

Agriculture at the Crossroads: Challenges of Food Security and Rural Development in Siaya County

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Agriculture at the Crossroads: Challenges of Food Security and Rural Development in Siaya County

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Abstract

Africa is always being portrayed as a continent of poverty and one that needs to develop, and increase its food production. The quest has lead world organizations to launch projects for development and economic growth in Africa where majority are poor. The many years of investment project and programs in development has not yielded much to the alleged poverty. Most countries of Sub Sahara Africa depend on agriculture for subsistence and economic growth. Agricultural production is by small-scale holder farmers, living in rural areas where most are poor and food insecure, despite the contribution to their country's economy. Why has the many years of poverty eradication not yielded improvement to the alleged high poverty levels? This study considers poverty as structural, the perspective in which, and poverty is, seen as a resultant of wider structures beyond an individual's control. The study analyses the role of the prevailing institutions, in agricultural development and poverty eradication. The findings indicate that small-scale farmer's livelihood is, challenged not only by nature, but also by unfavourable institutions that risk their vulnerability to poverty and food insecurity.

Keywords: *food security, poverty, small scale holding agriculture, rural development*

Dedication

This is dedicated to my late father Luke Ogonji Ndinya, who was not just a father but also a mentor. Whose wisdom, values and zeal for solidarity I will always appreciate. Your altruism illuminated many lives, you are a legend and none can wish that away your spirit lives on. It took so long but now I see the reasoning from your phrase.

If you introduce the issue of money you brake the spirit of sacrifice

Luke Ogonji Ndinya

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All long journeys begin with little steps. First, I thank my family for morale boost and spiritual support through the duration of working on the study. Thanks goes to my supervisor for the good guidance. Much gratitude to the contact persons and participants for their enormous contribution, without which the study would have not been a success. Lastly, I thank all that have contributed support of whichever kind for accomplishment of the study.

List of Abbreviations

AoA Agreement on Agriculture

CBO Community Based Organization

FAO Food for Agriculture Organization

IMF International monetary fund

LDCs Least Developed Countries

MDG Millennium Development Goals

NCD Non- Communicable Diseases

NGO Non-Governmental Organization

OECD The Organisation for Economic Co-operation and Development

SDG Sustainable Development Goals

SSA Sub Sahara Africa

WHO World Health Organization

WTO World Trade Organization

WB World Bank

UN United Nations

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At the heart of the Industrial Revolution of the eighteenth century, there was an almost miraculous improvement in the tools of production, which were, accompanied by catastrophic dislocation of the lives of the common people.

Karl Polanyi 1944.

1 Introduction

Achieving sustainable food security is among the main challenges faced by African governments and the international community (Hickey et al., 2012, Nyariki and Wiggins, 1997).

In Sub-Saharan Africa, about 85% of the population live in rural areas and depend on small-scale agriculture either directly as producers, or indirectly as labourers. Majority of the rural population are poor and food insecure (McIntyre, 2009, Jerneck, 2015, World, 2007, Rostami and Sadati, 2008). Africa's agricultural growth is, alleged to be insufficient to adequately address poverty or attain food security, despite many countries implementation of macroeconomic, sectoral and institutional reforms (Jayne et al., 2010).

Ending poverty and hunger is also a priority, emphasized in the sustainable development goals (UN, 2015). However, the United Nations' Food and Agriculture Organization FAO has warned in a recent report that, severe food insecurity seems to be increasing in all sub regions of Africa and South America and that approximate 821million people are believed to be undernourished (FAO, 2018)ⁱ

Food security is as a situation where all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that, meets individual's dietary needs and food preferences for an active and healthy life (FAO, 2008). In Kenya as in other East African countries food production is dominated by small holders, living in rural areas (Wiggins, 2009), where a majority of the population is poor. Despite smallholder's predominance and importance in food production, their contribution to poverty reduction and food security, is challenged by low productivity caused by lack of access to markets, credit, outdated technology, droughts, and land degradation among other things (Nyariki and Wiggins, 1997).

Agriculture constitutes a major part to Kenya's economy and GDP with 75%, agricultural

ⁱ <http://www.fao.org/3/i9553en/i9553en.pdf>

output produced by smallholder farmers (Jayne et al., 2010) and employs 80% of the labor force (IFAD,2016)ⁱⁱ However, poverty and income inequality remain, Kenya's persisting challenge, as approximated 10 million, suffer food insecurity and poor nutrition despite Kenya becoming a middle-income country in 2014 (Aberman et al., 2015).

Oluoko Odingo (2011) has argued that, the main reason behind food insecurity in Kenyan households are the lack of financial resources and to a minimal level lack of basic needs food, water, shelter. Several scholars have also pointed out that, functional formal and informal institutions are necessary if food security is to be, achieved. However, what is the reality behind such overarching comments.

In this thesis study, I identify constraints to the widespread food insecurity in Sub-Sahara Africa in general, but concentrating in some part of rural areas in western Kenya. I analyse the forms of institutions that play roles in smallholder farmer's food production and distribution. With the aim of directing policy makers and developers to tackle recurring food insecurity through institutional framework that consider the socio, economic constraints to rural livelihoods. So that policy makers understand not only factors that drive food insecurity, but, those which hinder the implementation of effective policies and institutions (Hickey et al., 2012). The location of study is western Kenya, Siaya county. Siaya is one of the counties in Kenya, which is plagued by seasonal food insecurity (Rarieya and Fortun, 2010). Using six individual interviews, a focus group of seven participants and non-participatory observation. I explore the challenges to small-scale farmer's livelihood and food security in Ugenya, a constituency among six others of Siaya county. To find stories of success or failure to small -scale holder farmer's livelihood and food security.

1.1 Research Aim and Research questions

The aim of the study is to investigate how small-scale farmers in three villages in Western Kenya experience food security, and to describe how they discuss food security in terms of success or failure. The research questions are

- What strategies do smallholder farmers use to achieve food security?
- What factors influence farmer's decision to the chosen strategies?
- How does the strategies contribute to food security and poverty alleviation?
- Why does the community face successive food insecurity?

ⁱⁱ <https://www.ifad.org/documents/38714170/39155702/Rural+development+report+2016.pdf>

1.2 Welcome to the village

Until early 90's most villagers in Kenya had plenty and variety of food choice. It was the urban dwellers that had been, known to have food shortage because; the urban households relied on market sold food and food prices. However, things have changed, in the villages including in Ugenya as I observed, access to food is dependent on households' financial capability, even for most farmers. Cultivation in the villages as observed has moved away from the traditional rich variety of mixed farming, which supported household's food security, to the newly introduced market production of grain mono-cropping introduced by donor organizations working with Kenyan representatives. Grain mono-cropping has exposed the rural poor, both small scale farmers and non-farmers to market food prices (Borras et al., 2014, Borras Jr et al., 2016).

From the 60s and 70s the Kenyan government supported small-scale farmers such as sugarcane growers, maize farmers, rice growers, wheat farmers, dairy farmers etc., with subsidised farm input; agricultural officers field support, storage and marketing. However, most farmers in the study villages have now joined the modern intensive farming of grain mono cropping. Cultivating as contract farmers after the Kenyan government withdrew agricultural support following the 80s structural adjustment as happened in developing countries. Intensive farming requires use of expensive farm inputs, complex technology and information on markets and network, which was lacking in the village at study time. The rural is transforming and opening new economic opportunities and threats to actors (Haggblade et al., 2007) If subsistence farmers must be introduced to modern farming techniques, and benefit economically, it is important that responsible institutions and policy protect small scale food producers.

2. Background

In this part, I present the background that informed the study from literature review. I highlight the relevance of smallholder's agriculture in food availability, employment, and discuss the role of institutions in agricultural progress or stagnation.

African nation- states throughout the 20thc under colonial rule had been, identified as peasant agrarian countries, which the post- independence governments reinforced. The governments

extracted surplus food from subsistence farming to feed its urban population and exported some to generate foreign exchange (Bryceson, 2000, pg. 5). However, the neoliberal policies of the 80's and

90s of market liberalization, initiated depeasantisation, by search for optimal return on investment (Bryceson, 2004). Currently, peasants combine, commodity and subsistence production to varying degrees of class, age, gender and locality (Bryceson, 2000).

2.1 Challenges and opportunities

Kenya is a high agricultural dependent country. Agriculture employs 61% of Kenyan population and comprises 25% of GDP. Food production is by small-scale farming and agri- pastoralists using rainfed agriculture, producing 75% total agricultural activities and 70% marketed produce (Hickey et al., 2012, Ngenoh et al., 2018, Blank et al., 2002) Despite its dependence on agriculture, Kenya falls among the 20 food insecure countries with majority of its population poor and food insecure. Even though agriculture contributes to a larger part of the economy, only 16% of the total landmass is suitable for agriculture (Blank et al., 2002, Hickey et al., 2012) the remainder 84% is semiarid or arid and does not support rainfed agriculture, such regions experience a crop failure in every three harvests. In Kenyan as in most of SSA, irrigation is limited even though evidence shows that communities have practised some form of irrigation some 500 years ago (Blank et al., pg. 19). Irrigation in Kenya which was established in the 60's and 70's when the state supported agriculture, has declined since 1980's despite strong gains in irrigation, and small holder's reliance on rainfed production (Blank et al., 2002).

Irrigation and sustainable agriculture according to research is, found to create opportunities to production gains. In addition, deemed the best tool for managing food security in situations like in East Africa, where farmers are, challenged with erratic rains and shortage of land from overpopulation (Nakawuka et al., 2018). To plan future sustainable strategies Kenya must evaluate past and current irrigation developments such as applied by farmers, which are cheaper and easy to manage than conventional irrigation systems. The government and donors can augment the pace of such investments by providing needed information on water availability, types of appropriate extraction devices dissemination of technology and financial support to access these (ibid). Farmers practicing irrigation can cultivate all year round, making irrigation a relevant tool for fighting food insecurity by facilitating introduction of new crops, and enabling cultivation of high value cash crops that require reliable water (Burney and Naylor, 2012, Wichelns, 2014).

2.2 Coping with shocks

Small -scale farmers of East Africa as in some parts of developing world, face multiple challenges such as volatile food and energy prices, lack of access to technologies, markets, credit, degradation, high population growth and unfavourable policy and institutions, institutions that do not emphasize agricultural growth etc., (Nakawuka et al., 2018, Burney and Naylor, 2012, Diao et al., 2010). The shocks directly impact on food security and fight against poverty since they affect small scale farmers production, food market and local economies (Ngenoh et al., 2018).

The shocks such as loss of crop to drought, pests, floods or disease thoroughly affects many household's consumption, production and marketing activities. However, if households are equipped at the onset of crises with livelihood strategies such as insurance, early warning and diverse livelihood, farmer's timely decisions can minimize production and market shocks

The availability of relevant institutions such that protect agricultural growth and access to related services, determine smallholder's extent of coping with production and market shocks. Farmers with access to credit, extension contacts for information on and access to market information are more likely to increase their extent of coping with market and production shocks. Access to market information are incentives that enable farmers to explore lucrative income generating opportunities or high value chains but this depends on information and social institutional factors.

2.3 Institutions and growth

Agriculture generates surplus that attract economic development through trade. Agriculture therefore matters for economic growth and structural transformation from labour intensive economic activities to higher productivity and skill intensive activities (Habitat, 2016). Yet, agriculture in developing countries such as in Africa became casualty of foreign institutions in the tragedy following 1980's, imposition of Structural Adjustment Programs (SAPs) directives from monetary institutions of the World Bank (WB) and IMF (international Monetary Fund). SAPs enforced state deregulation and privatization including in agriculture (Deacon, 2007, Clapp, 2016) and the developing nations cut or withdrew state agricultural support. Even though some countries like Kenya, depend on agricultural growth, which contributes to its GDP.

Agriculture is, also challenged by the protocol, Agreement on Agriculture (AoA) established in 1994 at Uruguay rounds. The AoA enforced free trade in agricultural products that had always

been an exempt of inclusion into the World Trade Organization (WTO). The free trade causes further risk to developing nation's smallholders and poor farmers. By flooding developing world's markets with imports from goods produced cheaply in Europe under subsidy and which are sold at deterrent prices to local small holders (Clapp, 2016, Deacon, 2007, McMichael, 2013) External institutions brought change to the developing nations that negatively affected agriculture by removal of state control and privatization. Developing nations however, must take the initiative and make internal institutional changes to safeguard agriculture, which most countries depend on for economic growth and food security. Internal institutions according to Federico (2005) are evident to bring positive transformation and agricultural progress to small farms and small-scale agriculture.

According to Jama and Pizarro (2008), another drawback to small-scale farmer's livelihood is the lack of access to credit, functioning markets and information and technology. Adoption of agricultural intensification requires smallholder's access to financial credit and extension services to disseminate information on the new technology of new seeds. Connecting actors (buyers & sellers) in the supply chain through information channels and market intelligence information on supply, dealers, pricing and outlets is economically gainful to smallholder's livelihood as farmers transact in functioning markets (Jama and Pizarro, 2008).

Connecting farmers to functioning markets must address communication and infrastructural development. The connection must avail information and establishment of strong market groups. To protect farmers from exploitation by middlemen, secure farmers trade in surplus and reduce wastage from post-harvest loss (Wichelns, 2014, Jama and Pizarro, 2008, Ngenoh et al., 2018) But, these must have state intervention, with policy to safeguard and boost transaction in international trade (Williamson, 2009, North, 1991) whereby small-scale farmers can participate in trust and secure transactions.

Small-scale holding farmers in developing countries like in SSA are poor because of limited economic opportunities. However, from evidence small-scale farming can be productive and engage in competitive markets when provided necessary support. According to Jama and Pizarro, (2008) boosting smallholder's agriculture is a means, to drive broad based economic growth. Agriculture increases productivity and rural poor people's income, offers employment from agricultural and non-agricultural activities, it also increases a nations food security by availability of cheaper locally produced food to both urban and rural poor, agriculture provides cheap raw material and political stability (Jama and Pizarro, 2008, Dorosh and Thurlow, 2016, Kay, 2009)

Any state, institution, and stakeholders hoping to tackle poverty in Africa must boost the dominant food producers, the small-scale holder farmers.

3. Disposition

The essay begins with introduction and study aim, and a short welcome to the village. Followed by the background. Then disposition, followed by description of concepts of study. Thereafter comes methodology. After methodology is the findings, analysis and discussion organized thematically. Finally, is the conclusion and recommendation?

4. Study concepts

Here are definitions and elaborate on the concepts as used

4.1 Food security

At world food conference 1974, food security referred to people's self-sufficiency. The availability of food at all times and offsetting of fluctuations in production prices (Maxwell, 1996). The state was obliged to feed its population as a right. In the 80's world policy shifted focus from national food self-sufficiency and sovereignty to household and individual entitlement. In 1996, FAO added calorie and nutrient measurement of food security. Food security now exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Pinstrup-Andersen, 2009, Shrestha and Nepal, 2016).

A nation or people are food secure when the poor and vulnerable have access to food they want without fear that there will not be enough to eat (Maxwell and Smith, 1992).

4.2 Poverty

Poverty is a multidimensional concept, measured economically in terms of household's earnings as absolute or relative. Absolute poor households lack basic human needs food, water, housing and clothing whereas, a relative poor household's income, is measured against other society members (Juma, 2015, Oluoko-Odingo, 2011). Most scholars believe that, poverty is, caused by structures, such as the governing laws, socio-economic inequalities that favour one class against another, lack of representation etc. According to Shirldrick and Rucell (2015) ⁱⁱⁱ assessing poverty as structural,

ⁱⁱⁱ <https://www.jrf.org.uk/report/sociological-perspectives-poverty>

disentangles poverty from a range of related concepts that, create, maintain, or reduce poverty. Concepts such as, those that attribute poverty to individual behaviour as lazy people. For

sociologists an individual's material or non-material deprivation are part of economic, political and institutional impacts of power structures on society (Dey, 2018, Juma, 2015, Hulme, 2013, Jerneck, 2015).

4.3 Small-scale agriculture and growth

Small-scale holder farming (peasantry or subsistence) is agriculture, practiced on small farms generally about 2 to 3ha of crop land (Morton, 2007). Farm sizes can vary, up to 7ha (MoALF, 2016)^{iv}. In East Africa, as in other parts of developing world, food production is dominated by smallholder farmers (peasants) living in rural areas, with little endowments, producing for subsistence and selling surplus. The terms small-scale holder famers or peasants are, used interchangeably.

4.4 Rural Development

Rural development is an aim pursued by both, international institutions and national states, to improve the economic and social well-being of the rural population. The definition however, may substantially vary, depending on the geographical location and the actor, formulating the definition. Development narratives concerning developing nations, has evolved through the years, moving away from modernization with state control of the 1960-70s. The view held by developing nations to the view of market liberalization, good governance, decentralization, social protection and poverty eradication held by industrial world (Ashley and Maxwell, 2001, Ellis and Biggs, 2001, Hulme, 2013). Rural transformation however, is not spontaneous but occurs as part of broader structural transformation (Kay, 2009) influenced by a nations industrial policies and institutional environment (Habitat, 2016) during transit from low productivity and labour intensive economic activities (on-farm), to higher productivity and skill intensive (non-farm), dominated by manufacturing and services (Kay, 2009, Gladwin et al., 2001, Douwe, 2012, Chambers, 2014, Bezemer and Headey, 2008, Habitat, 2016).

For development strategies to be successful, the state must involve as the institutional architect to support, cooperation and capacity building in rural areas and execute rural matters for economic

^{iv} <https://cgspace.cgiar.org>

development (North, 1991, Williamson, 2009). Provide grants and infrastructure (Murdoch, 2000) investing in peasant farming to exploit the connection between industrialization and agriculture, by creating surplus extraction and transfer from agriculture, to industry (Kay, 2009, Habitat, 2016).

5. Mode of Production

Theory is a researcher's reflection on important issues to be examined, and people to be studied (Inglis, 2013, Kawulich, 2009). Theories create assumptions for analysts, to diagnose, explain processes, and predict specific phenomenon outcomes (Ostrom, 2011) I will draw on the change in mode of production. The introduction of a capitalist mode of production to replace a kinship-based will be, discussed to analyse how farmers deal with questions of food security.

The capitalist mode of production is a market embedded economy, where exchange value is based on a product's monetary worth, exchange always oriented for profit (Polanyi and MacIver, 1944, Cangiani, 2011). In analysing actors' behaviour as institutionally shaped and lived as reality, I contrast, economy (household management) embedded in market production, as opposed to mutual relations in kinship institutions. I draw from informal kinship institutions and formal institutions to analyse smallholders' conduct. I am applying institutions analysis to understand the working rules, that participants refer to when justifying individual action (Ostrom, 2009).

In simpler societies such as in Africa, social organization was, formed around kinship institutions, of mutual social responsibility for lasting relationships. Kinship relations, value social capital as means of transacting (Bourdieu, 2011), and kinsmen exchanged services under reciprocity and redistribution (Mboya, 1967, Wolf, 2010, Appadurai, 1988, Donham, 1981). The informal institution of traditional societies is communal minded where an individual is part of a system. Kinship allows relatives to call on each other to carry out necessary duties such as sharing labour and food. The kin institutionalised patterns of sharing are common responses to resilience and food security (Scheper-Hughes, 1993, Mboya, 1967).

In the market economy, organization is under the command of private persons engaged in buying and selling for profit (Wolf, 2010, Donham, 1981, Stalin and Stalin, 1940, Kellner, 1975, Granovetter, 1985). The market economy is a system regulated, controlled and directed only by supply and demand (Polanyi and MacIver, 1944) with money as the sole purchasing power of goods and services. The market economy assumes that, human beings behave in such a way as to,

achieve maximum monetary gains, due to the assumption of expected monetary gains; production and distribution are, controlled by prices for profit. Prices form incomes, and with income, individuals have purchasing power for the goods sold (Polanyi and MacIver, 1944, p.39).

The capitalist mode of production is, differentiated. The social relations of kin no longer define economic transactions or rationality rather, these relations are, deemed inferior to the market (Granovetter, 1985, p.3). Exchange however, characterizes not only the management of resources but also human social relations. There are other forms of exchange than the mercantile as solely recognised in capitalist mode. Exchange value such as barter and immaterial capitals like social, or cultural capital can be, converted into a material good without involving the issue of money. And reduce social, cultural, political, or personal transaction costs (Appadurai, 1988, Bourdieu, 2011).

In an economy embedded in society, social relationships are, taken for granted. Besides, actors interact according to their assigned roles such investor and beneficiary (Granovetter, 1985, p.7) these interactions construct habits that, subject action to one way of doing things.

6. Methodology

This is an ethnography case study to investigate how small-scale farmers in three villages in Western Kenya experience food security, and to describe how they discuss food security in terms of success or failure. The study does not give attention to any specific gender; here both genders are, treated equally as individuals.

6.1.1 Research strategy

Ethnography is a qualitative research aiming for deep understanding of individuals or societies perception and behaviour. Ethnography has ground in anthropology but adopted by other social sciences such as sociology (Reeves et al., 2008), of which the author belong. The quest for deep understanding of the challenges to small-scale holder's livelihood and food security impelled me to travel to Ugenya Siaya. To live among the rural villagers to investigate small-scale holder farmers' livelihood and food security management. This is because, ethnographers use unstructured data collection methods of interviews, observation and participation to study social interactions, behaviour, and perceptions in the natural settings as they occur within groups, teams, organisations, and communities.

The case study could have been, done using other methods such as secondary data from literature reviews. But the need for investigating an occurrence in its natural setting (Hennink et al., 2010, Reeves et al., 2008) could only be achieved by living among the stakeholder's. I used the advantage of unstructured questions of qualitative ethnography during interviews and observation I participated where necessary. The advantage of this method of investigation was that it made it easier for participants to reveal more and act naturally (Hennink et al., 2010) as they became comfortable with the author whom they took to be one of their kind a villager.

Qualitative researcher's study people in natural settings by interacting, to identify how peoples' actions are shaped by social, economic, cultural and physical contexts (Hennink et al., 2010, Reeves et al., 2008). Ethnography is a qualitative approach which use a variety of data sources for deep understanding of individual's perceptions and interpreting participant's actions to solving problems and the results of these acts (Woodside, 2010). To meet qualitative ethnographer's requirement, I decided to travel to Siaya and live among the participants to work and live and engage or observe as they go about daily routine. To help me use collected data in rich interpretation and analysis.

6.1.2 Study Area

The study was, carried out in Ugenya, constituency of Siaya County. Purposively chosen because Siaya is, alleged to be one of the counties in Kenya that has high poverty rates and food insecurity (Rarieya and Fortun, 2010, MoALF, 2016). Siaya County lies in western Kenya, Nyanza region, neighbouring Vihiga and Kakamega counties to the Northeast, Kisumu County to the Southeast, and Busia to the North with Lake Victoria to the southeast. Siaya County covers 2,530.5km² of land. The county has annual rainfall of between 1.170 mm and 1.450 mm. The population of the county in 2009 was 842, 304 predominately rural. Poverty levels is at 57% in rural and 37.9% in urban Siaya district as of 2002. Five constituencies Alego-Usonga, Bondo, Gem Rarieda and Ugenya constitute Siaya County. Economic activities are Subsistence agriculture, fishing, rice farming and small-scale trading. Subsistence farming is, practised on 51.1 % of the total County's arable land where food crops cover 150, 300 ha; cash crops take up 1.2 %. Agricultural sector contributes 60% of the total household income and provides approximately 61% of all employment opportunities in the County.

The main food crops are maize, beans, sorghum, millet, cowpeas, sweet potatoes, cassava, traditional vegetables, bananas, sesame, yams groundnuts bananas mangoes etc. Some new crops

emerging in the County include soybean, palm oil, chili, and grain amaranth. The average farm size for small-scale farmers range from 1.02 to 3 ha and varies with sub-County. According to reports, food insecurity is high in the County, and is characterised by scarcity of food, fewer meals per day for most households, and limited diversity in family diets. 80.7% of households in Siaya County are classified by reports as food insecure (MoALF, 2016; Daily Nation, 2011) ^v

6.1.3 Mode of Procedure

I intended to go to Siaya County for field study, but had neither idea of exact place, nor a person in Siaya to contact. Luckily, a relative of mine had an acquaintance who works with community farmers in Ugenya, a Sub-County of Siaya. I was, then introduced. On arrival, the contact person invited two field officers with whom he worked, and who would later help in accessing farmers. I explained my intentions, presented them letter of confirmation from my school and supervisor. They agreed to help saying that, “we will help you meet our farmer members, and your ideas could also help us in dealing with food security”. It was the first time I ever set foot in Ugenya. I came back later, when I was ready for fieldwork. Commuting from Kisumu to Siaya daily would be expensive and tasking; I therefore decided to live in Ugenya during the duration of data collection. I called the project leaders and asked for help with accommodation. I wanted to live and share cost with any family in the village. One of the field officers welcomed me to his home.

6.2 Data collection technique

Data was collected using six individual interviews, one focus group and none-participatory field observation according to qualitative approach of field study (Creswell, 2014, Baxter and Jack, 2008, Hennink et al., 2010).

Sampling and Procedure

An idea behind qualitative research is to purposely select participants, sites, visual documents or materials that will best help a researcher in understanding a research question and problem (Alvesson, 2011) Ugenya is one of the six constituencies of Siaya and is big, I chose participants from three villages pseudonym A, B and C for confidentiality. A because that is where the community project (CBO) is based. B was the village where I lived. At the home of the field officer, and C because that is where the second field officer comes from and I relied on their help

^v [https://w](https://www.nation.co.ke/counties/siaya/Siaya-county-at-a-glance-/1183322-1177194-7kb9ofz/index.html)

www.nation.co.ke/counties/siaya/Siaya-county-at-a-glance-/1183322-1177194-7kb9ofz/index.html

to access intended participants. According to Creswell (2014) there is no fixed number of participants recommended for interviewing in qualitative research however, for case studies, 4 to 6 persons is recommended or interviewing until saturation (Morse, 2015) when no new information is added. I settled on six individual interviews, two participants from each of the three villages. To avoid being overwhelmed with data and a focus group discussion of 7 farmers.

In tales from the field Van Maanen (2011) states that groups studied need to be selected with care on the grounds of what they might reveal (Van Maanen, 2011, Morse, 2015). I purposely selected the interviewed farmers, because of their working with the different organizations herein listed, which had launched programs in Siaya, for poverty reduction, restore food security for development.

The organizations are Kenya Agricultural and Livestock Research Organization (KALRO) and University of Nairobi survey, Kenya Agricultural Productivity Programme (KAPP), Firm Input Promotion Africa (FIPS), Kenya Agricultural Research Institute (KARI), International Crops Research Institute for the Semi-Arid (ICRISAT), One Acre Fund, Feed the Future, International Livestock Research Institute (ILRI), British American Tobacco (BAT), and Western Kenya, ILRA, etc. Many of these programs came under the USAID and World Bank sponsored working with Kenya government.

The sample comprised male and female the youngest 26 years old and the eldest 69 years. The young farmers were, chosen to make the study inclusive, to avoid biasness to any group, gender, and age set. The young population is alleged to not associate with agriculture therefore I considered interesting include the views of young people practicing small-scale agriculture.

This study does not, prioritise any gender, women are included as farmers. In Uganda as in other parts of Africa, most women engage in small-scale farming as a livelihood and for household's food provision, thus the interest of including female participants. The use of focus group was because they are economical and increases participant chances of cohesiveness by, the sense of belonging to a group. It helps participants' feel safe to share information, creates more spontaneous responses and provides participants forum for discussing personal problems and provide possible solutions (Onwuegbuzie et al., 2009). I chose 7 participants for the focus group, which is large enough to yield diversity of information. Focus group participants as alleged should consist 6-12 individuals because large groups can be intimidating to participants besides being difficult to control (Onwuegbuzie et al., 2009, Creswell, 2014).

A focus group discussion was, held with the 7 participants selected from the three villages but none of the previous individual interviewee. This was purposefully, for corroboration or to, evoke new revelation from farmer's stories. The focus group discussion was, held at the CBO centre in village A, a central and neutral place. The farmers did not know each other from across the villages, despite being members of the community organization. However, each knew one of their village members and the field officers. I organized transportation to get participants to the place on time. The discussion took three hours. In the end, we had lunch together organized by me with assistance of one field officer. Participants' were, driven home after discussion by the same means that had brought them.

The interviews were, conducted using exploratory semi-structured questions. Exploratory questions are, used in circumstances where a studied phenomenon is poorly, understood or when researchers want to generate proposals for further research. Exploratory questions seek to discern and comprehend patterns or identify, probable relationships shaping the phenomenon. Research questions should be broad, open-ended to enable researchers to obtain rich, vivid accounts of the participants experiences (Koch et al., 2014, Kvale and Brinkmann, 2009).

The study used semi structured, open-ended questions to exploit its informal flexibility (Cohen and Crabtree, 2006, Koch et al., 2014) which allowed room for modification around interest topics from participants narratives, and used it for developing relevant questions and in-depth discussion, the questions were not sequential (Kvale and Brinkmann, 2009). Semi structured are also good to use when an investigator cannot get more than one chance to interview a participant (Cohen and Crabtree, 2006) .

Semi- structured questions are, often preceded by observation. The non-verbal cues can give messages that help researchers understand verbal responses (nervous, open, frigid, appreciative, etc.) they provide supplementary data on a respondent's background and personal characteristics (Koch et al., 2014, Kvale and Brinkmann, 2009, Hennink et al., 2010, Creswell, 2014, Robson, 2002). The interviewee's environment can also reveal a lot of information helpful in interpretation of data (Frankfort-Nachmias and Nachmias, 2007). Qualitative data collection using observation allows, detail description of people's action, activities, behaviour, interpersonal interaction, and organizational processes. Observatory fieldwork data are usually recorded by field notes of detailed descriptions including contexts within which observations were made (Trumbull, 2005, Creswell, 2014).

I used non-participatory field observation, recorded by field notes. January-February in Kenya is a dry season; there was not much activity for crop farmers. From village walks with the guide, I saw that everywhere farm preparation was underway, on two occasions a tractor passed us on the road going to plough even though most farms were ploughed using hand plough. Farm preparation was in anticipation for rainy period and planting season. Farmers showed their dry fields some with withered crops; some farms by the rivers looked better and had vegetables that were, harvested fortnightly. Some organic farms looked appealing with good-looking plants even in the dry weather. Nevertheless, for the purposive sampling these farmers were, not part of the participants. Being a dry season, it was not easy to make judgement on the sparingly served food. It was lean season and individuals tend to, always be thrift.

The interviews were conducted both in Luo, (participants and authors language) and English language. All participants of the study understood and could speak English, even the oldest, but because English is not an everyday language. The participants requested for clarification of questions in Luo language what they did not understand, clearly English. Their responses were in Luo to guarantee accuracy. The author sometimes relied on the field officers to help with phrasing. This is, because the officers understood the farmer's way of conversation better than the outsider researcher did.

The interviews were fully recorded using Sony IC voice recorder to prevent risk of losing valuable information from note taking, and for the sake of replaying recordings whenever needed during analysis and interpretation. According to (Cohen and Crabtree, 2006) it is generally best to tape-record interviews and later transcribe these tapes for analysis because of being open ended, discussions may diverge from interview guide. An interview lasted almost an hour. Alone in the field, the author got assistance from the officers of the (CBO) to access participants. After data collection, and before farewell, participants were, compensated with little monetary gifts to appreciate participant's time and will. This was a surprise to them because, I was a student and they appreciated. I confirmed to them that this was savings out of student pocket money. Two participants did not take the gift saying that, as a student, I needed it more than they did and it was their pleasure if I succeeded in the thesis writing because it will carry their views.

6.2.3 Limitation

The study's limitation was due to the short time spent in the field. Qualitative ethnography research requires researchers to spend longer periods that can be up to six months in the field to gain rich data. I spent only two weeks because of the short time for thesis writing and financial constraints. The study area covered was also small. Ugenya is a large constituency, within the large Siaya County, that has five constituencies. This means that findings cannot be justified as representative to the whole of Siaya County, other areas may have own stories. Another limitation is the lack of voices from authorities concerned with agricultural production, lack developers or donor organizations voices, these are stakeholders whose contribution would have been of importance to the study.

7. Research finding and discussion

This was a qualitative ethnography case study to explore how small-scale farmers in three villages in Western Kenya experience food security, and to describe how they discuss food security in terms of success or failure. This part is the synthesis of findings presented under occurring themes. The interpretation is from primary data. The field interviews, observation notes, and discussed with discourse analyses from selected literature.

7.1 Sustainable agriculture and climate change

Although climate change affects both large and small farmers livelihood. Theme number one discusses climate change effect on smallholding farmers as narrated by participants.

In the study area almost, everyone practices farming, producing food for subsistence, on small farms 0.2 - 0.4 acres, but some have joined intensive farming, such farmers do not only subsist but also produce crops intended for the market. Producing as contract farmers under rain fed agriculture. Farmers rely on long rains in March and April for good harvest. Short rain period limits the type of crops that are grown.

Small-scale agriculturalists are vulnerable to climate change due to their livelihoods dependent on natural resource such as soil, weather, water and the ecosystem at large. Farmers' capability to withstand hard climate is, jeopardized when the smallholder farmers land is, subjected to prolonged drought or floods. The aftermath affect households' income, leading to loss of assets

such as crops, livestock and land. Households risk chronic food insecurity from reduced consumption (Oluoko-Odingo, 2011, Descheemaeker et al., 2016, Hertel and Rosch, 2010). The fear of climate variability shock make some people abandon agriculture.

Mr. Okwach is a millet contract farmer, and one of the farmers recruited in the seed multiplication project by (FIPS) he said, “some people are leaving agriculture for the fear of losing income because of drought. These farmers abandon agriculture because of fear from the risk of farms being, struck by natural catastrophes like floods, drought or hailstones. However, these are natural catastrophes and we cannot avoid them. In agriculture, one needs to be able to endure natural calamities. Farming is a gamble, one time you win, another time losing, it is not constant.” Rural population’s vulnerability is diverse in context. Vulnerabilities include unpredictable weather conditions, environmental degradation, socio-economic, and political restraint (Pouliotte et al., 2009, Aberman et al., 2015, Andersson and Gabrielsson, 2012) and are further aggravated by lack of access, control over financial capital, or assets, needed to adopt resilient practices (minimizing risk) and adaption (Aberman et al., 2015, Oluoko-Odingo, 2011).

Ayany Jowi is an organic farmer, who tried contract farming but quit grain mono cropping. Ayany Jowi practices organic mixed farming and has a certificate of recognition from FAO as one of the best organic farmers, and another recognition by Agricultural society of Kenya (ASK). In Jowi’s opinion, a challenge to small-scale holding farmers is the difficulty in access to financial support. When justifying his actions he said, “If I could finish digging this borehole which requires lots of money, I can even be able to take up just one, or two sorts of agricultural activities like; dairy keeping and horticulture, because, I will be able to, irrigate my farm during droughts.” Ayany Jowi practices mixed farming on his small farm; most of the products are horticulture, including many vegetables, but few cereals. Ayany keeps different animals and grows fodder for sell to other animal keepers. He would like to be a dairy farmer, which he believes would to be more profitable, by generating income through sale of milk and by products.

In the villages studied in Ugenya Siaya, farmers endeavour to maintain their livelihood, despite the increasing vulnerability caused by climate change. Some farmers are taking up new methods such as using new hybrid seeds, or embracing modern farming techniques of keeping feeder cattle, poultry, piggery and horticulture. I observed that most farmers are trying to embrace modern farming approaches introduced by donor organizations to keep up or even increase production in hope of earning decent income.

Some organizations in the village incorporate tree planting among the new crops to boost agroforestry by supplying tree seedling to farmer group members. While this is important, it also creates problems to some degree. Some farmers plant eucalyptus trees, which has negative effects on the underground water. If not taken into consideration, the negative effects of eucalyptus might cause disaster. as happened in my village, in rural Kisumu, where some nearby streams that supplied the villages with water have dried up, after farmers planted eucalyptus trees on farms by the streams in hope of monetary gain. Water is now a scarce resource in my village and smallholders must buy water from vendors. This action proves the effect of constructed knowledge because smallholders, who have lived in an area for generations, have knowledge of indigenous types of trees and their significance Altieri (1987). In Ugenya there must exist a variety of indigenous trees, which, if encouraged and planted would be beneficial to food security, health and wellbeing due to weather adaptation. Some indigenous trees are, used for medicinal purposes, at the same time balance the ecosystem. In Ugenya indigenous trees are almost extinct, common trees in the villages are mostly foreign. The villages studied are, well surrounded with rivers and streams running across them such as the big Nzoia River, numerous streams and shallow wells. There are good water sources in the villages that should be, protected since availability of clean water is good for food security.

Farming is, practised in Ugenya for ages there has been a way that farmers have survived droughts, such as cultivating different kinds of crops during the short rains. Crops with short maturity period, adapted to the region and drought resistant. Which some farmers now seem to forget as they go for new introduced crops and new seeds alleged to be drought resistant, which even though gives high yield, do require much water. While modern technology, such as developed drought resistant seeds is, being encouraged for climate change adaptation. It is equally important that, traditional knowledge, on how communities coped with past climate change be incorporated to adaptation of current and future climate change. Moreover, be included in development initiatives for enhancing smallholder's livelihoods. (Altieri and Merrick, 1987, Altieri and Nicholls, 2017, Nyong et al., 2007, Campbell et al., 2016).

Traditional knowledge can be complementary to modern technology, to reduce production shocks. Traditionally, farmers selected and preserved seeds as practice. This led to survival of indigenous climate adapted varieties through generations, even when they experienced drought. Adapted seeds can be resilient to farmer's losses against climate change and plant disease. Climate

change is a challenge that farmers will always face. Adaptation therefore will need to embrace cooperation between new technology and traditional knowledge to use resilient and sustainable methods. The traditional knowledge can be complementary to modern technology, to reduce production shocks.

7.2 The gradual change of mode of production its economic, social and cultural impacts

In this section, I describe the economic, social and cultural impacts of the gradual transition from traditional mode of production to a market based mode, embedded with a specific form of modernity. I intend to show the profound effects this transition has on food security and poverty. Poverty is multidimensional and contextual, and not solely caused by lack of financial resources. I argue that the Ugenya villages, which I studied, both real and imagined poverty is partly caused by the gradual change of world-view and values which occurs with the penetration of market economy and modernity at large, whereby a wide variety of cultural values are calculated and quantified according its imagined monetary value.

In Ugenya community, as in other African communities, social organization was under the informal kinship institution that guided social setup including farming and food distribution (Okwany, 2011)^{vi} kin network through reciprocity enabled availability and access to food among relations. The kinship mode of production constituted a moral economy where social obligation played an essential part in taking care of the poor and vulnerable (Fafchamps, 1992, Götz, 2015, Wolf, 1986, Wolf, 2010). In other words, kinship production protected households from food insecurity by sustaining household and community food supply. Major crops grown were sorghum, millet, sweet potatoes, pumpkins, yams, etc. Grains such as millet were a man's crop. It signified masculinity of the culture, in which men are, charged with family protection. As protectors of the family, men provided land for the women to cultivate food.

Currently food production is, focused on the market. Some farmers live the construction that, only the market production of cash crops can enhance their food security and wellbeing. Cultivating only crops that they can sell to earn money which they can use later to buy food for their households. The process of market penetration with the introduction and exchange for money

^{vi} <http://cliffmode.blogspot.com/2011/06/luo-culture-habits-migration-and.html>

has come with fatal consequences such as food insecurity and poverty (Polanyi and MacIver, 1944).

The state and multilateral development agencies are now trying to mitigate poverty by policy or structural reforms designed and implemented top- down (Lipton, 1977) without tackling the underlying cause. The institutional change, which brought change to the mode of production. Celine, a middle-aged woman began contract farming under KAPAP but now farming with one-acre fund organization told me how representatives of the KAPAP (Kenya Agricultural and Agribusiness Program) arrived in the village A, where she lives to implement a program of poverty alleviation and improve the food security. She said thus “KAPAP brought and introduced to us chili, amaranth, peanut, millet, soya, mushroom, beekeeping and many more to choose from. The representatives told us to grow in bulk, promising that they would bring us market for the produce. Most farmers grew chili in bulk. An agent working for ACE foods a Germany company, used to come and buy the chili at prices set by the agent. The ACE foods agent collected farmers produce recorded the amount per kg, and brought back the money after sales. For only two years. After the second year, the agent disappeared with farmers produce, worth 7000 US dollars. Some earlier bills too not paid. Farmers never heard of him again the project ended. After KAPAP collapsed, there was no state representative to ask or help.

Chuchu is only 26 years and the youngest of the interviewed farmers. He practices organic mixed farming after he quit contract farming. Chuchu became inspired into farming as a young boy while in school. He used to be the caretaker of his own father’s dairy cow and farming activities from which he earned pocket money. His suggestion on what should be done to alleviate poverty, is that, any stakeholder willing to offer farmers some help must think through. He said that, he does not monocrop, but mixes his farming activities. Grows few grains for home use, more vegetables, some fruits and rears animals for sale and own use. He explained that, “This is because I can constantly sell vegetables and buy grains, but not vice versa. I quit farming for companies because of grain mono cropping, which risk threatening the food availability.

In Ugenya like in other African communities, mixed cropping functioned as safety net against hunger during lean period or bad harvests. Farmers cultivated variety of crops during distinct seasons depending on the weather. In the long rainy season (*chwiri*) most of crops requiring large amounts of rains and longer maturity time is planted, and in the short rain seasons (*opon*) different crops, especially those with short maturity period and needing little rain were grown. The sorghum

grain for example, which was a major crop, came in different varieties and planted during both wet and dry seasons depending on maturity time. However, the organizations mentioned above have brought another type of sorghum to Ugenya that is, recommended to the farmers. This sorghum is, grown only in the long rain period. What will people be eating in *Chwiri (long rainy season)*, the coming year, as they work on the farms, if *opon* (short cultivation period) gives no harvest? This means such households must have enough money to buy food.

Farming in Ugenya is changing as in some parts of the country; mono cropping is becoming dominant because the farmers believe that cultivating only commercial grains will generate more money. From observation and going by the farming trend, many local food crops are under threat of becoming extinct. The price of foods like yams, sweet potatoes pumpkins and some traditional vegetables to mention a few have gone up because, majority of farmers no longer cultivate them yet these foods enhance food security by enriching peoples diet and health (Daily Nation, 2013)^{vii} and secure household food availability and food security. The complete pumpkin plant is edible. Milk is, added to boiled pumpkin leaves and eaten as vegetable. The fruit can be stored in the granary (*dero*) for later use in lean times. Pumpkin seeds is, grounded and used in different sauces or roasted and eaten as nuts.

Poverty and food insecurity are intertwined and any measures directed towards eradicating poverty positively affect food security (Sheryl and Sheryl, 2002, Oluoko-Odingo, 2011) but in Ugenya the situation is different. The self- employed, director of community-based organization (CBO) revealed why the projects failed or did not last long. He said that, it is the lack of knowledge or understanding displayed by foreign organizations. When the developing agencies such as that which brought KAPAP, the introducers of chili and Amaranth, came here, they seldom assess household need of food security of the areas. The developers also depend on donor funds. Their focus is on the money to be, used without idea on household sustainability or, how donor dependency affects food security. He said fidgeting, “I personally argued a lot with the developers in Siaya, at the orientation of the project. I asked why, the agencies wanted to introduce chili cultivation in Siaya Ugenya! We do not have chili factories in Siaya, you want to rely on a foreign investor that can stop and terminate that market at any time. Why don’t we, concentrate on rice farming which is already established and instead, improve on the existing machines.” Alternatively, he suggested focus on investment to promoting farmers peanut cultivation, by building a local cooperative factory for all users. Peanuts are locally cultivated and does well in

^{vii} <https://www.nation.co.ke/oped/1192-1192-110kbth/index.html>

Ugenya. Nevertheless, KAPAP he said was targeting an individual with whom they could use to squander donor funds. KAPAP brought a peanut butter machine and handed it to an individual, which is capitalism. This is why the developers did not want me to get involved in those projects. Here is another challenge to farmers' progress. The social evil of corruption, looting from the public" he said emotionally. Corruption in my belief must have its roots somewhere too, otherwise it would not thrive, and is a social evil that thrives when institutions for maintaining control, are lacking or are weak (Williamson, 2009, Campbell, 2004).

Apiyo is a retired female teacher, does individual farming after quitting contract farming. Explaining the challenges faced by contract farmers she said, if, drought strikes then the loan-taking farmers like any other farmer gets poor yield no matter the planting method used. The difference is that, contract farmers must pay back the taken loan either by cash or by harvest. According to Apiyo, contract farming is not good for food security. If a farmer relies on crops in the field, to repay the company loans, then, such a farmer is in dilemma if the harvest fails, (Harvey, 2005) argued that, a single crop failure devastates small scale farmers diets, livelihood and future farms.

Insurance can mitigate the risk of crop failure, but Ugenya small-scale farmers do not have any kind of insurance. The farmers take loans from companies or organizations that offer input as loans or contract; in return, these organizations and companies take or buy farmers harvest at costs, which, according to farmers is low. In Apiyo's opinion, the organizations do not alleviate poverty. The organizations want their loans paid immediately after harvest; farmers must sell produce to them at low prices because the contract bind farmers.

In Ugenya has neither the agricultural ministry of Kenya, nor the international NGOs coming to the villages to alleviate poverty, managed to resolve the household's state of poverty. Farmers believe that the lack of support for agriculture aggravates small-scale farmer's livelihood vulnerability by lack of protection from production shocks.

The director of the (CBO) said that seed producers and researchers (ICRISAT, FIPS, AGRICS, KAPP, and KAPAP) collaborated and used farmers to multiply the organizations intended seeds. He said that, "when the organizations arrive in the village, they need a platform because; they have inadequate seed and personnel. These external organizations identify and use village organizations to reach farmers, and then they bring the techniques and methods they want to disseminate. They then demonstrate four different seed variety on few farms, in specific zones within an area. A seed

variety that performed well was, recommended were available only at a particular agrovet outlet. The farmers then multiplied the seeds according to the recommendation. Okulo a middle aged male vegetable farmer from village C who was recruited and trained under seed bulking by FIPS (Farm Inputs Promotions) but now uses the technique to cultivate own crops. He said that, the organizations do not want indigenous crops, because indigenous crops do not yield high as hybrid species. Okulo said hybrid seeds gives high yield but are low in weight, and less tasty compared to indigenous crops. Nevertheless, for the sake of sales the farmers now cultivate these crops.

I observed that farmers always preserved and circulated their own indigenous seeds amongst farmer friends. During the field interview rounds, farmers talked of and shared indigenous seeds with those who wanted. Seed preservation in the traditional way is, done by distribution among fellow farmers, relatives and friends a method of spreading risk and guaranteed seed survival. The researchers and seed companies exploited this method to bulk their own brand of seeds using farmer's resources (time, property and labour) and later, sold these seeds or distributed it to contract farmers as input. For which the farmers are, bound and have to sell harvest to the distributing organization at given prices by the organizations. These very seeds were not available locally but at a specific veterinary shop, two hours away and expensive for farmer's pockets.

KALRO (Kenya Agricultural and Livestock Organization) however, brought benefit to some poor families by providing milk goats to families with malnourished children, on condition that the female goat kids were, given to the next identified family with same condition. If the goat kid is a male, the family keeps the kid, which the family uses for economic benefit, cross breeding at a fee to the goat owner. KALRO still follows up what happens to the goats that they have delivered to families, keeping records of the goat circulation among families. They still bring additional goats to other families when there are only male kids born. This procedure not only boosts household finances but health too said Okulo the middle-aged vegetable farmer.

The farmers' action is a result of camouflaged cultural invasion, the invader assuming role of a helping friend (Freire, 1970). Invasion here is, concealed as economic growth under the market wining over the kinship networking of food production and distribution. In a competition between two societies confronted with conflicting universes (Dreher, 2016, Bourdieu, 1989, Inglis, 2013). For cultural invasion, it is essential that those who are, invaded come to see their reality with the outlook of the invaders rather than their own; for, the more they mimic the invaders, the more stable the position of the latter becomes (Freire, 1970, p. 151-153).

The key to donor success in poverty alleviation is to understand how the poor are, or, may be involved, in enhancing own efforts out of poverty, and the role of institutions (formal and informal) in determining food security, without which donors are likely to fail in the endeavour.

7.3 Constraints to Capital

Five capitals fundamental to farmers are, natural capital (land water and trees) physical capital, human capital, financial capital, and social capital (Ellis, 2000) Social capital is most useful here, as it is through social capital that, small scale producers can access other assets such as human or financial capital. Here I discuss farmers' challenges to financial and diminished access to social capital following introduction of intensive agriculture.

7. 3. 1 Access to Financial Capital

Institutions matter for economic growth, macro policies and reform to determine broad economic contexts within which decisions are made (North, 1991, Federico, 2005). Policies concerning agriculture can enhance or inhibit small-scale rural peasant's access to financial asset or lack of it. Ayany Jowi the elderly male practices organic farming, Ayany told that he would love to expand agricultural activity on his farm but, the lack of means to irrigation limit his

enthusiasm. The ground water is a lot he believes however; the farmers lack access to irrigation tools like pumps, or funds to sink boreholes for continuous water supply. During drought, season farmers cannot do much because of their reliance on rainfall. In addition, the contract farmer's fields, designated for cultivating company crops, must lie idle. That is part of the agreement with contractors as told by Monica a female middle-aged contract farmer. Chuchu the youngest of the farmers said that, a great challenge is farmer's dependence on rains for cultivation. The farmers mostly need assistance to acquire technique and equipment for rainwater harvesting for all year-round agricultural production.

According to some farmers, the programs implemented by the donor organizations do not benefit the community rather than serving donor interest. I was, taken to see a World Bank project worth 159,000US dollars built in the community, which according to farmers, does not benefit local farmer's activities. The project operators grind chicken and fish pond feed, sold to other

places. In a meeting with the World Bank representatives', farmers requested the bank to develop farming technology such as Hydroponic farming as suggested by Ayany Jowi.

A suggestion that as, turned down by the representatives who said that they go by their own plan. Ugenya villages have no fish, pond farmers. The World Bank, USAID sponsored KAPP, introduced but grounded no fish farms, despite farmers choosing and digging ponds for fish farming. In the studied villages, I saw no poultry farmers apart from one 79-year-old woman private farmer who sells and distribute broilers. The company farmer members all had negative experience with the poultry received from donor organization (AGRICs) farmers said they received no proper education of broiler keeping. Apart from lack of education, the farmers had no equipment for broiler keeping as observed. When I visited the private elderly farmer, I saw advanced equipment there was nothing like that from any contract farmer.

Access to credit loans, or financial support, broadens livelihood choices open to an individual or household (Miller and Jones, 2010). However, bureaucracy in the banking system, high rental rates and the long number of forms that are supposed to be, filled during the process of loan application, are tedious for small-scale farmers to think about gaining access to loans from formal financial institutions. In most cases small-scale farmers lack indemnity (Miller and Jones, 2010, Diao et al., 2010, Descheemaeker et al., 2016, Amadhila and Ikhida, 2016). Participants revealed that limitation to financial access and subsidised inputs from the government or concerned bodies, inhibited farmer's choice of activity. According to Okulo the vegetable farmer from village C, small-scale farmers feel neglected. He said that, "it is not easy for small holders like us to access loans; the processes are long, tedious and strict." The government does not provide the full support that strengthen smallholder farmers livelihood. Some people are abandoning farming because of the neglect. Mrs. Oyugi another farmer from village C said that, she joined One Acre Fund in 2017 to access inputs (seeds, fertilisers, tree seedlings, tarpaulin) which 'One Acre Fund' offers on credit and is easy to access than the bank loans. From the discussion, the author heard from participants that some loan defaulters have had their property confiscated though in rare occasions. Even with the risks, farmers continue with the contract organizations because of lack of access to financial support.

One day by chance I accompanied ICRISAT (International Crops Research Institute for the Semi-Arid Tropics) to Ukwala district, a different location from Ugenya on a field trip to meet farmers for input (sorghum seeds, green grams, soya, storage sacks, and tarpaulins) distribution,

ICRISAT also brought a thrashing machine for demonstration, to encourage farmers to buy the machine for easy thrashing. Sorghum thrashing is quite tasking, from own experience I know people who stopped cultivating sorghum because of the manual work, yet the production is only for family consumption.

As we approached the centre, the representatives became nervous. They said something had previously happened between them and some farmers. I was curious until at the meeting, when a farmer said, “before proceeding farmers want to know when, ICRISAT will pay for the last produce taken from them”. The representative replied saying, “I know that it has been more than six weeks, ICRISAT is working on it and will give feedback as soon as possible. Anyway, this time ICRISAT is working with Proctor and Allan company they can be trusted”. On the way back home, they told me that, a buyer agent had disappeared after collecting farmers produce without paying for it, and ICRISAT has terminated the agents contract, and will instead bring in a new company Proctor and Allan to buy the farmer’s produce, however, there was no mention of what will happen to the lost products.

From village A, I met Neema a cheerful middle-aged female farmer. Neema practices mixed farming besides, being a contract grain farmer, she said that, the lack of financial capability challenges, and hinders farmer’s livelihood progress. Neema chose fish farming from KAPAP (Kenya Agricultural Productivity and Agribusiness Program) when it introduced the various farming activities. She said, “I dug up a fish pond while waiting for fingerlings as required by KAPAP during training. Our group members waited for the delivery of fingerlings but KAPAP never brought any to Ugenya,” she revealed. A representative of KAPAP came from Ukwala division ministry of fisheries; he promised farmers that he could find fingerlings for them. However, from 2013 until today farmers have not heard anything from him. “The fish project in our village never took off after KAPAP ceased its activities in our village”. Neema told me that KAPAP was a World Bank sponsored project and operated in the village between the years 2012-2014.

According to research, new farming technology that requires access to information, machinery, high capital input and the many high value seeds is, taking ground in the African farming (Diao et al., 2010). The small-scale farmer’s dependence on production credit exposes them to, exploitation by agri-food, industry which, provide the inputs on credit, and whose conditions profit only credit providers at the expense of the poor farmers (Miller and Jones, 2010, Harvey, 2005, Borlu, 2015).

7.3.2 Difficulty of Access to Markets

Markets here is, used interchangeably as places for selling, and means of exchange in goods and services between producers and consumers.

The studied villages are in the remote areas of Ugenya, about one and half to two hours from the highway, that connects Kisumu city in Kenya to Busia, the border town of Kenya and Uganda. Rural electrification is available connecting extensively in the area. Able households have electricity in their homes.

As at the time of study, apart from the highway to Busia Kenya-Uganda border. The other tarmac road was Kisumu- Siaya road. Rural access murram roads connect the villages and to the highway. The county government has expanded rural access roads and connection is good. A bypass was under construction from Ugunja centre on the highway connecting Ugenya constituency to Bondo the largest constituency of Siaya county. Transportation to and from the main centres along the highway to the villages is by motorcycle taxi (*bodaboda*), bicycles, or private cars for those who have access to cars, like the private organizations. Every village has a trading centre whereby small-scale traders run businesses (*posho* mills, shop keeping, computer cyber cafes, and butcheries) open-air markets where people sell different small wares and many other businesses. The villagers normally trade their goods in the village centres or among each other depending on the supply and demand.

Local farmers normally trade in village markets. Few of the villagers occasionally sell their goods to the semi- urban centres by the highway such as Ugunja and Segla especially on major market days. Nevertheless, after the introduction of intensive farming, farmers now have realized the need to expand market outreach for economic gain and to sell the introduced products. Farmers however, mentioned lack of proper infrastructure as a challenge to their livelihood. A vegetable male farmer Okulo for example said that, communication is a problem and worsened in rainy period. There are no vehicles, he carries products (vegetables) by bicycle to the nearest urban centre on bad condition road with potholes. The products lose weight on the long journey thus reducing the value. Which adds to production shocks.

Sorghum/ Millet, is a grain that African farmers have been growing since ancestry. A household's poverty is manifest if it runs out of grains and must buy grain throughout the season (*rundo*). If a household is distinguished as successive grain buyer (*gorundo*), then such a household

is poor. Sorghum always sell at a higher price than maize. During lean season, sorghum/millet's price double that of maize, because of sorghum's sustenance capability (*bel pek siro kech*). Sorghum is, attributed to be rich in nutrient composition. Trade conscious villagers, and those who have better economy, do buy sorghum/millet after harvest at cheaper prices, from households who have excess in harvest or, those who, due to financial constraint, must sell some of their sorghum immediately after harvest to carter for other financial needs.

Reliable market access requires a State's intervention, through its institutions to, regulate the market and protect farmers by reducing market risks of, fluctuating harvests and volatile prices (North, 1991) Reliable market access boosts productivity, increases farmer's income and strengthens food security. Reliable markets reduce poverty and hunger for farming families and their communities (IFAD, 2016). To secure farmers government's must intervene to enforce regulations that lower costs of production and those that help farmers spread risk, empower farmers as collective cooperatives, for increased bargaining power since no one represents interests of scattered small holders like sorghum growers, animal keepers etc. And, a state's heavy reliance on self-regulating markets risks food insecurity by exposes farmers and the poor to market conditions (Chambers, 2014).

The exposure to market risks is suggestive of chronic food insecurity. Lack of access to the markets can be a hindrance to the fight against poverty, as observed in village B at the home of the elderly Magdalen. It was here that I saw, the type of Amaranth seeds for the first time, the lustrous black seeds. The second time was during Christmas at one of the IKEA restaurant outlets in Sweden. This time it was on a plate as a side dish, which many did not eat, but left it on the plates. Amaranth is one of the new crops brought and introduced by KAPP (Kenya Agricultural Productivity Program) a world Bank/ USAID sponsored project. Only the KAPP agent bought the KAPP introduced products, but after KAPP ended its activities, and KAPP agent's disappearance, Magdalene had nowhere to sell the seeds. She had almost $\frac{3}{4}$ of a sack, which she did not know what to do with. The problem she said was that KAPP did not link farmers to the amaranth seeds market. Magdalene appreciates the teaching from KAPP saying, before KAPP she cultivated only for home consumption but, KAPP taught agri-business and "with the knowledge, there is no going back to the old the state of food insecurity if we can sell the products" she said.

Neema a female horticulture and contract farmer from village A, said agri-business can boost farmer's economy, if farmers have direct access to the markets for the introduced products, but not

as is done by organizations like ICRISAT. The organizations action exhibit the capitalist mode of production that according to Wolf is accumulating by increasing gains, cheapening production, overproducing, or reducing wage prices (Wolf, 2010). The ICRISAT distributed a new type of sorghum seed free of charge to the recruited farmers, and promised to buy the produce from farmers at 1.7US dollars per kg. After harvest, the ICRISAT came back with a low price of 0.7 US dollars. Some farmers refused to sell to ICRISAT because of the low prices, these farmers still have stacks of sorghum sacks at home. According to Neema, it seems like farmers are working for ICRISAT. She said that, “When we cultivate, the crops are ours, after harvesting it belongs to ICRISAT”. ICRISAT only buys back sorghum from the seeds they distributed to the farmers. This seed is quite different from the village sorghum. Neema said that, despite experience from the ICRISAT, farmers have now made new contracts with FIPS (Farm Input Promotions Africa) each farmer made a down payment of 19,000 US dollars into FIPs bank account for the credit of 129 US dollars per farmer the cost of input provision. FIPs wants farmers to plant soya. They promise to buy at 0, 59 US dollars per 2kg, which is a low price according to the Farmers, but FIPS are adamant, they told the farmers that the price is fixed and unwilling farmers must find own markets to sell the soya.

Ayany Jowi commenting on this said that, “what we need here is development, we need processing plants so that our products will be processed locally and offer employment to community members, by this way the community will sell finished products to the market, and not raw products”. He said that farmers need storage facilities to prevent post-harvest loss that occurs due to the lack of storage when farmers sell produce at throwaway prices and because some foods are highly perishable and without processing or storage, such foods must be, sold as fast as possible.

During the group discussion, a field officer from village A told me that, ICRISAT, which the villagers call ‘the Obama project’, was the successor of KAPP (Kenya Agricultural Productivity). In the order of organizations arrival, as donors and developers introduced agribusiness in the village. KAPP preceded with research, on seeds, crops, and soil, and then handed over to ICRISAT that distributed the seeds and bought back the produce. These are donor-funded projects by the World Bank and USAID the giant umbrella among other funders. The officer’s response explains KAPPs disappearance from Ugenya, KAPP was a pioneer project for agribusiness.

Okwach is a male middle-aged farmer from village C. He believes that cultivation of mixed crops and mixed agricultural activities can enhance the community's food security; he said that if farmers unite and produce in mass the community could be self-sufficient and reduce food prices in the market. Farmers can even choose to barter trade within communities he imagines. I equate the smallholder farmer's situation to Orwell's analogy in the animal farm whereby Orwell reveals corruption and abuse of the naïve working class and unequal power relations, during USSR's development. I quote 'Is it not crystal clear, then, comrades, that all the evils of this life of ours spring from the tyranny of human beings? Only get rid of Man, and the produce of our labour would be our own. Almost overnight we could become rich and free' (Orwell, 1946).

Agriculture is a nation's security, as revealed by president Bush in 2001. While addressing future American farmers, he said, when we are talking about American agriculture, we are really talking about a national security issue, it is important for our nation to grow foodstuffs, to feed our people. Can you imagine a country that was unable to grow enough food to feed the people; that is a nation at risk; a nation that would be subject to international pressure.^{viii} Bush promised to enhance trade, by negotiating global trade agreements on behalf of American farmers to make American agriculture secure and great. If leading economic country like America sees the importance of enhancing and protecting its agriculture. Then a developing Kenya can be a nation at risk if the Kenyan farmers and agriculture is unprotected from threats that negatively affect its agriculture and risk food insecurity.

7.3.3 Access to labour

In traditional societies such as in pre- modern African cultures, kinship institution organized social order at domestic and political realm with clear division of labour. Individuals had social responsibility to community members; agricultural labour under kinship is, pooled under social capital, the working together for goal attainment based on solidarity. The benefits (food and labour supply) accrued to individuals by group participation (Portes, 1998, Mboya, 1967, Lin, 2017, Fafchamps, 1992).

Farming in pre-modern Africa was collective; labour was, provided by extended families, neighbours and friends attested in Luo words (*kanyakla mar dongruok or nyuako lwedo*). In the communities' class order ranked from high to low status. Ranking depended on a family's economic status the number of herds of animals and a household's food stability. The low in status

^{viii} <https://georgewbush-whitehouse.archives>

offered extra service such as farm labour (*jootong'o*) for exchange of produce, or any gift as existed. Families could rise from farm labourers *jootong'o*, to economic stable families if, a Household's women were industrious to maintain good harvests and food. The Luo women played an important role in pre- money economy. Industrious women maintained food supply in families, earned wealth for their household by exchanging farm produce for livestock, which is a man's responsibility and a sign of wealth. This practice is still widespread in the villages, as I derived from Neema's narrative when she talked of the benefits of agribusiness. She said that, "these farming activities can help raise a household's standard of life. An activity can promote another, I myself sold pigs and bought sheep, and other times I sold grain from good harvest and bought a cow".

Now, from the studied villages agricultural labour is, paid for by money. The dominant symbol of acquisition (Bourdieu, 1989, Dreher, 2016) displaced the peasant's beneficial rationality of social network and maximization for common good. With the introduction of intensive agriculture, and lack of financial support, anyone who needs to hire extra labour or food must buy it. Labour organization is no longer collective but carried out individually by households. Farm labourers (*jootong'o*) are, reduced due to change in family set up, work in in non-farm sector after education or abandonment of agriculture as people migrate to towns after school education in search of white-collar jobs neglecting agriculture as a menial job with low remuneration. All participants mentioned lack of labour as a challenge to the farming households under intensive agriculture. Magdalene the oldest of participants aged 76 years said that, farming manually is exhaustive and takes time. It would be a relief for farmers if an organization can offer subsidised tractor services to help farmers reduce labour problems. Farmers have forgotten about collective labour (*wago jotich, or jolwedo*) organization of social benefit. Farm labourers still exist, but labour is, are paid by cash. The farm laborers pay no allegiance to anyone; farmers who cannot afford the cost must work on their own.

In kinship, institutionalised societies labour was collective; households who helped in harvesting and threshing were entitled to amounts of grain, and some farm produce. In this way, families with small farms, or shortage of food covered their deficit. Fruits and vegetables were never for exchange. All were entitled to fruits but currently, even fruits are sold and expensively for that matter. People who do not cultivate or own fruits must either buy or go without.

According to the 34-year-old farmer Stephen Oloo, people are leaving agriculture, because of lack of enough capital. Enough, because, one can have land as capital, but lack input, or has labour shortage. He said that for young families such as his, it is only him and his wife that can work on the farm their children are still very young, many other farmers in his situation face labour even though some might have natural capital. He said that the challenge of accessing labour is worse from the pressure of being an intensive and contract farmer who has to compete with time for good harvest.

From walks in the villages and roadside stories. I observed most contract farmers were inspired by the few independent farmers were better economy wise. A reason that, inspired most farmers, who joined contract farming. The few independent farmers have been economically stable in agriculture long before the organizations arrived in the villages. In addition, when the organizations introduced agribusiness many farmers joined agribusiness only to discover that, intensive production requires extra investment and knowledge. Moreover, is a gamble for farmers engaging in production aimed for external markets. The author in another study from central Kenya had found negative economic effects of contract farming (Juma, 2015) farmers had disclosed then that, sometimes thousand tons of farm products, would be rejected by international buyers causing loss to farmers investment and livelihood.

Achebe in things fall apart, lamented a system fall, as he foresaw destruction of the African fabric at the onset of colonialization (Achebe, 1965). However, when the social structure and societal values become incompatible, the structure embraces social transformation by combination, to allow society's survival and continue for healthy development (Okwany, 2011, Freire, 1977).

7. 4 Development

In this part, I will discuss the impact of agricultural transformation to a community and country as viewed by participants and from literature.

All development is transformation but not all transformation is development (Freire, 1970). The organizations operating in the study area are sponsored by big umbrella of donor community the USAID (U.S Agency for International Development), CGIAR (Consultative Group on International Agricultural Research), World Bank, Feed the Future, in conjunction with Kenya government under the ministry of agriculture and researchers from Moi and Nairobi University, also mentioned was Kenya breweries limited. The chain comes from donor organization to

grassroots' agents and representatives who source farmers. Farmers believe that, along the chain there is some corruption going on and is the reason for projects ineffectiveness.

The shock doctrine of Laissez-faire (non-state interference in economy) that struck the southern nations in the 80's and 90's (Klein, 2007) left a deep mark the intense poverty, that developing nations have failed to contain. The poverty which some donors and developers now exploit in the name of development programs for poverty reduction (Hulme, 2013).

Despite the poverty, alleviation and development initiatives set by the World Bank, IFAD, EU and FAO. Research indicates that a little has, done to tackle sensitive development issues, affecting the poor rural communities' livelihood (Hulme, 2013, Maxwell, 2005, Pouliotte et al., 2009, Aberman et al., 2015). According to research, missing from the world bodies strategic policies are; development features of the 70's the strong institutional commitment to integrated development. The strategies neither mention the problems that might arise, from the declining competitiveness of small farms, nor issues of taxation. There is no concern with urbanization and resulting transformation by supply chains. None debates the sequencing and limits to liberalization of post Washington consensus on food, agriculture and rural development but all are interested in agriculture and natural resource department and decentralization of rural services (Maxwell, 2005. P, 71).

The kind of Poverty alleviation programs initiated in developing nations, are international institutions initiated modernization (Freire, 1970) it is the metropolitan society which derives the true benefits from the initiative. I have seen that grocery stores in Europe are full year-round with products from the tropics and at affordable prices. While in the producing countries, such as the study country Kenya, food prices especially fruits and vegetables has increased beyond a common citizen's affordability. There is lots of food in the urban city stores and markets, but many poor household's including the rural farming communities have problem with access to food because of poverty.

The contemporary poverty alleviation development does not follow development motives considered by post-colonial leaders of the Southern nations. The strategy of rapid modernization, economic growth, industrialisation and national development (Hulme, 2013, p. 10) as evident from Kenya's first minister for economic planning and development the late honourable Mboya, when speaking on Kenya's development in the 60's Mboya had said, "we need assistance with financial capital, and technical assistance, to facilitate rapid development. Our aim is to move away from aid, so that, we that can concentrate on trade. Intra- African trade is more important to us, than trade with western countries who have more sophisticated economic set up" (Mboya, 1967)^{ix}. According to (UNESCO, 2005) technical assistance is

^{ix} <https://www.youtube>.

support to maximize project implementation and impact, by supporting administration, management, policy development, capacity building, etc. From the participant's views, the manner in which the organizations run the projects neither address the farmer's views nor empowers farmers livelihood.

Successful development strategy must propose and commit measures to reinstate the strong State to protect its agriculture as a pillar for achievement of economic growth (Bezemer and Headey, 2008) reduce poverty as did all developed nations during transition (Hulme, 2013; Bezemer and Headey, 2008). Participants believe that agriculture can develop the rural if the government and donors can bring industries for local manufacturing of farmer's products. This will give farmers the possibility to sell their produce directly to processors. The industries will offer non-farmer employment which will, diversify livelihood, minimize rural outmigration, especially in the current situation of high unemployment in the cities.

Apiyo, the retired female teacher turned farmer from village B, in support of agriculture for development shared with me a story. She said "the other day I was talking to a gentleman from Uyoma, in Bondo constituency of Siaya. The man told me that, those who live around the lake are now producing many tomatoes. Those farmers now need a factory to process tomato products. If, tomato farmers think this way that is development". She went on saying such a move could trigger other infrastructure such as road construction, which needs support from both county and national government. Road construction is not an individual's responsibility she said. If the county government is interested in development, and it knows that, groups of farmers are growing tomatoes somewhere, and if, it considers this a necessity, it will build tarmacked rural access roads, to connect rural areas to the main road. County and national government administrators do travel out of the country, and have access to investors, who can, help in purchasing machines to invest in farming areas. Once, such investment is made, the investors will not want their money to be wasted. The investment will attract improvement of infrastructure in the producing areas. Apiyo went on saying that, if farming can attract manufactures the government will earn revenue, from county government's taxes and improve further investment. The solution for development is not by aid as Mboya had suggested. Required development is, to enhance agriculture, the existing livelihood of the majority rural and poor farmers.

Further discussing agriculture for development, Okwach a male farmer from village C said that, agricultural support would lower the cost of food within the communities through farmer's

surplus. The government will gain by collecting revenue. Crime will reduce when most people get involved in agriculture because, no one will want to steal from a neighbour since everyone will be having something to eat, sell or to exchange.

Agricultural transformation has profound economic, social and cultural effects on the community. Farmers are dedicated to monoculture of grain cash crops, such as millet/ sorghum, Soya bean, green grams etc. which is a break with the traditional way of cultivation. Whereby farmers cultivated a wide variety of crops, to spread risks, of crop failure.

8. Conclusion

Here I conclude the study and give recommendations for further study.

This was an ethnographic study to explore challenges to small-scale holder's livelihood, and food security to find stories of success and failure. Findings indicate that smallholder's livelihood in the study area is challenged with climate variability, agrarian problems of market economy, unfavourable institution and policy and lack of access to both financial, labour and social capitals.

The farmers who used to farm for subsistence have now, been introduced to agribusiness by different donor organizations in the hope of improving the communities' food security. However, the introduction of agribusiness has made farmers vulnerable to the risk of food insecurity and poverty, by exposing farmers to market shocks. The newly introduced crops are mainly cash crops aimed for sale to transnational foreign manufacturing companies whom the participant farmers have no contact apart from the middlemen who negotiate sales.

The study found that small-scale farmer's livelihood face more challenges in the market economy besides unpredictable climate. The market economy introduced agribusiness, which requires extra investment and technology. The government no longer offer full support to farmer's livelihood after the disbandment and reduction of public services including agriculture. Without government support, farmers must acquire the needed agricultural investment single-handed. Majority of farmer's now contract farming, in hope of economic breakthrough from the new production method.

Agribusiness should enhance farmer's economy, but on the contrary. The introduction of agribusiness failed to take up in a befitting manner. The initiators did not take into consideration the farmers needs of support to access the needed financial capital, access to markets or

information technology. Farmers are still holding to their livelihood of conviction that if supported the livelihood can manage food security and develop the rural.

I consider poverty here structural. If Africa's smallholder agriculturalists are poor, why are they subject to market economy and encouraged to cultivate crops that are neither staple nor people's preference? Crops such as chili, Soya, Amaranth grains not Amaranth vegetables, which is food from ancestral descent, and even grows as weed. Why not promote indigenous foods like pumpkins, the different existing tubers and the many leafy vegetables that are eaten in Africa and adaptable to African climate. Africa has lots of foods good for subsistence, and which if promoted can still generate income by maintaining employment on farms, and boosting farmers economy by sales locally and regionally in Africa where the population presents a ready market. Why is, policy not promoting the native African crops among small-scale farmers, who under modernization have taken for granted the traditional healthy foods such as pumpkin, yams arrowroots, millet, sesame, mango guava etc., which their ancestors used in maintaining food security. Why not promote fish farming. Why is a supposed to be poor continent like Africa be subject to unequal world trade with unequal currency exchange, liberalised economy and price competition against subsidised cheap imports?

The answer could probably lie with Hilhorst who argues that NGOs are private organizations, working nationally and internationally for various reasons. But, whose culture and structures are organized and constrained with forces within which they are formed (Hilhorst, 2003).

While climate variability is a natural occurrence out of farmer's control, agrarian issue is a societal problem rooted in policy and determines action. The rural is transforming with changes in agriculture. Nevertheless, the change must improve to guarantee a nations food security and development. The national government as juridic, must protect its agriculture, regulate and negotiate terms of global trade in agricultural produce for food security.

8.1 Recommendation

Researchers mostly use the numerical poverty measurement and connect poverty and underdevelopment to gender inequality and lack of gender access to resources (land, credit and employment) etc. Rarely studied is, the role of institutions and power inequality, this study emphasizes the forgotten area of knowledge. In appreciation to other researchers and their studies on poverty and development. I recommend further studies to investigate the role of institutions and its impact on, food security, poverty, inequality and development.

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