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How Green in the New Green Revolution? An Examination of the Impact of Modern Agricultural Inputs in Rural Northern Ghana

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List of Acronyms

ADC	Agricultural Development Cooperation
AGRA	Alliance for Green Revolution in Africa
BMGF	Bill and Melinda Gates Foundations
FASDEP	Food and Agriculture Sector Development Policy
GDC	Gonja Development Corporation
GOG	Government of Ghana
KI	Key Informant
METASIP	Medium-Term Agricultural Sector Investment Plan
MNP	Mole National Park
MoFA	Ministry of Food and Agriculture
NGO	Non-governmental Organisation
NGR	New Green Revolution
NTFPs	Non-Timber Forest Products
PFJ	Planting for Food and Jobs
SSA	South Saharan Africa
WWII	World War Two

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Abstract

Over the years there has been continual transformation in the agrarian sphere which has impacted on different social groups in different ways. Agricultural development to increase production and productivity through modern technology (such as mechanization, high-yielding seeds, synthetic agrochemicals etc.) is one of the key elements pioneering this transformation in the agrarian sphere. Many studies have shown that among the social groups who have been affected from this transformation are peasant farmers. The quest to increase agricultural productivity engendered modern agricultural inputs (high-yielding seeds, mechanisation, fertilizers etc.) which sparked up “Green Revolution” ideology in Asia in 1960s. However, this revolution rendered more peasant farmers to disadvantageous position (dispossession, displacement, Proletarianization, environmental degradation etc.) than good. Today under the “New Green revolution” (NGR) agriculture path, peasant farmers are encouraged to enhance production and productivity for the market through adoption of modern inputs. This study therefore aimed to ascertain and highlight the effects of agricultural development based on modern inputs under the NGR on peasant farmers in Murugu village in Savannah region of Ghana. Using the moral economy’s concept to examine how this development has impacted on the social relations particularly inter-household relations and traditional farming practices. A qualitative interview was employed to gather data on the above relations, before and after the knowledge of modern inputs. Through this concept the study found that Murugu peasants once lived in solidarity and reciprocal manner where households depended on each other for various support (labour-exchange, seed sharing etc.). The study also found that this community-bounding relations are disappearing among peasant households today and the promotion and adoption of the modern inputs have contributed to this relational shift. It was discovered that modern inputs use is also serving as an opportunity for some farmers to increase their farm sizes enhancing productivity from their farm. Murugu farmers are becoming dependent on these inputs however, some farmers are subjected to the use because hired labour is expensive to access as well as the disappearance of labour-exchange mechanism. It was further discovered that capitalistic relation is replacing the traditional community-bounding relations. As such, individualistic interest seeking of peasant’s household members is overriding the formal group interest thereby effecting the traditional social and economic nature of rural sphere. By situating the study in Northern Ghana, a region that has traditionally been neglected because of its low productivity, this study is well-placed to understand the unfolding of the impact of the modern agricultural inputs imposed in a top-down manner on traditional farming practices and social relations.

Relevance to Development Studies

There has been long standing studies and debate in the social science field concerning agrarian transformation linking the contemporary agricultural development based on modern technology as one key factor for this transformation. Consequently, the New Green Revolution and its relevance in Africa. I employ moral economy's concept to examine how this modern technology adoption is contributing to this transformation in Ghana. Therefore, this study will contribute to the existing knowledge and could contribute to a broader theoretically perspective in critical agrarian studies.

Keywords

Peasant, Savannah region, New Green Revolution, Modern agricultural inputs, Agrarian, Moral economy.

Chapter 1

1.0. Introduction

As the agrarian environment transforms, small-scale or peasant farmers have been well involved in this endless journey and Ghanaian peasant farmers are no exception. The knowledge on how this transformation has been occurring, the mechanisms that are shaping it and the effects on social relation of different categories of people such as peasants become necessary. The wind of agrarian transformation has been blowing through the northern part of Ghana over the past 4 decades (Amanor and Iddrisu, 2021; Johnson, et al. 2019; Kansanga, et al. 2019; Shepherds, 1981; Yaro, 2013). Savannah region ¹ of Ghana is known for its severe weather conditions (high temperature, erratic rainfall), high poverty rate, small-scale rain-fed farming system, cultivating dry land crops such maize, yam, groundnut, millet (Nyantakyi-Frimpong, 2013). Even today, farmers continue to use basic farming tools such as cutlasses, hoes (Wood, 2013). This captures the nature of peasant farmers in my case study as still involved in the traditional way of farming. It is therefore imperative to establish how modern inputs such as mechanization, agrochemicals (fertilizer, weedicides etc.) are serving as catalyst in weakening traditional social relations in terms of reciprocity, sharing etc. and this traditional farming practices in the case study area.

This study is located in Murugu village, in West Gonja Municipal, Savannah region. Due to the severe weather conditions among other things, the region was considered unfavourable for agriculture development in the colonial times but was a labour hub; a place where labour was drawn to grow the southern export-led agriculture and other industries as well (Shepherd, 1981). Post-independence, this is a tradition which was inherited and continued by the Ghanaian State through the establishment of State-led farms in 1960s largely in the southern transitional zone (Amanor and Pabi, 2007).

However, the narrative has changed. Once a wilderness without hope for agriculture production for market, the region received attention for capitalist rice farming which sparked in the mid-to-late 1960s (Shepherd, 1981). This created a new rhythm. Many peasant farmers joined this rice production queue at the beginning due to the market demand of the crop and

¹ Previously, the Savannah Region was part of Northern Region and was carved out to become a separate region in December 2018. en.wikipedia.org/wiki/Savannah_Region

the State's investment through loans (via State owned bank) and subsidies on inputs. Even so, these provisions by the State largely favoured few peasants who emerged to be capitalist farmers and other entities (civil servants, army official etc.) who equally capitalized on the opportunity to become farmers (ibid). However, the adventure was not cost-effective in practical sense as continual production and seemingly profit-making thrived on various subsidies for production and loans by banks (Goody, 1980). As these subsidies declined, cost of production became high coupled with collateral requirements by banks for a loan pushed many farmers out of rice production most especially peasants (Shepherd, 1981). Now under the "New Green Revolution" (NGR), it is still attracting capitalist farming production attention today (Ayelazuno, 2019). Through modernization of agriculture in the wake of climate change spurring food insecurity around the globe particularly in South Saharan Africa (SSA), 'development' quested for new ways to increase production and productivity. Mostly among small-scale farmers in SSA, including Ghana, such processes promoted contemporary agricultural technologies such as mechanization, hybrid seeds, synthetic agrochemicals inter alia (Nyantakyi-Frimpong, 2013). Peasant farmers in the Savannah region of Ghana have not been left out from this technological era farming revolution (DeGraft-Johnson, et al., 2014; Vercillo, et al., 2020).

Peasants are encouraged the adoption of these inputs to enhance productivity to feed the market. This is because agricultural development through modern inputs is perceived by several African governments as the way to boost small-scale farmers socioeconomic standards, national economies (Kansanga, et al. 2019) and food security (Brammah et al., 2017). In respect to this, many studies have shown how agricultural development, dependent on NGR notion has disrupted northern Ghana agrarian social relations. Especially with regards to traditional practices such as exchange services etc. among inter-households leading to social differentiation (Tsikata, 2015).

Despite several studies on the change in agrarian social relations and its negative effects on northern peasant farmers in diverse ways; dispossession and displacement (Ayelazuno, 2019; Shepherd, 1981; Yaro, 2013), especially experiences under NGR (Kansanga, 2017; Vercillo, et al. 2020), not much critical consideration has been given to change in social relations linking it to sharing, labour-exchange among inter-households wholly. This might affect traditional farming practices, livelihoods and thereby widen social differentiation, something I will explore in more detail below. This study will not critically assess social differentiation, accumulation, or food security per se. But from the moral economy of the peasants'

perspective, this paper examines and seeks to establish the degree at which farming households in the Murugu village are adopting modern inputs (Mechanisation, fertilizer, and weed-icides) and what are the consequences in terms of dependency, social relations, and its effects on traditional farming practices.

1.1. Background of the Proposed Study

Ghanaian economy to a large extent dwell on agrarian sector as it contributes to one-quarter of the Gross Domestic Product (GDP) and fifty percent of the total employment rate. Small-scale farmers, represent about eighty percent of the total Ghanaian agricultural population (Wood, 2013). Nearly ninety percent of this farming population possesses or have below five acres (two hectares) of farmland under cultivation and to a great extent depend on the seasonal precipitation for their activities (Martey et al. 2012; Wood, 2013). They also largely continue to use basic farming tools such as cutlasses, hoes (Wood, 2013), which captures the nature of peasant farmers in the Murugu village. This puts agriculture activities at the heart of the Ghanaian political economy.

Farm work, especially land preparation and harvesting, was basically family organised labour spearheaded by the household head in northern Ghana (Kansanga, et al. 2019) which clearly categories them as peasant. A peasant is a person whose occupation or living is dependent on land availability as personal possession or through leasing and primarily work the land with his/her own “family-labour-organisation” (Akram-Lodhi and Kay: 2009), emphasis here is on family labour.

1.2 Problem Statement

Enhancing productivity through modern inputs such as mechanization and agrochemicals (fertilizers, weedicides etc.) usage especially under the New Green Revolution (NGR) was introduced in 2006. Under these circumstances, peasants in the northern part of Ghana are becoming more dependent on modern input utilization. Amanor and Iddrisu (2021), Kansanga, et al. (2020), Kansanga, et al. (2019) and Vercillo et al.(2020) have recorded that small-scale farming practices are becoming more embedded on modern farming inputs under the NGR agenda promotion. The above assertion well captures the path Murugu village peasant farmers are trodding in the Savannah region of Ghana. This then trigger the following question: if farmers are becoming dependent on contemporary technologies,

mechanization, and synthetic inputs such as fertilizers etc. how do it affect social relation among households in terms of community bonding, reciprocity, and farming practices?

Ghana, in its quest to ensure food security (Braimah et al., 2017), raises socio-economic standards and expands its national economy that upholds agricultural development (Kansanga, et al. 2019) embodied with mechanised and synthetic inputs as the avenue to reach the above goals (Nyantakyi-Frimpong, and Bezner-Kerr, 2015). As such, small-scale or peasant farmers in the Savannah region are launched into modern input to enhance production/productivity pathway (Ayelazuno, 2019).

In this manner, high production input ranging from genetically modified seeds, mechanization, chemical fertilizers, among others (Kansanga, et al. 2019: 3) are replacing non-market input such as traditional seeds, animal manure and human labour (Martey et al. 2012). The traditional labour organisation and other social relations within farming households have shifted as household members part ways to work on their own due to this sort of development (Amanor and Iddrisu 2021). Of which Murugu village would be no exception. The question is, if the social relation of production has changed intra-households as the above studies have asserted, how plausible is the change, to what extent, how and under what mechanisms have this occurred?

Evolution like this, as research has shown, is paradoxically heightening impoverishment among farmers as they must progressively depend on high-priced inputs and labour (Amanor and Iddrisu 2021; Nyantakyi-Frimpong and Bezner-Kerr, 2015). This could have serious implication on their livelihoods and food security directly or indirectly (Braimah, et al. 2017; Nyantakyi-Frimpong and Bezner-Kerr, 2015) and could establish the possibility of indebtedness in the future.

Studies have examined the effects of the various agricultural policies and programmes, NGR and its associated package on economic standards of farmers and the reasons for its adoption or not by small-scale farmers particularly. However, not much research has been undertaken to explore the impact of agricultural development in this approach on the increasing inter-households' social relational shifts which might deepen social differentiation. This research, therefore, seeks to address this gap by examining primarily the social effect of so-called modern agricultural inputs, with a special interest in reciprocity (labour and tool exchange mainly) and possible economic burden as well.

1.3. Justification of the Research

A region once abandoned, perceived as unproductive for agricultural commodities during colonial times, now attracting capitalist forms of production, my case study will offer a good setting for observing how disorderly existing social structures may result from inserting new forms of agricultural production. Historically, the northern part of Ghana is known for its food insecurity issues and the government of Ghana's (GoG) interventions to remedy the situation focus mainly on improved technology in agriculture to enhance productivity (Nyan-takyi-Frimpong and Bezner-Kerr, 2015). Additionally, the region is characterized by high temperatures, erratic rainfall pattern and seasonal bushfires (Yiridoe et al. 2006) which could cause crop failures. Probably traditionally, farmers could manage such crop failure in their own context. However, any additional economic stress; purchase of fertilizers, mechanize services etc. might widen impoverishment levels among these farmers and could highly trigger indebtedness which make it a special situation to study. Aspects of the agrarian transformation I am referring to here could have happened over a long period without the introduction and adoption of these inputs, but the structures that drive these changes could shape and determine the kind and intensity of the change which in turn will register "varying consequences for different social relations and social differentiation" (Yaro, 2013: 412).

Akram-Lodhi and Kay (2008a, as quoted in Borras 2009) argued that agriculture development strategy which is primarily to improve the living standard of the rural communities has often not reached its destination. As even though there has been tremendous market demand for agricultural goods worldwide for about forty years now, the effects with regards to "food security, household incomes, and inequality" turned out to be diverse, unequal, and irregular, intra and inter countries (ibid). It is therefore very crucial to know and establish the extent at which small-scale farmers in Murugu are becoming dependent on this 'roller-coaster' agricultural development strategies based on modern inputs².

The findings for this research will contribute to the existing knowledge and could contribute to a broader theoretical perspective as well. It will also contribute to the over a decade long debate on the NGR, its nature and essentiality in Africa.

² "Roller-coaster", I meant the uncertainties around agricultural development strategies or policies (because it is so embedded on today's market) for instance, what happened in Asia during 1960s green revolution, it rendered more harm than good. That is, even though world's food supply went up or the global market registered food abundance, yet many people mostly rural peasants suffered dispossession, displacement etc.

1.4. Research Objectives and Questions

Main Objective

My objective is to study the effects of agricultural development, mainly modern inputs, under the NGR policy on peasant farmers in the Murugu village. I will particularly look at its impact on inter-household relations, traditional farming practices and livelihoods.

Specific Objectives

1. To establish the extent at which modern inputs adoption might have shaped social relation among peasant farmers.
2. To know the effect of modern inputs utilization on their traditional farming practices and livelihoods
3. To reveal the form of social relation of production that existed before the introduction of modern agricultural inputs.

Research Questions

To what degree are farming households in the Murugu village adopting modern inputs and what are the consequences in terms of dependency, social relations, and effects on traditional farming practices?

Sub questions

1. What form of farming practices existed among the peasant farmers in Murugu before high-tech agriculture development in 1960s?
2. How are these traditional farming practices being replaced?
3. Who is adopting them and why, and who is not and why?
4. How has the change in inter-household labour relations affected livelihoods in general in the Murugu village?

1.4. Research Methodology

Under the methodology, the research strategy and design are discussed, followed by study location description, then sampling method, data collection, research limitations, data analysis and ethical consideration.

1.4.1. Research Strategy and Design

The strategy this research engaged was the case study which according to Hancock and Algozzine, (2017: 15), employs practical analysis of current situation in its real-life setting utilizing several sources of data. It involves an in-depth investigation of a community, individual, group or an event empirically (O'Leary, 2017). Hence, it paved way to explore deeper how peasant farmers in Murugu have lived and experienced changes that have occurred through agriculture development rooted in the modern technology, enabling rich data, addressing the objectives of this research.

A qualitative research design was utilized for this study. This type of research design requires collecting and evaluating data that is not based on numbers, to obtain meaning from the data to comprehend a specific situation or phenomenon (Maxwell, 2013). Qualitative research overrules the positivist notion that there is only one truth out there to inquire deeper on any situation from different angles to review multiple truths (O'Leary, 2017). Hence, it gives room to examining why farmers adopted modern inputs (mechanization, fertilizers, weedicides) at the expense of traditional inputs (cow dung etc.), changing farming practices and social relations.

The qualitative design was utilized in two different ways, first secondary study and secondly the primary study. As stated by O'Leary (2017), secondary study is the first-hand knowledge require to produce new knowledge from previous work done on the subject matter. This made it suitable to use as it provided the historical context of agricultural development and changing social relations in the study area, theoretical and initial platform underpinning agrarian political economy and the social relation of agrarian change. This study gathered data from journal articles, books, existing reports that contains information on agrarian political economy and agrarian change in the northern Ghana.

Primary data is up to date, the researcher has upper hand on it and deals with the specific issue the researcher is studying. Hence filling the gaps in information that the researcher could not obtained through the secondary study (O'Leary, 2017). An oral history methodology was used to gather data needed through interviews. Oral history is about interviewing people on their historical lived experiences, which paves way for people to narrate how they have lived and either being part and contributed to a specific phenomenon themselves or heard of it from those who experienced it or through reports (Hajek, 2014). Since some respondents (particularly aged 40 and above) had lived and experienced how agriculture has evolved over the years, this methodology was suitable to gather data on agrarian

transformation in Murugu. It allows peoples “subjectivity and experience to be central to the empirical data” (Haynes, 2010).

1.4.2. Study Area

Murugu lies in south-eastern part of Mole National Park (MNP) within West Gonja municipality in the Savannah region, northern part of Ghana. MNP is the largest protected area in Ghana with an approximate area of 4,577 km², fringed by 33 villages (Acquah, et al. 2017). Murugu is one of those villages and is about 8km far from the park’s boundary and 26km from its headquarters. Murugu is small remote village with the total population of about 1060 and 165 households and approximate area of 14, 678 hectares. It is 14 km away from the Municipal capital (Damongo), where they access weekly market on Saturdays. The nearest village next to it is Mognori which is about 10km away. The village just recently (2020) had electricity and still has very bad connectivity for simple phone calls except at the vantage points which makes communication from the village or outside the village difficult. The vegetation of the area is characterized by guinea savannah grassland with deciduous disperse trees predominately (Mohammed, 2015). The area experiences two principal seasons namely, rainy, and dry seasons. The former usually commence in April, marking the beginning of farming activities (e.g., planting, mound making etc.) largely and peaks in June and July, ending in October. The mean precipitation of the area is around 1144 mm per annum and could have 300 mm per hour fall with thunderstorms. Harmattan winds prevails in the dry season which is usually dusty and cooler in the mornings and quite hot in the mid-day with the mean temperature of 27 degrees Celsius (Dzekoto, 2020).

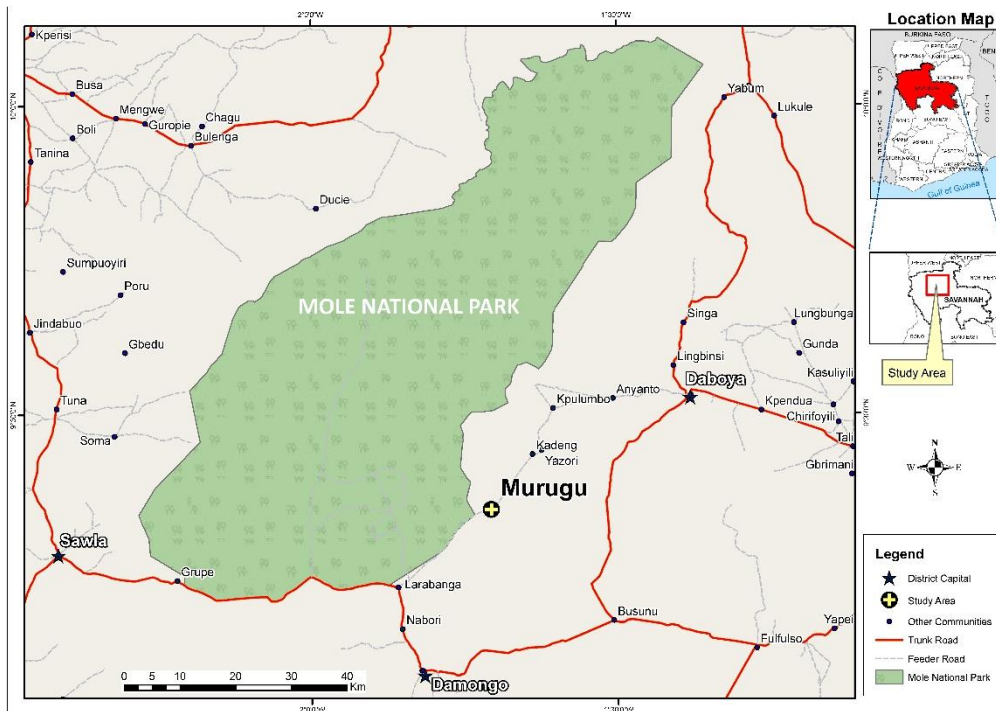
Residents of Murugu to the large extent are peasant farmers (Mohammed, 2015) and farming as the principal occupation represents about 85% of the people in the village. The mean farmland size of peasant household is around 7 acres which could be at different locations or the same piece of land. Slash and burn, shifting cultivation etc. are the main farming practices in the area (Dzekoto, 2020; Shepherd, 2016). Among the crops cultivated are millet, maize, yam, cassava, groundnut, okro and pepper. Farmers consume almost portion of every crop produced (not entirely produce for sale alone). Crops are either sold in bulk or “bit by bit”. Their economy is also supplemented by non-timber forest product (NTFPs) collection such as honey, Shea nut and Dawadawa etc., most especially in the lean farming season. Shea nut picking activity is very privy to female, which is usually processed into butter, soap for domestic purpose or sell the raw nut to buyers. (Gilli, et al. 2020) The average inhabitants

make between seventeen and thirty-one cents of the US dollar in cash terms per day. Seventy-two percent of the household revenue is generated from crop farming, livestock and NTFPs from the forest, depicting the strong agrarian economy of the area. On an average, the cash and cashless revenue of a household is 699.30 USD per annum, meaning about 2 USD for a household in a day. Over the years, land fallow time has reduced on an average from around four years to about 3 years which contributed to decline in productivity for the past decade (Shepherd, 2016).

Farmers in this community have gradually transitioned from subsistence farming because now almost all farmers produce beyond family consumption (Dzekoto, 2020). This is because, they are subjected to other needs such as, healthcare, education, and other basic needs aside what they produce. Confirming what Akram-Lodhi and Kay (2009) stated that, peasants do not produce all the fundamental things required of them to perpetuate their living. As such, they are subjected to “social and economic forces” beyond their control because these other essentials need to be obtained from outside their peasant environment.

The main local dialect of this village is "Hanga" representing about 99 percent of the people and the 1 percent comprising Ashanti's, Fulani's, and others. The basic social structure of the area is the clan system whereby the clan heads oversee the resources belonging to a particular clan and within each clan are sections (all families relate to one of the clans) (Dzekoto, 2020). Land is heritable through patrilineal lineage which largely puts females at the disadvantage and mostly had to work in the husband's farm and very much depends on NTFPs (Shepherd, 2016). Community Resource Management Area (CREMA) is formal resource management governance structure that complements the traditional governance structure in the area. Murugu do not have daily public transport system running hence, resort to weekly organized transport to the market and private motorbikes and bicycle usage.

Map 1: Location of the study area.



Source: adopted from A Rocha Ghana archive: 2020

1.4.3. Sampling Techniques

A purposive sampling (non-probability sampling) was used to select respondents (both farmers and key informants) based on their characteristics and objectives of the research (O’Leary, 2017). It is technique that entails choosing respondents that are more capable to produce appropriate and valuable information which also aid in effective use of limited study resources. Choosing respondents with the objectives and aims of the study in mind, enhances the rigorousness of research and dependability of data and outcome thereof (Campbell, et al. 2020) making it a relevant technique to use. Respondents were selected from different categories in terms of age, gender, experience to build an inclusive picture of the farming community in Murugu. Thus, people who had in-depth knowledge and fall within the information needed stream and can give proper account on history of Murugu and agricultural development, modern inputs information, its adoption etc. were interviewed. In total, 20 respondents comprising of 18 farmers and 2 stakeholders working with Murugu village. Respondents were selected through the help of two community leaders and a research assistant.

1.4.4. Brief Characteristics of Respondents

With the twenty (20) persons interviewed, 16 were males and 4 females. These comprises 5 farmers who are aged 50 and above, 2 farmers who owned/use high-tech massively or offer such services to the community, 4 female farmers and 7 youth farmers. Also included are 2 key informants, one from a local State agricultural department and one from an NGO. Almost all respondents (farmers) use one modern input or the other: weedicides, fertilizer, tractor for ploughing etc. Of the 18 farmers who were interviewed only 4 do not source modern input however, every one of them source hired (paid) labour. The oldest farmer interviewed was 65 years and the youngest among them was 26 years. Annex C presents the detailed characteristics of all the respondents in the study.

1.4.5. Data Collection Process

Community Entry

Even though the research assistant currently resides in Damongo, (regional capital), he still has close relatives there, so he visits them every now and then. Due to that he is well known to Murugu people and did not need any official community entry requirements. With the help of two village leaders who had already been briefed about this research, respondents from the village were selected. Dates were then scheduled according to the availability of farmers.

However, the two key informants were contacted by me (researcher) through emails and phone calls; I briefed them about the project and scheduled dates for interviews accordingly. A pre-text interviews (3 respondents but were not part of the final sample for the study) were conducted at this time which helped both the research assistant and I to rephrase some questions on the questionnaire guide (semi-structured) to attained much better responses with the actual interviews conducted later.

Conducting Interviews

The data collection started on August 6 to 14, 2021 except for August 8, 2021. Three farmers (age 50 year and above) were interviewed via online (zoom) by research assistant and I. These joint interviews were intentional for me to be part of the data collection process and helped me to know the likely responses or data expected from the field by the research assistant. These three respondents were brought from Murugu village to Damongo (due to internet connectivity issues) upon their consent (they were compensated for their time

transport fare accordingly). Due to their age and lived experiences with farming they narrated how agriculture has evolved over the years, what farming practices existed before, the nature of social relation (agricultural bonds) inter-households etc., basically the oral history. The other two of the above respondent categories were later interviewed by the research assistant in the village. The remaining farmer respondents: the two farmers who use/offer modern inputs services, four female farmers and seven youth were all interviewed by the research assistants at their appropriate scheduled dates. At least two interviews were conducted in a day during the data collection period.

For the NGO (A Rocha Ghana) representative and the representative from the municipal agricultural department, interviews were conducted online through zoom by myself and some follow-up questions via phone calls. A Rocha Ghana was considered because, it has worked within the region and with Murugu village over the past decade (since 2005) engaging with farmers almost daily³. Due to this, it was in good position to account on agricultural transformation and the adoption of modern inputs etc. in the area.

In total, I conducted five interviews (3 with research assistant but I led the process and 2 alone) in English, and fifteen respondents by the research assistant in Murugu village in the local dialect (Hanga). For the online interviews arrangements were made beforehand for laptop and internet through former colleague worker of mine for the three farmer interviews. However, with the two key informants, their own laptops were used, and internet fee paid accordingly to them. Each interview lasted for about forty minutes as agreed earlier with the respondents. All interviews were audio recorded with a smart phone and also zoom recording. Notes were equally taken alongside as a backup.

Semi-structured interview questionnaire guide was developed with specified crucial questions and possible probing questions. Which drew data on historical context of agricultural development and social relations, modern inputs know-how, adoption, and dependency of peasant farmers in Murugu. Using this strategy helped to clarify the issue by following a pre-determined questioning style, moreover, it granted me the autonomy and flexibility to dig deeper into the responses offered to better comprehend the histories/ situations and uncover any new information on the topic. The research assistant was well oriented with

³ A Rocha Ghana acknowledges the complex relationship between humans and continued existence of our planet's fauna and flora. As such, it works to motivate and empower people for natural resource management through livelihood, advocacy etc. prioritizing rural people's concerns and knowledge. It is in Ghana and works both in the southern and northern part of Ghana. For more information visit <https://ghana.arocha.org>

these interview guidelines, also, one of the reasons I conducted some online interviews with him (to be more abreast with the content). Annex B exhibits the interview guide of the study with detailed account on sort of questions.

1.4.6. Data analysis

Thematic analysis

Data collected from interviewing eighteen peasant farmers from Murugu and the two key informants was thematically analysed. Thematic method entails recognizing, analysing, and accounting patterns within qualitative data. Hence, it constructs and defines the range of data in depth, as well as interpreting many parts of the study question (Braun and Clarke, 2006).

This study made use of this method in the following ways, first, data gathered from all interviews through audio recordings and both personal and research assistant's notes were transcribed accordingly via manual process (typed out). It was then assembled into specific themes which informed the meanings and findings of the study. I created an analytical category that includes information-related ideas. I went over each category in detail and designated codes, after which I discovered concepts associated with each code. The assessment and classification assisted me in comprehending the significance and connection of concepts regarding the research. Each piece of information gathered from the interview has a level of reflectivity linked to how agriculture has evolved over the years and associated changes that have occurred with regards to social relations, farming practices. Quotes were categorised under the appropriate themes identified.

1.4.7. Ethical Considerations

The research followed laid down social science research protocols which prevented any form of research bias. Respondents were well-informed about the research aims and objectives and their consent were sought before interviews were conducted. Their permission was equally sought before note taking and audio recording also. Thus, I considered the respondents' understanding of this study a vital part of this study (Connelly, 2014). I held in top consideration the respondents' privacy and confidentiality as advised by Laws et al. (2003). As such, as assured to respondents beforehand, none of their identities were disclosed in any form (not written on questionnaire or recorded) to the public aside the research assistant and

I. Furthermore, all secondary data (articles, books, reports etc.) sourced have been well acknowledged both in-text and referencing section to avoid any plagiarism issues. As Tripathy (2013) proclaimed, it is important to recognise who owns the original data.

Working With Research Assistant

The research assistant was recruited and trained accordingly to enhance his knowledge and capability on the research's aim and objectives and the set of data needed. Even though that was not his first time of doing such data collection. He is fluent in English and speaks four local dialects including Hanga, the local dialect used in interviewing participants. He holds a diploma in Basic Education from University of Cape Coast, Ghana and currently enrolled in BSc. in Education Psychology at the same University. He has about four years' experience in this line of data collection as I have worked with him personally on the field. He has worked with students' questionnaires dealing with remote communities like Murugu in likewise manner from the University for Development Studies, Ghana and was currently part of 2021 population census led by Ghana Statistical Service. As such, he was very much aware of research ethical considerations.

However, to take a precaution, ethical considerations pertaining to this specific study was reiterated to him. I made regular contact with him via phone calls (both audio and video) as well as zoom meetings to oversee the data collection process. Data collected each day was reviewed by both of us to make needed inputs to enhance the ensuing data to be collected. Because both the research assistant and I are familiar with the Murugu people, our own subjectivity may have clouded our judgement towards the findings. Being mindful of that, it was critically discussed to keep an open mind and note down and consider every word that comes from respondents and so we did. Additionally, being familiar with respondents was advantageous as people trusted and opened-up warmly which helped us gather good quality data. As noted by O'Leary (2017: 67-68) "...while there are no techniques that can guarantee candour, building trust is essential"; in other words, participants will be eager to come out with inherent truth without much intimidation *inter alia* because they know and trust the researcher. Furthermore, a non-disclosure form was signed by the research assistant before the field work. Annex A presents non-disclosure form endorsed by the research assistant.

1.4.8. Limitations and Challenges of the Research

Scheduling time to conduct interviews with respondents was difficult, since farmers were busy working in their farms because it was at the peak of farming season (both planting and harvesting) at the time of data collection. So, plans were made to collect some data very early in the morning before farmers go to farm, afternoon and some evening after farm, all according to respondent's convenient time.

Due to the covid-situation large part of the data was collected by the research assistant on my behalf because travelling abroad was not advisable. I may have therefore missed some important observable detail gestures interviewees may have shown which could have influenced research findings. To curb this, the research assistant updated me daily which ensured both of us were on the same page. Furthermore, interviews were recorded. Also, the daily briefing did not only keep us on the same page but worked out any irregularities that occurred during the period. That was also the reason a pre-test was conducted as well as joint interviews online.

Additionally, there was internet disruption and other technical problems during one of the online interviews. However, such occurrence was dealt with by the presence of research assistant being in the same room with the respondent during the interview. As such, he took over the interview till, I got internet connection back. Amid all this both research assistant and I ensured that high quality data was gathered.

The global pandemic situation of Covid and remote research certainly impacted on the overall quality of the research. However, much effort was made by the research assistant and I to deal with this challenge.

1.4.9. Positionality and Why Murugu Village

Emanating from agricultural background and having engaged with rural small-scale farmers over six years, I do not just imagine but have witnessed how agricultural development policies which supposed to raise the living standards of the peasant farmers end up making them destitute. This triggered my desire to dive deeper to comprehend better the effect rendered on them by the promotion of modern technology for agricultural development.

Working as community Liaison Officer for an NGO granted me the opportunity to work with most villages fringing MNP of which Murugu happens to be one of them. Because

it is closer to MNP and had part of their land annexed with the creation of the park, some rural development entities use it as an avenue to solicit for donor funding in the name of supporting their livelihoods. Even if such funding support requirements does not suite local ecological context (e.g., use of fertilizer to increase productivity). Usually such fundings have shorter duration (1-3years) and after farmers are introduced and have become used to, whatever intervention unfolds, and farmers must deal with the consequences thereof. For six years I worked with Murugu people and so have become very familiar with their landscape, weather, livelihoods; farming, non-farming activities (NTFP's harvesting) etc. I witnessed farmers in Murugu each day struggling to deal with agricultural development dilemmas such as expensive labour situation, extension activities, continual promotion of modern inputs which were sometimes distributed by politician to buy their votes to power. Also, the gradual changes in social relations, weedicides containers in the village and farms made me wonder the extent to which modern technology is taking hold of the village hence initiating capitalist form of relation in the village. My bias here may be that continual promotion of modern inputs and its adoption by rural development entities without critically considering local context ideas for agricultural development and increase dependency of peasant farmers in Murugu may endanger livelihoods.

1.5. Chapterisation

The research paper is structured into six chapters. The first chapter deals with the background of the study's topic which includes statement of the problem. It also outlines the objectives, research questions and methodologies adopted for the study and its justifications. The second chapter provides the theoretical framework of the study. The section discusses the agrarian political economy concepts through moral economy of the peasants' perspective to examine the transformation of peasant farmers environment. The third chapter review literature on the agrarian transformation in Ghanian context and peasants' involvement, northern Ghana integration and the NGR route taken. The fourth chapter contains findings of the research, and the fifth chapter presents the discussion of the study findings. The final chapter (sixth) offers the conclusion and recommendation of the research as drawn from the analysis of findings.

Chapter 2

2.0. Literature Review and Conceptual Framework

This chapter provides the theoretical framework of this study. It discusses the agrarian political economy and particularly focuses on the moral economy of the peasants' perspective to examine the agrarian transformation at stake in my case study.

The notion outlines the peasant's economic predicament because of the advance of capitalism as a production path, as well as the monetization of agrarian relationships, on which their livelihoods rely (Edelman 2005). The collectively and cooperative nature of peasant societies in pre-capitalist era is discussed by agrarian analyst James Scott (1976). It described how peasants' communities developed mechanisms to support each other's needs rather than to gain individual profit at any cost. Ecological economist Nicholas Georgescu-Roegen (1965) shares a similar line of thought. As such, peasants coin their own ways of production and reproduction based on ethical principles that Scott called "subsistence ethics". Wolf (1966) accounted to this description of peasants when he proclaimed that a peasant's ultimate concern is to produce to support their households, not to run an enterprise. In the realms of the moral economy, peasants stick to "subsistence security" mechanisms by producing to provide enough for their households and ensure reproduction. So long as they are within or above the "subsistence margin" (little provision to survive the household till ensuing harvest or during bad harvest year) and do not fall below this threshold, it is enough for peasants (Scott, 1976). Scott argues that peasant's agency to revolt only rise when they foresee any development or arrangements that will impact their "subsistence security" negatively (falling below subsistence threshold).

Scott's perception of the peasants' household's pursuance for subsistence economy and risk avoidance was not different from Alexander Chayanov's viewpoint in 1920s (Edelman, 2005). However, unlike the latter who concentrated on "family unit" in theorizing the economic nature of peasants, Scott stepped out of that scope by looking at social relations (reciprocity, community-bounds etc.) that are also vital to the peasants' environment (ibid). As asserted in Tsikata (2015) Social relation is a key component to be considered critically in the context of agrarian transformation since livelihoods are tie to it basically. It is described as an organized and methodic network that exists between various social classes and persons in

the spheres of “production, exchange, consumption and reproduction, which are governed by institutions such as markets, states, civil society, and households” (Tsikata, 2015: 6). The moral economy therefore grants attention to relations outside the family unit, which Scott termed as “shock absorbers during economy crises in peasant’s life” (Scott, 1976:27). The relations span from peasant’s own external family members, acquaintances, powerful landlords or patrons, village as a whole and possibly the State as well. These social institutions (e.g., friends, landlords etc.) peasant could receive support from them, for instance, when the household experiences bad harvest or any unfortunate situation like illness. However, such support received becomes an obligation on the peasant’s part to reciprocate in form of labour or resources. Particularly with the patrons, the expectation from the peasant would be continual devotion and serving as a flow of stream to draw other services from. The complexity of these social institutions in peasants’ domain was equally acknowledged by Wolf (1966) who indicated that, peasants do not live-in isolation, they are part of a complex society where power relations are not even. As a result, peasants’ “surpluses” of production are forwarded to these “dominant” social class who enhance their living conditions with it and likely redistribute leftovers to the needy in the society. Nonetheless, peasants rely on the support from these relations, even though their reliability on family, friends and the village are far greater (as is their first place of seeking help) than that of the State’s and patrons (ibid). This is where scholars such as Popkin (1979: 4) contends that such relations in peasant environment are more or less like “corporations, not commune” and “monopolists, not paternalists” on the part of patrons as well. Thus, all these relations, portraying aids within peasant spheres (be it, welfare plans, exchanges etc.) are “guided by investment logic” (Popkin, 1979: 23). But Scott (1976:29) argues that such relations “provide vital social insurance against a time of dearth”. Put in different words, provisions from these sources keep the peasant above the subsistence margin in seasons of bad harvest or illness. Popkin further enhances his argument stating that peasants are logical actors (they have individual interest and make choices accordingly) and due to this attribute of peasants, the market offers better and reliable support or economic stands than that of the “insurance” (reciprocity etc.) from the social institutions (patrons, village). In the sense that, the nature of the market (domestic and international) enables stable prices and sure food availability progressively. Also, income reserved in good season peasants could used to provide for household needs (food etc.) in bad season, (termed by Popkin as “insurance value of money”) which is more safeguarding for peasants than what peasants’ community market or relations could offer them (Popkin, 1979). Scott,

however, sustains his contention that the nature of peasants' sphere is constructed to provide a long-lasting support because there are;

...patterns of social control and reciprocity that structure daily conduct.... As such, "all village families would be guaranteed a minimal subsistence niche insofar as the resources controlled by villagers make this possible (Scott, 1976: 40).

Restating Scott's words, the social relations that exist in peasants' sphere provide much more basic needs "safety net" because the conduct around these relations are regulated unlike the relations in the outside market space. Scott (1976) also reiterated how colonialism and market-oriented agriculture distorted the mutuality and reciprocity norms among peasants within their communities and further subjected them to the market forces of which the State plays a key role. It is this struggle of peasants within the market space that made E.P. Thompson, a pioneer of the moral economy concept argued that, when people (here in this study referring to peasants) are hard-pressed to the point where their right to indispensable basic needs such food are taken from them, they react with revolt (Thompson, 1971). Expressed differently, when peasants "subsistence security" is in peril, where the household will go hungry, they react accordingly. The state's regulations paved way for capitalist operations to thrive at the expense of peasants' socio-economic welfare. Edelman (2005) shares in the same context as he proclaimed that though "subsistence standards" may not be "static" in any given community, however, the conscious effort by the State's interventions and associate ruling entities place demand for profit maximization and wealth accrual activities above rural people's social welfare. This interferes with rural people's liberty to make contextual decisions based on mutual benefit that suit them, hence, shaping their traditional social relations. The economic system today sups the moral conduct in relations among people. Once the relations between external "shock-absorbers" and peasants' household take capitalistic form, peasants' livelihoods are threatened hence their "subsistence security". As depicted in Li (2014), when social relations of agrarian sphere are commodified, some farmers accumulate (usually a handful) while others (mostly the majority) get dispossessed and displaced and suffer debt due to expensive farm inputs or even food costs. Peasants had come under the mercy of the market such that their economy dances to the tune of the "market-mood". In good season, they may recover production cost but otherwise they risk recovering this cost and eventually be pushed below "subsistence margin" (Scott, 1976). The capitalist production system robs peasant's environment of its unmonetized alms giving (Li, 2014) and the State concurs this form of system because revenue is raised through its activities (Scott, 1976). In contemporary times, agricultural development based on modern technology is

perceived as the gateway to ensure productivity: “it is not, however, a technology that always saves labor and increases productivity” (Netting, 1993: 272). Netting in his Gambia study argues that farm sizes may increase with the use of plows (animal or tractor) but does not necessarily mean increase in crop yields because the plow technique’s row spacing for cropping is wider as compared to traditional hoeing technique. Edelman (2005) also attributed increasing adoption of modern inputs by peasants (even within “traditional cultivation systems”) on modern agricultural development. Arguing that, it has increased their reliance on the monetized economy which consequently had worsened the various environmental and health disasters.

The rationale behind peasants’ subscribing and safeguarding their “subsistence security” is to avert risk that might harm the basic needs of their households as noted by Scott (1976) and other moral economists. Peasants will do anything to avert such risks where their households may go hungry. They therefore subject themselves to “safety first” ethics where choices of choosing a seed or farming method is weighed for its potential in threaten their subsistence security. In essence, they may oppose novel innovation such as methods, planting material etc. that has high possibility of increasing the risk of going below the subsistence threshold. For instance, peasants would rather stick to the production of crops that are low-yielding and could provide them with food (even if marginally) over high-yielding profit crops which could not be readily consumed or where they do not know of the risk level of such innovation (ibid). The assertion by moral economists that peasants are “risk averters”, is highly contested. For example, Popkin (1979) argues that peasant do not avert risk, as they strategically invest in their future. They engage in such investments by putting their kids through school with the hope that they would finish school, attain jobs, and come back to support the peasant in old age. Popkin claims that peasants send their children outside their villages to business booming environments to seek greener pastures and to improve their standard of living. They seek to enhance their “long-term security” by switching to a job that pays more and has less variation. Peasants will place their long-term security in personal and family assets in their villages; “the economic conflict over advancement to more secure positions are therefore inevitable within the village” (Popkin, 1979: 23). With this, Scott counters that, peasants are not anti-risk takers; however, they only resort to escapable or slight risk actions in which they are sure will not clash or erode their “subsistence security”. In this context, peasants will equally jump on to an ‘innovative-train’ to source for new planting material, methods of planting or produce for the market for considerable profits. But this kind of profit is not

comparable to the “calculus” around the capitalist profiteering ground (ibid). Not a similar “calculus because as argued by Scott, not only are peasants exposed to the outside economic demands and unpredicted weather conditions but also their economic status is just near the “subsistence margin”. These situations do not grant them much room to increase profit. Likewise, Ploeg (2014) argues that peasants at the end of farming season whatever is attained (income or produce) is being distributed among peasants’ household domestic needs, production cost (seeds, farm tools etc.) and ensuing farming year’s production needs, not much therefore is left for investment to maximise profit.

The moral economy framework will be useful in making sense of the transition from the traditional forms of social relation to profit-oriented production in the Murugu village. It will also be used to discuss what has become of the peasant society (Murugu) after the introduction of the market and modern inputs.

The moral economy concept, however, is being critiqued for portraying peasant society as a homogeneous group (Georgescu-Roegen, 1965; Haggis, et al. 1986) who also stick to “subsistence security” without the agency to change or work for profit. Peasants may adhere to sustenance ideals not because they want to, but rather because they have no other options (Popkin, 1979). Put in other words, if there are other alternatives (modern inputs, profiteering crops etc.), peasants might grab it, thus the absence of other forms of being should not be mistaken to be peasant safeguarding subsistence forms. Bernstein (2009) argues that social differentiation that started to take place within pre-capitalist peasant communities was pivotal to the rise of capitalism and to its class dynamics. Fafchamps (1992) in a same contention state that individual wealth growth is particularly typical in some underdeveloped and developing rural settings which manifests itself in diverse ways including lands, machinery, livestock, lasting consumer products inter alia. Also, on the same note, Bernstein (2006) asserted that if small-scale farmers are classified as peasants, we will never be able to confront the issue of capitalism today. This is because capitalism did not come to peasants’ sphere but arose from within peasants’ communities. Just as asserted by Akram-Lodhi and Kay (2009) that, peasants indulged in the emergence of capitalism and succumbed or yielded to its expansive “social and economic forces” which gradually transformed their traditional peasants’ lifestyle (how they organize themselves socially and economically) to a capitalism mode. Basically, what transpire within the peasants’ sphere in contemporary times do not reflect the traditional peasants’ village values such as reciprocity, mutual sharing, common community ownership but otherwise. Again, there have been other contestation regarding subsistence

principles forming the basis of moral values in peasant communities. Popkin (1979) in particular, argues that this assertion undermines the political conflicts (individual interest versus collective interest) within peasant spheres precluding such different interests to be highlighted and addressed. In that, the “so-called” moral values are shaped and reconstruct by the powerful individual political interest, therefore these values are subject to change over time. As “There are always trade-offs between conflicting and inconsistent norms” (Popkin, 1979:22).

In conclusion, the chapter has reviewed moral economy’s concept with regards to agrarian transformation due to market-based agricultural development and peasants’ integration into the market economy. It has described the moral economy concept as a framework that registers peasants’ economic dilemma due to the capitalist production system and commodification of social relations in peasant communities. Highlighting on the nature of peasants’ sphere, before capitalism emergence, peasants lived and curved their daily lives around supportive mechanisms such as reciprocity, exchanges (e.g., labour, food etc.) that ensured the welfare of all. Their social relation was formed around these mechanisms and what underpinned the moral value is their subsistence ethics norms which ensured staying above subsistence margin. In order not to fall below the subsistence margin, where their families will go hungry, they avert such risk by resisting innovation adoption (like new seed, methods etc.), or involving themselves into large-scale production among other things. Notwithstanding the critiques, regarding how peasants are portrayed as one homogeneous group which undermines the social differentiation and individual political interest that exist in peasants’ sphere, moral economists argued that even so, the nature of their economy was regulated. Basically, based on more moral grounds which ensure support in time of dearth than the relations market economy has inserted.

Chapter 3

3.0. Historical Context of Agriculture in Ghana with Specific Reference to Northern Ghana

This chapter reviews literature on agrarian transformation in Ghanaian context, placing focus on such transformation in the northern part of Ghana. It also discusses the development of agriculture under the NGR mechanism and integration of peasant farmers particularly in the Savannah region.

The capitalistic transformation of the agrarian economy of Ghana can be traced back to the time of its colonization. Export-oriented policy for agriculture was initiated in 1874 when Gold Coast (now Ghana) colony was founded (Kansanga, et al. 2019; Nyantakyi-Frimpong and Bezner-Kerr 2015). This shows the genesis of agricultural modernization in Ghana and the linkages with the colonial rule which employed forceful, coaxing and inputs provisioning strategies which has persisted till date (Yaro et al., 2018). This was done through substandard management, land acquisition and low-cost labour. Labour particularly was commanded from every niche of the country, including the northern part because the nature of production required more land and farmworkers supply. Also, production of food which was mainly on sustenance basis partly shifted to market-oriented crops such as palm oil that colonial administration demanded for export then (ibid). The Agricultural Development Cooperation (ADC) was a British agricultural initiative (Amanor, 1999; Nyantakyi-Frimpong and Bezner-Kerr, 2015) but it later on fostered private enterprising agriculture, societal well-being and community growth and local colonial state ideology, also encouraged by investment from Britain concurrently (Amanor and Iddrisu, 2021). Before land privatization for agriculture, the traditional land tenure model presumably, harboured community-sense, based on fairness and mutual resource distribution as well as ecological concerns. Access to land and other resources (e.g., right of ownership obtaining by birth and passes on to generation) decisions were made by social organisation of the community; clan, tribe, family but not sole proprietorship as seen today (Amanor, 1999). The recent study by Yaro, et al. (2018) confirms this assertion. However, all was not rosy in the above traditional system as family heads, mainly male headed, controlled the resources and decides labour division of the household (Amanor and Iddrisu, 2021). In other words, individuals within a farming household, particularly women and children, might not have a say in the type of task to perform. Due to the

patriarchal culture of the northern Ghana, females suffer land ownership rights, and their views were not considered in household decision making processes. In fact, they could not have their own farms and type of crops they cultivate in the husbands' farm were very much gendered. As the more market crops such yams, maize etc. were associated with men and vegetables mainly for domestic consumption with women. (Dzanku, Tsikata and Ankrah, 2021)

Even though the promotion of agricultural commodities for export started during the colonial time in Ghana, the focus primarily was on the southern part for such production. The chief reasons were the relatively good climatic and geographic conditions in southern Ghana such as fertile soil, bimodal rainfall pattern which is good for the targeted export commodities (cocoa, rubber, and coffee). Production of food crop was not much considered at the time (Kansanga, et al. 2019; Nyantakyi-Frimpong and Bezner-Kerr 2015). Also, another important reason why attention was not in the northern part of Ghana was, that part of the country was not under the governance of the British colony. As such it did not receive various investments from the colonists until 1902. However, the northern populations were used as a labour pool for the advancement of the export commodities production in the south through force by the State (Shepherds, 1981) which as reported decreased labour readiness in the northern agrarian environment (Nyantakyi-Frimpong and Bezner-Kerr 2015).

The foremost agricultural investment which started in the northern Ghana was under the ADC program in 1949, aimed at increasing input promotion for food crops and cash crops in the north and south respectively. It was presumed that the traditional farming model could not produce enough to supply food demand for the surging population and marketable crop economy in the southern part, hence the initiative (Nyantakyi-Frimpong and Bezner-Kerr 2015). Consequently, the Gonja Development Corporation (GDC) in the north was born out of the ADC. The primary aim was to depopulate crowded farming communities in the north to new lands to intensify production of food which was encouraged through input and other resource provisioning. This was because low agricultural productivity was attributed to congestion of farmers in communities (Kansanga, et al. 2019; Nyantakyi-Frimpong and Bezner-Kerr 2015). However, the aim of this intervention was not realized due to the economic remodelling which targeted importation replacement because of Ghana's independence in 1957 (Kansanga, et al. 2019).

3.1. Agrarian Transformation in Northern Ghana

The agrarian environment in the Northern Ghana started transforming just before 1930s, as some little advances were made by colonizers to integrate the north into the State's economy then. Hence, the colonizers did initiate cash crop production and mineral extraction to support the metropolis economy in the north (Shepherds, 1981). From 1930 to around 1945, Shepherds argued that the north was used as a labour hub where labour was partly sourced, first via compulsion then later willingly, by the people themselves to the south. This was done to support the expanding agricultural and extractive booming economy in the south (ibid). So, even though the transformation then was not directly linked to agricultural production (so to say capitalist production or whatsoever), the dwindling enabling labour force (the strong ones) disturbed family or household labour force as noted by Nyantakyi-Frimpong and Bezner-Kerr (2015), hence productivity. Both the colonizers and the subsequent Ghanaian governments tried to integrate the northern sector into the global economy. With these efforts, they claim to be supporting peasant farmers raising their living standards through agricultural development (Kansanga, et al. 2019). However, such interventions have often not realized their aims, as argued by Ayelazuno (2019: 917):

Most often, market-driven policies such as those promoting agribusiness and capitalist farming turn to give the impression that the wellbeing of peasants and the profit-making logic of capitalist farming are mutually reinforcing, and then extrapolate from this shaky presumption to tie food security and poverty-reduction in rural areas...

Shepherds (1981) observed that by the mid-1960s the State and its bourgeoisie considered that the capitalist mode of farming through private management, in order words, an individualistic path, was what was needed to produce enough for the market. Forwarded by Yaro (2013), the free-market and private ownership ideology paved the way for “global capital” which brings the countryside environment under market influences and ignite individual interest seeking profit.

This transition started because there was high demand for food (particularly rice), especially in the southern Ghana after the WWII. This initiated the capitalist mechanized rice farming in the northern region which benefited a few and impoverished many. Because most people who became rice farmers spanned from civil workers, the military, businesspersons, they were residing in the city mostly in the south (Goody, 1980; Shepherds, 1981). The structural adjustment agricultural policies that emerged in the 1980s cushioned the individualistic notion of production when government withdrew its support for peasants, paving way for free market. This resulted in the commodification of labour relations (Yaro, 2013) and input

prices (Amanor and Iddrisu, 2021), exerting more stress on peasants' production environment (Tsikata, 2015). This agricultural development processes have continued by succeeding governments till date. In more recent times, the NGR has come tread the path of this long-standing capitalist form of production through modern inputs which Bellwood-Howard (2014) has indicated is building on the remnants of old green revolution in 1960s.

Nyantakyi-Frimpong and Bezner Kerr (2017) argue that peasant farmers livelihoods are being threatened and social relations in the agrarian sector are changing due to the extensive land expropriation in the north. In a likewise manner, Yaro (2013) noticed that such developmental policies (neoliberal) undermined the moral structures of the rural environment hence peasants. His contention emphasized that farming households' relations have been affected; community bonding nature of solidarity, sharing support etc. Put in different way, this has distorted the moral economy and traditional social relations of peasant households and their communities.

3.2 Pursuing the “New Green Revolution” Agenda Post-independence

Increased focus in agricultural production and productivity with modern inputs tradition continued after Ghana gained independence in 1957 (Kansanga, et al. 2019: 13) and persist as agricultural programmes are geared toward expansion of the food production zone for export, mostly benefiting large-scale farmers (Nyantakyi-Frimpong and Bezner-Kerr, 2015). The strategy to maximize agricultural productivity through technological approach started in 1960s in Asia termed “Green Revolution” (now referred as old green revolution largely). During that period, the adoption, and the use of high-yielding seeds fertilizers etc. by small-scale farmers was promoted. This revolution as studies has shown rendered more peasant farmers to disadvantageous position such as dispossession, displacement, proletarianization, and even environmental degradation etc. (Bellwood-Howard, 2014). Now, productivity increase under the auspices of the “New Green Revolution” is what is ruling since its laughed in 2006 in Africa. However, scientific, and strategic path to implement this took place years beforehand (Blaustein, 2008). As the old green revolution focused on technological model, the NGR focuses on institutional and economic adjustments with the combination of technological model. Consequently, it is promoting public-private partnerships (e.g., to ensure technology dissemination etc.) and the active involvement of the market through financial outfits (Bellwood-Howard, 2014; Vercillo et al. 2020). GoG different agricultural frameworks including Ghana Poverty Reduction Strategy II, the Savannah Accelerated Development

Authority, Ghana Commercial Agriculture Program and Food and Agriculture Sector Development Policy (FASDEP), have all geared towards modern input intensification under the NGR agenda (Braithwaite, et al., 2017). As part of the strategies to achieve this, the Rockefeller and Bill and Melinda Gates Foundations (BMGF) through the Alliance for Green Revolution in Africa (AGRA) sponsored dealers in agro-chemicals program. As such, two thousand four hundred agro-chemical handles were contracted to ensure the distribution of improved planting materials and synthetic fertilizers to the reach of farmers (ibid). As Ghana sought to fulfil its part practically in this, it initiated a national fertilizer subsidy project in 2008 with the objective to accelerate the use of synthetic fertilizer to boost soil fertility. Thereby enhancing productivity which will translate into food security and higher economic standard of farmers. This project was triggered by the “Abuja Declaration on Fertilizer for Green Revolution” by African governments in 2006 at Abuja, Nigeria. The declaration agenda was to provide support through states budget to increase the use of synthetic fertilizers (50 kg/ha by 2015) to enhance production and productivity (Fearon, et al. 2015: 100), the latter particularly. FASDEP was initiated in 2002 as a supporting structure to ensure the country’s agricultural sector transformation (Mabe, et al., 2018). In 2008, its modified version (FASDEP II) came into being which is pioneering commercial farming, wise use of resources, market-oriented development. One of its key elements is the Medium-Term Agricultural Sector Investment Plan (METASIP). The Planting for Food and Jobs (PFJ) agricultural programme is also riding on the FASDEP II framework (Ghana Agriculture Sector Policy Note, 2017; Mabe, et al. 2018) which is currently underway in Ghana. PFJ was unveiled in 2017 with its implementing strategy being “provision of subsidized and improved seeds, subsidized fertilizer, agricultural extension services, establishment of markets and e-agriculture” (Mabe, et al. 2018: 4). The execution of GoG’s agricultural development initiatives is done through its Ministry of Food and Agriculture (MoFA) (ibid).

Even though some successes have been recorded with the modern inputs’ promotion and use under PFJ programme like declined in on-farm expenses and elevated standard of living among some farmers (Tanko, et al. 2019), the NGR is highly contested. Studies have shown that the adoption of improved seeds is causing some northern Ghana maize farmers a great deal in terms of affordability and labour demand, triggering food insecurity concerns among small-scale farmers (Nyantakyi-Frimpong and Bezner-Kerr 2015).

The traditional labour organisation and other social relationship within farming household have shifted as household members part ways to work on their own due to agriculture development which is embedded on modern inputs (Amanor and Iddrisu, 2021). I will

explore further in the next chapter, the shifting social organization of production and or peasant economy in the rural communities in northern Ghana and the impact thereof.

3.3. Chapter Summary

The chapter has reflected on the trend of agrarian transformation in Ghana, which outlined that the transformation through agricultural development started in 1874 during colonial times. Agricultural development focused on production and productivity through input provisioning, first on cash crops such as cocoa, etc., and later food crops such as rice, maize etc. for the market (both domestic and export purposes). Post-independence (after 1957), successive governments have followed similar steps for agricultural development till present. The northern part of Ghana was initially integrated into this agricultural economy through labour supply to the southern sector. But later enrolled into the food production economy with targeted crops such as rice mainly at first and other crops afterwards. Now under the NGR strategy, there has been massive promotion of modern inputs such as mechanisation, fertilizers etc. through government outlet and private entities to enhance productivity, mainly targeting peasant farmers. Thus, peasant farmers have become dependent on these inputs at the expense of traditional inputs, thereby changing traditional farming practices and shifting existing social production relations like non-wage labour to wage labour etc.

Chapter 4

4.0 Study Findings

4.1 Introduction

This chapter presents the findings of the study. Direct quotes are articulated when deemed fitting and needed. The findings of this study are based on the in-depth interviews of twenty respondents, eighteen farmers and two key informants.

The chapter is divided into five sections. The first section examines the history of agriculture development in Murugu in Savannah region of Ghana. The second describes how traditional farming practices are being replaced (the knowledge and adoption of modern inputs). The third section analyses the actors either embracing modern inputs or not and the reason for various scenarios. The fourth section examines how livelihoods are affected through changes in traditional social relations. These are shown in themes and sub-themes when necessary. The chapter ends (fifth section) with the summary of the findings.

4.2 History of Agricultural Development in Murugu Village

This section shows the form of agriculture practices and social relation that existed before the introduction of modern input in Murugu addressing research question one. This was in response to the question: what form of farming practices existed among the peasant farmers in Murugu before modern agricultural development in 1960s? It was gathered from respondents (mostly age 50 and older) that farming has been part and parcel of their livelihoods. It is also a principal occupation and used to be their way of life in the past 3-4 decades. Almost all the respondents (especially those 40 years and older) recounted how farming was done with very simple tools such as cutlass, hoes and that they weeded with their physical strength. Farm labour, then, had come from one's own household and was supplemented by inter-households help particularly by the youth (what they call "group farming" or "nno-boa"). Group farming (labour exchange) was said to be very supportive. Some households had stronger (young) males who could do the hard farm work like land clearing and mound

making. This labour exchange mechanism greatly helped especially, households who had less strong youth or more female or elders to cultivate adequate acreage for their households.

As uncovered, the village is generally headed by a chief (“Murugu-wura”) and the land priest (“Tindana”); more or less, a deputy as well as the elders (comprising clan and family heads, youth leader etc.). Royalty was paid to the chief, land priest etc. in the form of labour provision in their farms and foodstuffs and livestock, usually after harvest. However, the former was mandatory, but the latter (foodstuffs and livestock) was out of one’s own will. But if an outsider (settler) came to the village, it was mandatory for the person to pay royalty to the chief in the form of foodstuffs or livestock for about five years. The village was basically made up of clans (which largely continues till today) and each clan consist of different families. The village practices a patriarchal system where decision-making power is vested in men and land ownership rights as well. As such, women had no land ownership rights and had to work in extended family farm or their husbands’ farms. However, land was not owned individually but by clans where the clans’ heads oversaw the affairs of the resources, then the family heads oversaw resources for a specific family within the clan. In the same manner the household heads oversaw resources for specific household within the bigger family. The land priest, served as the steward to overall village land and resources (he performs the rituals for all land activities such as harvest thanksgiving, seasonal NTFPs picking rituals etc.) and must be consulted on such resource related issues. The customary system permitted men to marry more than one wife which constituted larger household sizes. Large families were a strategy for a household to mobilise more hands-on farm and hunting purposes as such, male children were preferred over females. Since, males were presumably possessing the ability (muscles) than females. When young males get married, they stayed within the families with their wives and children, but females joined their husbands’ families when married. It was narrated further that once a land is being farmed by a household or family it is controlled or owned by the family (mainly the household head). But once it is left fallowed, other family can take over and farm on it. Labour division was very much gendered then, and still is to the greater extent today. Generally, across board, reproduction activities such as cooking, water and firewood fetching, care are considered women work. They were equally and still are part of the production activities like sowing, harvesting, and weeding as well. Provision for the family, land clearing and preparation, decision-making, are considered men’s work, as well as sowing, harvesting, and weeding. Crops such as vegetables are associated with women while yams, cassava, millet, maize etc. were perceived as males’ crops.

4.2.1. Farming together as one clan

It was further unveiled that three decades ago, most farms in the village were close to each other (which was an intentional act; concentrated in one area, sometimes clan by clan). It ensured that farmers could look after each other's farms without a request from the farm owner, likewise other help was possible. The entire clan lived like a family or a household (to the extent that sometimes, food prepared by women from each household was brought together in one place for all members (men) to eat together) while women and children also eat together in their homes. As such, no one was seen as a weak or lazy farmer in the community because of the involvement of everyone with their individual bit of strength. Concerning how they related to each other in terms of farming activities, this is what a male respondent had to say:

Those days when your neighbour gets sick for days and could not go to farm, the other farm neighbours would mobilize themselves and work on the sick farmer's farm when it is weedy. We supported the aged who could not farm again with foodstuff and even others who experienced bad harvest as well (R6, age 65, August 9, 2021)

In likewise manner, a 52-year male respondent added:

You can barge into neighbour's farm to pick his hoe or cutlass to work with and he would not care because your help will be needed next time too. In fact, those times if you have a hoe or any farm tool, it does not belong to an individual, we say, it belongs to the community (R2, age 52, August 6, 2021).

A 44-year female respondent complemented the above assertion when she narrated:

We lived as large families, with sub-households in the same compound, even when people get married, they don't move away. We shared most common things among ourselves and basically farmed together as one family or close to each (R7, age 44, August 9, 2021)

Most respondents declared that agricultural tradition and practices have evolved over the years and are still evolving within the village. It has moved from the typical large household level farming to more nuclear household or individual farming level. Additionally, respondents declared that now farming is not only done for consumption but also for money to enable them to acquire other basic things. For example, a male respondent mentioned that:

In the olden days, we did not pay school fees and people usually did not go to school. Even if you must pay fees, it was something little but today fees are so high not only for schooling but other things like healthcare and transportation. How can you only farm for consumption now? (R 5, age 60, August 7, 2021)

The traditional system of Murugu village was not an utopian one either, where everything was perfect. According to some respondents, family or household heads had the overall power on the family resources use. He decided who did what, what was to be cultivated and how resources from the harvest were to be distributed. The household head also ordained who a household member must marry and could even command a household member to divorce his wife if the wife offended the head or was giving birth to females, even if the husband still loved her. As disclosed, women and the youth suffered from this, particularly the former group were not considered as a decision-making being at all. Hence, women could not be part to contribute to decisions that affected their lives either at home or on public grounds. It was emphasized that women were basically treated like children or ‘slaves’. A 44-years female lamented

We worked harder as females and were never acknowledged; I saw my mother suffered it and I followed her steps; obeying commends from males without questioning (R 7, age 44, August 9, 2021).

She further added,

Even when my mother feels sick and could not work or go to farm, she was too scared to tell my father, unless my father realized it himself and granted her a break (R 7, age 44, August 9, 2021).

It was also revealed that the young people’s labour was also overexploited. A 57-years old male narrated:

Those days, I could not have a say in anything when I was young, my father and elder brothers took every decision for me. I could not say a particular task assigned to me was too difficult or I am too tired to do it, I must suffer and do it. Almost every youth suffered this treatment, and our mothers could not help us in anyway then (R 13, age 57, August 11, 2021).

4.3 Changing Traditional Farming Practices

This section will focus on the sub- question two: how the traditional practices are being replaced. From the respondents’ viewpoint this is happening in two main ways: knowledge of modern inputs through its promotion and emergence of high-priced paid labour.

4.3.1 Modern inputs know-how

According to respondents, modern inputs such as tractor and fertilizer usage infiltrated into Murugu around the 1980s and 1990s respectively. The later was pioneered by the MoFA

(now, department of agriculture in the district levels) through a programme called “global 2000” (a nationwide intervention). Farmers were introduced to fertilizer usage to observe how it enhances crops productivity. According to one male respondent:

We did not know anything about tractor usage, fertilizers, weedicides, or anything like that, till the 1980s. All that we knew was our hoes and cutlass mostly and we did not farm for today’s market but for consumption (R1, age 65, August 6, 2021).

However, this intervention was not provided free. Farmers paid back (the fertilizer received) after harvest with maize, five respondents narrated. Most farmers could not adopt the use of these inputs during that period, in particular, not tractor services, because they were not accessible and affordable, it was disclosed.

Also, gathered from an NGO which has worked with Murugu village over a decade, it was highlighted that “there has been cautious effort by the various extension activities or outfits which encourage the farmers to embrace modern input” (RKI 1, age 35, August 13, 2021). This is by adopting the use of tractor and fertilizers among others, which is spear-headed by various development agencies, mainly MoFA. Additionally, the respondent from the municipal department of agriculture spoke in line with this, by stating that “it is the mandate of the department to bring new technologies to farmers through extension services” (RKI 2, age 55, August 13, 2021). Likewise, it was discovered that extension activities do not only promote the adoption of modern inputs but equally promote non-traditional crops like cashew. It was emphasized that, the rate at which farmers are using these modern inputs (tractor, weedicides, fertilizers etc.) and becoming dependent on them is quite high, to the extent that some farmers believe that some crops would not do well without inputs like fertilizer. The use of weedicides for land preparation and weed control in Murugu is just recent (about 5 or 6 years ago) but its adoption and use has been very drastic as almost every farmer in the community now uses them. This claim was substantiated by the NGO respondent as well as some of the farmer respondents.

It was further pointed out that over the years, farmers who use mechanisation services access them through the Municipal capital (Damongo) or other nearby communities. Presently, there is a farmer residing in the community who owns tractor and provides ploughing services to other farmers for a fee which has encouraged and increased the number of farmers sourcing such services.

Expressed by the agriculture officer (KI), West Gonja Municipal, where Murugu is located, cultivates the highest volumes of maize production out of the seven districts in the Savannah region. In 2019, 7,350 kilograms of hybrid maize seeds that was brought into the

municipal through the department of Agriculture got sold out within 3 days. This excludes those bought privately. Meanwhile, maize production is, as most respondents proclaimed, pretty much associated with tractor ploughing and fertilizer usage. From the agricultural personnel perspective, this shows how farmers have acknowledged and embracing modern technologies knowing its benefits.

4.3.2 High-priced paid labour

Many respondents stated that, nowadays, hired labour is very expensive and so many forgo it for modern inputs. Farmers will rather use, for instance, weedicides to control weeds rather than hire expensive labour for hoe or cutlass weeding which had been the traditional way of weed control. It was also disclosed by some respondents that the labour is not only expensive; it is also difficult to get. A 35-year-old female farmer put it in this manner:

The money used to hire labour, I can use it to buy triple of the weedicides and still have some left over money so why would I not go for the easy way (R8, age 35, interview August 9, 2021).

From another angle, a 36-year male tractor owner added why traditional practices are being replaced:

It is now a competitive world of modernity, and everyone needs to make money, everyone needs to get adapted to such way of life, if you don't learn to use those things; modern inputs you will be left behind because you would have no one to help you with work like it used to happen before. Technology has come to replace those traditional social support particularly labour (R10, age 36, August 10, 2021).

With the 18 farmers interviewed only four were not using any form of modern inputs currently. However, among these four farmers, some intend to, as stated by a 57-year-old respondent, to now source tractor services for land preparation for groundnut cultivation in the next farming season due to lack of labour and its cost. He, however, does not want to use synthetic chemicals (fertilizer, weedicides) due to its health implications on human and soil micro-organisms. One 65-year-old farmer respondent mentioned that he used fertilizer about nine years ago for maize farm because he was late in planting but never used again since then. For him early planting yields much result than the use of chemicals. The other two farmers did not give any reason why (whether affordability, accessibility etc.) they did not use modern farming practices. All the 18 respondents source hired labour at certain points in the farming season even though not everyone sourced it intensively. Though, there

are still some traces of reciprocity and sharing in the village especially for harvesting and planting but not as it was as earlier.

4.4 Reasons for Adopting and not Adopting

This section addresses the sub question 4 on those adopting or not adopting modern agricultural inputs and their reasons. Some respondents asserted, particularly those 40 years and above, that schooling is one of the reasons why household farm-labour has dwindled. This is also affecting the traditional social relations because now kids are put through school and are no more interested in farming activities. As a result, most youth (who play a vital role in farm activities like, land clearing, harvesting etc.) in Murugu prefer using these modern inputs for their farm work instead. Since there is no or inadequate labour support for the farming households, they must resort to hired labour or modern inputs such as mechanized services. The older people commenting on the youth proclaim that today's youth are lazy and prefer the easy way. Nonetheless, the statement of the 57-year male respondent contradicts this claim because even the older farmers use modern technology:

Now almost every farmer uses weedicides, I may say 90% of the entire Murugu community farmers (R13, age, 57, August 11, 2021)

The rationale behind this adoption as unveiled through the interviews is that most farmers want to increase crop yield to hence productivity. Also, to avoid stress that comes with sourcing hired labour or weeding by oneself which usually leads to delay in on-farm activities such as sowing or planting among others. A respondent uttered:

Getting to know the use of tractor for ploughing which is the fastest and the simplest method of farming, in fact it has increased the acreages of farms, for the past it was the 'waist' we only use for farming but now using the machine has increased the lands production and relief from weeding stress (R1, age 65, August 6, 2021).

Literally, 'waist' here refers to the way weeding is done in farm using the cutlass or hoe. As farmers must bend from their waist level vertically or downwards to use the hoe or cutlass which stresses the waist resulting to waist pain or backache.

4.5 Changing Social Relations and impact on Livelihoods

This section addresses research question four on how the change in social relations between households is impacting livelihoods. Respondents stated that there have been changes in cropping patterns; either crops are added or dropped from the farmers' cultivation list: labour-intensive crops (demanding more on-farm labour like weeding [about twice] before harvesting) such as yams, maize, groundnuts have been dropped for cassava and most have added cashew. Also, changes in farm acreage are occurring, either increased or reduced acreage. Some point out they had to reduce their farm sizes as well as the number of crops used to be cultivated because they do not have the strength to do it alone, neither could they afford hiring labour nor such modern inputs. On the other hand, about half of the respondents acknowledged that their farm sizes have increased due to the use of tractors for ploughing, weedicides inter alia. It was mentioned that they used the profit made in previous season to add more acreage to get more profit in the ensuing season. The changes in the community's labour system, "group farming" and even inadequate labour support from the farmer's own household due to education are influencing people's livelihood options, respondents' narrative showed. A male respondent stated:

I used to cultivate about six acres (acreage relative in community sense) previously with about five different crops. But today due to my age and without labour support as we used to have, I had to reduce the farm size to 3 acres with just three different crops: cassava, yam, and beans (R 5, age 60, August 7, 2021).

He further added,

I have to acquire labour now through a barter means sometimes, using fowl to exchange one's offered labour in my farm or sell the fowl in the market to employ labour (R 5, age 60, August 7, 2021)

In the same line a male key informant from the NGO stated:

Because we have placed more premium and priority on some crops, if you are not at that level where you grow those crops then you are at the disadvantage, so then it means that your livelihood is affected because you can grow the other crops but might not get a good market for them (RKI 1, aged 35, August 13, 2021)

4.6. Findings Conclusion

In summary the chapter had looked at agricultural history of Murugu village. The findings observed that before the introduction of modern inputs such as fertilizers, mechanisation (tractor ploughing), about 4 decades ago, farming was done with basic tools like cutlass, hoe etc. During that period farm labour organisation had come from peasant's own household and supported by other households in the village. There had been mutual sharing, labour-exchange mechanism (group farming) etc. that supported peasant households especially when one household faces hard times like illness or bad harvest. However, this relational mechanism is disappearing, and introduction and adoption of modern inputs had contributed to that, among other things such as education. It was noticed that traditional forms of farming (e.g., hoeing) is being replaced by the adoption and the use of modern inputs. The replacement of traditional farming practices occurred in two ways, first the knowledge of the modern inputs through extension activities. Second, due to high-priced labour and labour scarcity since traditional form of labour exchange is barely existing. The findings again observed that almost every farmer in Murugu village is now using at least one form of modern inputs. It was further noticed that the changes in traditional social relations (labour-exchange particularly) is affecting livelihoods. As some farmers who could not afford expensive labour and tractors for ploughing had reduced farm sizes, drop some crops from their usual cropping list and go for more less labour-intensive crops like cassava. However, others had also increased their farm sizes with added crops to their cropping list.

Chapter 5

5.0. Findings Discussions

This chapter uses moral economy lens to discuss the finding of this study. It is divided into six sections, first, I will discuss the moral construction of Murugu's traditional social relations. Second, I will discuss the disappearance of the subsistence principles (moral values) of collectiveness and support mechanisms, and the underlying driving forces. Third section will consider the perception of some farmers about the modern inputs; seeing it as an opportunity. I will argue at the fourth section that the disappearance of the traditional social relations is pushing some farmers to adopt modern inputs. The fifth section will discuss what is replacing these traditional social relations in Murugu village. Finally, the last section will look at the summary of this chapter discussions.

5.1. Imperfect but Constructed on Moral Calculus

Analysing the study findings from the moral economy's perspective through Wolf (1966) accounts, most rural 'traditional' or 'pre-capitalist' communities were not socioeconomically homogeneous entities. They typically relate to paramount ruling entities that may capture a portion of their productive work in the form of rent, tax, interest, labor or in kind. Likewise, the relationship that existed among Murugu peasants and their ruling entity (Murugu chief) as their labour was rendered in their chief's farm. An outsider who comes to settle in the village is subjected to about five years rent payment in kind (part of harvest annually) as the findings of the study have shown. Also, even within the households, household heads exercised their hegemonic power over the rest of the members most especially women and the youth. Yet these inequalities did not prevent Murugu peasant from displaying what James Scott (1976) called a 'subsistence ethics' or a 'moral economy', habitually grounded, among other things, in the principle of equality of opportunity to work for all the members of the community. This 'subsistence ethics demanded that all must have the possibility of working: "The traditional village [...] wants to enable as many of its people as possible, preferably all, to labor for a livelihood within its ecological niche without primary consideration of

individual merit. Merit determines not who can labor but only how much one's earnings shall be" (Georgescu-Roegen, 1965: 220). "Traditional' peasant communities have typically elaborated various mechanisms intended to cope with special conditions such as a fewer number of children, the variable quality of soils, or unfortunate circumstances like sicknesses, accidents, or a bad harvest. These mechanisms take the form of a periodical redistribution of lands, the expectation that community members with more resources must help the poorer ones (e.g., through loans), gleaning, production sharing, and collective works. These are all well-known institutions of peasant communities similar to Murugu. The findings of this study explicitly indicated how Murugu peasants had lived to support each other through exchange labour (weeding, sowing, etc.), shared farm tools mutually and took care of the sick neighbour's farm, shared harvest with a farmer who experienced bad harvest inter alia. At the height of the harvest season, for example, collective work is indispensable, not out of fondness for socializing labour but simply because of limited family workforce. Mutual aid has been observed by many analysts of 'traditional' peasant communities all over the world. These were the support Scott termed as the "shock absorbers" that kept peasants at the "subsistence security" net. What has become of these relations, not perfect though, but unquestionably a supportive and unifying relations is discussed in the next section.

5.2. Virtually Dissipating Subsistence Ethics

Although socio-economic nature of rural communities is not expected to be static as Edelman (2005) argued, but the mechanisms that impel and operate such changes determine the nature of the change. As the findings reveal, the critical role played by the external extension services through agricultural policies and economic system are enhancing the adoption of modern technology especially on behalf of the State. Fiako et al. (2011) observed that agrochemicals support national growth, and the private importation of agricultural related chemicals remains the highest in Ghana. As Scott (1976) rightly announces, the State can secure its revenue mobilization from the capitalist economy, from this angle, taxes that are retrieved from the large-scale farmers, agro-dealers, and firms (including export and import duties). In situation like this not much attention is paid to the practical concerns of peasants'; effects of continual promotion of modern inputs on peasants' social relations hence Murugu peasants. Li (2014) argued that the capitalist form of production sets a competition in the peasants' sphere which scraps off unpaid traditional services. This, of course, has encouraged individualistic interest (ownership or possession) at the expense of collective interest. At

Murugu village today as the study discovered most farmers do not want to share inputs, they have bought from the market as before. A 35-year-old Key Informant critically added his voice to the current agricultural development dilemma:

I think that as development partners we should learn from what has happened elsewhere, that has been the trend everywhere where people introduce mechanization to the communities, and they drift apart the social structure. It also affects the ecology and the biodiversity of the community. Now people are bringing back the ideas of organic farming and so on just to bring back the system where people can farm and rely on the ecosystem without using a lot of inputs which are most often synthetic (RKI 1, aged 35, August 13, 2021).

5.3. Modern Inputs Perceived as an Opportunity

Li (2014) asserted that peasant farmers perceive the modern agricultural advancement trend as a ticket to enhance their living standards. The findings show that modern inputs utilization is perceived by some Murugu farmers as an opportunity to enhance their farm size, increase productivity and thereby improve their living standards. For them, modern inputs offer hope in a hopeless situation. For instance, in a situation where a farmer plants or sows crops especially maize, late in the season, without fertilizer application the farmer may reap just a little yield. This is because the area experiences only one rainfall window (about six month) for crop cultivation in a year, the remaining part of the year is dry. However, with the help of fertilizers, even if the farmer is late (about 2 to 3 month) into the planting season, the crops will still make it before the rain ends. Use of tractors also enhances the possibility of increased productivity as one respondent proclaimed:

Due to tractor usage for ploughing, I am able to cultivate seven acres this year of which I could not have done with just my strength and would have been late (R4, age 45, August 7, 2021).

In confirmation to the above findings, Vercillo, et al. (2020) observed that peasant farmers in the north are sourcing the modern inputs to deal with shorter cropping window amidst unpredicted rainfall pattern in the area. Therefore, peasants in Murugu village are increasingly becoming dependent on these inputs as most farmers use at least one of such inputs (fertilizer, tractor for ploughing and especially weedicides) in their farming activities. However, as Li (2014) articulated, farmers usually embrace new agricultural opportunities but what they do not envision alongside are the woes that the current trend of agricultural advancement may bring upon their existing reciprocal and mutual social relations. I argue that if this

production path continues as some farmers keep increasing their farm acreages to maximise profit, land may become scarce, land appropriation will emerge. Hence, dispossession and displacement could occur in the near future. The findings of this study shows that there is a link between the adoption of modern inputs and disappearing social bonding relations in Murugu village.

5.4. Disappearance of Shared Labour Relation Inducing Adoption of Modern Inputs

“The existence of solidarity networks influences how changes in economic environment affects behavior and welfare” (Fafchamps 1992: 167). Though almost every farmer lamented on the gradual disappearance of their existing mutual sharing, unity and reciprocal relations, the adoption rate of modern inputs has surged. The findings shows that some farmers resorted to these inputs because the former help mechanism (labour-exchange, sharing etc.) is fading off, but life goes on and basic provision are needed. This change has especially occurred between households as every household is looking out for itself, not willing to share inputs acquired from the market. This tendency can be observed in the following statements:

Now, I have to resort to the use of weedicide to prepare my field and control weeds in my cassava field since I do not have the strength to clear the land or weeds alone and without the previous shared-labour I used to get (R 6, age 65, August 9, 2021).

Society has changed, and people no longer want to share with their neighbours because when people use money to buy weedicides or spray you cannot even go and beg for some or ask that person to come help in your farm with his physical strength since that is what he/she is avoiding (R5, age 60, August 7, 2021).

Like Akram-Lodhi and Kay (2009) argue, peasants do not produce all the basic things they need and had to acquire such things (e.g., healthcare, potable water, education, clothes etc.) outside their sphere. They also need to make ends meet. I therefore argue that some Murugu peasants are adopting these inputs not entirely by choice but out of necessity. Relatedly, Vercillo,et al (2020) argue that peasants are unwilling to adopt the “green revolution inputs” but do so as a result of loss of soil fertility and other structural constraints. Additionally, hired labour is expensive (wage labour) and difficult to find as well. And to work the land manually (even when collectively) can be a very hard task.

In fact, when you look at it, in the past the way we the community members were related to one another is no more existing so every day we do things individually but in the past, we did things together. Even if you do get help nowadays, it is not reliable, you cannot get it the

way you want it, so one has no choice but to opt for these inputs (R1, age 65, August 6, 2021)

As Li (2014) points out, there is an opportunity cost in this situation; the adoption of modern inputs is contributing to change in social relations; unmonetized to monetized relations. Just as Bernstein (2010) contends, whenever, peasant households become incorporated into modern market relations, farmers become vulnerable to “commodification's dynamics and compulsions”, which are absorbed in their relationships and behaviours. Due to today's agricultural development, commodification is getting hold of peasants' existing relations, labour has become scarce and expensive which is changing cropping pattern of farmers as discussed by Li (2014). Some farmers had to reduce farm acreage, drop some preferred crops out of their cultivation list and sourcing inputs such as weedicides, tractors for ploughing etc. due to high-priced labour. Some farmers, however, are rather increasing acreage and adding to their cropping list. Aside the relational change dilemma, there are other associated consequences. As some respondents indicated, the utilization of these inputs has adverse effects on humans and environmental health just as Kansanga et al. (2019) observed that “...ploughing services encourages land degradation [...] that have critical food provisioning, cultural, and socioeconomic value” in the north. Though, Murugu village before capitalism, did not comprise a homogeneous group as mentioned earlier, yet their lives were constructed around such a moral calculus that, at least no one felt insecure of future crop failure as Scott (1976) noted. Now what becomes of this relation will be discussed next.

5.5. Relation Diversion: From Solidarity to Individualistic Path

In the past, the elderly was fed and taken care of when they could not farm again, and a peasant household was not so insecure in case of crop failure because the kinsmen, friends and village got it covered. The weak and households with less muscle youths were not seen as lazy due to labour-exchange mechanism that existed in Murugu as the study noted. Such were relations Scott (1976) referred to as “shock absorbers” for troubled times in a peasant's life. Once this relation is broken, peasant households' livelihoods are threatened. As Li (1976) noted, the modern agricultural production processes destabilize the unmonetized relations in peasants' environment. This form of agricultural development is widening social class differentiation among Murugu peasants. Since, it is not everyone in the community who can afford hired labour, modern inputs, or has enough physical strength to cultivate sufficient

acreage without inter-household support, they are at a disadvantage and could become poor and vice versa. A respondent recounted this ordeal as:

Today everyone wants to work for himself to acquire their own money, those who can afford tractor services, fertilizers, and others, feels that those who cannot afford, hence, with smaller acreage with few crops are lazy (R3, age 47, August 7, 2021).

This concurs with what Bernstein (2010) argued, namely that as soon as capitalist dynamics enter into a community, peasant farmers lose reciprocated benefit sharing. The community rapidly shows every single feature of the capitalist structure, extending from land rent, labour contracting, individualistic gains, hence producing accumulation and a rural bourgeoisie among others. Social differentiation is setting into Murugu, as the findings show, some farmers enlarging their farms every season, increasing productivity via modern inputs, and hired labour whereas others reducing acreage and shifting to less profitable crops. According to Akram-Lodhi and Kay (2009: 12), farmers today do not only sufficiently produce to safeguard mere sustenance for their households. Also, not just for the simple amount needed to maintain their farms as normally perceived, they need to generate extra income which in better seasons could be transformed into investment and also to employ hired labour. Majority of the respondents believe that as time goes by with more technology, even though the village social relation will not be lost completely, it will not be as strong as before. This is not ideal because once that closeness is no more, one cannot even notice when a neighbour is troubled or experience bad harvest *inter alia*.

Farming was the most lovely and united occupation in this area, we were very helpful to one another. We help each other to prepare the field for farming, sow, harvest, shared farm tools, food stuffs among ourselves especially, if your inter-household experiences bad harvest at the end of the season (R 2, age 52, August 6, 2021).

As production cost (hired labour, mechanized services, agrochemicals) increase under today's farming processes, after harvest, farmers using these inputs in Murugu would have to sell their surplus to cater for this cost apart from their own household's domestic needs. This will make it difficult for other farmers to support a peasant household that experiences bad harvest or related situation.

5.6. Discussions Summary

In this chapter, I have used moral economy's concept to discuss the findings of this study. I have discussed that Murugu village (hence peasants) before the modern agricultural

development lived their lives on more unifying grounds. Even though, the village did not consist of a homogeneous group, but the village had its own moral social relation mechanisms such as labour-exchange, mutual sharing which supported the welfare of all of its members. Again, I discussed that these supportive relational ethics are gradually disappearing among Murugu peasant farmers. Basically, through various extension activities or agricultural policies promoting the adoption and use of modern input. Which are usually spearheaded by the State's agency and other private agencies as well. It was further highlighted that some Murugu farmers see the adoption and use of these inputs as opportunity to increase productivity to enhance their living standards. It is noticed that Murugu peasants are becoming dependent on these modern inputs (fertilizer, weedicides etc.) which somehow having effect on their traditional social relations. I established that the changing social relations had and is still stimulating the adoption of these inputs by some farmers. Due to commodification of the village's relations individual interest is replacing collective interest which is widening social class differentiation in the village.

Chapter 6

6.0. Conclusions and Recommendations

This study set out to investigate the consequences in terms of dependency, social relations, and effects on traditional farming practices associated with the adoption of modern inputs under the NGR among peasant farmers in Murugu village. The study used moral economy of the peasants' perspective to examine the traditional farming practices that existed before modern input's introduction and what has become of it. Also, the rationale behind its adoption, those involved and effects of social relational change on inter-households and livelihoods. Based on the empirical data gathered from the field qualitatively through interviews, the following conclusions are drawn.

It was revealed that Murugu village before the introduction and knowledge of the modern farming technology, depended on basic tools like hoe and cutlasses for farm work especially weeding, harvesting, etc. The entire village though not homogeneous group but constructed their lives on more moral grounds to safeguard the welfare of all. Such social relations kept the village in solidarity and reciprocal manner as many moral economists have noted. However, the narrative has changed.

The study established that, reciprocity in terms of labour exchange, tools sharing among other things that existed among farmers in Murugu particularly inter-households seems to have loosened considerably. Every household tends now to focus on itself. These changes are partly linked to the emergence of modern inputs such as tractors, fertilizers etc. Social relation has changed because these are tools or things people do not want to share or cannot be shared coupled with some farmers also increasingly working to maximise profit This is because individuals, most especially the youth whose labour is very pivotal during land preparation for family farming and other related labour-intensive activities, now prefer to source mechanized labour to make their own means As such, the social organization of production and or peasant economy in the rural communities in northern Ghana, hence, Murugu is shifting from sharing, reciprocity, non-wage labour to wage labour, individualistic profit seeking as previous moral economists studies have noted.

The study further observed that most farmers are now sourcing the assistance of modern inputs and are becoming dependent on it because of the weakening social farm-labour bounds they used to have in the village. Moreover, hired labour is expensive (wage labour)

and difficult to access as well. Meanwhile, manual cultivation of land even with the formal labour-exchange mechanism was not an easy task so, with such support withdrawn makes it difficult for a household or an individual to do it alone. Hence the increase in tractors for ploughing and weedicides particularly for land preparation and weed control. This confirms what existing studies such as Amanor and Iddrisu (2021), Kansanga, et al. (2020), Kansanga, et al. (2019) and Vercillo, et al. (2020) that peasant farmers in the north have become dependent on modern inputs. Again, it was observed that peasant households labour scarcity now is partly due to education since children are now sent to schools unlike before. Additionally, the emergence of other needs such as healthcare, payment of education compels some farmers to increase productivity to raise enough income to address such needs. Conducting this study in the Northern Ghana (traditionally overlooked owing to its poor productivity), was well-positioned, as it has helped to comprehend and unfolded the impact of foisted top-down modern agricultural inputs on traditional farming methods and social relations.

Pursuing agricultural development through modern inputs as the only way forward to enhance productivity is not supportive to peasants' economy. If this approach of capitalist production/productivity persist, Murugu village might be more differentiated in terms of social class. That is few may become richer and many poorer. Therefore, there is the need to rethink agricultural development processes to draw a line on modern inputs proliferation; to choose what is needed, useful and safe to ensure peasants' welfare and wellbeing of both humans and the environment. Therefore, the following recommendations are made:

Agricultural policies often do not critically put into consideration the negative effects of various interventions on social relations of rural communities like Murugu. Therefore, government needs to look at these issues holistically not from a production and marketing angle but also its effects on the environment, social structure in the communities and so on to develop appropriately interventions or programmes that tackles everything.

An eco-socialism concept (non-capitalist model where key resources are managed democratically, and sustainability is seen as central) must be critically considered in agricultural development policies to tackle holistically from all angles to strike a balance. The concept admonishes that rural community must own means of production and rebuild their environment to their local context. It does not endorse the current capitalist economic system which at the expense of environmental health, biodiversity loss, welfare of many, works to maximise profit, benefiting few. Therefore, there is the need to strengthen an existing eco-socialism

structure such as the CREMAs in the area. A mechanism such as degrowth economy that brings together the useful technologies and mutualism.

It is also recommended that a critical study be carried-out to assess possible accumulation, social differentiation and food security following the impact of social relational change on these variables in the area to establish how people are affected about it.

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Annexes

Annex A: Non-Disclosure Form

I Jakpa Kojo Abubakari will help Emmanuella Kyeremaa with the research study titled “Green or Grey Revolution”: Examining the Impact of Modern Inputs on Peasant farmers Social Relations and Farming Practices: Case Study of Murugu Village, Northern – Ghana

My obligation will be to transcribe participant interviews, enter participant data, record interview and interpreter Hanga dialect to English for interviews conducted.

In this position:

1. I will not disclose the names of any participants in the study.
2. I will not disclose personal information collected from any participants in the study.
3. I will not disclose any participant responses.
4. I will not disclose any data.
5. I will not discuss the research with anyone other than the researcher.
6. I will keep all paper information protected while it is in my custody.
7. I will keep all electronic information protected while it is in my custody.
8. I will return all information to the researcher when my work is done.
9. I will destroy any extra copies that were made during the field work

Signature:

Date: August 5, 2021



Full contact information of research assistant

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Annex B: Interview Guide

Preamble:

The purpose of this interview is to gather data of farmers and their lived experiences with agricultural development through modern inputs introduction and its effects on farming practices and social relations. The information gathering for this research is solely for academic purposes to produce knowledge.

Interview guide for Murugu Peasant Farmers

1. General Respondents Information

a. Demographics

Age.....Gender.....Educational level
.....Marital status
.....Number of ChildrenNumber of
Household members?..... How many are schooling
.....

b. Occupational background

a. How long have you been a farmer?.....

b. Apart farming, do you have or had any other occupation? If yes, what is/ was it
.....

c. Farming History

i. What is the total size of cropped field this year?

ii. Has it increase or reduce over time and why?...

iii. What types of crops do you cultivate?

iv. Has this crop pattern changed over time (e.g. for past 10-20 years)

1. if yes, why, and what are the crops drop from farming or added to farming crops?

2. If no, why are you still interested in this crop pattern?

2. History of Agricultural Development in Murugu Village

- a. When was modern inputs introduced to Murugu Village? (Fertilizers, tractors, weed-icides etc.)
- b. What form of farming practices or input existed before this time?
- c. How was labour organized before this time?
- d. What form of relationship with regards to agricultural bounds existed between your household and other farming household in the community before introduction of modern inputs?
- e. Has this relationship changed overtime, if yes, replaced with what? If no, how have you sustain this?
- f. What was the village's governance structure then? and has it changed?
- g. How were resources (especially land) distributed and owned back then?

3. Traditional Farming Practices Replacement Route

- a. How do you come to know about modern inputs (tractors, fertilizers, weedicides etc.)?
- b. What was the first modern input use and when was that?
- c. How were you able to acquire your first modern input?
- d. Have you ever borrowed money to access any of these inputs? From whom and how do you pay back?
- e. What is your reason for using these modern inputs?
- f. What type of modern inputs you use or are used in the village, and for which crops?

4. Who is Adopting or Not and Why

- a. Who are those you think adopting these inputs and those not adopting?
- b. Do you know the reason why those adopting and not adoption is doing so?

5. Effects of Change of Social Relations on Livelihoods and Farming Practices

- a. How do you mobilize your farm labour now (from past 10 years till present)?
- b. Has this form of labour mobilization changed over time, how?
- c. Has the changed in social relation got anything to with this change?

- d. Would you be willing to share any inputs acquired from the market with your neighbour?
- e. In generally, how are the change in social relations affecting you and the village as a whole?

Interview guide for key informants

- a. How has agriculture evolved over the past 10 years in the region, especially in Murugu village?
- b. In your context, what is this change in agriculture about (farm sizes, crop patterns, production etc.) for the past decade?
- c. Is there a changed in farming technology? (from more traditional practice; hoe, cutlass, manure... to more modern; tractor usage, fertilizers...)
- d. How are farmers accessing such technologies and how willing and fast are they adopting?
- e. Who are those involving in promoting and pioneering these modern inputs?
- f. What are the effects of agricultural development based on today's modern inputs on peasants and environment as a whole?
- g. In your opinion, who are those embracing the use of these inputs intensely?

Annex C. Table A Characteristics of Respondents: Murugu farmers

*R	Gender	Age	Education Level	HH Size	Current Farm Size	Period of Being a Farmer	Additional Livelihood Activity	Hired Labour	Use/Type of High-Tech Input
R1	Male	65	Tertiary (College)	8	3 acres	over 40 years	Nil	Yes	Weedicides
R2	Male	52	Primary Education	9	4 acres	35 years	Beekeeping	Yes	Fertilizer
R3	Male	47	Secondary Education (Senior)	7	4 acres	30 years	Nil	Yes	weedicides
R4	Male	45	Primary Education	10	6 acres	15years	Nil	Yes	Weedicides Fertilizer, Mechanisation services
R5	Male	60	No formal Education	5	3 acres	Over 20 years	Nil	Yes	Weedicides, pesticides, fertilizer
R6	Male	65	No formal Education	7	3 acres	Over 30years	Nil	Yes	None
R7	Female	44	No formal Education	4	2 acres	5 years	Gari process Shea nut collection	Yes	None
R8	Female	35	No formal Education	8	8 acres	4years (own farm)	Food vendor Shea nut collection	Yes	Fertilizer, weedicides, pesticides
R9	Male	34	No formal Education	6	8 acres	10 years	Nil	Yes	Tractor ploughing, weedicides,

									mechanisation services
R10	Male	36	Primary Education	8	10 acres	15 years	Mechanise Services (ploughing)	Yes	Tractor ploughing, fertilizer, weedicides
R11	Male	30	No formal Education	6	13 acres	5years	Nil	yes	Weedicides, Tractor ploughing, fertilizer
R12	Male	26	Secondary Education (Senior)	0	6 acres	5years	Nil	Yes	Fertilizer
R13	Male	57	Secondary Education	8	4	41years	Nil	Yes	None but intends to use tractor
R14	Female	40	No formal Education	8	2 acres	3years (own farm)	Shea nut collection/ shea butter	Yes	None
R15	Male	27	Secondary Education (senior)	5	6 acres	10years	Nil	Yes	Weedicides, mechanisation services, fertilizer
R18	Female	39	No formal Education	5	3 acres	16years	Petty trading Shea nut collection	Yes	weedicides
R19	Male	41	Secondary Education (Junior)	13	11 acres	20years	Nil	Yes	Tractor ploughing, weedicides, fertilizer
R20	Male	45	No formal Education	14	7 acres	30 years	Petty trading	Yes	Weedicides, fertilizer, mechanisation services

* R 1 indicates respondent number 1, and so forth to the 20th respondent, represented by R 20. HH represents household size of the farmer. All the eighteen respondents have farming as main livelihood activity.

Table B Characteristics of Key Informants (KI)

Key Informant Status	Sector	Gender	Age	Role	Education
KI 1 (R 16)	NGO Personnel	Male	35	Project Manager	Tertiary (Masters)
KI 2 (R17)	Agricultural Officer	Male	55	Municipal Director	Tertiary