in the community protect my household, its belongings and its production capacities (fields, equipment, etc.) from floods/drought					
2	Assets that were built or rehabilitated in the community have allowed my household to increase or diversify its production (agriculture / livestock / other)					
3	The assets that were built or rehabilitated in your community have decreased the day-to-day hardship					
4	The assets that were built or rehabilitated in your community have improved your natural environment					
5	There is adequate access to basic services such as health, education, water etc in your area					
6	There is adequate functioning and well-maintained infrastructure such as roads, education and health facilities					
7	There is good communication and information sharing on community needs and priorities					

8	There is adequate human resources in the community to manage basic services and food security needs					
9	Community and household resources and assets such as livestock help to cushion against food security shocks.					
10	There is equity in access to available resources such as grazing land and water points in the community					

What kind of resources does this community own?

Land

Water resources

Minerals and oil

Forests

Livestock

Human labour

Financial capital

Others, specify…………………………………………………………..

Is everyone allowed to freely use the resources?

Yes

No

iii) Are there any challenges in the use of community and household resources?

 Describe and name them …………………………………………………….......…………

APPENDIX III: KEY INFORMANTS INTERVIEW GUIDE

Greet the members, and without wasting time introduce the researcher, the research objectives and the ethical considerations of the research. These questions are designed to be open ended.

We would like you to participate in an in-depth interview for about an hour to discuss these issues. This will help the researcher to understand the measures that could be taken to ensure food security of the people.

What challenges do you face when setting up the food security projects in the community?

What factors do you consider when installing different types of food security projects in different locations?

What is the level of participation of the locals in food security projects?

How do you ensure that the community benefits fully from the food security projects?

In your opinion, explain how the food security projects have benefitted the community?

What is the role of the stakeholders and government in ensuring the success of the food security projects?

What criteria do you use when offering relief food/resources to the vulnerable groups in the community?

In your opinion what has been the trends of community resilience capacity to food insecurity shocks and stresses over the years?

What are the key determinants of resilience in this community?

Does the degree of resilience determine the levels of community vulnerability to shocks?

What role do you think social capital, social safety nets, community resource capacity, disaster management skills play in relation to food security?

In your opinion what is the major cause of food insecurity in the community and what durable solutions can be initiated?

Cite some challenges that regularly affect the community and the households when it comes to food security as well as the key constraints for successful food security projects implementation.

Do some local people possess skills in disaster prevention, mitigation and management?

Whenever disasters occur, how is the impact on the local people? Are all the people affected in the same way or differently? Why is it so? Does their resilience vary?

Do you think the kind of livelihoods carried out affect the way people cope and adapt to the shocks and stresses? How does this occur and what can be done to improve level of resilience?

APPENDIX IV: FOCUS GROUP DISCUSSIONS

We would like you to participate in a Focus Group Discussion for about one hour to discuss issues relating to food security. This will help the researcher to understand the measures that could be taken to ensure food security of the people.

How effective is the social relationships between the community members to help them curb food insecurity?

How have the social safety net programs helped the vulnerable group in the society?

What are the approaches used by the locals in the community to boost food security?

How successful are the current food security projects in the area?

How does the community ensure success in the projects intended to curb food insecurity?

In your opinion, how do people with assets help in improving the food security projects?

What is your role as community members to ensure that the food security projects are timely and successfully completed?

Do some local people possess skills in disaster prevention, mitigation and management?

Whenever disasters occur, how is the impact on the local people? Are all the people affected in the same way or differently? Why is it so? Does their resilience vary?

Do you think the kind of livelihoods carried out affect the way people cope and adapt to the shocks and stresses? How does this occur and what can be done to improve level of resilience?

APPENDIX V: INFORMED CONSENT

INFORMED CONSENT

Good Morning/Good Afternoon

My name is Mark Ekiru, doing a study on Food Security Projects in Turkana County, Kenya. The purpose of this study is to gain an understanding on community resilience capacity, environmental factors and performance of food security in Turkana County, Kenya.

You are among the project workers/beneficiary selected to take part in the study through responding to the questionnaire. If you consent to undertake the task, kindly provide accurate, relevant and objective response. The exercise can take approximately 20 minutes.

This is an academic research thus the information you provide will not be used for other purposes. Your right to privacy will be respected as the information you provide will remain confidential.

Your participation in this study is on voluntary basis, no payments should be expected after responding to the questionnaires. However, you have a right to stop your response in case you feel you don't have adequate capacity to respond.

If you consent, please sign below, and then start responding to the questionnaire.

Respondent Signature: .... Date: …………………………

APPENDIX VI: RESEARCH PERMIT
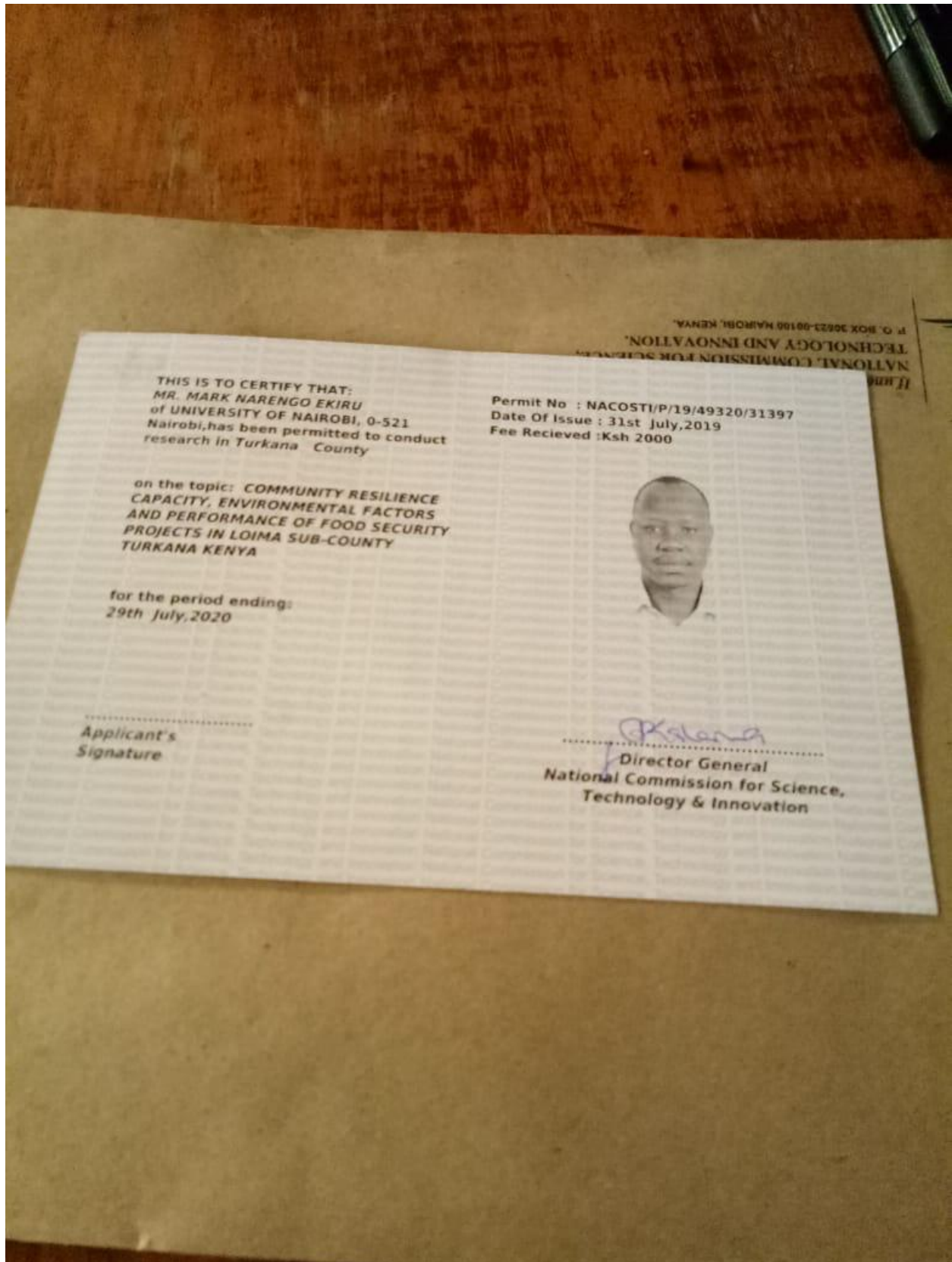
THIS IS TO CERTIFY THAT:
MR. MARK NARENGO EKIRU
of UNIVERSITY OF NAIROBI, 0-521
Nairobi,has been permitted to conduct
research in Turkana   County

on the topic: COMMUNITY RESILIENCE
CAPACITY, ENVIRONMENTAL FACTORS
AND PERFORMANCE OF FOOD SECURITY
PROJECTS IN LOIMA SUB-COUNTY
TURKANA KENYA

for the period ending:
29th July,2020

Permit No : NACOSTI/P/19/49320/31397
Date Of Issue : 31st July,2019
Fee Recieved :Ksh 2000

Applicant's
Signature

Director General
National Commission for Science,
Technology & Innovation