

**WOMEN'S LABOUR SHIFT FROM FARMING TO MINING AND
ITS INFLUENCE ON FOOD SECURITY WITHIN HOUSEHOLDS
HEADED BY WOMEN MINERS IN NYATIKE SUB-COUNTY,
KENYA**

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C50/84664/2016

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF
ARTS IN SOCIOLOGY (LABOUR RELATIONS MANAGEMENT) IN THE
UNIVERSITY OF NAIROBI, KENYA.**

2019

DECLARATION

This research project is my own original work and has not been presented before by any other person for examination for the award of a degree in any other University.

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This research project has been submitted with my approval as a University Supervisor:

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DEDICATION

I dedicate this research project to the fond memory of my sister Ruth Akoth (Nyamigori) whose last words before her death informed my interest in studying women within informal labour spaces.

ACKNOWLEDGEMENTS

I am grateful to my supervisor Dr. Kathleen Anangwe for her unwavering support and guidance in ensuring that this project was successfully completed. To my parents Philip and Caren Manga whose presence and encouragement have brought me this far in my academic journey and, to my brother Erik Manga and his spouse Riventa Achieng' for their mentorship and financial support during my post-graduate studies. I also extend my gratitude to all my siblings, colleagues and friends who assisted me in one way or another during my studies. I could not have done it without you. Thank You!

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ABBREVIATIONS AND ACRONYMS

UNDP	United Nations Development Program
WHH	Women Household Heads
FSN	Food Security Network
FAO	Food and Agriculture Organization
GLRC	Global Labour Research Centre
COTU	Central Organization of Trade Unions
CDA	Community Development Agreement
IDA	Individual Development Agreement
KNBS	Kenya National Bureau of Statistics
KIRA	Kenya Integrated Rapid Assessment
UNICEF	United Nations Children’s Fund
ASM	Artisanal and Small-scale Mining
ASGM	Artisanal and Small-Scale Gold Mining
TFP	Total Factor Production
GDP	Gross Domestic Product
CMC	County Mining Commissioner

GoK	Government of Kenya
CoK	Constitution of Kenya
FGD	Focus Group Discussion
KI	Key Informant
KII	Key Informant Interview
SACCO	Savings and Credit Co-operative

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ABSTRACT

Subsistence crop farming and Artisanal and Small-scale Gold Mining (ASGM) in the developing countries both provide women with economic opportunities outside their homes. Recently in Kenya however, several rural Women Household Heads (WHHs) have shifted from subsistence crop farming to ASGM activities despite the latter being found to endanger women's livelihoods through the lack of mining rights, socially-constructed mining roles and poor remunerations. This study was framed within recent research that affirmed the existence of food security deficits within women headed households among the rural farming and mining communities in Western Kenya where ASGM activities have been found to complement women's incomes but deteriorate their household food conditions. The researcher aimed at qualitatively exploring the labour shift of women from subsistence crop farming to mining and its influence on food security within households headed by women miners in the region. Primary data were collected from fifty one (51) WHHs employed in the four (4) major ASGM sites in the region namely Osiri Matanda, Nyatuoro Ko'wuonda, Macalder and Mikei Ka'kula. All the WHHs were purposively sampled, organized into six (6) focus groups, each comprising six to ten (6-10) members and further interviewed following the Focus Group Discussion (FGD) method. Additionally, five (5) Key Informant Interviews (KIIs) were conducted for four (4) male minesupervisors and one (1) County Agricultural Officer. Data from all the FGDs and KIIs were transcribed into texts, coded axially and analyzed using qualitative content analysis method. Results indicated that the shift of women household heads from subsistence crop farming to ore transportation and processing roles in the mines improved market food access but deteriorated food supply and utilization within their households. However, the shift to proprietary mining roles like owning crusher and panning pool businesses by the women sufficiently improved food access, supply and utilization within their households. Further, all the three (3) dimensions of household food security were found to be determined by home-mine proximity of the women who specifically shifted to ore transportation and processing roles in the local gold mines. Therefore, WHHs in the region need to balance their participation between the two (2) labour contexts to sustainably improve their household food status. Existing agricultural and mining policies also need to be comprehensively implemented to provide equal farming and mining opportunities to women.

CHAPTER ONE: INTRODUCTION

1.1 Background Information

Food security is both a multi-dimensional and developmental issue because of the knowledge that the presence or lack of it significantly determines the mental, social and physical productivity of members of any social unit (Wandie, 2012). However, many scholars and practitioners on various aspects of food security have traditionally tended to over-emphasize the supply-side of food production and the result has been a mistaken limitation of food policies to national food aggregates such as the share of food in the GDP (Specia, 2003). Additionally, a lot of issues relating to the demand-side of food security such as food access and utilization have not been given sufficient attention both in terms of research and policies even though they significantly determine various livelihood outcomes within the developing countries (Malik & Rafi, 2010).

Recently however, the Global Food Security Network (FSN) emphasized the need to proliferate micro-food perspectives towards ensuring that food is accessed, distributed and utilized by all members of a given social unit under socio-economically equal and just contexts (FSN, 2017). Further, the formulation of the Sustainable Development Goals (SDGS) numbers One, Two and Five of 2017 re-emphasized the need to mitigate poverty and hunger through promoting gender equality in all production contexts globally (United Nations, 2017). Responsively, many food security aspects within the household as the smallest social unit have recently been proliferated more so in the developing countries to co-opt gender equality in food processes and further meet the nutritional requirements of rapidly growing populations within them (McMichael, 2003). However,

this proliferation has further introduced gender concerns such as the need to deconstruct the irony where, women especially in rural contexts are the primary food producers and preparers at the household level yet they are the most socially-discriminated beings in the society (Napash, 2005).

More recently, some few countries in the Horn of Africa have adopted strategies seeking to empower rural women through providing them with equal opportunities of income generation outside their homes to improve their household food conditions (Speca, 2008). In Kenyan particularly, similar empowerment strategies have yielded commendable though still insufficient results more so within informal production sectors such as subsistence crop farming and Artisanal and Small-scale Mining (ASM) that have been identified as direct pathways towards improving household food access, supply and utilization. For example, the Kenya National Food Security Act of 2011 and Mining Act of 2016 have respectively provided useful legislative structures through which women's subsistence crop farming and ASGM labour alongside their influences on household food outcomes can be discussed [United Nations Development Program (UNDP), 2015].

Despite such strategies, a series of contextual challenges like 'invisible hands of the patriarchy' still belittle the empowerment agenda for rural women in the country and subsequently reduce their contribution towards household food security in varied ways (Simtowe, 2006). For example, patriarchal notions within most rural communities in Kenya skew opportunities relating to land access and use to men thus diminishing women's abilities to competently partake in land related food acquiring processes such as subsistence crop farming and ASGM activities (Facio, 2013; UNDP, 2015). Thus, most women headed households in patriarchal rural communities in the country experience

dehumanizing food conditions attributable to cultural limitations to land access and use which are bias against women (Mbote, 2004). In addition, the poor state of food security within women headed households in the country have been explained by the fact that all decisions and actions regarding food production and consumption within such households rests squarely on women heads even as they grapple with feminized poverty (Chant, 2006).

Accordingly, in view of rampant food security hazards within women headed households in most Kenya's rural patriarchies, the examination of various contextual issues such as gender roles and household headship types have recently been necessitated to understand their linkages with household food security in the country (Sasson, 2015). Among the rural farming and mining communities in Western Kenya, similar examinations have been done and most of the contextual challenges affecting food security within women household headships in the region have been found to bear strong patriarchal undertones (Nyamboga, 2014). For example, subsistence crop farming opportunities for women in the region have been reported to be reduced by the fact that WHHs own very small pieces of lands which are usually not sufficient to produce enough food to last longer during drought periods. In addition, a majority of them are poor thus are unable to acquire extra pieces of land for crop production and purchase agricultural inputs such as fertilizers because of poor soils and the precarious climatic conditions of the region (Nyamboga, 2014; Kiburko, 2010).

Similarly, household food security conditions are worsened by the fact that patriarchy plays into the mining milieu of the region. In this case, it is men who own a majority of sporadic gold mines in the region through the cultural conflation of land ownership rights

with mineral rights (Tripp, 2004). Subsequently, many women more so the household heads are mistakenly denied the opportunity to process mining sites and navigate through various mining activities because they lack cultural minerals rights (Ogola, 2012). Further, the women who partake in various mining activities in the area are generally lowly compensated compared to men despite most of their mining roles such as ore transportation and processing constituting approximately 90% of mine labour (Amutabi & Lutta-Mukhebi, 2003).

Ironically, a majority of the contextual challenges affecting women's labour in ASGM activities have not necessarily rendered the activities non-beneficial to them. Women in the area especially the household heads continue to perceive ASGM activities as alternative sources of income away from diminished crop incomes and productivity (Pritt, 2014). Further, the women have often used the mine destinations as strategies to improve their household food problems and incomes in cases when they totally lack pieces of land to produce food through crop production (Kibukho, 2010). Thus recently, there has occurred an increase in the population of WHHs shifting their labour from subsistence crop farming to various ASGM roles such as the crusher and panning zone businesses in the hope of increasing their incomes and food conditions. Essentially, food security particularly within households headed by women miners in the region must be viewed through the lens of the women's labour shift from subsistence crop farming to ASGM activities (Simtowe, 2010).

1.2 Problem Statement

The shift of women to ASGM has been reported by many researchers to significantly improve their economic opportunities especially during drought periods when economic opportunities become critically limited (Lihiri, 2003; Pritt, 2009). However, some recent findings in the developing countries have reported that some aspects of women's artisanal mining reduce their employment outcomes through patriarchal limitations that culturally favour men's mining participation and incomes (Sukumar, 2003; Peter & Kennedy, 2007). The findings have further reported the existence of a food security deficit within women headed households since their ASGM activities complement women's incomes but simultaneously deteriorate other aspects of wellbeing such as household food sufficiency. Similar household food security deficits have also been reported in East Africa where most households within some farming and mining communities in Tanzania and Uganda registered poor child survival and under-nutrition as outcomes of the lack of sufficient food at the household level (Nabaasa, 2015; Juma, 2015).

A separate study done by the Food Agriculture Organization (FAO) in 2010 on gendered roles in mining and directly related to this food deficit recommended that women's roles being more vital than those of men, ought to be explored further to explain the food paradox found within most rural household miners in developing South (FAO, 2010). Follow-up studies done in some parts of Eastern Asia reported that women artisanal miners prioritize dietary needs more than men thus improving children's nutrition security at the household level (UNICEF, 2013). Similarly in rural Malawi, the women's share of household mine incomes were found to influence positive caloric results more than those of the men which was attributed to the natural tendency of women to destine a

higher proportion of their wages to livelihood-improving items e.g. food and medicine (Gulyani, 2010).

Accordingly, the studies depict a general consensus that elevates the role of women's informal mining in improving household food security. However, similar studies have not been done in Kenya particularly within the farming and mining communities living in Western Kenya despite the irony of starving women household heads accompanied by a recent swelling numbers of women heads shifting their labour from the farms to the local gold mines. Subsequently, this study sought to contribute to filling this gap through exploring women's farm-mine labour shift and its influence on food security within households headed by women miners in the region.

1.3 Research Questions

The labour shift of women from subsistence farming to mining particularly in Africa accompanied by inherent employment relations in the two labour contexts have been hypothesized to influence household food security in different ways. However, the main objective of this particular study was to qualitatively explore the influence of this shift on food security within households headed by women miners in Nyatike Sub-county. The conceptualization of this particular objective came in the wake of evidence showing worse-off food security conditions within WHHs despite their increasing shift from subsistence crop farming labour to various ASGM activities in the region.

In order to achieve this main objective, the following specific research questions were asked:

- i. Why are women household heads leaving subsistence crop farming for employment in ASGM in Nyatike Sub-county?
- ii. In what ways does the labour of women household heads change when they shift from subsistence crop farming and join ASGM labour in the region?
- iii. What are the socio-economic challenges facing women household heads in ASGM labour in the region and how does these challenges affect their mine incomes?
- iv. How does mine labour and incomes meet household food security expectations of women household heads shifting their labour from subsistence farming to ASGM activities in the region?

1.4 Research Objectives

The research questions enabled the researcher to achieve the following specific objectives:

- i. To explore the reason for shifting of labour from subsistence crop farming to ASGM activities by women household heads in Nyatike Sub-county.
- ii. To examine the labour changes occurring in roles of women household heads' when they leave subsistence crop farming for ASGM activities in the region.
- iii. To investigate the socio-economic challenges affecting women household heads' ASGM labour in the region and their influence on mine incomes for women household heads.
- iv. To determine the effects of women's ASGM labour and incomes on food security within households headed by women miners in the region.

1.5 Scope, Limitation and Delimitation of the Study

The study explored women's shift from subsistence farming to ASGM and its influence on food security within households headed by women miners in Nyatike Sub-county found within Migori County in Western Kenya. The women who participated in this study previously engaged in subsistence crop farming activities but had taken up different ASGM roles in four (4) major gold sites in the Sub-county at the time of the study. The sites included Osiri Matanda, Macalder, Mikei Ka'kula and Nyatuoro Ko'wuonda. Further, household food security was deconstructed into three (3) key dimensions including household food access, supply and utilization

In addition, the researcher explored the influence of the labour shift of women from subsistence crop farming to ASGM on food security within households headed by women miners based on the participants' perceptions, opinions and lived experiences regarding their persuasions to shift labour to the mines, labour changes after the shift, various inherent labour inequalities faced by women in the mines and their implications on WHHs' incomes. Further, the researcher assessed the extent to which the mine labour and incomes met the expectations of the women regarding household food access, supply and utilization.

The assessment of labour changes for the women upon shifting to the mines however, became relatively challenging especially at the data collection stage since some participants admitted to partially engage in agriculture at the time of the study despite declaring a complete shift to ASGM at the sampling stage. The researcher responded to this challenge by probing the predominance of the two labour contexts in terms of their

contribution to household incomes and food. Subsequently, it became clear that mining activities at the time of the study was the predominant source of household incomes and food for majority of the participants. Similarly, the researcher was able to establish that the time spent in mining labour was more than that spent in the farms even for the few participants who admitted to partially engage in subsistence crop farming.

1.6 Assumption of the Study

The study was guided by the assumption that all subsistence crop farming and ASGM labour inequalities affecting WHHs in Nyatike Sub-county are outcomes of exterior factors beyond each individual woman miner's control.

1.7 Justification of the Study

Kenya is currently facing a dearth in practices and policies that improve food security within households headed by women especially among the farming and mining communities. The practices and policies are even scantier with respect to the improvement of household food access, supply and utilization within rural patriarchal communities since women's contribution towards household incomes and food-acquiring processes in such communities have been mistakenly undermined for a long time. Additionally, various practices and policies seeking to improve the economic abilities of WHHs are needed now that a significant number of them are abandoning subsistence crop farming labour for ASGM labour in rural farming and mining communities.

Notably, subsistence crop farming and ASGM activities within rural patriarchies however, are entrenched with socio-economic inequalities which precipitate household

incomes and food insecurities for women headed households while improving those of the male headships. Therefore, a sound study like this one, exploring the shift of women from subsistence crop farming to ASGM activities and its influence on food access, supply and utilization within women headed households is surely justified. The findings will inform agricultural and mining policies aimed at improving women's rights and abilities to contribute to incomes and food security within their households. In addition, the findings will contribute to the sustainable reduction of household poverty and food acquiring and utilization processes within the farming and mining communities in Kenya.

1.9 DEFINITION OF CONCEPTS

Household: any social unit consisting of one or more people, living together in the same house and also sharing meals (Kassie, 2012)

Patriarchy: any social system in which a given family or the entire society is organized around an idea of the 'father-rule' such that it is males who are the primary authority figures (Fareh, 2004).

Poverty: the deprivation in wellbeing where people are denied an income that is sufficient for the acquisition of material needs and partaking in activities which are an accepted part of daily life (Scottish Poverty Information Unit, 2011).

Food security: a given quantity and quality of food whose utility meets the current nutritional needs of either an individual or a group without compromising future abilities to meet similar needs (Specia, 2003)

Artisanal mining: any traditional and customary mining operation which involves the use of traditional and customary ways and means such as short sharp-pointed metal shafts and digging hoes (GoK, 2016)

Resource curse or the Dutch disease: the occurrence of poor livelihood outcomes especially in communities endowed with natural resources (Hinton, 2016).

Socio-economic inequality: unequal opportunities and rewards for different social and economic positions or statuses within a group or society (Chant, 2006).

Women headed household: a household where either no adult males are present (*de jure*) owing to divorce, separation, migration, non-marriage or widowhood, or where men, although present (*de facto*), do not contribute to the household income (Chant, 2006).

Male headed household: a household system in which the man, particularly the husband is the authority figure and as such responsible for the wellbeing of other members of the household (Chant, 2006).

Community Development Agreement: an agreement entered into between a large-scale mining licence holder and a community where mining takes place (Mining Act of Kenya 2016).

Individual Development Agreement: an agreement entered into between a large-scale mining licence holder and the owner of a particular land where mining is taking place and usually different from CDAs.

Social licence: the ongoing approval of a project (usually by a foreign investor) within a community by members of that community and other stakeholders.

Gold rush: a rapid movement of people to a newly discovered goldfield (Morse, 2009).

'Kitenge' (plural '*vitenge*'): a type of East African cotton fabric made in different prints and designs with distinctive borders, and used especially for clothing by women among the Kiswahili speaking groups in the region.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This section reviews literatures related to women's labour shift from subsistence crop farming to mining activities and its impact on food security within households headed by women miners. The first part reviews issues on women and informal labour contexts, challenges facing women in subsistence farming labour, women's subsistence crop farming and its nexus with food security and, the challenges facing women's labour in ASM operations in Kenya. It further reviews Kenya's food and nutrition security and mining policy frameworks and legislations and their implications to the current study and, existing empirical studies concerning women's farm-mine labour shift and food security within their households. The last part reviews Marxist feminist and social exchange theories and how they guided the study's articulations.

2.2 Women in Informal Labour Contexts

Existing literatures relating to global labour trends posit that the recent waves of globalization have greatly destandardized the traditions of formal labour (Bech, 2010). The Global Labour Research Centre (GLRC) in 2010 reported that much of the traditional conflation of the formal labour sector with masculinity has undergone radical re-thinking since the onset of globalization (GLRC, 2010). The International Confederation of Labour (ICL) in 2012 added that this re-thinking has particularly re-

organized labour relations along gender dimensions, but more importantly, promoted women's labour in two unprecedented ways (ICL, 2012). Firstly, according to ICL, this rethinking has facilitated the mass entry of women into many informal jobs which were originally dominated by men and secondly, it has informed the emergence of a new category of informal jobs such as ASGM which are pre-dominated by women.

Consequently, in the developing countries where official labour statistics exists like Kenya, the overall number of women employed in various informal jobs such as ASGM has been found to exceed that of men (KNBS, 2009). However, most women employed in various informal labour contexts in the country face a series of labour inequalities such as employment in unpaid, underpaid, seasonal or part-time work (Mbote, 2010). Much of existing labour reports in the country have also indicated that, women even within urban and semi-urban set-ups are paid less than men even in similar informal jobs [Central Organization of Trade Unions (COTU), 2015]

Additionally, there is lacking substantive appreciation of the corresponding rise in women's contribution in informal labour contexts to various household livelihood aspects e.g. household food security (FSN, 2012). For example, the Kenya National Bureau of Statistics (KNBS) labour reported that rural women miners contribute to approximately 80% of individual household's income and 45% nationally yet serious concerns continue to be raised regarding the country's commitment towards fully implementing the National Food and Nutrition Security Policy 2011 and the Mining Act of Kenya 2016 that provide respective legislations for improving women's participation in subsistence crop farming and ASGM labour.

Similarly in India and Malawi, around 75% of farmers are rural women who contribute to averagely 85% of the two countries' gross productivity yet they are mistakenly not considered as farmers because the title is reserved for men who have cultural ownership to land (Enkanayake, 2010). Further, a National Review on labour changes in India also pointed out that the country's primary challenge towards achieving economic inclusivity is the traditional aggregation of household's agricultural income (Sukumar, 2013). The review further added that this aggregation cuts-off the share of women's household income and erroneously informs most household food and income interventions.

In essence, women's labour in various informal labour contexts especially within the developing countries can be said to be undervalued despite evidence of their increased contribution towards various sustainable aspects of household livelihood outcomes. Subsequently, a lot of efforts still need to be put towards ensuring that gender based labour inequalities facing women in most informal labour contexts like subsistence crop farming and ASGM are highlighted and mitigated to augment their contribution to various livelihood aspects like food security (Simtowe, 2010).

2.3 Women in Subsistence Crop Farming

Crop farming particularly in the subsistence aspect is a predominant food acquiring process to many households within the developing countries (Chandrakumara & Kalansooriya, 2014). The sector has in fact been identified as a direct pathway towards growth and development in a majority of these countries. However, subsistence crop farming particularly in the Horn of Africa is widely known to underperform because of a

range of socio-economic hurdles which in most part affects women's farming productivity (Nyamboga, 2014).

In the context of Kenya, the over-reliance on land as a primary agricultural resource within her patriarchal rural communities reduces women's food production by denying them cultural access to sufficient land for crop production (Chant, 2006). Within rural Western Kenya for example, various patriarchal notions such as the need for male-involvement during maiden farming operations at the beginning of each planting season have been used to perpetuate narratives which are bias against women's farm labour. Similarly, in situations where husbands have passed on or separated, the WHHs in the region are expected be accompanied by their male protectors/inheritors to legitimize their first farm operations thus interfering with the women's free-will to engage in crop farming (Mbote, 2008).

In addition, women's economic powerlessness as a derivative of feminization of poverty has also been highlighted as a serious hurdle to women's farming practices in the Horn of Africa (Weeks, 2012). Consequently, poor women are unable to conduct expensive crop farming activities requiring greater economic investments because of the unstable tropical climatic conditions of the region (FAO, 2010). The consequences of feminized poverty on women's food productivity are in fact greater within patriarchal systems because they expose women to the double-disadvantages of cultural hurdles to land utilization as well as poor incomes to economically acquire land and other farm inputs for crop production (Wanjala & Mathenge, 2006).

On the other hand, women also face various temporal challenges in their farming activities. In most part, they are forced to balance between time to partake in farming activities outside their homes and the time to conduct various household chores (Levin & Haddad, 1994). Further, the fact that household chores especially within patriarchies in the developing countries are non-remunerable also reduces most women's economic power to hire external labour to conduct farming activities for them. Finally, a majority of labour unions within the country have not substantively incorporated women's farming challenges as part of their bargaining issues despite their effects on food security outcomes within the household (Simtowe, 2010). Thus, there is still the need for advocacies and labour narratives seeking to empower women's farming and also improve their contribution to food access, supply and utilization within their households (Simtowe, 2010).

2.4 Women's Subsistence Crop Farming and Food Security

Women's subsistence crop farming and household food security in rural contexts are greatly inter-twined. On one hand, rural women are the primary food producers and preparers at the household level hence their decisions regarding food production, distribution and consumption significantly determines the status of food security within their households (Tschirley, Irungu & Kariuki, 2009). On the other hand, crop farming activities particularly in the subsistence aspect in rural areas within agrarian societies like Kenya are the predominant food-acquiring processes hence determine household livelihoods [Food and Agriculture Organization (FAO), 2000]. Further, FAO in 2010 highlighted some of the theore-methodological difficulties in discussing household food security without factoring rural women's subsistence crop farming. FAO for instance,

mentioned that the pervasiveness of women's household food-related chores makes it difficult for researchers to identify food security variables which are not women-oriented. Consequently, several studies done on food security especially within the developing countries have tended to place women's subsistence crop farming at the center of household food access, supply and utilization (Pray & Rozelle, 2002). Thus, there is a rich body of work demonstrating the links between rural women's subsistence crop farming and food status within their households.

2.4.1 Household food access

Household food access has been defined as the ability of a given household to obtain food either directly through farming processes that ensure farm sources or indirectly using incomes to buy market foods (Brklacich, 2005). Subsequently, household food access is achievable through two ways including a consolidated labour or incomes of members of the household or the labour or incomes of a single member of a household. In terms of household gender however, women especially in the developing countries like Kenya are the predominant contributors of direct household food access by virtue of being the primary food producers. Similarly, the higher the share of incomes that woman acquire through crop farming, the higher their contribution towards household food access (Kassie, Nderitu & Shiferaw, 2012). Further, in some headships types such as the de facto women household headships, women control a higher percentage of farming incomes their thus contribute more to household food access more than other members of the household (Varium, 1999).

2.4.2 Household food supply

Food supply is the physical presence of food in adequate quantities and qualities for use by all members of the household (Brklacich, 2005). The visibility notion of food in this definition means that food can be accessed within homes or immediate markets. In this regard, women play a major role in household food availability by virtue of being extensively involved in many food accessing processes within their households (Chandrakumara & Kalansooriya, 2014). In rural areas in Kenya for example, women involve in around 80% of subsistence farm labour thus making them predominant contributors to direct sources of food (Rao, 2005;). Similarly, women are also greatly involved in situations where various food items have to be availed economically through immediate markets because they are the ones who frequent market places to purchase food items especially within rural patriarchal societies (Levin et al, 1999). Further, rural women are also heavily involved in post-harvest storage processes such as sun drying and preservation which collectively determine the quantity and quality of food stored for future consumption during food crises (Werayake, 2013).

2.4.3 Household food utilization

Food utilization has been defined as a composite of different processes that are subjected on food before and during its use including preparation, distribution and consumption (FAO, 2006). Thus, the fact that women are the primary food prepares at the household level puts their roles at the center of household food utilization in many ways. For example, women's nutritional knowledge has been reported to affect food utilization

more than those of the men because women make critical decisions regarding the nature of food accessed from the markets (Gladwin et.al, 2001).

In addition, the contribution of women to household food utilization has also been found to vary based on women's household headship type within patriarchies. For example, the de jure women heads tend to contribute more to household food utilization because they do not face 'husband consent' to access food stores during food crises (Ekanayake et al, 2003). Contrarily, in male headed households within patriarchies, the contribution of women to household food utilization may be derailed by patriarchal hurdles to access food stores (Appoh & Krekling, 2005).

Further, the availability of time for women as primary food preparers to accomplish various food utilization processes also determine the quality of food consumed in the household in many ways (FAO, 2000). For example, women employed within quite time-consuming informal jobs like ASGM outside their homes face trickier trade-offs between the time to prepare food for their families and when to be at work especially when they lack others to support them (Haddad & Hoddinot, 1992).

2.5 Food and Nutrition Policy and Legislation in Kenya

Legislations governing food security and nutritional issues in the country have been greatly amended since the first food policy paper of 1981 popularly known as the Sessional paper No.4. The amendments have been initiated to respond to contemporary rise in national food needs and its acquiring conditions (Huang & Yang, 2017). Currently, most of the issues pertaining to food and nutrition in the country are guided by the Kenya National Food and Nutrition Security Policy of 2011 formulated to bring forth food-

related needs envisaged by Vision 2030 and the Constitution of Kenya 2010. Subsequently, the Act has been lauded for its progressiveness in various aspects such as providing an institutionalized framework and a financing structure for implementing micro-food and nutrition issues contrary to previous Acts which only focused on national food aggregates like GDP. In addition, it has also come at an opportune time when Kenya is facing uncertain food futures attributable to ecological hazards and general lackluster state and citizens' attitudes towards life and sustainable measures (Hopkins, Levin, & Haddad, 1994). However, the Act has also been criticized, more so based on some of its articulations on the role of women in food security besides bearing some few policy gaps which can be said to impose serious negative implications on household food security within women headed households as follows:

- a) Section 34 of the Act mistakenly focuses on food security and poverty as derivatives of farm labour thus failing to recognize non-agricultural land uses such as ASGM operations as economic alternatives especially for rural women whose farming opportunities are culturally diminished. In this Section for example, the Act mandates the government to ensure domestic production of sufficient and high quality foods through the coordination and development of agricultural sector and the initiation of 'specific farm-related activities and research' thus sidelining other farm uses like mining.
- b) Section 55 of the Act also does not legislate on household food security alongside gender issues such as household headship type which are very important especially in the wake of evidence showing variations in food status within WHHs and MHHs. For example, the Act through this section only encapsulates

‘on-farm and off-farm’ as strategies for promoting equal access to natural resources without insisting on providing affirmative actions for women to ensure equal food access and supply, and to empower women through provision of micro-finance initiatives, value chains and establishment of processing zones to increase their incomes necessary for direct and indirect food access respectively.

Thus, remedies to the two (2) policy gaps aforementioned constitute the need to appreciate non-agricultural income generation through activities like ASGM and the mainstreaming of gender issues such as household headship types that significantly affect household food conditions in the country.

2.6 Women’s Labour in Artisanal and Small-scale Mining

Artisanal Small-scale Mining (ASM) sector in Africa has undergone many changes in the recent past. In 2011, the Kenya National Bureau of Statistics (KNBS) reported that around 8,800 people in Kenya were employed in the mining sector which was an increase from an approximated 6,600 people that it employed in 2008 (KNBS, 2012). Based on this statistics, the sector especially in the country has been viewed as offering alternative sources of livelihoods for many people more so women in many ways. Incomes from ASGM activities for example accrue women autonomy and decision making power both within their households and community levels (Azpeleta, 2016). Similarly, high women’s mining incomes bequeath them corresponding high self-esteems within various social groups that they belong (Ekanayake et al, 2003; Smith & Haddad, 2000).

Recently in rural Kenya however, the possibility of enjoying similar ASGM labour benefits has persuaded many women to shift their labour from their farms to the mines

(Yakovleva, 2007). However, the mining destinations are entrenched with discriminative mining labour structures which mostly emanate from historical and systemic masculinization of the sector (Benya, 2003). For example, the country's ASGM sector and the entire small-scale extractive industry is soaked with prevailing notions of masculinity and other unequal societal systems like patriarchy which expose women's informal labour to subjugation by men (Blomberg, 1995). Thus, women miners in the country continue to experience a range of labor challenges such as the lack of long term equality measures as well as missing legislations to protect women's roles in the mines among others (Hinton et. al.2003).

Additionally, there are also instances where considerations for allocation of roles in the country's small-holder mines go beyond social realities of the sector to incorporate myths and beliefs about women and mining labour. For example, the presence of women within gold mines in Western Kenya has traditionally been considered by male miners as bad luck especially during their menstruation periods (Amutabi & Lutta-Mukhebi, 2003). Further, the male miners in the region have also been reported to believe that the gold ore is a 'jealous woman' who disappears in the presence of other women (Juma, 2015). Consequently, women employed within most informal gold mines in the region have been discouraged from working in underground mines and as diggers because that role offends the model of a decent woman whose primary responsibility is child care-*lying in the home* contrarily to the males' as a fit for more lucrative roles-*lying outside the home* (Chant, 2006). Thus, similar labour dichotomies buttress strong homo-social relations in mines where women's roles are mistakenly undervalued despite the fact that they are

quite laborious, time-consuming and constitute around 90% of mine labour (Ely & Meyerson, 2010).

On the contrary, some of the historical gender biases affecting women artisans have changed for commercial gold miners like South Africa where mining issues are today discussed at policy levels (Benya, 2009). However, in the case of Kenya and other East African national miners like Uganda and Tanzania, few mining labour management strategies have been initiated to change the status quo accompanied by the fact that most mining policy documents across these countries such as the Kenya Mining Act of 2016 and County mining legislations are yet to be fully implemented. Further, most narratives by trade unions and mining sector management within these countries continue to make women invisible and devalue their efforts in the mines through their adamancy to include women's mining concerns in mainstream labour bargaining issues (Fisher, 2007). Subsequently, even within particular mining areas in Kenya where informal mining activities seem to accrue better livelihood outcomes based on head-count rations, such activities have not elevated the food security and poverty conditions of women especially those from women headships who suffer the double disadvantages of being poor and also lacking male figures to fight their patriarchal wars in the mines.

2.7 Mining Policy and Legislation in Kenya

Specific policies and legislations governing the extractive industry in the country are found in multiple documents though the Constitution of Kenya (CoK) 2010 and Vision 2030 provide general frameworks under which individual mining policies have been formulated (Sivi-Njonjo, 2015). Currently, the mining sector operations in the country are

particular legislated by the new Mining Act of Kenya 2016 which has been lauded by many stakeholders as a modern piece of legislation because of its proper timelines and structures, and also for its potential to improve investment hurdles that the previous mining acts such the Mining Act of 1940 presented on local mining dealings. Further, the Mining Act 2016 has also highlighted provisions of CoK 2010 regarding emerging sectoral needs such as mine gender challenges among others [Government of Kenya (GoK), 2010]. Nevertheless, the following gaps exist and present possible challenges to the socio-economic equality for women artisans and food security within their households:

- a) The role of the County Mining Commissioners (CMCs) to grant, renew and revoke licenses of ASM operators at County levels in Section 4 has been quoted without specific mention to the sporadic nature of artisanal and small-scale mines. Consequently, the Act, through this section presents potential enumeration challenges to policy makers despite being intended to mainstream ASM operations and put local artisans first (Maganga, 2010). In addition, the fact that a lot of people especially rural women engage in ASM mining more during droughts compared to other periods may also make it deceiving for CMCs to classify, enumerate and license real artisans (Ogola, 2001).
- b) The procedures and qualifications for acquiring an ASM mining license covered in Section 78 of the Act imply various proprietary hurdles to women. For example, the Act, through this section gives automatic mining rights to legal owners of private land under mining prospects upon proof of ownership which illuminates a further need to

- separate mining rights from land rights which have been historically conflated to the detriment of women miners.
- c) The legislations governing the ratification of Community Development Agreements (CDAs) between mining investors and the local communities in Section 78 of the Act are also insufficient in two dimensions. Firstly, the CDAs are not applicable to ASMs thus mistakenly absolving medium-firms investing in ASMs from participating in local developments (Bruckner, 2015). Secondly, the Act through this section has not predicted the need for ‘Individual Development Agreements (IDAs)’ in scenarios where land owners of various mining sites demand personal benefits in exchange for social license alongside those covered by CDAs.
 - d) The conceptualization of ‘community’ in CDAs still in Section 78 of the Act as a ‘group of people living around an exploration and mining operations area’ or those ‘who may be displaced from the land(s) intended for exploration and mining operations,’ bears salient geographical undertones without clarity in measurements thus allowing some lee-ways for free-riders who in most part enjoy CDAs benefits at the expense of legible women miners (Bruckner, 2015).
 - e) The Act under Section 103 acknowledges that any mining operation taken by any lawful proprietor needs to involve the local community and as such prescribes some royalties which go some way to help in benefitting host communities and also socially licensing investors. However, there is an additional need to legislate on how such communities shall be engaged in decision making of the mining operations and to ensure that they are employed. Thus, such employment opportunities must also be

those that empower women miners as a vulnerable group in all aspects of their mine labour.

In conclusion, remedies to the aforementioned policy gaps of the Mining Act of 2016 do not lie in over-emphasizing macro aspects of mining operations as it has mistakenly done; but rather, on the recognition that artisans, especially women have recently shifted to many activities within the ASM such as the ore transportation and processing roles within ASGM and continue to derive immediate benefits from them.

2.8 Existing Empirical Studies Related to the Study

2.8.1 Socio-economic nexus between women mining and crop farming productivity.

Globally, existing studies on the nexus between women mining and farm productivity have reported that women's mining reduces crop productivity in many varied ways (Halson, Maganga & Kweka, 2016; Allen, 2008). A case study done in the Indian state of Orissa by Mishra & Pujari (2008) to determine the effects of coal mining on paddy productivity of rural women for example, found that the coal rush ensued competition for land that would otherwise have been used for paddy production. The study further found out that the amalgamation of rain water with coal-laden layers also raised the acid levels of soils which reduced paddy harvests. T-tests done in the experimental villages showed differences in total factor production (TFP) from that of control villages which meant that various wellness indicators e.g. food security based on paddy production were reduced for the villages studied. Similarly, Ocancey (2012) while doing a study in the Ghanaian regions of Ashanti, Brong, Ahafo, Central and Western to determine the impacts of

illegal women's mining on food security found that the activity negatively affected food production in numerous ways. For example, the GDP share of food as well as food production at the household level significantly reduced during the period of study (2012) attributable to displacement of crop lands and human settlements by sporadic mines, contaminated water from mine disposals, degraded land and polluted air among others which collectively reduced women's agricultural productivity.

In the East African context, similar studies have also been done across the region. For example, an attempt to determine the ecological nexus between ASGM and agricultural productivity among the farming and mining communities of Western Uganda found that mining activities especially by women left more infertile derelict lands which became unproductive for traditional crops such as maize (Nabaasa, 2015). The study further reported that the transitory holes in the mines of select study areas interfered with land boundaries which led to land disputes during which women's crop production were the most affected because of their vulnerabilities to conflicts. Similarly in Western Kenya, Mwangi (2010) while doing a study to determine the impacts of women's open-pit mining in Rongu Sub-county also posited negative environmental impacts of on agricultural productivity. For example, most arable lands in the area were found to be eroded and degraded because of continued clearance of bushes to accommodate human influx dominated by women during 'gold rush.' Further, most of the surrounding streams and rivers were also found to be contaminated with mercury mixtures channeled into the rivers by panning families which made their water sources unfit for small-holder irrigations. Around 83% of the respondents interviewed considered farming as more

viable than mining attributable to their concerns with ecological threats that the latter imposed on the agricultural productivities of land.

2.8.2 Socio-economic consequences of women ASGM on household food and nutrition security

There are few qualitative studies relating to the socio-economic consequences of women ASGM and food security within their households and their findings also disagree in many aspects. On one hand, some studies have recorded that women mining labour significantly reduce various household livelihood outcomes (FAO, 2000; Hilson, 2011). A qualitative study done by Amutabi and Lutta-Mukhebi in Mukibira mines of Western Kenya for example to establish the role of gender in mining found that the replication of chauvinistic narratives in the mining milieu reduced women's incomes despite engaging around 90% of mine labour (Amutabi & Lutta-Mukhebi, 2003). Similarly in rural Malawi, a quantitative study done by Kamlongera and Hilson (2010) to determine the sustainability of mine wages in rural community development, recorded continuity in gendered social structures within gold mines in the areas investigated despite positing reduced employment incomes for female miners. In addition, the findings attributed rural hardships such as low incomes experienced by women to the mine inequalities and, further recommended that the state promotes 'farm first' strategies that compensate for the mine losses and formalization of informal mining sector to reduce historical injustices that undermine women's participation.

On the other hand, some studies especially within large and commercial miners like South Africa and Ghana have found that mining activity in fact accrue women incomes

which facilitate improved indirect food access from the markets (Benya, 2013). A descriptive study conducted by Ocansey (2008) in rural areas of Kyebi in Ghana for example, recorded two findings important findings. Firstly, the study established that a significant 57% of women miners interviewed were economically empowered relative to their previous economic statuses. Secondly, the study recorded better food outcomes within families that distributed labour equally between farming and mining. About 75% of these households were better off across a variety of food security dimensions like access and supply. Similarly, a quantitative study done by Umbole (2009) in the Urawa region of West South Africa to establish the role of mine incomes on child nutrition recorded that women miners incomes improved the nutritional outcomes of children between 6-10 years in households headed by de facto women miners (Umbole, 2009). The study further reported diminished nutritional outcomes of children within the same age bracket but with mothers who had quit mining more than five (5) years in the period preceding their births.

2.9 THEORETICAL FRAMEWORK

2.9.1 Marxist feminist theory

Marxist feminism is a set of theoretical propositions that associates the economic subordination of women to Marxist inequalities where owners of means of production exploit owners of labour. The theory is guided by three (3) fundamental principles as follows:

- **The society is a platform for economic inequalities which are bias against women-** where most economic inequalities existing within labour contexts are often wielded onto women (Chant, 2006).
- **Capitalism is the cause of women's economic subordination** i.e. the Marxist dichotomy where men as owners of means of production such as land dominate women who are the providers of their labourers. Subsequently, women are continually relegated into lower economic statuses as underpaid labourers while men are simultaneously sustained as capitalists particularly in informal labour contexts which are less regulated (Hellene, 2010).
- **Men derive most of their capitalist powers from patriarchy-**that is, cultural limitations to access natural resources such as land usually grant men the ability to own and mediate through various production processes, thereby offering them various economic rewards such as incomes to the detriment of the women. Subsequently, the men use their economic power to deny women economic opportunities to also own factors of production (Bandarage, 1984).

Based on these principles, the proponents of Marxist feminism passionately discourage the gendered division of labor claiming that most employment relations within societal institutions constituted by men who are able to access means of production vis-a-vis women who are easily malleable into unpaid work or low wages (Evance, 2002). Further, they posit that all production processes in the society either by design or default, mistakenly reinforce women's economic proletarianization through biased socialization where men are presented as the only sex capable of acquiring wealth and women as providers of unpaid or under-paid complementary roles (Chant, 2006). Accordingly, the

theory sufficed the study in so far as it provided an extensive academy of the history of socio-economic inequalities that are usually experienced by women within unregulated Marxist labour contexts such as mining. Thus, with the lens of the principles and propositions of the study, the researcher was able to explore some of the inherent socio-economic inequalities affecting women household heads' subsistence farming and ASGM labour and their possible influences on food security within their households.

2.9.2 Social exchange theory

Social exchange theory is a set of behavioral framework that conceives people as rational beings who are constantly looking for benefits and reducing costs in any actions that they take (Hormans, 2003). The theory has three key assumptions as follows:

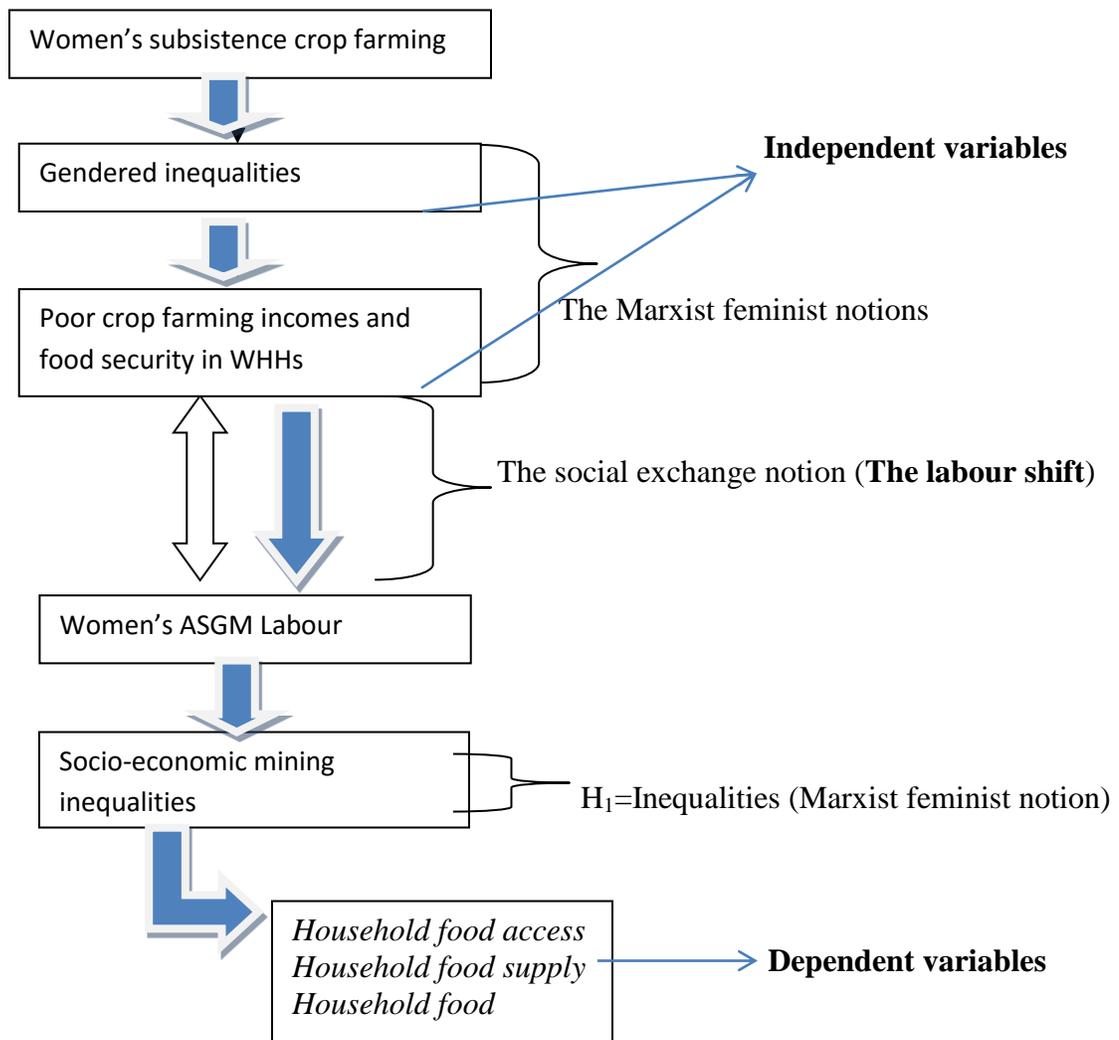
- **People always seek rewards and not losses** i.e. people always engage in any manner of job or relationship with the sole expectation of being rewarded in any aspect therein. Thus it is these expectations of reward that often work in conjunction with functionality to determine whether a person stays or quits a given interaction.
- **People do a cost-benefit analysis in all relationships** in which case a given partaker of any relationship economically establishes a “give and take” metric which is subsequently used to determine the viability of that particular relationship. The “costs” as used in this assumption connotes those relational aspects that a given actor views as negative to initial expectations of reward. On the other hand, ‘benefits’ are traits that are positive attributes.

- **People always seek to gain profit with minimal costs** i.e. if the negative attributes of any engagement are rationally determined to outweigh the benefits, an individual doing the analyses will decide to shift to another context that offers more rewards than losses. However, the evaluation aspect of this assumption prevents the decision of a given actor to quit from being automatic which means that others may decide to remain in contexts no matter economically unviable they are.

Based on these assumptions, the proponents of the theory associate the behavior or decisions to move from one labour context to another on basic economic understanding that involves a cost-benefit analysis (Young-Ybarra & Wiersema, 1999). They further provide a metric design that calculates the various inputs or expectations of an individual into one interaction vis-a-vis the gains thus producing data that can be used to understand the exit from that interaction to another. Accordingly, the theory sufficed the study because it does not measure movements from one context to the other based on emotional intrigues but rather on rational persuasions which are calculable. It hence offered the researcher with the opportunity to explore rational persuasions of women to shift their labour from subsistence crop farming to ASM (Adams & Ford, 2018). The fact that the decisions to move from one action to another are subjective and unidirectional also provided the possibility of recommending a re-shift from ASGM activities to subsistence crop farming.

2.10 CONCEPTUAL FRAMEWORK

In general, the researcher hypothesized (H_1) a multi-dimensional relationship between Marxist-feminist and social exchange theories in the manner they articulate inherent labour inequalities within capitalistic contexts like farming and mining and, the decisions and actions that may be derived from such inequalities. The researcher deployed this hypothesis in articulating the rationale of the shift of women household heads from subsistence crop farming to ASGM and its influence on food security within their households as follows:



Key

- The *bold single-edged arrows* represent a possible causal relationship between the variables.
- The *double-edged arrow* represents the inter-play between the two theories in informing women's farm-labour shift
- The *right-turning single edged arrow* represents the hypothesized influence of women's socio-economic inequalities on ASGM labour and incomes on the 3 household food security dimensions focused by the study i.e. food access, supply and utilization.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section discusses the methodology used by the study in terms of its design, the study site and case selection, target population and sampling technique and, the instruments used for data collection and analysis. It further discusses the ethical considerations taken into place to protect the integrity of the study.

3.2 Site Selection

The study was conducted in Nyatike Sub-county located in Migori County in Western Kenya. The Sub-county covers approximately 675.70 Sq. Kilometers and has a total population of about 144, 625 persons according to the latest Kenya National Census held in 2009. The same report by KNBS further approximated the population of women in the area at around 55% of the Sub-county's total population (KNBS, 2009). A report by the Kenya Integrated Rapid Assessment (KIRA) in 2013 also approximated the population of women headed households in the region at about 28% of the total 30,423 households in the area (KIRA, 2015).

Recently, the Sub County registered high poverty levels and poor food conditions which were found to be worse-off within women headed households compared to male headed households (MHHs) (Mwawadu & Nyaoga, 2015). Similarly, the area has also been reported to experience an annual reduction in crop production due to shorter annual rains which are often accompanied by warm local winds from lake Victoria that are detrimental to crop production (KIRA, 2015; Kipchirchir, 2015). Further, the area

geologically lies along the Nyanzean belt which is traditionally known for its wealth in gold ores with studies having shown that her four (4) major small-holder gold mines support a population of around 3,500 miners daily which usually swells during drought periods (KNBS, 2009; Mitullah & Ogolla. 2003).

In the sub county, Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) were used to collect data from various participants. The FGDs comprised women household heads employed in any of the four (4) major informal gold mines in the region namely Osiri Matanda, Mikei Ka’kula, Macalder and Nyatuoro Ko’wuonda which were purposively selected because of their vibrancies in women’s ASGM activities and their geographical diversity.

3.3 Target Population and Sampling Procedures

The study employed purposive sampling procedures to select the women participants who were used to form the focus groups. Traditionally, this type of sampling procedure does not require randomization thus it sufficed the study through facilitating the selection of a sample population comprising of respondents with relevant experiences and knowledge around subsistence crop farming and ASGM activities in the area (Bryman, 2008). Thus, the researcher strictly selected women household heads employed in any of the four (4) gold mining sites at the time of the study but previously engaged in subsistence crop farming activities as their predominant sources of incomes, household food access and supply.

The sample population of women household heads who participated in the study was drawn from an approximated 8, 418 households representing around 28% of the total

population of WHHs in Nyatike Sub-county based on statistics by KIRA in 2013. Subsequently, a total of 51 women household heads were selected and organized into 6 focus groups each comprising six to ten (6-10) members. The researcher also purposively selected five (5) Key Informants (KIs) comprising one (1) male mine supervisor from each of the four (4) mining sites and one (1) County Agricultural Officer. All the KIs were selected purely based on the relevance of their knowledge and experience on subsistence crop farming and, women ASGM activities and influence on food security within WHHs in the region.

3.4 Research Design

The study used focused group study design because it has traditionally been owned by feminist researchers owing to its compatibility with the ethics and politics of feminism and the flexibility it offers to research women within their natural groups (Wilkinson, 2001b). The researcher further adopted this design deliberately to facilitate inclusion of broader insights towards more in-depth investigations on women's farm-mine labour shift and its influence on food access, supply and utilization within women headed households (Bryman, 2008).

Under this design, focused group interview method of data collection was used to allow the researcher interview strictly women household heads with lived experiences in ASGM activities in the area. Further, this interviewing method enabled a relatively an unstructured manner of interacting with the participants about their persuasions for farm-mine labour flight, changes in their labour after the shift, various inequalities affecting

their mining labour and possible influences of the shift to their household food access, supply and utilization (Kitzinger, 2003).

Additionally, through focused group interviews, the researcher was also able to observe group interactions of the participants which is traditionally an indispensable art to feminist researchers because a critical mass of their work is based on the `self` as relational, or as socially constructed (Warr, 2005). The flexibility of FGD method also allowed the researcher to probe further various aspects of participants'/group responses and most importantly capture the manner in which they were said (Wilkinson, 2008).

3.5 Data Collection Procedures

3.5.1 Data Collection Instruments

The interview guides used to conduct both the FGDs and KIIs in the field each comprised twenty (20) and five (5) semi-structured questions respectively. The FGD questions were organized into three (3) sections (See Appendix B) while the KII interview questions were organized into two (2) sections (See appendix C). Each of the sections of the FGD guide contained specific questions touching on pertinent aspects of the specific research questions of the study. Similarly, the first part of the KII guide contained questions that were related to those contained in the FGD guide.

3.5.2 Data Collection Techniques

The WHHs purposively selected for participation in this study were organized into 6 focus groups based on the principle of diversity (Kitzinger, 1994). A total of four (4) FGDs were conducted for women household heads working in the two (2) relatively

larger sites (based on vibrancy of women's ASGM activities and miners' population) each i.e. Osiri-Matanda and Macalder while one (1) FGD each was conducted for the women household heads employed in the other two (2) smaller sites including Mikei-Kakula and Kowuonda-Nyatuoro mining sites.

The 6 FGDs and 5 KIIs enabled the researchers to saturate all the themes originally brought forth by the specific research questions and those that emerged from subsequent discussions (Lunt, 1994). Each focus group comprised six to ten (6-10) members which is a typical size for focus groups in research as it ensures easy moderation by the researcher (Morgan, 1999a). All the FGDs and KIIs were done on a face-face basis within the precincts of each of the four (4) mining sites. The periods of the interviews were selected conveniently for all the miners and key informants.

During the FGDs and KIIs, the researcher started by introducing himself and proceeded to explain his roles in the interviewing process, the purpose of the research and how the participants would benefit from it. The participants were then assured of the confidentiality clauses under which their responses would be guarded. Each participant's approval was further sought for audio recording and the researcher further assured the participants that the audio clips would only be used strictly for purposes of transcription.

Additionally, the participants were given the choice by being informed of their right to ask any questions that they would feel necessary and opt out if they so desired during the interviews. Fortunately, all the interviews were completed without any participant walking out. Further, the researcher took extra care to maintain structure as much as possible in the interviewing process to bequeath latitude to the participants to express

themselves with ease and comfort (Wilkinson, 1999a). The FGDs conducted took an average of 45-55 minutes each while the KIIs took an average of 25-30 minutes each.

3.6 Data Analysis Procedures

After the completion of each FGD and KII, the researcher replayed the recorded sessions, carefully listening to the audio versions of the discussions. This process was necessary to facilitate the transcription of audios into texts within three (3) days from the time of each interview to avoid memory lapses. During this process, all the transcripts emerging from the FGDs and KIIs were checked against corresponding field notes to facilitate accuracy in data capture and thereafter all the participants given pseudonyms for purposes of confidentiality. The audio recordings from both the FGDs and KIIs were deleted upon completion of the transcription process.

Subsequently, axial coding technique was then used to identify all themes emerging from the transcripts. This technique helped the researcher to categorize emerging themes from the large volumes of transcripts after which unique categories of data were then used to answer the research questions using key words spoken by the participants. The key words were juxtaposed against those reviewed in the literatures relating to the study questions after which the researcher determined either variations or concurrence.

3.7 Units of Observation and Unit of analysis

The units of observation of the study were the WHHs employed in the four (4) mining sites in Nyatike Sub-county at the time of the study but previously engaged in subsistence crop farming activities as their predominant food and incomes acquiring processes in the

region, the key informant interviews comprising four (4) male mine supervisors and one (1) County Agricultural Officer.

The unit of analysis of the study was the household headed by a woman miner.

3.9 Data Triangulation

The researcher endeavored to inject rigor, depth and breadth into the study findings to meet all the fundamental tenets of any qualitative research (Denzin & Lincon, 1998). Thus, primary data were triangulated using a range of sources including direct responses from all the participants of the FGDs and KIIs. The direct responses specifically from the FGD participants were further triangulate using various demographic variations including age, mining experience in terms of the number of years spent in ASGM labour and of sites worked, women household headship type (de jure or de facto) and home-mine proximity (local or non-locals). In addition, the researcher reviewed a wide range of secondary information around the status of women in informal labour contexts, women's challenges in both subsistence crop farming and ASGM, the nexus of women's subsistence crop farming and various household food security dimensions, existing empirical studies related to the current study and Marxist-feminism and social exchange theoretical propositions and how they guided the study among literatures.

In essence, the basis of triangulating data using these many sources was to ensure that meanings in any aspect of all the research questions were relationally developed and not based on isolated constructions by the women household heads (Bryman, 2008). Subsequently, both primary and secondary information emerging from all the data

sources were weighted against each other and contextualized within the data need of each specific research question to ensure validity and reliability of the findings.

3.10 Ethical Considerations

The researcher embraced the Universalist stance advocating for the adoption and implementation of all the ethical precepts during any research process (Bulmer, 2003). Within this stance, the researcher adopted procedures which were strictly defined by consent clauses and privacy laws to fulfill both the state and University policies on human subject protection and also to avoid methodological errors which may have potentially corrupted the quality and integrity of the findings (Resnik, 2011).

Accordingly, the participants were informed of their discretions to participate in the study without any manner of coercion or deceit from the researcher and that it was well within their rights to opt out of the discussion at any point. In addition, the participants were assured of anonymity of their responses and that such responses would only be applicable for academic purposes. Further, they were made aware that their responses would remain confidential and that, to avoid malice, the audio records would be destroyed as soon as they were transcribed and coded. Pseudonyms were also used to identify the participants in the analysis and presentation of data.

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter discusses findings of the study following the six (6) FGDs conducted for women household heads employed in the four (4) ASGM sites identified, the five (5) KIIs conducted for four (4) male mine supervisors from each mining site and a County Agricultural Officer.

4.2 Background of the Participants

4.2.1 The FGD participants

The FGDs comprised fifty one (51) women household heads previously engaged in subsistence crop farming activities as their predominant sources of household food and incomes but had shifted to the ore transportation and processing roles and, proprietary activities like crusher and panning zone businesses. Further, the women varied based on other demographic traits including age, mining experience, woman household headship type and proximity of their homes to their mine stations. In terms of their ages, the younger women [less than twenty (20) years old] were nineteen (19) while the older [more than twenty (20) years old] were twenty one (21); however, the youngest woman interviewed was nineteen (19) years old while the oldest one sixty five (65) years old. In terms of mining roles, forty eight (48) women involved in the ore transportation and processing roles while 6 and nine (9) participants engaged in proprietary mining roles involving crusher panning zone businesses respectively. Each of the four (4) mines

comprised an equal number of women based on mining roles in which case fourteen (14) transporters\processors, two (2) owners of crushing machines and three (3) owners of panning pools participated in the study.

The participants also varied in terms of mining experience and proximity of their homes to the mining sites. The most experienced [less than five (5) months of mining] transporter/processor had involved in that role across all the four (4) ASGM sites in the area for a cumulative period of nineteen (19) years while the least experienced had worked for three (3) months in a least one mine. On the other hand, the most experienced [more than three (3) months] proprietors of the crusher machines and panning pools had involved in the business for two (2) and three (3) years respectively in Osiri Matanda mine. Similarly, the least experienced crusher machine proprietor had involved in the business for two (2) months in Macalder Mines while the least experienced proprietor of panning pools had involved in the business for six (6) months in Mikei Ka'kula site.

The participants further varied in terms of the proximity of their homes to the mines where they worked at the time of the study. Ten (10) transporters and processors lived five (5) kilometers away from the site where they worked (the locals) while the rest lived less than five (5) kilometers away from the site where they worked (the non-locals). Similarly, five (5) proprietors of crushers and panning pools were locals while the rest were non-locals. In addition, the women varied in terms of their household headship types along the categories of de jure or de facto woman household heads. A total of thirty one (31) transporters\processors were de jure women heads while twenty (20) were de facto heads. Three (3) owners of crushers and processing pools were de jure household heads while five (5) of them were de facto heads.

Table 1: Showing mining site and their corresponding number and sizes of FGDs

Mining Site	Number of FGDs	Size of FGD
Osiri Matanda	2	10; 9
Macalder	2	9; 8
Mikei Ka’kula	1	7
Nyatuoro Ko’wuonda	1	8
Total	6	51

4.2.2 The Key Informants

The key informant interviews were conducted to a total of five (5) key informants including four (4) male mine supervisors each from the four (4) ASGM sites in the area and one (1) County Agricultural Officer.

Table 2: Showing site and number of KIs interviewed

Key Informant Interviews (KIIs)/Site	Number of Key Informants (KIs)
Osiri Matanda	1
Macalder	1
Mikei Ka’kula	1
Nyatuoro Ko’wuonda	1
County agricultural officer	1
Total	5

Disclaimer: The names associated with the quotes in the next section are pseudonyms and do not represent any real identity of the respondents or any other individual living in the study area.

During the FGDs, all the women respondents expressed their views relating to their persuasions to shift their labour from the farms to the local artisanal gold mines in the Nyatike Sub County and their views regarding changes in their roles upon the labour shift. Similarly, they expressed their sentiments on various socio-economic challenges that they face within the mining destinations which were previously unprecedented and their impacts on mine wages. Further, the women shared their views on how their mine incomes and mine labour in general met their expectations regarding food security. Subsequently, examples of connections such as the security of women's mine wages vis-à-vis previous farm incomes in improving household food security were also adduced.

Particularly, when the women were asked if their labour shift to ASGM roles in the Sub County was useful, a section of them agreed that it was very useful because it offered them liquid and immediate incomes compared to previous subsistence agricultural incomes which were delayed by market inaccessibility owing to distanced markets. Another section of them however observed that the dual advantages of liquid and immediate mine wages were in fact off-set by the fact that they are insufficient to meet various household food needs amidst competition from other household needs like paying school fees.

The following themes emerged from the responses given during the FGDs:

- i. Reasons for shifting of labour from subsistence crop farming to ASGM by women household heads in Nyatike Sub-county.
- ii. Changes occurring in women household heads' labour when they shift from subsistence crop farming to ASGM activities in the Sub-county.

- iii. The socio-economic challenges facing women in ASGM and their implications on mining incomes of women household heads in the Sub-county.
- iv. The influence of women ASGM labour and incomes on food security within households headed by women miners in the Sub-county.

4.3 Theme 1: Reasons for shifting of labour from subsistence crop farming to ASGM by women household heads in Nyatike Sub-county

A majority of the woman interviewed within the FGDs reported that they shifted their labour from subsistence crop farming to small-holder gold mines in the area because of the following reasons:

- i. Subsistence crop farming activities in the area are entrenched with various patriarchal limitations to women's labour making farm incomes unpredictable and insufficient to cover all the household food needs.
- ii. ASGM labour embodied a lucrative branch-out activity in the vicinity of their homes which would increase their incomes and subsequently help them to comfortably leverage various household food needs.
- iii. The need for extra incomes to participate in various women SACCOs.
- iv. The persuasions of friends and relatives that had joined before and kept on propagating ASGM activities in the area as viable alternative to poor crop incomes.

Upon further probing however, the women associated their shift to various mines differently. Most of the old and more experienced participants stated that they shifted to ASGM at a time when the activities were booming more than subsistence crop farming

activities. According to them, ASGM activities in the region have however recently failed to meet women's economic expectations because of the entry of many women including those from other locations who have crowded the activity thus reducing remunerations of mining roles such as ore transportation and processing. For example, Awino in Osiri Matanda site stated:

'I got married here at a time when no one could imagine spending a lot of time in crop farming because mining was booming. It was way better than good harvests for everyone present in the mines. I could stock my food stores with market food that I bought and still have money left to do other things. But recently all these have worsened.'

Awino's statements were corroborated by a majority of women that owned crushers and panning pools in various mines however. Further, they admitted that they entered mine labour as ore transporters and processors at a time that when such roles were very lucrative because women doing them were very few which increased their demands. However, upon further probing, they admitted to have shifted to their current roles because of increased competition for the ore ore transportation and processing roles which reduced their compensations. Adeto, who owned a panning zone in Osiri Matanda stated:

'A lot has changed recently in the mines; it used to be very lucrative. I was motivated to leave my house in the morning and come back with a lot of money in the evening. I started as a transporter so I know how it used to be. Today I can say that the transporters earn little because they are many plus the men. But it is still better than almost farming in terms of bringing immediate incomes.'

On the other hand, a majority of the young and less experienced women stated that they were lured into mine employment primarily by the instant nature of mine labour remuneration. For them, the allure to shift to mine roles became irresistible because such roles are paid immediately which bequeaths financial liquidity to miners as opposed to crop incomes that are delayed by the challenges of labour intensiveness in cultivation, lack of inputs, land ownership hurdles for women and distant markets. Adhiambo, a transporter/processor in stated as follows:

'...I used to grow tobacco and the B.A.T contractors insisted that all farmers must transport to Oyani leaf center for buying by the company, and I also had to wait for long to get the returns, and when the money came, it found me in debt. Widows will tell you that it is better to receive little but frequent money than wait for a bulk for too long.'

Akeyo, the owner of a crusher in Nyatuoro Ko'wuonda site added her voice to Adhiambo's statement as follows:

'Everyone would say that maize crop farming is very beneficial here but the experience we have as women is that maize does not do well, and when they do, they do well for every farmer here so it becomes difficult to reap from shortages.'

Based on women headship types, a majority of the *de jure* women heads interviewed attributed their decisions to shift labour from farming to mining due to limited economic chances that they previously faced in subsistence crop farming. For example most of the widows noted that the tendency of their in-laws seeking to control all decisions regarding land use for pieces of land inherited from their late husbands forced them to seek refuge in mining which, they initially perceived as a labour context with free entry and exist.

They further noted that they preferred mining because only individual miners` effort matters. Adoyo, a widow doing ore transportation and processing roles in Macalder site stated:

'I decided to look for money here because this was the only alternative left after my small piece of land was grabbed by my late husband's brother.'

Similar responses like that given by Adoyo were also reiterated by several *de facto* women household heads. However, they reserved that though such patriarchal challenges affected their farm labour too, the persuasions to join mining in their case primarily emerged from the need to acquire extra incomes to buy more nutritious and delicious foods like meat and fish for their families as can be seen in the following excerpt from Leah's statement, an owner of two (2) panning pools in Mikei Ka'kula:

'Crop farming all over the world only provides crop products which are not the only things needed to feed a family, you need cooking fat, match box, charcoal which you cannot grow...so yes, getting money for these kind of stuffs encouraged me to join mining.'

Further, the *de facto* women responded that the presence of their husbands tended to buffer them from patriarchal hegemony which somehow allowed their families to maneuver through direct supply of staple foods thereby joining mining activities to acquire money to acquire other items as trending clothes like *vitenge* clothes for themselves and children and also building permanent houses among others. For example Moreen working in Nyatuoro Ko'wuonda site stated:

'...I knew it was not going to be rosy in the mines because women do not get much from their roles, but I joined because crop farming does not pay in this region yet as a woman you have to provide meat and fish for the children once in a while and also make sure that they dress in trending clothes.'

Based on the proximity of participants' homes to the mining sites where they worked, several non-locals stated that their decisions to quit farming and join mine employment in various gold mines were significantly influenced by their relatives and friends who had joined mine labour before and as such painted the activity as an opportunity to solve their incomes and household food problems. Accordingly, the non-locals admitted that the pleasant narratives by their friends and relatives on the viability of mine roles convinced them to quit farming and join mining in the hope of improving their previous low agricultural incomes and yields. Apiyo working in Osiri Matanda site as a transporter stated as follows:

'Mining activities are not very rampant in my neighborhood so for a long time I didn't know it's worth until a friend of mine who lives around told me that it would help me raise some money to take care of the children, so I decided to try it out.'

On the contrary, many of the locals interviewed showed that they were not informed or convinced by anybody to quit farming and join mining because their localities are awash with mining activities to the extent that it is difficult to find sufficient arable land for agriculture as can be exemplified by the following statement by Amondi working in Mikei Ka'kula site responded:

‘In this area it used to be common sense to opt for mining owing to infertility of the lands for crop production but fertility for gold and copper ores. This trend has changed nowadays because I interact with miners who tell me they have leased lands elsewhere for agriculture because mining has also just stopped paying.’

Further, a significant number of the locals reported that their desire to acquire `extra and frequent wages` to increase their savings in various SACCOs informed their decision to join mine labour to a reasonable extent. They explained that this was due to the fact that previous agricultural activities did not sufficiently facilitate their economic participation in their savings groups, a situation which they were motivated to improve. Aeno working in Mikei Ka`kula site responded as follows:

‘...I joined recently to keep up with the savings of our SACCO. I just saw the sense in looking for money to increase my savings because my colleagues are doing it anyway.’

Finally, the key informants also expressed their sentiments on the persuasions and expectations of women household heads to shift their labour from the farms to the local ASG in the area. All the four (4) mine supervisors concurred with women household miners in all aspects of their persuasions to shift their labour from subsistence farming to ASGM in the area. For example, Obuongo, a mine supervisor at Osiri Matanda reiterated sentiments of Adoyo of Macalder site. He said as follows:

‘If what you are asking only concerns women without husbands, then I can tell you for sure that they do not have any alternative apart from ASGM here because most of their lands for crop production have been snatched from them by their in-laws.’

On the contrary however, the County Agricultural officer was adamant to associate women's shift to the mines with poor agricultural incomes. He insisted that most of the women leaving subsistence agriculture for mining are lured by the hope of easy money that is manifested by quick but unsustainable good life most miners have. He stated as follows:

'...I know that they are issues around inaccessibility of enough land in the entire county especially for women; but I can tell you that this shortage has never become so serious to warrant a complete shift to ASGM. These women just think mining is a quick fix which is not true because it faces similar cultural challenges.'

Therefore, based on all the FGDs, most of the women can be said to have shifted to the mines from subsistence crop farming purely because of direct economic persuasions such as the failure of previous subsistence crop farming to offer liquid and immediate incomes and, the need for extra incomes to participate in various SACCOs among others. However, few others comprising the less experienced and locals shifted to the mines based on in-direct economic persuasions such as the propagation of the mine destinations as alternative economic opportunities for dwindling crop incomes by their friends and relatives. Further, based on the KIIs, the shift to the mines by the women was associated with direct economic persuasions especially relating to male mine supervisors' responses. But for the County Agricultural Officer, the shift had nothing to do with tangible economic benefits but rather the women's unfounded hopes for quick mining incomes.

4.4 Theme 2: Changes occurring in women household heads' labour when they shift from subsistence crop farming to ASGM activities in the Sub-county.

All the women interviewed within the FGDs reported that the nature of their roles did not change upon the labour shift because the patriarchal contexts under which they operated in previous subsistence crop farming activities were also replicated within the mining milieu. They further added that their mining roles bore various patriarchal connotations as follows;

- i. The gendering of mine roles and spaces where women are restricted to surface roles including ore transportation and processing while men engage in underground roles
- ii. The poor remuneration of all surface roles that are predominated by women and the lucrative nature of underground roles that are done by men.

However, while some women viewed the extent of the gendering of mine spaces and roles as still rampant in the area, others thought that it was in fact dwindling with time. For example, most of the more experienced women responded that the recent introduction of mining machines such as crushers and pulley systems had reduced the labour-intensity of various mining roles such as ore powdering thus encouraged the entry of women into them. For example, Adhise who owned a crusher machine in Osiri Matanda stated:

'I have been here for 5 years now and a lot has changed, today I see some few women engage in pulling ore bags from underground and that used to be purely for men. Even the crusher business that I do here used to be done by men in the past. Women have been engaged to some extent.'

In agreement with Adhise's response, Kembo who worked as an ore transporter and processor at Nyatuoro Ko'wuonda reiterated as follows:

'The mine is increasingly becoming a woman's space especially regarding the surface roles. It used to be a men space and nobody imagine that Ko'wuonda will host all these women even though they get nothing much from it'

On the contrary, several of the less experienced and young women disagreed with Adhise's sentiment by stating that nothing significant had changed since the lucrative underground roles like ore digging are still purely done by men while most women are restricted to poorly remunerated surface roles such as ore transportation despite the introduction of machines like pulleys. For example, Adoyo who engaged in the ore transportation and processing in Mike Ka'kula stated as follows:

'I can say that men are still not comfortable working with us in the underground spaces. They will use all sorts of derogative words to keep us away from the underground...a friend once worked in the underground and the men there started very vulgar talks which she didn't like so she quit.'

This statement by Adoyo was reiterated by Atieno who owned a panning zone in Macalder site. Atieno stated as follows:

'Nothing much has happened to let women be equal to men here. Even when you have money to sponsor the digging of a mine shaft, you still don't succeed because you will need to occasionally go underground to supervise and you know as a women they won't.'

Finally, responses by the key informants also varied in terms of the nature of the transformation of women's roles upon their labour shift to the mines. On one hand, all the two (2) mine supervisors from large sites (Osiri Matanda and Macalder) agreed with the sentiments of most of the more experienced women miners that the gendering of mine roles and spaces in the mines has reduced over time because of the introduction of machines such as crushers that has encouraged women's mine involvement. For example, Atella, a supervisor of a shaft in Osiri Matanda responded as follows:

'...I have been here for many years and partaken in different roles before I became a supervisor of one of my friend's shafts. I know that a lot of things have changed concerning how women's mining is perceived. Today, you find women who are willing to go and dig alongside men in deep into the shafts and that used not to be there.'

However, the two (2) mine supervisors from the other smaller mines reiterated the thoughts of most of the less experienced women miners by positing that women were still restricted to low paying surface roles as can be seen in the following excerpt by Biko, a supervisor of 2 shafts in Mikei Ka'kula:

'...women here are still expected to keep their spaces. Even myself as a supervisor with the authority to employee women diggers in the shafts which are under my care, I can't do that because I know that they won't perform alongside the men, so male spaces remain male spaces and women spaces remain women spaces.'

Further, the County Agricultural Officer observed that women in both subsistence crop farming and ASGM mining spaces in the region were performed under patriarchal limitations, however, he noted that all the mining destinations in the region were more patriarchal and gendered than previous subsistence agricultural roles. He stated as follows:

'...Women think that the mine is an easy kill for them but that is not true. In any case, women in mining receive less income than in agriculture because the former is a complete men's' space. They enter into mining and all over sudden realize that there are spaces they can't work which is not the case in farming. As a farmer whether a woman or a man, the space is one and the compensation is also standard depending on your level of commitment. There are no underground crops and surface crops in agricultural and the beauty is that even crops can't tell who planted them, whether a man or a woman.'

Therefore based on the FGDs and KIIs, it can be generally adduced that, despite the labour shift, women's roles were still performed under patriarchal contexts under which they initially performed subsistence crop farming in the area. However, while the more experienced and mines supervisors from large sites in the area were hopeful that women's roles are currently getting better because of the slow but continued de-gendering of mine roles and spaces in the area, the less experienced women miners and the County Agricultural Officer did not feel any tangible effects of this process.

4.5 Theme 3: The socio-economic challenges facing women in ASGM and their implications on mining incomes of WHHs in the Sub-county.

All the women responded that most of the socio-economic challenges facing them within the mines bear patriarchal connotations as follows:

- i. The low remunerations of women miners because of their restriction to surface roles which are lowly compensated.
- ii. The mistaken perception that women are weak and cannot perform lucrative underground roles.
- iii. The absence of informal mine unions to advance women's mine opportunities.
- iv. The lacking protection of women's roles from occupational hazards.

Further, all the women responded that these challenges negatively impacted on their incomes while supporting the incomes of their male counterparts. Generally, the women that shifted to the ore transportation and processing roles in various mines noted that they receive averagely kshs. 200-300 daily vis-a-vis Kshs. 500-1000 received by their male counterparts. The women who shifted to proprietary mining roles such as crusher and panning pool businesses on the other hand stated that they receive averagely Kshs. 1000-1500 daily versus Kshs. 1500-2000 received by their male counterparts daily. However, influences of such challenges to unequal compensation in the two (2) categories of WHH's role destinations in the mines further varied significantly along mine experience, age and women household headship type. A majority of old and more experienced transporters and processors noted that the gendering of mining spaces was the key determinant of their low incomes where surface roles partaken by women are poorly paid

while the underground digging mostly done by men are lucrative. Oponde for example, aged 55 years old and a transporter/processor in Macalder stated as follows:

'You can't imagine of anything else that makes us poor apart from the fact that we are women and we work on the surface which is very much taken away from the source of the gold ores...and men know this so they won't allow a woman to work in the underground because that would mean taking their spaces.'

Oponde's sentiments were reiterated by Anyango who had worked in all the four (4) mines for twelve (12) cumulative years as a transporter/processor. Anyango responded as follows:

'Men will tell you that you are a woman so your presence deep in the mine will scare the gold away because gold is also jealous. But for the time I have been a miner, I have learnt to tell that these are just ways to keep us away from underground which is the most lucrative space in any mine.'

On the contrary, several young and less experienced women primarily associated their low incomes to the mistaken narrative by male miners that women are physically weak beings who cannot engage in the lucrative but labour-intensive underground digging. Further, they added that nearly all the mine supervisors (who are mostly men) also use this narrative to deny women opportunities entry to perform ore digging even when the women are willing and able to partake in the digging roles. Akello, a 17 years old miner who had worked in Nyatuoro Ka'kula mines as a transporter for 6 months responded as follows:

'One time I was told by one of the shaft owners in this mine that I can't go inside the shafts to dig alongside the men because I am a woman; and when I asked why that, he said that I am a woman and women cannot hold sharp metallic roads and hit them on shaft walls constantly to weaken the ores for a hold day as men do. I did not buy that justification but then I had no option but to transport ore which pay me very little money.'

While reiterating Akello's sentiments, Atieno who had worked for less than two (2) months in Macalder mine as a processor added as follows:

'The men are so funny here, they know that it is the women who do the ore transportation and processing roles here but they won't hire you to do process many bags that are owned by a group of miners because they think you are weak and won't finish fast enough to allow them sell and go drinking. Many bags are transported and processed by men''

Several de jure and de facto women agreed with the responses of the young and less experienced women, however, they added that the primary cause of women's low mine incomes is the absence of fellow women within various mine labour unions to advance their economic rights: Achieng, a de jure woman head and owner of a crusher machine in Mikei Ka'kula stated:

'I know that women face a lot of challenges here in the mine, some of which can be sorted by various mine unions but they aren't sorted because such unions are composed by men are the very source of our problems. In fact, I don't even think that the men will allow women to be members of the unions because membership comes with a lot of economic benefits but am very sure that if women were leaders in the unions then we would be very fine here.'

Awino, a de facto women head and a transporter of ores in Osiri Matanda added to Awino's responses as follows:

'My challenge is worse because as a bereaved woman, I lack a similar woman mine leader who knows my plight...what I can say is the challenge working along other women with husbands who look for work for them.'

In terms of the home-mine proximity, several non-locals associated their low incomes to the fact that they live far away from the mines where they work thus are inconvenienced both in terms of time constraints and also lacking male relatives to protect them in the mines. In this regard, they observed that their local counterparts are economically leveraged because they are able to spend longer hours in the mines because they live nearby offering them more time to work which translates into extra wages. Atieno, a non-local processor at Mikei Ka'kula responded as follows:

'It is true all the women here are affected by the low mine wages in one way or the other but I think those who live around have more time to work, which is very important because our roles here need more time if you want to get more money.'

Some locals agreed with Atieno's response while others disagreed. For example, Kasembo, a non-local transporter/processor at Osiri Matanda stated as follows:

'Living around this mine does not in any way offer me more money because I earn around Kshs. 200 in a normal day just like the other women. In fact, some of our counterparts who live far away from this mine earn more money because they have come here and snatched our husbands from us who help them jobs in the mines.'

However, Keta, a non-local owner of two (2) panning pools in Nyaturu Ko'wuonda differed with Atieno's sentiments above as follows:

'Owning a panning zone has a lot of challenges especially if you are a local and more so a woman. The men would want to process their powders in your pool without pay. They make promises for future settlement which sometimes they never honor...and because some of them are our relatives, we are not motivated to push them to keep their word.'

Finally, based on the KIIs, the mine supervisors identified the following as the key challenges facing women's roles in the mines:

- i. The patriarchal association of women's surface roles with low compensations.
- ii. The mistaken perception that women are weak and cannot perform lucrative underground roles

However, they associated the influence of these challenges to the women's low incomes differently. The two (2) supervisors from the largest mines i.e. Osiri Matanda and Macalder reiterated the responses of the old and more experienced women thus explaining the women's low incomes to the general association of women's surface roles with low incomes. For example, the mine supervisor at Macalder stated as follows:

'I know that women are discriminated by men in this mine and that is what we are fighting because some of them do not have husbands to fight for them. It is a challenge because we have tried to talk to men to allow women to perform any role that they feel comfortable with but they won't even listen. Men think that women can't dig like they dig.'

On the contrary, the other two (2) mine supervisors from relatively smaller mines i.e. Mikei Ka'kula and Nyaturu Ko'wuonda agreed with the sentiments of most of the

young and less experienced women by positing that the greatest determinant of women's low compensation in the mines was the fact that women are not admitted to lucrative underground digging because of the mistaken narrative that they are physical weak to perform it because it's labour-intensive. For example, Biko, a mine supervisor at Mikei Ka'kula site responded as follows:

'...Women cannot work like men. Men work within small spaces underground and at night. So you can imagine how that is energy-draining from them. I don't think they can work in those small spaces so they have to be contented with what they get in their surface roles even as we wait for things to be made fair for them. Can you imagine married women alongside men within a small space at night?'

In summary, all the women and mine supervisors associated the socio-economic challenges affecting women in ASGM labour in the region to patriarchal notions such as the association of women's surface roles with low compensations, the mistaken narrative that women are weak beings who cannot sufficiently perform lucrative underground roles, the deliberate absence of informal mine unions to advance women's opportunities and the lacking protection of women's roles from occupational hazards as the major socio-economic challenges that women face within their ASGM labour. Further, they reported that such challenges reduce women's incomes while increasing that of the men; however, they apportioned women's low mine wages differently as follows:

- i. The old and more experienced women and mine supervisors at the two (2) relatively larger ASGM sites in the area regarded the association of surface roles with women as the cause of their relatively low incomes to the men.

- ii. The young and less experienced and mine supervisors from the two (2) relatively smaller ASGM sites in the area associated their low incomes to the mistaken narrative by men that women are weak who can't sufficiently perform the lucrative but labour intensive underground roles done by men.
- iii. The de jure and de facto women agreed to the sentiments of the young and less experienced women though they primarily associated their low incomes to the lacking women to advocate for their economic plights.
- iv. The non-locals and some locals associated their low incomes to the temporal limitations that they face because they live far away which eats into their time to stay longer in the mines to compensate for their low incomes.
- v. Some locals however, insisted that proximity to the mines was not any serious determinant of the nature of women's compensation.

4.6 Theme 4: The influence of women ASGM labour and incomes on food security within households headed by women miners in the Sub-county

Responses received from the women under this theme can be further classified under three (3) sub-themes relating to the three (3) dimensions of household food security identified by the study i.e. food access, supply and utilization as follows:

4.6.1 The effects of women mine labour and incomes on household food access

Generally, all the women responded that women's mine roles benefit indirect food access more than their previous subsistence crop farming in the following ways;

- i. The ore transportation and processing roles and, proprietary mining roles like crusher and panning pool business in the mines offer immediate and liquid compared to previous subsistence crop farming incomes which were delayed due to distanced markets and poor climatic conditions of the area.
- ii. The women employed in the mines are united than they were in previous crop farming activities. Therefore, they trust each other more than before through effective social capital within the mines enabling them to borrow amongst each other in times of various needs.

However, the women's responses also varied regarding the extent of influence of women's mine labour benefits on both direct and indirect household food access. All the transporters and processors observed that despite the liquidity and immediacy of mine wages and the social capital which enabled them to borrow amongst themselves during crises, the mine wages were still insufficient to fully satisfy all their household food needs amidst competition from other household needs. In addition, they stated that this insufficiency of their incomes blocked them from hiring extra labour to replace their shifted labour and provide subsistence crop farming as a complimentary source of diminished market source. Quinter, a transporter/processor in Macalder stated:

'Our shift to the mines has been good in that the wages we receive here are paid instantly as soon as we finish our jobs. But they are very little to satisfy all our food needs because we also need to buy other things. And again, they are not even enough to enable you hire people to work on your farms on your behalf.'

Further, all the activities added that their ore transportation and processing roles are very labour-intensive and time-consuming thus eats into their physical energy and time to partially involve in various subsistence crop farming to complement their diminished market food access. Mary, a transporter/processor in Osiri Matanda stated as follows:

'...after all the work the hole day, there is no energy or time to wake up early for agricultural activities. The kids also go to school so nobody can do it on my behalf.'

On the contrary, the owners of crushing machines and panning pools observed that the incomes that their roles accrued them were better-off compared to previous subsistence crop farming activities and those of their counterparts doing the ore transportation and processing roles. Apondo, owning a transporter/processor at Osiri Matanda responded as follows:

'Men in the mine earn more than women in any role here in the mine, but I can say that we are better off than we were before and also better of our fellow women involved in the ore transportation and processing roles.'

They added that their roles are also less labour intensive and time consuming compared to the ore transportation and processing roles thus admitting that they were left with some time to partially partake in subsistence crop farming activities like peasant vegetable

growing which augmented ostensibly their market food access through mine wages. Beatrice, the owner of a panning pool at Mikei Ka’kula observed as follows:

‘I understand that all the roles here are quite labour-intensive and consuming especially those on the surface, but mine is just supervisory so at least I get time to engage in peasantry.’

Similarly, significant variations emerged between the local and non-local women regarding the type of market foods preferred and the share of mine wages destined for their access. On one hand, a majority of the non-locals agreed that despite the insufficiency of mine wages, they constituted nearly all the incomes that they use to access all food types including those that are conventionally accessed through farms in the area such as maize, cassava etc. They further attributed this to the fact that a lot of arable lands in their localities have been rendered infertile by many factors including a continued deposition of ores by crusher. Achieng’, a local transporter in Osiri Matanda stated:

‘Those who live around here cannot consider agriculture for now unless something happens because all the lands here have been turned into derelicts which are very infertile for crop production.’

Similar statements were echoed by Aela, a local transporter/processor working in Mikei Ka’kula as shown in the following excerpt:

‘...the mines have absolutely made this area very infertile because a lot of spaces have been turned into dangerous holes which cannot even be considered for farming unless you lease land in the nearby areas which are not pervaded with mining activities.’

On the contrary, a majority of the non-locals acknowledged that their own direct food access through farm activities is not grievously reduced by mine employment as it is for their local counterparts. A majority of them associated this to the fact that their various neighborhoods are not awash with mining activities and as such some of their family members are not engaged in mining which left them with reasonable energy levels to engage in farm labour. One participant employed in Nyatuoro Ko'wuonda site responded as follows:

'It is difficult for us to live entirely on mining as those who live near these mines do. I have to juggle between farming and mining with the help of my children who do not travel with me to mine here.'

In addition, the key informants also reiterated that the women's shift from their farms to the mines benefited them in that mine wages are immediate and liquid and also the fact that they were able to borrow among themselves in times of financial crisis. However, their opinions varied regarding the predominant source of household food access to the women. On one hand, the mine supervisors from all the mines regarded mine wages as the predominant sources of household food access for the women while on the other hand, the County Agricultural Officer posited that subsistence crop farming were still the predominant sources of household food access for a majority of the women despite their shift to mines. Opondo, a mine supervisor in Nyatuoro Ko'wuonda stated:

'The women here don't even have enough time to engage in agriculture that is why they get food for their households through buying using their mine wages. I can say that the transporters are affected more than those other women doing other ancillary jobs in the mines.'

However, the county Agricultural officer disagreed with Opondo's comments as follows:

'The truth is that a lot of women have shifted their labour to the mines in search of better incomes which is a good thing because their incomes need to be complemented either way. But it is still concerning that the very farming that they are leaving provides the most critical share to household food access because you can't just do away with agriculture in this county. You quit but other members of your households will continue doing it.'

4.6.2 The effects of women mine labour and incomes on household food supply

Several participants acknowledged that their predominant sources of household food are through the markets using their mine wages. However, a majority of non-local women responded that their mine incomes only complemented direct sources of food through agricultural activities that are conducted by household labour that is left at home. They further attributed this predominance of agricultural food supply within their households to the absence of vibrant mining activities in their neighborhoods which shielded the arability of their pieces of land from various mine-related derelictions thus were left with arable lands for crop production. For example, Akinyi a non-local miner at Macalder stated as follows:

'I am here far away because I came to get money to enable me diversify my diet, but the key food items like maize in my household are supplied by labour from those I live home. I know that is not possible here because here it is all about mining, but for us coming from other places we have some plots to help as do some peasantry.'

Similarly, all the owners of crushers and panning pools reiterated Akinyi's statement, however, through further probing; they reported that much of their household food supply

for foods such as cassava were through farming activities conducted by hired labour. For example, Awiga owning two (2) crushers at Mikei Ka’kula responded as follows:

‘The staple food here is cassava and maize must be grown if you want your household to stay free from starvation. It is difficult to get them from the markets because you need them in large quantities which sometimes you cannot afford... and that is why I hire some people to grow them for me in a leased land away from here.’

In addition, all the mine supervisors agreed with the women’s responses regarding their different sources of food supply; however the County Agricultural Officer insisted that all dimensions of food within the household in the area are supported by agricultural activities despite the fact that a significant number of women had shifted to the mines. He stated as follows:

‘Like I stated earlier that women in this area predominantly access food through agricultural practices; it is very difficult for their households to acquire food without engaging in agriculture here. I know the incomes help them buy other food stuffs like chapatti floors but what is that when they are looking for sustainability. They know that so they won’t quit farming completely.’

4.6.3 The effects of women mine labour and incomes on household food utilization

Most of the women involved in the ore transportation and processing of ores observed that their roles were quiet labour-intensive and time-consuming which negatively ate into their time and energy to properly prepare, distribute and consume food within their households. A majority of the local women in particular, acknowledged their tendencies

to buy fast foods like ‘mandazis’ and milk for their children and themselves on several occasions because they arrive home late and tired from the mines. Thus they are often left with limited time and energy to undertake proper food preparation and monitor food consumption leading to under-nutrition among children. Osero in Osiri-Matanda stated as follows:

‘Our wages are very meager but sometimes we go around them by borrowing amongst ourselves or from the middle men, the problem is that you don’t even have the time to prepare food well and in time for the kids.’

On the contrary, while referring to the sentiments made by the transporters and processors, all the owners of crushers and panning pools responded that their time to prepare food for their children was not significantly reduced by their businesses since their roles were only supervisory which did not take much of their time and energy thus bequeathed them reasonable time to prepare food. For example, Dinda owning a panning pool in Nyaturoro Ko’wuonda said:

‘For me I have time to cook for my kids because my work can continue even while I am away. But I used to be a transporter sometimes back and I remember how I would get back home late and too tired to even cook for the children. The children themselves would be sleeping by the time I arrived home.’

Therefore, it can be summarized that the women’s shift from subsistence crop farming to ASGM labour granted all women the opportunity to enjoy immediate and liquid mine wages which were lacking in previous subsistence agricultural roles because of distant markets and low harvests. However, the following variations in terms of mine roles and

home-mine proximity can be highlighted regarding the influence of women's mine labour and incomes on food security within households headed by women miners in the region;

- i. The mine wages constituted the largest share of household access except for a majority of the no-locals who responded that they predominantly accessed food from farm labour by other family members who did not shift to the mines. However, the County Agricultural Officer disagreed that all women rely on food from the farms despite their shift to the mines as it was difficult to relegate the importance of farming in the region.
- ii. The mine wages were however insufficient to efficiently satisfy all the household needs for transporters and processors amidst competition from other needs. However, the incomes for women involved in proprietary mining roles such as owning crushers and panning pools were sufficient and better-off than previous subsistence crop farming incomes thus improved their household food access
- iii. The non-local considered their poor mine incomes as worsened by the fact that they spend a long time travelling to the mines which, unlike the locals, denied them time to stay longer in the mines in a bid to complement their low incomes.
- iv. In terms of household food utilization, the transporters and processors registered worse-off utilization processes owing to their shift to the mines because their mine roles were very labour-intensive and time-consuming thus eat into their time and energy to prepare, distribute and consume food within the households. However, the owners of crushers and panning pools registered better-off food utilization outcomes as their roles did not affect their time and labour for food preparation, distribution and consumption.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section provides the summary and conclusions of the findings of this study. It further discusses some of the recommendations that are relevant to various stakeholders concerned with gender parity in subsistence crop farming, ASGM operations and improved household food security.

5.2 Summary

This study was conceptualized within the lack of knowledge providing links between food security within WHHs and the shift of women from subsistence farming to ASGM activities in Western Kenya. The region recently recorded poor household food security conditions within WHHs and an increased entry of women into various ASGM activities from subsistence crop farming. The primary objective of the study was to qualitatively explore this labour shift and its influence on food security within households headed by women miners in the region. Four (4) specific objectives were pursued including to explore women's persuasions to leave subsistence crop farming labour and join ASGM, to examine the labour changes occurring WHH's roles upon this shift, to investigate some of the socio-economic challenges affecting women in ASGM activities and their influence on WHH's mine incomes and, to determine the effects of ASGM labour and incomes on food security within households headed by women miners in the region. Similarly, four (4) research questions were used to achieve the specific objectives. The

questions included; why are women household heads leaving subsistence crop farming for employment in ASGM in Nyatike Sub-county? In what ways do women's household roles change when they leave subsistence agricultural labour to ASGM activities in the region? What are the socio-economic challenges that women face in ASGM labour in the region and their effects on women household heads' mine incomes? And how does mine labour meet household food security expectations of women household heads shifting their labour from subsistence agriculture to ASGM activities in the region.

Accordingly, both historical and contextual literature reviews on the socio-economic status of women in informal labour settings particularly relating to subsistence crop farming and ASGM were done. Further literatures on the challenges facing women in subsistence crop farming and ASG which occasion women's labour shift from subsistence agriculture to mining roles were also done. The study hypothesized that this shift has a probable influence on food security within households headed by women miners. Generally, two strands of literature emerged; one strand indicated that the shift improves women's disposable incomes and household food conditions such as child nutrition (Benya, 2013; Umbole, 2009 & Ocansey, 2008) and the other strand indicated that the shift endanger women's household food security through the lack of mining rights and poor remunerations (Amutabi & Lutta-Mukhebi, 2003; Kamlongera & Hilson, 2010). Based on findings of the second strand, it emerged that little effort has been made in reducing gendered challenges that affect women's employment outcomes within informal labour contexts in the developing countries. In fact, these gendered challenges were also found to be replicated in rural Kenya's subsistence crop farming and ASGM

labour where women's employment outcomes are diminished by patriarchal hegemony which is biased against women.

A further review of the existing policies and legislations governing women's labour rights and employment outcomes within the agricultural and mining sectors in Kenya revealed some policy gaps with significant implications to the study. The review led to the realization that some policy statements particularly Section 34 of the Kenya Food and Nutrition Security policy 2011 on food acquiring processes mistakenly over-emphasize the pursuit of household food security strictly through farming practices thus, undervaluing the contribution of non-farm activities such as ASGM to household food security. Similarly, Section 78 of the Kenya Mining Act of 2016 relating to issuance of artisanal and small-scale mining licenses also appear to over-emphasize macro aspects of mining operations that obstruct many micro phenomena regarding ASGM. For example, this over-emphasis does not pay sufficient attention to the fact that many artisans, especially women household heads have recently shifted to various ASGM activities in the country and continue to derive benefits from their mining labour, thus, their employment outcomes and contribution to household food security need to be discussed at policy levels too.

In addition, the researcher deployed both Marxist feminist and social exchange theories to frame the narratives emerging from all the FGDs and KIIs. In particular, Marxist-feminist principles and propositions sufficed the study in that they collectively provided rich literatures concerning the history of social-economic inequalities that are often wielded onto women by men within capitalist labour contexts e.g. rural mines where ASGM takes place and farms (culturally owned by men on which subsistence crop

farming is practiced). Accordingly, the study considered the influence of such inequalities on women's labour outcomes as having negative effects on food security within WHHs in Nyatike Sub-county. On the other hand, the social exchange theory provided fundamental theoretical assumptions through which the rationale supporting women's labour shift from subsistence crop farming to ASGM in the area were explored.

Upon analysis of the findings, four (4) themes emerged from the responses including the reasons for the shift of labour by women household heads from subsistence crop farming to employment in ASGM in Nyatike Sub-county, changes that occur on women's roles upon shifting of labour from subsistence crop farming to ASGM activities, socio-economic challenges facing women employed in ASGM and the implications of these challenges on women household heads mining incomes and finally, influence of women's ASGM labour and incomes on food security within households headed by women miners in the region. Under each theme, the researcher further discussed the differences and similarities of all the women's responses based on demographic factors including age, mining experience, home-mine proximity and women household headship types.

Based on key findings, the study concurred with literature reviewed in many ways. Firstly, the study found out that most women household heads migrated from subsistence crop farming to various ASGM roles in the hope that the latter would present them with better incomes as opposed to poor incomes from the former. This finding can be said to have corroborated the ones reported by Lihiri (2003) & Pritt (2009) stating that women in rural Russia and West Malawi respectively perceive their shift to various mining roles as economic alternatives to other income generating activities like subsistence agriculture.

Secondly, all the women interviewed in this study reported that both their previous subsistence crop farming and current ASGM activities were entrenched with a series of patriarchal practices that favored men's labour and incomes. The study further reported a continued gendering of mine spaces and roles where all the women interviewed admitted strong restriction to low-paying surface roles while men partook in the lucrative underground digging. Essentially, based on these two findings, the current study can be said to have re-affirmed reports by Juma (2015) who also reported that patriarchal inequalities affecting women's agricultural labour among most rural farming and mining communities in Tanzania were also replicated within their small-holder contexts.

Thirdly, a majority of the women interviewed also identified the deliberate absence of informal mine unions to propagate discussions around their mining concerns and the lacking protection of women's roles from occupational hazards among others as key challenges that they experienced in the mines. Accordingly, this particular finding concurred with reviewed reports by Fisher (2007) that women's mining issues particularly within the subsistence aspect are not given the necessary attention at union levels across Africa which has made it difficult to revolutionize the sector both in terms of equity in labour representation and employment outcomes.

A significant number of the findings of this study however, also contradicted existing literature reviewed in significant ways. Firstly, the women interviewed apportioned their low mine wages differently to various socio-economic challenges affecting their mining roles. For example, a majority of the old and more experienced women regarded the association of surface roles with women as the primary cause of their relatively low incomes compared to those of the men. On the other hand, most of the young and less

experienced associated their low incomes to men's narrations that mistakenly portrayed women as weak beings who cannot do the lucrative but labour-intensive underground roles effectively. This particular finding contradicted the one reported by Amutabi and Lutta-Mukhebi (2003) stating that women in mining face similar challenges which also impact on their incomes similarly.

5.3 Conclusions

Based on the findings, the study concluded as follows according to the research questions:

1. Why are women household heads leaving subsistence agricultural practice for employment in ASGM in Nyatike Sub-county?

A majority of women household heads are shifting their labour from subsistence crop farming labour to ASGM activities in the region because the latter offers relatively better alternative economic opportunities. Additionally, when women's ASGM labour is compared to subsistence crop farming activities, incomes from the latter is delayed by distance markets, low harvests, patriarchal hegemony and climate changes while that of the former is liquid and immediate thus necessary in meeting urgent household food security expenditures within the households. However, a small number of the women household heads (particularly those living in the vicinity of the mines) shifted their labour to various mining roles because of peer pressure since they did not want to be left out of mining activity which was seen as fashionable.

2. In what ways does the labour of women household heads change when they leave subsistence agricultural labour and join ASGM labour in the region?

The roles of women household heads do not change when they shift their labour from subsistence crop farming to ASGM activities in the region because patriarchal contexts under which they take farming roles are also replicated in the mining milieu. Hence, the roles of women in both contexts are subordinated and do not differ.

3. What are the socio-economic challenges affecting women in ASGM labour in the region and their effects on women household heads' mine incomes?

Women's ASGM labour in Nyatike Sub-county is affected by many socio-economic challenges such as the low compensation of surface roles which are allocated to women because of the mistaken narrative that women are weak beings who cannot sufficiently perform lucrative underground digging, the deliberate absence of mine unions to advance women's opportunities ,and the lack of adequate protection of women's roles from occupational hazards which reduces the compensation of women's roles in the mines. Specifically, it seems that all women household heads who shift to the ore transportation and processing roles in the region's ASGM mining arena receive on average kshs. 200-300 daily compared to a daily average wage of Kshs. 500- 1000 received by their male counterparts while those who shift to proprietary mining roles such as crusher and panning zone businesses, receive on average Kshs. 1000- 1500 daily compared to Kshs. 1500-2000 that is received by their male counterparts daily.

Further, there exists a significant disparity in women household heads' incomes based on factors such as age, mining experience, home-mine proximity and women's household headship type as follows:

- i. The old and more experienced women miners regard the association of surface roles with women as the cause of their relatively low incomes to the men, i.e. the 'feminization of surface roles.'
- ii. The young and less experienced women miners associate their low incomes to the mistaken narrative by men that women are weak and they cannot sufficiently perform the lucrative but labour-intensive underground digging which is predominantly done by men.
- iii. Both the de jure and de facto women agree with sentiments of the young and less experienced women miners which associates women's low mining incomes to the mistaken narrative by men that women are weak and they cannot sufficiently perform the lucrative but labour-intensive underground digging. However, they associate their low incomes primarily to the lack of advocacy for women's rights by informal labour unions in the mines
- iv. Some non-local and local women associate their low incomes to the fact that they live far away from the mines thus they spend most of their time travelling which eats into their time in mining work whose remuneration is hourly in some instances

In addition, the mines supervisors also differ regarding the extent of the contribution of women's socio-economic challenges to women's low incomes;

- i. The two mine supervisors from the largest mines i.e. Osiri Matanda and Macalder Copper agree with the responses of the old and more experienced women that the association of women's spaces with poor remunerations is a primary determinant of poor remuneration of women miners.
- ii. The two mine supervisors from smaller sites i.e. Mikei Kakula and Nyatuoro Ko'wuonda agree with sentiments of the young and less experienced women attributing women's low incomes to the mistaken narrative propagating women as a weaker being who are unable to perform the lucrative underground digging.

4. How does mine labour and incomes meet the household food security expectations of women household heads shifting their labour from subsistence crop farming to ASGM activities in the region?

The labour shift from subsistence crop farming to ASGM grants women household heads the opportunity to enjoy immediate and liquid mine wages which are lacking in subsistence crop farming because of challenges such as delayed market accessibility, poor harvests due to poor climatic conditions and reduced women's participation through patriarchal limitations. However, the mine incomes influence food security within their households differently.

- i. For a majority of women household heads that shift their labour to the ore transportation and processing roles, the liquid and immediate mine wages that they receive constitute the largest share of their household incomes which they use to access food for their households. Subsequently, the wages improve their household food access especially during food crises such as droughts. Sadly, the quantity of food accessible through mine wages does not fully cover all the

household food needs amidst competition from other household needs such as paying school fees for the children. Similarly, household food supply is also diminished two folds; one, through mine wages reduces indirect household food supply and two, the insufficiency of mine wages do not allow them to hire labour to fill their shifted agricultural labour hence reducing crop farming produces to complement household food supply. In addition, household food utilization for women who shift from the farms to the ore transportation and processing roles in the mines is also reduced because their roles are very labour-intensive and time-consuming thus they eat into their time and energy to prepare, distribute and consume food within their households.

- ii. For all the women household heads that shift their labour to various proprietary mining roles such as crushers and panning pools businesses within various ASGM site in the region; the liquid and immediate mine wages that they receive are sufficient and better-off compared to previous subsistence crop farming incomes significantly improving their household food access. But for them, mining incomes accrued from their roles constitute almost an equal share of incomes used to access household foods. In addition, the food utilization outcomes of these women are improved because their roles are less-labour intensive and time-consuming which bequeaths them with sufficient time to partake in food preparation, distribution and consumption within their households.

- iii. Lastly, household food access and utilization for women who live far away from the mines (i.e. more than 5kms) and shift to the ore transportation and processing roles in the mines of the area are also significantly reduced. The women travel longer hours to reach the mines which eats into their time to fully conduct their mining roles thus reducing their incomes necessary for market food access and time to prepare, distribute and consume food s within their households.

Therefore, based on the study findings, it appears that the type of mining role that the women shift to from subsistence crop farming in Nyatike Sub-county is the most critical determinant of mining incomes and food security within households headed by women miners in the region. The proximity of women miners' homes to various mining sites where they work can also be said to determine women's mining incomes and food security within households headed by women miners in the region through to a limited extent.

5.4 Recommendations

Based on the key study findings, the following recommendations can be made:

- i. Women household heads should be encouraged to opt for mining roles that are better compensated like crusher and panning pool businesses despite their limitations since; subjective traits such as women-miner decisions relating to the type of mining roles that women household heads shift to from subsistence crop farming fundamentally influence their household food security.
- ii. All women employed in various mining roles in the region to need to create a balance between participation in subsistence crop farming and ASGM to enjoy

double-advantages of sustainable food access through liquid and immediate mine wages and improved household food supply through direct farm produces. Further, the women need to create time to partake in food preparation, distribution and consumption within their households to achieve sustainable food utilization outcomes

- iii. The Ministry of Lands should implement various legislations envisaged in the Lands Act of Kenya 2016 particularly section 19 seeking to achieve equality in land distribution to increase land rights for women and subsequently improve direct food supply.
- iv. The Ministry of Agriculture on the other hand should support comprehensive agricultural extension programs targeting households headed by women miners to improve their access to various farm inputs like fertilizers, provide market information, embark on infrastructural projects such as roads to promote market accessibility and, initiate and promote financial institutions targeting women heads to increase their accessibility to land and its utility for food production.
- v. The Ministry of Mining and Natural Resources should develop policies seeking to improve WHHs' mine remunerations through promoting fair economic mine exchanges, harnessing a good saving culture amongst women miners, mainstreaming of gender in all mining aspects and initiating social protection services targeting WHHs as a vulnerable group within the mines.

5.4 Suggestions for Further Studies

This study found out that women's shift from subsistence crop farming to ASGM in Nyatike Sub-county influences food security within households headed by women miners

in many ways. However, it emerged that the type of mining roles that the women household heads shifted to directly influenced food security in their households more than other factors such as the women's ages, mining experience and home-mine proximities. Consequently, the researcher suggests that whenever possible, future studies need to pursue the influences of women's mining role destination on their incomes and household food security using other available theoretical and methodological approaches to support new trajectories of thought. Such studies will complement this study and provide other perspectives to the understanding of food security within households headed by women miners.

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APPENDICES

APPENDIX A: MAP OF STUDY AREA



Prepared By Kenya National Bureau of Statistics: GIS/Cartography 2009 Population Census

This Map is Not an Authority on Delineation of Boundaries

APPENDIX B: THE FGD GUIDE

My name is Joseph Manga. I am a student at the University of Nairobi. I would be very grateful if you would take some time to answer some questions about mining as women heads of households working in _____ mine. I am collecting this data as part of a research which aims to find out the sustainability of women's mine incomes and labour to help solve food insecurity in their households and subsequently eradicate poverty in Kenya. Your participation will be highly beneficial since it will enable policy makers both nationally and at the county level to know your concerns and opinions about mining and how to address them. The result of this project will be presented as a project paper at the Department of Sociology and Social work, University of Nairobi and shall be made available for you on request. I will be taking notes during the discussion as you respond to the questions. Kindly, note that the discussion is also being recorded for purposes of enhancing memory during analyses and not any other malicious act.

All responses will be treated anonymously and confidentially, and will only be used for research purposes. Be assured that your identity will remain anonymous and your responses will be treated with strict confidentiality. The responses will be given a pseudonym, and the transcripts will be kept under lock and key for the duration of this research. They will then be destroyed as soon as transcription is done. Welcome.

Part I: Mining labour persuasions

1. How did you get to know about the mining job?
2. In your own opinion, what do you think persuades women such as you to join small-holder gold mining activities?
3. Have you worked in any other gold mining site within this area before? Which ones for example?
4. Why did you shift from the previous mine to the current one?

Part II: ASGM employment relations

Now that you have enlightened me about your decisions to shift to the mines, I would like to move on to other questions relating to your current employment:

5. How much do you make currently?
6. Tell me the kinds of roles that you and other women partake in the mines, do you think that these roles are meaningful?
7. How do these roles make you feel?
8. How does it feel for you to work among men in the mines?
9. In your opinion, what are some of the most lucrative roles in the mines and who partakes in them?
10. What role do you admire most in the mine and why?

11. Compare the nature of women's compensation in the mines with those of male miners.
12. What benefits can you say, as a woman, you get from working in the mines?
13. Do you have any savings now that you work in the mines? Or is the situation the same as when you were predominantly engaged in farm activities?
14. Would you like any promotion? To what for example?

Part III: WHH's mining incomes and household food security

15. Can you say that the mine wages have empowered you in any way?
16. Generally, how do you spend your mine wages?
17. Do you think that mine wages have improved your household income and food situation? How for example?
18. How does agricultural activities compare with mining activities, say, in terms of improving household income and food situation?
19. Tell me some of the things that can be done to make agriculture more attractive to you than mining.

Part IV: Concluding Question

20. Are there any other questions that you would like to ask or any other response that you would like to say more about?

THANK YOU!

APPENDIX C: KEY INFORMANT INTERVIEW GUIDE

My name is Joseph Manga. I am a student at the University of Nairobi. I would be very grateful if you would take some time to answer some questions about mining as a male supervisor of _____ mining site. I am collecting this data as part of a research which aims to find out the sustainability of women's mine income to help solve food insecurity in their households and subsequently eradicate poverty in Kenya. Your participation will be highly beneficial since it will enable policy makers both nationally and at the county level to know your concerns and opinions about mining and how to address them. The result of this project will be presented as a thesis paper at the Department of Sociology and Social work, University of Nairobi and shall be made available for you on request. I will be taking notes during the discussion as you respond to the questions. Kindly, note that the discussion is also being recorded for purposes of enhancing memory during analyses and not any other malicious act.

Part I: Women's mine labour persuasions, Socio-economic challenges, Empowerment and household food security

1. Based on your experience, what can you say are the key reasons that persuade women to shift their labour from the farms to the mines?
2. Do you think that mining roles are different from subsistence agricultural roles? Kindly elaborate.
3. What are the key challenges that affect women's mining labour and how do you think these challenges affect women's incomes?
4. Can you say that the shift of women to the mines empowers them and further improves their household food security? How for example?

Part II: Concluding Question

5. Is there anything that you can say or add about your responses or questions that you have discussed?

THANK YOU!

ANNEXES



Picture 1: A woman processor sorting gold ores at Osiri Matanda mine



Picture 2: A woman transporting a bag of ore to a processing zone at Mikei Ka'kula mine



Picture 3: A woman owner of a panning pool at Macalder Mine supervises as processors carry their duties