



Norwegian University
of Life Sciences

Master's Thesis 2024 30 ECTS
Faculty of Landscape and Society

Empowering Women in Refugee Camps through Sustainable Agriculture for Nutrition: A Case Study of Kakuma Refugee Camp in Kenya

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ABSTRACT

Women in refugee camps face many challenges. They have limited access to quality education, healthcare, economic opportunities, and decision-making powers in their households. Scarce resources and food insecurity are intricately linked with the conventional responsibilities of the women. Empowering women in refugee camps to participate in sustainable agricultural production contributes to food security and place of the woman in the society.

This study explores food security and sustainable agricultural practices at Kakuma Refugee Camp in Kenya. The research explores the challenges faced by refugee women in securing food resources and highlights the transformative potential of sustainable agriculture in enhancing food security and empowering the women. The key findings highlight the critical role of sustainable agricultural initiatives, such as climate-smart farming methods and integrated farming systems, in improving the availability, accessibility, and utilization of food.

The study reveals the importance of community-driven strategies and gender-transformative approaches in promoting inclusive and resilient food systems. This research contributes to a nuanced understanding of the intersection between gender, agency, and sustainable agriculture in refugee camp, offering insights that may inform the policymaking and programmatic efforts of humanitarian organizations and local communities to address the challenges of food insecurity.

Keywords: sustainable agriculture, food security, empowerment

DECLARATION

I, Sarah Wanjiku Mwangi, declare that this thesis is wholly written by me. I confirm that I am the sole author of this thesis and that I have used the listed sources.

Furthermore, I confirm that I have adhered to the guidelines of the Norwegian University of Life Sciences on research and scientific integrity.

I also confirm that I included a list of bibliography presenting all the sources used in my research, and I have ensured to follow the specific guidelines for citation and referencing style.

Moreover, I confirm that this thesis has not been published previously, either in part or in whole, and has not been submitted to any other institution.

Signature: S. W. M.

Date: May 15, 2024

ACKNOWLEDGEMENT

I wish to give my sincere gratitude to everyone that has contributed to my completion of this thesis. Firstly, I am grateful to God for the strength and wisdom throughout the research process and my academic journey at NMBU.

I am profoundly appreciative of my supervisor, Professor Ruth Haug whose knowledge, expertise and guidance were pivotal in directing the trajectory of my research and writing process. Her constructive feedback, patience and encouragement have been so helpful in my thesis writing process and I will be entirely grateful.

I thank Norwegian University of Life Sciences for the opportunity to pursue the International Environmental Science master program and for everything I have learnt in the course of the program.

Special thanks to all the respondents who took part in the interviews particularly Kelvin from IsraAid Kakuma for assisting me in data collection and connecting me to the refugee women and humanitarian workers who took part in the study.

Lastly, I am grateful for my supportive family who have encouraged me throughout my studies and the entire research process; their unwavering support really encouraged and inspired me throughout the thesis.

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LIST OF ABBREVIATIONS

| | |
|----------|--|
| ASAL: | Arid and Semi-Arid Land |
| ASDSP: | Agriculture Sector Development Support Program |
| CSA: | Climate Smart Agriculture Activities |
| DCA: | Danish Church Aid |
| GOK: | Government of Kenya |
| K Dream: | Kaluboiye Drought Response Emergency Programme |
| KDRA: | Kenyan Department of Refugee Affairs |
| KRC: | Kakuma Refugee Camp |
| LWF: | Lutheran World Federation |
| SDGs: | Sustainable Development Goals |
| SOC: | Sense of Coherence |
| UN: | United Nations |
| UNHCR: | United Nations High Commissioner for Refugees |
| WFP: | World Food Programme |

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CHAPTER ONE: INTRODUCTION

This chapter presents the research problem background and the purpose of the research. The research questions and objectives are presented. Thesis structure is presented at the end of the chapter.

1.1 Background of the Study

Most of the refugees in refugee camps are women, and most of the household heads in the refugee camps are women. Women take the responsibility of taking care of households. The women face many drawbacks making it a challenge to sustain their families. Most of them have low literacy levels and have never been to school. It is a challenge for the women to access meaningful income for their families so that they can provide for their families. In terms of employment women hold unskilled jobs such as cleaners, cooks, and caregivers. When they cannot provide for their families, food security is an important issue in the refugee camps.

According to (Omtata, 2021), women refugees in Africa, including Kenya, are confronted with a myriad of challenges and obstacles that significantly affect their welfare and ability to make independent decisions. They have limited access to quality education, healthcare, economic opportunities, and decision-making powers in their households (Ramos et al., 2020). These challenges are further exacerbated by gender-based violence (Ramos et al., 2020; Mwangovya, 2011). The women in refugee camps bear the primary responsibility of household nutrition, but their ability to secure food for their families is often compromised by other obstacles such as inadequate resources, restricted mobility, and scarcity of arable land for agricultural production (Mwangovya, 2011; Lozano-Corona, 2023). These challenges faced by women in refugee camps have a significant bearing on the adoption of sustainable agricultural practices (Lozano-Corona, 2023). Scarce resources and harsh weather conditions leading to food insecurity are intricately linked with the conventional responsibilities of women concerning food provision. Empowering women in refugee camps to participate in sustainable agricultural production goes a long way in improving the nutrition, health, and place of women (Muhangi et al., 2022).

A case study was conducted to investigate how sustainable agriculture practices can empower women in refugee camps. The study investigates how sustainable agricultural

practices is empowering women to provide better nutrition to their families and how this contributes to empowering the welfare of the women in the camps. The case study focus was Kakuma refugee camp in Kenya.

Kakuma Refugee Camp (KRC) is one of the largest refugee camps in Africa (UN Refugees, 2023). The camp is situated in the North-western region of Kenya on the outskirts of Kakuma town, which is the headquarters for Turkana West Sub- County of Turkana County. Kakuma is 150 km south of the South Sudan border and 850 km northwest of Nairobi (WFP, 2016). Turkana County is one of the poorest counties in Kenya and is categorized as an Arid and Semi-Arid Land (ASAL) (UNHCR, 2023). The local population around Kakuma Refugee Camp comprises the Turkana people, who live a traditional nomadic lifestyle and are mostly pastoralists. The refugee camp was established in 1992 by the Government of Kenya (GOK) in conjunction with the United Nations (UN) primarily to host ‘the Lost Boys of Sudan’ who were fleeing conflict during the second Sudanese Civil War (UN Refugees, 2023). Today, the camp is home to refugees drawn from more than 16 countries including South Sudan, Sudan, Somalia, the Democratic Republic of Congo, Burundi, Ethiopia, and Uganda (UNHCR, 2023).

Kakuma camp is structured into four areas namely Kakuma I, Kakuma II, Kakuma III, and Kakuma IV (UNHCR, 2023). An additional area known as the Kalobeyei Integrated Settlement (KIS) was also incorporated into the Kakuma Refugee Camp in 2014 after the population of the original four areas exceeded the camp’s carrying capacity by around 58,000 people. The Kalobeyei Settlement is located about 20 kilometres from Kakuma town, and it has three villages classified as Village 1, Village 2, and Village 3. As of July 2020, Kakuma Refugee Camp had a population of about 196,666 registered refugees and asylum seekers, making it the second largest refugee camp in Kenya after the Dadaab Refugee Complex (UNHCR, 2023). The camp is managed by the GOK through the Kenyan Department of Refugee Affairs (KDRA) in conjunction with the United Nations High Commissioner for Refugees (UNHCR).

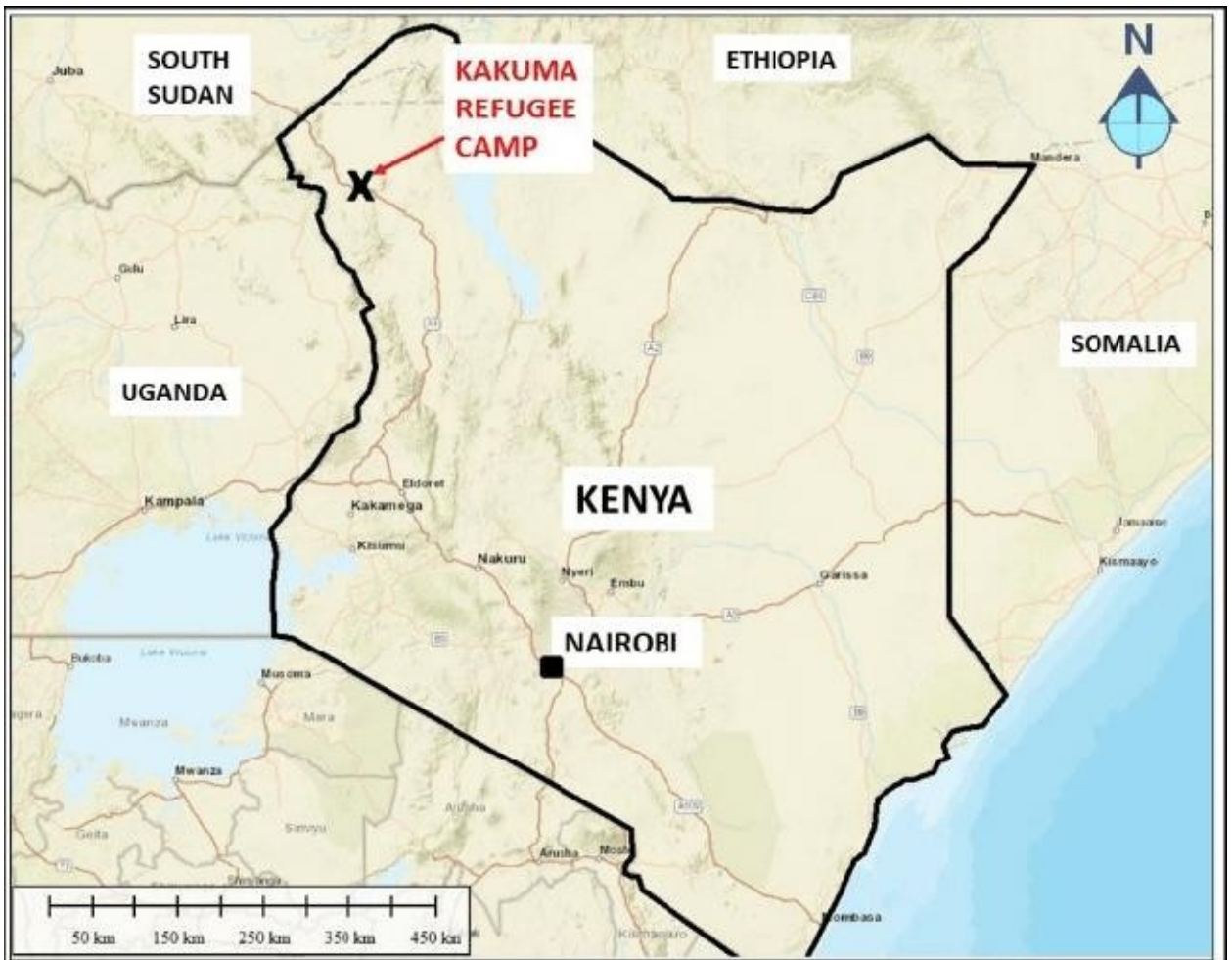


Figure 1: Map showing the location of Kakuma Refugee Camp in north-western Kenya (Source: Woods, L, et al. (2021))

1.2 Research gap

Women in Kakuma Refugee Camp face a raft of challenges in their role of feeding their families. The camp is in a challenging semi-arid region of Turkana County in Kenya and is characterized by extreme temperatures, scarcity of vegetation, and occasional flooding that make it extremely difficult to engage in traditional agriculture (Grindheim, 2013).

Consequently, refugees in the camp rely on external food rations provided by organizations such as the World Food Programme (WFP) to meet their nutritional needs (WFP, 2016). The food rations are for the most part insufficient, inadequate, and unable to meet the nutritional needs of the refugees (Henry & Macbeth, 2014; Nisbet, et al., 2022). The food rations provided do not consider the cultural differences among the various refugee groups as all refugees are provided the similar types of food (Henry & Macbeth, 2014). Many of the refugees are vulnerable to poor physical and mental health as they are

unable to fend for themselves (Henry & Macbeth, 2014). Women are most vulnerable because they are responsible for household nutrition in addition to the gender-specific vulnerabilities they are exposed to (Beltramo et al., 2021).

From literature reviews, few studies are available on how a transformative approach through sustainable agricultural practices can address these pressing concerns and vulnerabilities face at refugee camps. Nimaan and Sezgin (2020) states that sustainable farming practices can provide an avenue for achieving sustainable food production with the potential for cultivating nutrient-rich foods with technologies that overcome the environmental challenges in Kakuma. Such initiatives could serve as a key strategy for breaking the dependency cycle on external aid, promoting healthier lives among refugees while enhancing women's agency within the population. This has as one of its objectives to reduce the research gap.

1.3 Objective and significance

Through interviewing women refugees and employees working for the organizations at Kakuma, this study explores how the phenomenon of sustainable agriculture practices can empower women in refugee camps. A framework of reference in chapter two is used as empirical grounding. To achieve its objective, the study seeks to answer the following research questions:

1. What sustainable agricultural practices are implemented in Kakuma Refugee Camp?
2. How are sustainable agricultural practices in Kakuma Refugee Camp empowering women in the camp?

The findings from the above research questions can be beneficial to various stakeholders including policymakers, humanitarian agencies, and academia. For policymakers, this study provides valuable recommendations that can be developed into policies for improving the state of women in refugee camps as well as ensuring food security for refugee populations globally.

For humanitarian agencies and organizations, this study can be used to identify tangible strategies for implementing sustainable agricultural practices by empowering women to take a lead role in agricultural production in the refugee camps.

For academia, this study is relevant to the fields of gender studies, refugee studies, policy development, and sustainable agriculture, and seeks to inform and contribute to existing theories in those disciplines while also identifying areas for further research in the future.

1.4 Thesis structure

The thesis is divided in six main chapters. The figure below is a demonstration of the thesis structure and how the chapters link together.

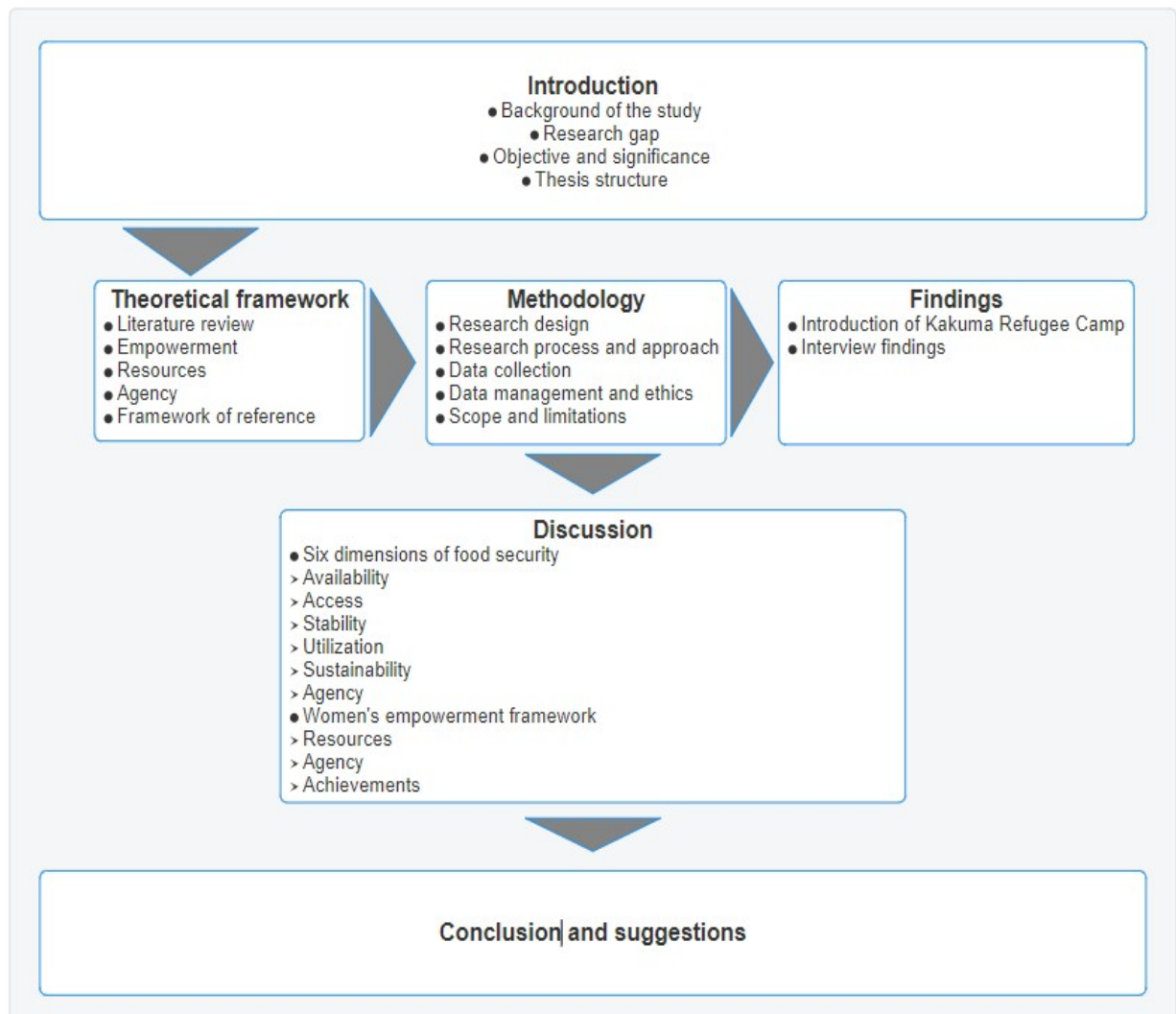


Figure 2: A conceptualized model of the thesis structure

CHAPTER TWO: THEORETICAL FRAMEWORK

This chapter discusses academic literature on sustainable agriculture and empowerment. A framework of reference is discussed in the last part of the chapter.

2.1 Literature review

2.1.1 Sustainable agriculture.

In the context of this study, sustainable agriculture encompasses farming practices that place the utmost importance on environmental stewardship, economic viability, and social equity (Velten, et al., 2015). Sustainable agriculture is in line with Goal 2.0 of the Sustainable Development Goals (SDGs), which represent a universal mobilization effort focused on eradicating poverty, safeguarding the natural environment, and promoting peace and prosperity by the year 2030. The goal of sustainable agriculture is to meet the demands of the current population without compromising the environment's ability to support future generations. It integrates social equity, economic profitability and environmental health and aims to improve environmental quality, manage agricultural resources to fulfil human requirements, and lessen environmental impact through sustainable crop and animal production (Asim et al., 2024; Kryszak and Czyzewski, 2022).

Sustainable agricultural methods include organic farming, water management, energy efficiency, soil testing and monitoring, carbon farming, and crop rotation among others (Oberč & Schnell, 2020; Gamage, et al., 2023; Tuğrul, 2020). Modern technologies can also be used to augment sustainable farming and realize the same objective. To enhance biodiversity, it promotes polyculture over industrial monoculture and highlights crop diversity, especially heritage species that are adapted to regional climates. Sustainable agriculture is built on the preservation of the environment, prudent use of natural resources, and a reduced reliance on non-renewable resources (Asim et al., 2024).

According to Gomiero, Pimentel, and Paoletti (2011), the essence of sustainable agriculture lies in its commitment to mitigating soil erosion, reducing water usage, curbing pollution from agrochemicals, and safeguarding biodiversity. By adopting practices that prioritize soil health, water conservation, and biodiversity preservation, sustainable agriculture endeavours to ensure the long-term sustainability of agricultural systems while minimizing their ecological impact (Gomiero, Pimentel, & Paoletti, 2011).

Few studies have investigated the application of sustainable agriculture principles within the context of refugee camps. Dehnavi and Süß (2019) highlighted the role of urban agriculture in enhancing food security for Syrian refugees and vulnerable Lebanese host communities in Lebanon. Their research emphasizes the significance of integrating social, cultural, technical, and economic considerations into urban agricultural projects to maximize their impact. Similarly, Grosrenaud et al. (2021) explore the implementation of agroforestry schemes in refugee settlements in Uganda, emphasizing the potential benefits for improving livelihoods and nutrition while addressing environmental degradation. Their findings underscore the importance of integrating relief, rehabilitation, and development efforts to promote sustainability in refugee settings. Additionally, Muhangi et al. (2022) examine the contribution of agriculture to the livelihoods of refugees in Nakivale settlement in Uganda, identifying crop production as a key agricultural activity and highlighting challenges such as climate change, limited land, and low market prices.

Sustainable agriculture in refugee settings has numerous benefits, with significant implications for food security, livelihoods, and environmental protection. Sustainable agriculture initiatives are crucial in enhancing food security by increasing agricultural productivity, diversifying food sources, and promoting self-sufficiency among refugee populations (Dehnavi & Süß, 2019). Techniques such as urban agriculture, agroforestry, and climate-smart farming can address food insecurity in refugee camps by utilizing local resources and knowledge (Grosrenaud, et al., 2021). Furthermore, sustainable agriculture contributes to the economic empowerment of refugees by providing opportunities for income generation, skill development, and social integration. By enabling refugees to engage in sustainable agricultural practices, such as organic farming and agroecology, sustainable agriculture helps them secure livelihoods, reduce dependency on humanitarian aid, and build resilience against economic shocks (Grosrenaud, et al., 2021). By adopting holistic approaches that balance ecological, economic, and social considerations, sustainable agriculture initiatives contribute to the overall well-being and resilience of refugee communities. Sustainable agriculture emerges as a valuable tool for addressing the multifaceted challenges faced by refugees, providing pathways to food security, economic empowerment, and environmental sustainability, even in the face of adversity.

2.1.2 Conventional agriculture

Conventional agriculture within refugee camps faces inherent limitations, particularly in regions like Kakuma characterized by harsh climatic conditions. Kakuma is an ASAL area that rarely receives rainfall and when rains come occasionally, they lead to flooding (Kanere, 2011). These extreme weather conditions make conventional agricultural production almost impossible (Kanere, 2011). Furthermore, the overcrowding in the camp means that there is limited land left for agriculture. Dependence on rain-fed agriculture as in the rest of Kenya can lead to inconsistent crop yields (Guido et al., 2020). Less than 20% of Kenya's land is arable, implying that food production across the country is insufficient to meet the total demand and the country has to rely heavily on food imports (Ministry of EAC, n.d.). Food production in refugee camps is a significant challenge. The lack of arable land further hampers traditional farming's potential to ensure food security. The inefficiency of these methods is exacerbated in refugee camps, where resources are scarce and competition for available land is fierce. The limitations of traditional agriculture underscore the need for alternative approaches that transcend these challenges and provide a more reliable and sustainable means of food production for the camp inhabitants.

2.1.3 Alternative farming practices

In the context of arid areas like Kakuma, where conventional agriculture struggles to address food security challenges, sustainable farming practices emerge as promising alternatives (Securing Water for Food, 2019). These methods offer distinct advantages – reduced water usage, minimized land requirements, and optimized nutrient delivery – making them particularly relevant in resource-scarce and challenging climates like Kakuma (Securing Water for Food, 2019). These innovative techniques hold the potential to revolutionize food production within refugee camps, enhancing nutrition, increasing crop yield, and mitigating the limitations of conventional agriculture.

Sustainable farming practices have been implemented successfully in other areas which have similar climatic conditions as Kakuma Refugee Camp. This demonstrates the adaptability of these farming methods to challenging environments, which makes them suitable for adoption in Kakuma. Sustainable farming practices have been implemented in the Middle East, where there is water scarcity, harsh temperatures, and limited arable land (Van Gerrewey, et al., 2022). Many countries in the Middle East can meet the food demands of their populations and even get surpluses by embracing modern farming

technologies and approaches such as using greenhouses and other controlled environments (Van Gerrewey, et al., 2022). These methods have contributed to the cultivation of fresh produce in controlled settings (Farm ERP, 2021). The utilization of greenhouses and advanced irrigation systems has mitigated the adverse effects of arid conditions on plant growth. These successful implementations provide valuable insights into the feasibility of applying similar approaches in refugee camps like Kakuma. By leveraging technology and sustainable agricultural methods, refugee populations can harness the benefits of sustainable farming practices to overcome the barriers posed by arid climates.

2.1.4 Water efficiency

Water efficiency in agriculture is crucial for sustainable farming. In regions like Kakuma where water is a big challenge, it is important to establish efficient use of water and use sustainable irrigation practices. Water delivery methods that minimize evaporation and runoff and enable customized water delivery to various crops have been developed, such as drip and micro-irrigation systems. This approach reduces water use without compromising crop health. Water requirements can be reduced by selecting crop varieties that are suitable for the locality; certain crops are drought-tolerant or require less water than others. Crop rotation and cover crops are examples of sustainable agriculture techniques that can increase water efficiency by enhancing soil quality, lowering irrigation requirements, and controlling pests. Utilizing materials such as straw or for mulching aids in retaining soil moisture, controlling growth of weeds, and minimizing evaporation.

Harvesting rainwater is also an effective way of promoting sustainable agriculture, especially in areas with irregular rainfall, as it decreases dependency on traditional water sources. Water recycling and reuse in farming operations can help to reduce the demands for freshwater resources (Asim et al., 2024). These methods of water efficacy are viable for areas like Kakuma to promote agriculture and contribute to environmental protection.

2.1.4 Environment

Refugee camps are characterized by challenging environments that often lead to food insecurity and compromised health among their inhabitants (Pérez-Sales, et al., 2022). Women, as significant contributors to household nutrition, face unique challenges in these settings. Most refugee camps are often established in deserted or sparsely populated areas within a country where access to basic amenities is often limited (Ali, 2010). These environmental challenges have a profound impact on the livelihoods of the refugees.

Women are the most affected because of their domestic roles of ensuring the household is

clean and children are well taken care off. With limited access to water and good quality food, it becomes almost impossible for the women to manage their shanties or homes (Nyoka, et al., 2017; Boru, 2020).

2.2 Empowerment

Kabeer's women empowerment framework (1999) defines empowerment as the expansion of people's ability to make strategic choices in contexts where this ability was previously denied. Kabeer identifies three important factors of empowerment; resources, agency and achievement such as improvements in well-being outcomes. The resources dimension explores the availability and accessibility of human, material and social resources that enhance the ability to exercise choice. Agency examines the capacity to set objectives and execute them through; it goes beyond visible actions to include motivations from within and a sense of decision-making power. Achievements refer to the actual realization of desirable ways of being and doing (Kabeer 1999).

In the discourse regarding the empowerment of women, a variety of viewpoints and debates surface, illustrating the intricacies of the connection between paid employment and gender equality (Tandon, 2016). Kabeer (2008) explores this complexity, observing the lack of consensus in discussions on the relationship between paid work and women's empowerment. Kabeer suggests that this stems from contextual variations, alterations in the societal significance of work overtime, and diverse conceptualizations of empowerment. She underscores the significance of women's ability to organize around their needs, interests, and rights, which is crucial for obtaining public acknowledgment of their rights as workers, women, and citizens.

In her analysis of the idealization of refugee women's empowerment in Sahrawi refugee camps, Fiddian-Qasmiyeh (2010) interrogates the implications of such idealization. She contends that international commendations of specific refugee women's organizations may marginalize the needs and priorities of other women and girls, thereby perpetuating exclusion and marginalization within refugee communities. Grabska (2011) reiterates this concern, emphasizing how gender mainstreaming initiatives in refugee camps may oversimplify and essentialize gender roles, exacerbating gender asymmetries and placing women in precarious situations.

The scholarly work by Jabbar and Zaza (2015) provides valuable insights into the influence of vocational training initiatives on the empowerment of women in refugee communities. Their assessment of the 'Women and Girls Oasis' program, implemented within the Zaatari Refugee Camp in Jordan, demonstrates positive outcomes, including amplified self-assurance, enhanced capabilities, and income-generating opportunities for the female participants. This finding accentuates the transformative capacity of such programs in the restoration of disrupted lives and the promotion of gender parity within refugee environments.

Research conducted by Krause (2014) examines the empowering effects of the refugee experience on women, challenging the prevalent notion of refugee women as disempowered victims. Utilizing empirical data collected from the Rhino Camp settlement in Uganda, Krause argues that the disruption caused by forced displacement can undermine patriarchal structures, thereby providing opportunities for women to renegotiate gender dynamics and redefine their societal roles. This observation underscores the dynamic and multifaceted nature of women's empowerment within refugee camps, which is shaped by a complex interplay of socio-cultural, economic, and political factors.

The discourse surrounding women's empowerment in refugee settings is complex, influenced by contrasting viewpoints, and characterized by contextual intricacies. Although initiatives aimed at fostering empowerment through employment opportunities and vocational training exhibit potential, it is crucial to address the underlying power structures, challenge the essentialized conception of gender roles, and prioritize the diverse needs and perspectives of refugee women in order to cultivate meaningful and lasting empowerment

Women and children form a significant portion of the demographics of refugee camps in Africa, including Kenya, but their role in decision-making is often diminished. In Kenya, women make up 77% of the total population of refugees and asylum seekers (UNHCR, n.d.) Women play a prominent role in feeding their families, but they play a limited role in the production process (UN Women, 2014). Women are also vulnerable to other challenges such as gender-based violence and discrimination and also have limited access to education and healthcare within the camp (Ramos et al., 2020; Mwangovya, 2011). This puts women on the periphery of socioeconomic processes within their communities in the

refugee camps as they are denied opportunities to participate and make a meaningful contribution in leadership, food production, and other aspects that improve their overall wellbeing (UN Women, 2014).

Sustainable farming practices represent an exceptional opportunity for enhancing women's empowerment in refugee camps by equipping them with skills that enable them to meet their families' nutritional needs while promoting economic self-reliance (Young Women in Agriculture, 2017). Such involvement also boosts their confidence by offering them a sense of fulfilment while challenging gender roles within the community.

2.2.1 Nutrition and health in refugee camps

Refugees grapple with different nutritional and health challenges such as irregular food distribution within the camps, limited access to diverse sources of food, and inadequate sanitation facilities; contributing to elevating the rates of malnutrition and illnesses among refugees. Vulnerable groups, especially women and children, often bear the brunt of these challenges. Studies have demonstrated the prevalence of micronutrient deficiencies, stunting, and increased susceptibility to diseases within refugee camps (UNHCR, 2007). It is evident that the combination of inadequate diet, lack of clean water, and unsanitary conditions compounds health risks, making nutritional interventions essential for improving the overall well-being of refugee populations in these camps. The urgency to address these issues underscores the need for innovative strategies that not only provide sustenance but also empower individuals, particularly women, to take control of their nutritional status and health outcomes.

2.2.2 Women's role in refugee camps

The place and role of women in refugee camps is no different from that of many women across the world with cultural set-ups dominated by men. Women are weighed down by cultural practices that undermine their contribution to society. For women refugees, the situation is often worse because they do not enjoy the same civic rights and responsibilities as other citizens and therefore do not have the means to agitate for their rights within the camps (Terry et al., 2023). Despite making up a significant portion of the population, the women are often side-lined when it comes to making important decisions about their households and the wider population within the camps (Omata, 2021). Nevertheless, the women play an important role in refugee camps, often extending beyond their traditional

roles (Terry et al., 2023). They are the primary caregivers and providers of nourishment for their families (Terry et al., 2023).

Studies have established that there are prominent gender disparities within refugee camps, which limit the involvement of women in decision-making processes and the affairs of the community (Terry et al., 2023). In most instances, the voices of women are often silenced when it comes to matters of governance and resource allocation, ultimately hindering their ability to influence policies and decisions that are likely to affect their wellbeing in the refugee camps (Omata, 2021). Restrictive gender norms, cultural inclinations often limiting women to domestic roles, limited mobility and safety concerns further restrict women's access to resources and livelihood opportunities (Peters, et al., 2019). This has detrimental effects on their physical and mental health and wellbeing (Ramos et al., 2020; Mwangovya, 2011). These factors limit their ability to engage in income-generating activities, leading to economic disempowerment and limited food insecurity.

Addressing these challenges requires recognizing women as key stakeholders in camp dynamics and promoting their active participation. Empowering women to play a more significant role in shaping their communities' trajectory not only improves their individual agency but also contributes to more inclusive and sustainable solutions to challenges such as food security and health.

2.3 Resources

Kaabeer (1999) examines women's control over resources, suggesting that accessing resources like credit or employment can reveal their agency. The resources available to women in refugee camps for the purpose of agricultural empowerment include a diverse array of tangible and intangible assets. These resources comprise seeds, financial loans, educational programs, social networks, and personal agencies. Research studies have provided valuable insights into the specific types of resources that are accessible to women in these circumstances, as well as the ways in which they organize themselves to utilize these resources efficiently (Braun-Lewensohn & Al-Sayed, 2018).

The research conducted by Beogo et al. (2018) insists the significance of incorporating the perspectives of refugees when designing programs to address their fundamental requirements. Robust leadership from host nations is paramount for ensuring equitable access to opportunities for refugees across various camps. Innovative approaches,

including the establishment of reliable databases, are necessary to enhance the formulation, implementation, and assessment of policies and programs intended to foster refugee empowerment (Wright, et al., 2015).

The study by Braun-Lewensohn, Abu-Kaf, and Al-Said, (2019) examines coping mechanisms and mental health among female refugees underscores the importance of individual and community-level sense of coherence (SOC) in forecasting mental health outcomes. SOC functions as a crucial coping resource, mediating the link between contextual factors and psychological well-being. The availability of social support networks and community cohesion for women is instrumental in cultivating resilience and adaptation within refugee settlements.

Existing studies also emphasize the vital contributions of external organizations, including non-governmental entities and government initiatives, in furnishing resources and support to empower women within refugee communities. Dhawan et al. (2023) proposes a shift in focus from mere financial inclusion to a more holistic approach of fostering financial health to better address the financial needs of refugees. While accessibility to financial services is undoubtedly essential, it is merely one aspect of promoting self-reliance and empowerment. Equally crucial for enhancing the financial well-being of refugees are investments in supportive conditions, such as access to employment opportunities, identification documents, and long-term stability.

A study by Kaiser (2006) challenges the typical understanding of refugee settlement systems, emphasizing how limitations on the freedom of movement can undermine the socio-economic rights of refugees. The denial of refugee status to those outside of the formal settlement systems perpetuates their vulnerability and restricts their access to resources. Pasha (2019) highlights the disparities between developmental humanitarian policies and the actual conditions within refugee camps, emphasizing the necessity to address power dynamics and support meaningful empowerment of refugees.

2.4 Agency

Agency investigates the decision-making power of women. Studies have established that there are prominent gender disparities within refugee camps, which limit the involvement of women in decision-making processes and the affairs of the community (Terry et al.,

2023). The voices of women are often silenced when it comes to matters of governance and resource allocation, ultimately hindering their ability to influence policies and decisions that are likely to affect their wellbeing in the refugee camps (Omata, 2021). Restrictive gender norms, cultural inclinations often limiting women to domestic roles, limited mobility and safety concerns further restrict women's access to resources and livelihood opportunities (Peters, et al., 2019). This has detrimental effects on their physical and mental health and wellbeing (Ramos et al., 2020; Mwangovya, 2011). These factors limit their ability to engage in income-generating activities, leading to economic disempowerment and limited food insecurity.

Research by Harley and Hobbs (2020) emphasizes the imperative for enhanced refugee involvement in decision-making processes, underscoring the significance of incorporating refugees in policies that impact their lives. Study by Hunt (2008) explores the opportunities and constraints encountered by women seeking asylum and refuge, emphasizing the role of personal agency in navigating their circumstances. While women face numerous obstacles, they demonstrate agency at both the individual and collective levels, leveraging available resources to facilitate their integration into host communities. Their actions not only benefit themselves but also contribute to the development of support systems for future arrivals, highlighting the transformative capacity of agency within refugee populations.

Wiggett's study (2014) examines the gender dynamics prevalent within refugee communities, illuminating the frequently disregarded perspectives of female refugees. Through an analysis of gender roles and power dynamics, the research underscores the agency exhibited by women within refugee populations and the significance of acknowledging and amplifying their voices. The agency demonstrated by women plays a crucial role in shaping community dynamics, informing decision-making procedures, and cultivating resilience in the face of challenging circumstances.

Addressing these challenges requires recognizing women as key stakeholders in camp dynamics and promoting their active participation. Empowering women to play a more significant role in shaping their communities' trajectory not only improves their individual agency but also contributes to more inclusive and sustainable solutions to challenges such as food security and health.

2.5 Framework of reference

The theoretical framework that guides this study is based on two key theoretical frameworks that underpin the intersection of sustainable agriculture, food security, the empowerment of women, and refugee camp dynamics. The Womens' Empowerment Framework by Kabeer (1999) and the six-dimensional food security framework by Clapp et al.,(2022) provide a lens for understanding the complex relationships between the role and place of women, their challenges, empowerment, and how the factors in the two frameworks influence women's role in sustainable agricultural practices within the context of refugee camps.

2.5.1 Women's empowerment framework

Kabeer's definition of empowerment emphasizes the expansion of people's ability to make strategic choices in contexts where this ability was previously denied. This definition can guide the analysis of how empowering women in the Kakuma refugee camp through sustainable agriculture can enhance their decision-making power, access to resources, and overall well-being outcomes.

Kabeer identifies three important factors of empowerment: resources, agency such as decision-making power and achievement such as improvements in well-being outcomes. Resources are broadly characterized as material, human, and social resources that enhance the ability to make choices. Agency is defined as the ability to set and achieve goals, which includes internal motives and a sense of agency in addition to observable behaviours. Achievements are the actual manifestation of valued ways of being and doing (Kabeer, 1999).

This study employed an organized and systematic approach for applying the women's empowerment framework to assess the level of women's empowerment in Kakuma Refugee Camp. The framework guided the identification of the various indicators that are associated with the three components of women's empowerment in Kakuma refugee camp that are in line with the research questions. These include the availability and accessibility of resources such as land, seeds, tools, and water for women in the camp to engage in sustainable agriculture; women's decision-making power in choosing agricultural practices, crops to cultivate, and marketing strategies; and the impact of sustainable agriculture on women's well-being outcomes, such as improved nutrition, income generation, and social status.

2.5.2 Six-dimensional food security framework

Clapp et al., (2022) proposes a comprehensive six-dimensional model for understanding food security. This framework moves beyond the conventional perspectives on food security, which frequently concentrates solely on the availability of food or people's ability to access it. Instead, it encompasses a broader range of factors that contribute to food security outcomes. The six-dimensional food security framework considers the following key elements: availability, access, utilization, stability, agency, and sustainability (Clapp et al., 2022).

Availability is having enough food, either locally produced or imported, that is both sufficient in quantity and quality to meet each person's nutritional needs, free of harmful ingredients, and acceptable in the culture in question. Access is having the financial resources to purchase food for an appropriate diet without jeopardizing other fundamental basic needs, and ensuring that there is adequate food for all, including vulnerable populations. Utilization is obtaining nutritional well-being, a state in which all physiological demands are satisfied by means of having a sufficient diet, clean water, hygienic conditions, and healthcare. Stability is the ability to maintain food security during unforeseen like conflict, or climate shocks. Agency refers to the ability of individuals or groups to make independent decisions about food consumption, production, processing, and distribution, as well as participate in shaping food systems through policy procedures. Sustainability involves food system practices that promote long-term regeneration of ecological, social, and economic systems, that meet current demands of food without compromising future needs. This six-dimensional framework offers a holistic and integrated approach to comprehending how sustainable agriculture influences food security, acknowledging the intricate and interconnected nature of the factors that influence food security outcomes.

The figure below illustrates the interaction of the two frameworks; women's empowerment framework and the six-dimensional food security framework.

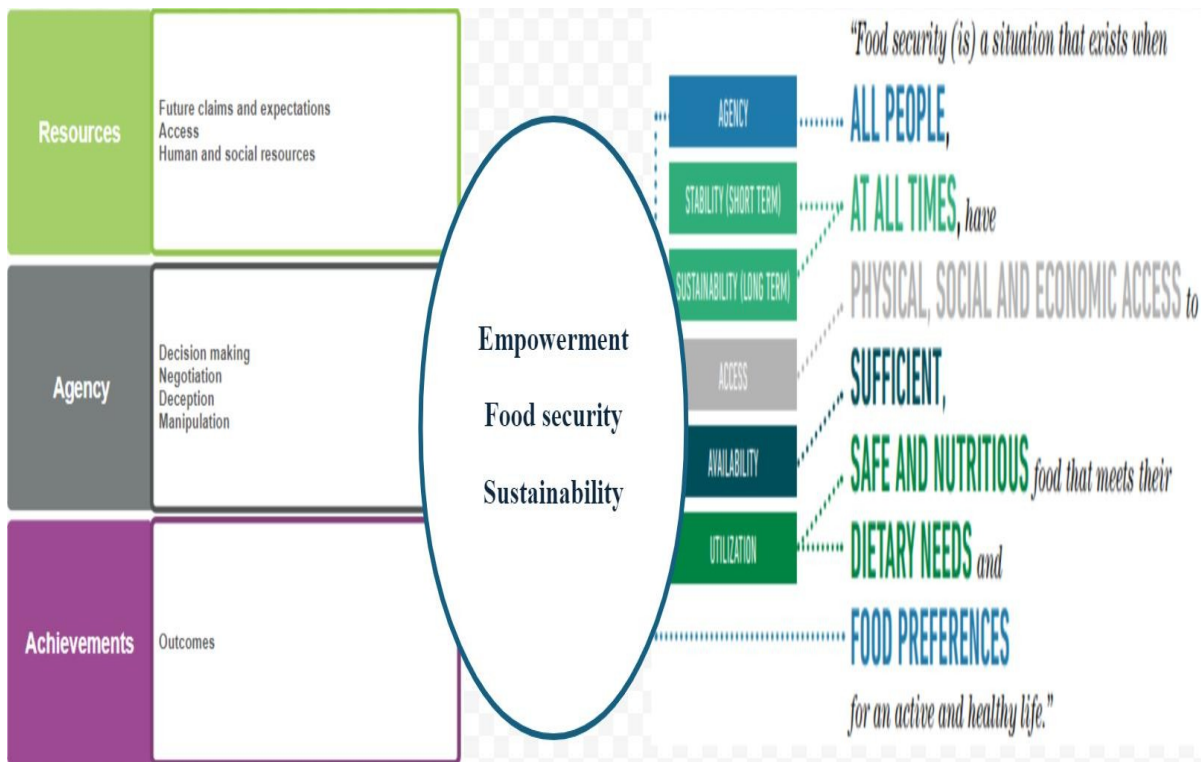


Figure 3: A conceptualized frame of reference

The conceptualized frame of reference will be our reference for this research, for the discussions, findings and conclusions.

Agency was relevant to both theoretical frameworks, emphasizing its importance within the context of this research. Within food systems, agency refers to the ability of individuals and groups to exert control over their own situations and actively participate in the governance processes that shape these systems (Clapp et al., 2022). This dimension emphasizes the importance of individuals and communities transitioning from passive consumers to engaged "food citizens" who can meaningfully contribute to decision-making and policymaking. However, from the perspective of women empowerment, the concept of agency describes the capacity of individuals to make strategic choices and subsequently act upon them, thereby exerting a significant degree of control over their own lives and personal circumstances (Kabeer 1999). More specifically, agency encompasses not only the power to make decisions, but also the capability to set and subsequently achieve personal goals, ultimately reflecting the autonomy and self-determination of the individuals in question.

CHAPTER THREE: METHODOLOGY

This chapter takes us through how the research was undertaken. It informs us why a case study was preferred as the research method, and the scientific reasoning. The chapter informs on the research design, research process and approach, data collection, data analysis, data management and ethical considerations and finally limitations to the research.

3.1 Research design

This research study adopted a qualitative case study research design. Qualitative research design allows for an in-depth exploration of the experiences, the collection of rich and contextual data that encapsulates the complexities of the experiences and perspectives of participants (Denny & Weckesser, 2018). Case in research means a setting, place or institution and people in it (Bartlett and Vavrus, 2017). According to Yin (2014), a case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-world context. A case study answers the “how” and “why”.

The five features of qualitative research (Yin, 2010) are;

1. Qualitative research studies the meaning of people’s lives under real-world condition and capturing their perspectives
2. Represents the views and perspectives of people under study
3. Covers the contextual conditions under which people’s lives take place
4. Explains through existing or emerging concepts the behaviour of people
5. Uses a variety of sources of evidence adding credibility to the study

By adopting a qualitative case study approach, this study gained a profound understanding of the various experiences, viewpoints, and challenges that refugee women experience.

3.2 Research process and approach

The decision to focus this research study on Kenya, and particularly within the Kakuma Refugee Camp, was influenced by several important factors. As a Kenyan national, the researcher possesses a profound understanding of the economic, cultural, and environmental dynamics at play within the country.

The Kakuma Refugee Camp serves as a microcosm of the broader refugee crisis unfolding on a global scale. This camp is characterized by a multifaceted dynamic, encompassing the interplay of humanitarian aid, economic vulnerabilities, and gender-based inequalities.

Situated in a region known for its challenging environmental conditions, the camp's agricultural potential is severely constrained (WFP, 2016). This underscores the profound obstacles refugees face in attaining food security and self-sufficiency. The camp's very existence reflects the complex, interconnected challenges that refugees worldwide confront as they strive to rebuild their lives and achieve a measure of stability and independence in the face of displacement and adversity.

3.3 Data Collection

The population of focus for this study is the women residing in Kakuma Refugee Camp along with the humanitarian workers who are directly involved in the camp's operations and various initiatives and projects related to sustainable agriculture. These two sets of the population provided complementary perspectives on the opportunities, challenges, and outcomes of sustainable agriculture and how participation in sustainable agriculture can be an avenue for empowering women in the KRC.

The study identified and selected key informants who were directly involved in working with refugees in Kakuma, such as livelihood officers employed by humanitarian organizations. Additionally, the researchers included community-based organization workers in the sample. When selecting female participants, the researcher aimed for diversity, including both young and older women, representing different nationalities, marital statuses (married and single), and employment statuses (employed and unemployed).

The criteria for selecting the key informants ensured that the perspectives and experiences of a wide range of individuals directly engaged with the refugee population in Kakuma were captured. This approach allowed the researchers to gather insights from a diverse group of stakeholders who could provide in-depth information and a comprehensive understanding of the issues faced by the refugees.

The study sought to collect both primary and secondary data. Primary data was collected from participants through semi-structured interviews, focus groups, and questionnaires. In-

depth interviews were conducted among humanitarian workers as well as with experts like agronomists with the direct experience of working in the KRC. The interview questions sought to gather relevant data on the perspectives of the humanitarian workers on sustainable agriculture practices, women’s empowerment, food security, gender dynamics in the camp, and the various challenges encountered by women in the refugee camp.

Questionnaires were also used to gather primary data from women in the KRC. The questionnaires were thoughtfully designed to extract information concerning participants' perceptions of food security, their comprehension of sustainable agriculture methods, and their willingness and ability to participate in such initiatives. A culturally sensitive approach was taken in administering the questionnaires to ensure that the participants felt comfortable expressing meaningful responses. Secondary data was gathered through document analysis, where various sources including relevant documents, reports, and records pertaining to food security, gender dynamics, and existing initiatives within Kakuma Refugee Camp were collected and analysed. This secondary data provided context and enrich the qualitative findings, helping to triangulate and validate the primary data.

Table 1: The summary table provided below offers an overview of these demographic characteristics.

| Interview | Age Range | Nationality | Length of Stay in Camp | Family Size |
|------------------|------------------|--------------------|-------------------------------|--------------------|
| RW01 | 25-40 | Somali | 5 years | 6 |
| RW02 | 30-50 | South Sudanese | 8 years | 8 |
| RW03 | 35-55 | Congolese | 12 years | 7 |
| RW04 | 20-35 | Ethiopian | 3 years | 4 |
| RW05 | 40-60 | Eritrean | 10 years | 5 |
| RW06 | 25-45 | Sudanese | 6 years | 3 |
| RW07 | 30-50 | Somali | 4 years | 9 |
| RW08 | 35-60 | South Sudanese | 7 years | 6 |
| RW09 | 20-40 | Congolese | 11 years | 5 |

| | | | | |
|-------------|-------|-------------------|----------|---|
| RW10 | 40-55 | Ethiopian | 9 years | 8 |
| RW11 | 25-45 | Eritrean | 6 years | 4 |
| RW12 | 30-50 | Sudanese | 5 years | 7 |
| RW13 | 35-60 | Somali | 8 years | 6 |
| RW14 | 20-40 | South Sudanese | 10 years | 5 |
| RW15 | 40-55 | Congolese | 12 years | 7 |
| RW16 | 25-45 | Ethiopian | 4 years | 6 |
| RW17 | 30-50 | Eritrean | 7 years | 4 |
| RW18 | 35-60 | Sudanese | 9 years | 8 |
| RW19 | 20-40 | Somali | 11 years | 5 |
| RW20 | 40-55 | South Sudanese | 8 years | 7 |

Table 1: Participant Demographics

The demographic data provides a more comprehensive understanding of the diverse experiences and varied backgrounds of the individuals participating in the study.

Recognizing these demographic factors is crucial for properly contextualizing the participants' perspectives on the critical issues of food security, sustainable agriculture, and the challenges they encounter in their livelihoods within the refugee camp setting. This enables a more nuanced and detailed analysis of the data, taking into account essential elements such as the participants' cultural heritage, the duration of their displacement, and the dynamics within their families.

It also reveals crucial and fundamental insights and understandings about the specific composition and makeup of the refugee population residing within the camp providing valuable information and a deeper comprehension of the diverse backgrounds, experiences, and needs of the individuals taking refuge in the camp setting.

3.3.1 Research instruments

The study utilized semi-structured interviews to aid in the data collection processes. The semi-structured interviews made use of open-ended questions that were posed to

humanitarian workers in the KRC to gain valuable insights that informed program implementation, the challenges and various strategies that can be embraced and implemented to ensure women in the camp are full empowered through sustainable agricultural practices.

The researcher recognized the inherent challenges and safety risks associated with physically accessing the camp within a constrained time period. As a result, they made the strategic decision to conduct telephone interviews instead. This approach proved to be both cost-effective and secure, providing flexibility in scheduling the interviews.

3.3.2 Pilot study

The researcher conducted a pilot study prior to the primary study to refine the research tools and processes. This initial pilot study involved the participation of one humanitarian aid worker and two refugee women. This provided a valuable opportunity to test the phone interview method, make necessary adjustments to the research procedures to enhance clarity, comprehensibility, and ensure the relevance of the interview questions and questionnaires. For the purposes of the pilot study, the interviews were carried out among the selected participants through telephone calls.

The pilot study allowed the researcher to evaluate and fine-tune the research instruments and protocols before implementing the main study. By involving a small sample of participants, the researchers were able to identify any issues or areas for improvement in the interview process and questionnaire design. This preliminary phase ensured that the primary data collection would be more effective and efficient, as the researchers had the opportunity to make necessary adjustments based on the feedback and insights gained from the pilot study.

3.3.3 Interviews

The researcher carefully selected refugee women living in the designated camps and the Kalobeyei integrated settlement as participants for the study. The selection process considered various factors, such as the women's marital status, age, and employment status, to ensure a diverse and representative sample. This selection was facilitated by a community-based worker who is a refugee themselves and maintains regular interactions

with the refugee population. By employing this community-based approach, the researchers were able to capture insights from a wide range of refugee women.

Each participant was compensated for their time and participation. Prior to the interviews, the community-based worker guided the participants through the interview questions, ensuring they fully understood the content, and in a local language Swahili which all understand and without any distortion of meaning. This preparatory step ensured the participants were well-informed and comfortable, facilitating the establishment of a positive rapport before the formal interview process commenced. The telephone interview method enabled the researcher to gather the necessary data in a safe and efficient manner, while also prioritizing the participants' understanding and overall experience.

The researcher took great care to thoroughly document all of the interviews conducted as part of the study. Each interview was recorded in meticulous detail, capturing the full dialogue verbatim. Following the completion of the interviews, the researcher then diligently transcribed these audio recordings to create comprehensive written records of the discussions. By listening to the recordings multiple times during the transcription process, the researcher was able to conduct an in-depth analysis of the content and perspectives shared by the interview participants. This rigorous approach to data collection and analysis ensured that the discussions were documented with a high degree of accuracy, allowing the researcher to gain a comprehensive understanding of the relevant topics covered.

3.4 Validity and reliability

To ensure validity of the study, the research instruments were developed based on existing literature, expert consultation, and feedback from the pilot study. Credibility was maintained through member checking, where participants review and validate the findings. To enhance reliability, clear guidelines for data collection and analysis were established.

3.5 Data analysis

Primary data collected through semi-structured interviews and questionnaires were subjected to thematic analysis. This is a qualitative data analysis process that involves systematically identifying patterns, themes, and categories within the data. An iterative process of coding and interpretation was employed to capture the complexity of

the participants' experiences and perspectives (Braun & Clarke, 2021). After familiarizing data collected, recurring patterns and themes present within each individual transcript were identified (Guest et al., 2012). The data was then systematically coded according to the themes and concepts identified in the theoretical frameworks. Each piece of data was assigned to relevant categories or codes representing elements of women's empowerment and food security dimensions. The results of this coding process are as tabulated below:

Theoretical Concepts Relevant Themes Description of the Themes

| | | |
|---------------------|-------------------------------------|---|
| Availability | Dependence on Food Rations | The role of food assistance in ensuring food availability. |
| | Environmental Challenges | Environmental conditions and effects on agriculture and availability of food within the camp. |
| | Water Scarcity | Effects of limited water availability on agriculture |
| | Income Generation and Market Access | Different income-generating activities and role in food security and empowerment. |
| | Market Linkages and Systems | Role of market linkages and systems in improving food availability. |
| Access | Economic and Non-Economic Barriers | Income levels, infrastructure and social norms, and effect on food access. |
| | Camp-specific Challenges | The unique circumstances of the Kakuma Refugee Camp related to access to food. |
| | Multifaceted Analysis | Barriers faced by refugee women in securing sufficient and varied food supplies |
| | Challenges in Food Distribution | Challenges in accessing food rations; quantity and quality of food rations, physical distance between the camp and distribution centres |

| | | |
|--------------------|---|---|
| Stability | Impact of Disruptions on Food Security | Disruptions on the food system and challenges to maintaining food security. |
| | Resilience-building Strategies | Strategies such as diversifying food sources and strengthening local production networks for safeguarding food security |
| | Environmental Challenges | Environmental challenges impact on the stability and reliability of food systems. |
| | Adaptive Strategies | role of adaptive strategies such as improving water availability to enhance agricultural productivity and improve food security. |
| Utilization | Dietary Quality and Nutrient Absorption | Factors such as malnutrition, dietary diversity, food safety, and role on food security and wellbeing. |
| | Tailored Interventions and Context-Specific Solutions | Implementing context-specific interventions, and fostering self-sufficiency. |
| | Promoting Dietary Diversity and Food Self-Sufficiency | Diversification of crops and cultivation of a variety of nutritious foods to address nutritional deficiencies prevalent in refugee settings, |
| | Holistic Approach to Food Security | Need for holistic approaches to address the complex challenges of food insecurity |
| | Implementation of Sustainable Practices | Role of sustainable agricultural interventions, such as climate-smart farming methods and water management strategies on food security and resilience |

| | | |
|-----------------------|-----------------------------------|---|
| | Challenges and Opportunities | Challenges in achieving sustainable food security, including limited resources and adverse climatic conditions |
| Sustainability | Need for Comprehensive Strategies | Need for multifaceted strategies focused on capacity building, market linkages, and financial inclusion, |
| Agency | Empowerment and Participation | Building capacity of individuals and communities to assert control over their circumstances and actively engage in decision-making processes |
| | Need for Enhanced Empowerment | Efforts on addressing food security issues in Kakuma and need for collaborative and inclusive strategies to promote their active participation in food-related processes. |
| | Capacity-building Initiatives | Efforts such as agricultural training programs and entrepreneurship development and role in empowering refugee women |
| | Community-driven Strategies | Collaborative efforts and knowledge exchange among farmers, and role in empowering refugees to take an active role in their food production systems |
| | Women's Agency | The ability of refugee women to make independent decisions and take actions that shape their own lives and livelihoods |
| | Barriers to Agency | Obstacles and challenges that refugee women face in exercising their agency within the refugee camp Environment |
| | Gender Inequity | Systemic disparities and biases resulting in unequal access to resources and opportunities between men and women |
| | Agricultural Empowerment | The transformative role of agriculture in enhancing women's agency and autonomy within the refugee camp. |

| | | |
|--------------------|---|--|
| Resources | Women's Empowerment | Role of resources on empowering refugee women by enabling their active participation in decision-making processes |
| | Gender Equity | Assessing distribution of resources, opportunities, and responsibilities between men and women, participation in decision-making processes related to agriculture. |
| Achievement | Tangible Outcomes of Empowerment | The concrete and measurable improvements in the well-being and living conditions of women resulting from their increased agency and access to resources. |
| | Economic Empowerment through Agriculture | The role of women's participation in sustainable agricultural initiatives in fostering economic independence and empowerment |
| | Community Resilience and Sustainability | The importance of incorporating sustainability and resilience-building strategies into agricultural programs within refugee camp settings |
| | Interconnectedness of Well-being and Agency | The inherent relationship between women's agency, access to resources, and achievements in various domains of well-being |

Table 2: Summary of Thematic Analysis

The coded data was carefully analysed within the context of the relevant theoretical frameworks, evaluating how the findings aligned with or diverged from the established theoretical concepts and propositions. Specifically, the researcher explored the intersection between the conceptualization of women's empowerment, as outlined in Kabeer's framework, and the dimensions of food security delineated in Clapp et al.'s framework. This interpretative process facilitated a more nuanced understanding of the relationship between women's empowerment and food security within the context of refugee communities, thereby identifying areas that warrant further research and policy-level interventions.

3.6 Data management and ethical considerations

Prior to beginning data collection, the researchers obtained the necessary ethical approval through SIKT, a Norwegian agency responsible for addressing data safety and ethical concerns related to research conducted by Norwegian institutions. As the study involved the processing of personal data, the researchers submitted a Notification Form to ensure the research adhered to data protection requirements. This submission was successfully approved, indicating the study's compliance with relevant regulations and ethical standards. To protect the anonymity of the participants, they were given the option to withdraw from the interview process at any time. This safeguard was in place to respect the participants' autonomy and right to self-determination, ensuring they could freely choose to continue or discontinue their involvement in the study without consequence.

The emphasis on obtaining ethical approval and maintaining participant anonymity and the right to withdraw demonstrates the researcher's commitment to upholding the ethical principles of research, such as respect for persons, beneficence, and justice. Through these proactive measures, the researcher aimed to minimize potential risks or harms to the participants and ensure the overall integrity and trustworthiness of the research process.

3.7 Scope and limitations

While the findings of this study and the recommendations therefore may be applicable to refugee camps and similar settings globally, the scope of this study is only limited to Kakuma Refugee Camp in Kenya. As one of the largest refugee camps in Kenya and worldwide, Kakuma Refugee Camp provides a good opportunity to understand the challenges that women face and how those challenges can be mitigated through sustainable agricultural production. In terms of content, the scope of this study is limited to understanding how women in refugee camps can be empowered through sustainable agricultural practices.

The study is based on a qualitative approach, which restricts the generalization of findings to other refugee contexts as refugee camps differ in terms of population dynamics, location, and resources. To address this limitation, this study recruited a diverse group of refugee women drawn from different family structures, age groups, nationalities, ethnicities, and length of stay in the camp (UNHCR, 2018).

The study's emphasis on sustainable farming practices as sustainable agriculture solutions may not address all aspects of food security and empowerment. To address this limitation, this study recruited knowledgeable participants, including humanitarian workers and those with expert knowledge such as agronomists who provided unique perspectives on the current state of food security and sustainable farming practices that could be utilized in Kakuma Refugee Camp (Burchi et al., 2011).

The use of self-reported data from questionnaires and interviews raises the possibility of response bias or misinterpretation. In order to minimize the chances of bias in the questionnaires, the study used clear and neutral language when designing the questionnaires as well as when conducting the interviews (Einola & Alvesson, 2020). Data credibility was achieved through member checking where the participants were given an opportunity to review and confirm the data they provided through the questionnaires (Birt et al., 2016). Interviews were conducted in a culturally sensitive manner to ensure the participants felt respected and understood (Rodriguez et al., 2011).

CHAPTER FOUR: FINDINGS

An interview guide was developed to get information on sustainable agriculture practices at Kakuma Refugee Camp. The interview guide was consistent and similar for all the informants and the interviews. The informants were informed of their rights, consent and how the information was to be used. The findings presented are true and a result of the interviews. The writer has no bias or conflict of interest in the study.

4.1 Introduction of Kakuma refugee camp

The Kakuma Refugee Camp, situated in the north-western region of Kenya, is one of the world's largest refugee settlements, having been established in 1992 (UNHCR, 2023). The camp is located in a semi-arid environment, characterized by extreme weather conditions, including high temperatures and limited precipitation (UNHCR, 2023). Kakuma Camp currently accommodates more than 200,000 refugees, the majority of whom originate from countries such as South Sudan, Somalia, Ethiopia, and the Democratic Republic of the Congo (DRC) (UNHCR, 2023). The camp also hosts refugees from other conflict-affected areas, including Eritrea, Burundi, and Rwanda (UNHCR, 2023).

The gender distribution within the camp is relatively balanced, with men and women comprising significant fractions of the overall population. Women and girls make up for the largest population in the camp (UNHCR, n.d). Women often face unique challenges and vulnerabilities in the camp setting such as poverty, gender-based violence, and lack of education among others (UNHCR, n.d). The Kakuma camp experiences substantial constraints regarding the availability of land due to its sizable population and geographical limitations (Okoti et al., 2004). Refugees are allocated small portions of land for residential purposes and restricted agricultural activities. The land rights of refugees within the camp are frequently ambiguous, with limited opportunities for establishing land tenure or ownership (Tachiiri & Ohta, 2004).

Different organizations are on the ground at the camp, providing necessary help and supporting the refugees. The organizations work under the umbrella of the UNHCR. These organizations include:

1. The government of Kenya (GOK)
2. Lutheran World Federation (LWF)
3. Danish Church Aid (DCA)

4. IsraAid
5. Korean International Cooperation Agency

The organizations have their core areas and mandates and cooperate with each to deliver services at the camp.

The relationship between the individuals residing in Kakuma Camp and the surrounding community has been complex. The camp's existence has generated economic advantages for the region; it has also exerted pressure on local resources, occasionally resulting in tensions between the refugees and the host populations (Tureti, 2003). Efforts to foster constructive relations and promote mutual comprehension are continuing, yet challenges persist (Tureti, 2003). The Kenyan government's Department of Refugee Affairs (DRA) is tasked with the management and administration of Kakuma Camp. Nonetheless, various international and non-governmental organizations (NGOs) play a crucial role in providing indispensable services and support to the refugee population. Entities such as the United Nations High Commissioner for Refugees (UNHCR), Lutheran World Federation (LWF), IsraAid, Danish Church Aid, and numerous others are actively engaged in implementing projects related to food security, livelihoods, education, healthcare, and protection within the camp. These organizations collaborate to address the multifaceted needs of the refugee population and promote sustainable solutions to the challenges they confront.

4.2 Interview findings

The results of the interviews conducted at Kakuma refugee camp are presented in this sub-chapter. The interviewees were women refugee residents at the camp, and employees working for the different organizations at the camp.

4.2.1 Population

The refugee residents at Kakuma are from different nationalities. The nationality breakdown from the interview demonstrates the heterogeneous nature of the camp's resident population, which is primarily composed of people seeking refuge from a variety of national and ethnic crisis in their home countries. The data shows that Sudanese and South Sudanese refugees make up the largest group, accounting for approximately a quarter of the total. Other nationalities at the camp are Burundians, Somalis, Ethiopians,

Congolese and Ugandans. In terms of gender females are the largest gender. With females we mean in this study women.

Interviewee HW05 working in Lutheran World Foundation revealed that,

“Many of the refugees arriving in the camp are women and most of the household heads are women. And this is because countries like Southern Sudan, it's the women and children who come to the camp whereas the men are left to fight back in southern Sudan. Women are the ones who are given the responsibility of taking care of households (HW04)”.

This diversity highlights the camp's function as a haven for displaced women from multiple countries in the region. It is also important to acknowledge the heterogeneity of women in refugee camps, highlighting the diversity in their socioeconomic status, household composition, and lived experiences.

The study participants were primarily middle-aged, between 30 to 50 years old. This suggests that the interviewees were largely representative of the mature and established members of the refugee population. Individuals in this age group often hold significant responsibilities and play crucial roles within their households and broader community structures. They may serve as primary breadwinners, caretakers, or community leaders, and their perspectives and experiences are valuable in understanding the challenges and needs of the refugee population's age group among the study participants indicates that the research aimed to capture the insights and narratives of the more established and influential members of the refugee community, whose voices and experiences may carry significant weight and influence within their social networks and the communities they are a part of.

4.2.2 Socioeconomics

The research found intricate connections between food insecurity, economic vulnerability, and social disparities. Women in the camp describe the pervasive impact of limited income-generating opportunities, inadequate access to financial resources, and systemic barriers to economic empowerment, which exacerbate their vulnerability to food insecurity and perpetuate cycles of poverty.

Interview findings indicate that the refugees living at Kakuma have been forced to leave their homes for a considerable amount of time, with the average stay as a refugee being approximately 7.5 years. This prolonged displacement suggests substantial and continuing dependence on humanitarian aid and support to meet their basic needs, such as food and livelihood assistance. As evidenced by the interview participants, women's circumstances within the camp setting vary, contributing to the distinct challenges they face. While some women are unemployed and entirely reliant on humanitarian assistance for their sustenance, others are engaged in various forms of economic activities, ranging from unskilled labour to entrepreneurial activities. Some women operate small businesses within the camp, demonstrating a degree of economic agency and resilience.

Women assume diverse roles within their families. Some are unmarried, others married, some with children, and others with no children. These variations in marital status and family composition impact women's access to resources, social support networks, and decision-making autonomy. Cultural factors dictate that women are required to stay at home as home keepers to take care of their husband and children. Women are vulnerable to sexual exploitation and abuse, and sell sex to afford an income to support their families.

The duration of residence in the camp significantly impacts women's experiences and their socioeconomic strategies. Refugees who have resided in the camp for a longer period develop techniques for navigating challenges and accessing available socioeconomic opportunities. A case example is Danish Church Aid (DCA) initiating income generating activities surrounding food security. DCA has initiated kitchen gardens, introducing climate smart agriculture in the communities so that communities are able to produce their food to supplement what is provided by the World Food Programme (WFP). Those who are able to do small businesses, no matter how small it is, are supported, so that they're able to earn income and buy food for the households. The accumulated experience provides them with knowledge and abilities to manage their livelihoods, fostering a sense of self-sufficiency and adaptability.

The research learnt that food insecurity is a major contributor to mental health problems among women living in the refugee Camp. The women face significant psychological stress, anxiety, and depression as they strive to provide adequate nutrition for themselves and their families in the face of limited resources, often feeling guilty and helpless as they

witness their children and loved ones go hungry. This fear and struggle to feed their loved ones exacerbates their mental health issues, leading to a cycle of distress and despair. The psychological burden of food insecurity extends beyond individual well-being, affecting family relationships and community cohesion, and amplifying social tensions and exacerbating existing vulnerabilities

4.2.3 Resource access and availability

The interviewees revealed the disproportionate difficulties encountered by refugee women living in the camp. As the primary caregivers for their households, the women shoulder the burden of addressing their families' fundamental needs and accessing crucial resources within an exceptionally challenging setting. Food security tops the list owing to the dry climate conditions at Kakuma.

The prolonged stay of in the camp emphasizes the pressing need for enduring solutions to address the persistent problems of food availability and livelihood difficulties. Women face additional obstacles in accessing the required resources and opportunities. The respondents expressed the various difficulties they encounter in trying to access food. A common issue that emerged was the challenge of obtaining a sufficient and varied diet due to restricted food supplies and dependence on food assistance. As respondent RW07 stated,

"We frequently receive the same food items from the aid organizations, primarily staple foods like maize and beans. At times, we lack access to vegetables and fruits, which are crucial for our health (RW07)." This highlights the monotonous nature of food aid programs and the limited diversity in the diets of the recipients, which can result in nutritional deficiencies and compromised overall well-being (Nisbet et al., 2022).

The refugees who have jobs or businesses are able to afford to buy food for their families but as one respondent noted,

"a small percentage of refugees can afford three meals a day, either refugees who are employed, and have a source of income, or those that have a business that they are running so they're able to get income and so they can afford three meals per day for their families."

According to interviewee HW04, *“most women have never been to school, their literacy level is very low. And therefore, it becomes a very big problem for women to access a meaningful income for their families.”*

Women mostly hold unskilled jobs either as cleaners, cooks, and caregivers due to low literacy levels. *“It is a very, very big challenge for a woman in the refugee camp to be able to access financial support as compared to men. And when it comes to accessing support from financial institutions, women do not have the required documents. These women cannot even write, read, they cannot sign. So, the financial institutions are suspicious, and they are always cautious of even giving out loans to women even to start small businesses (HW04).”*

Additionally, the unpredictability of food distribution further compounds the challenges faced by the recipients, as exemplified by the statement from participant RW12, who expressed the uncertainty and lack of assurance about the availability of food in the future. This indicates uncertainty surrounding food availability in the camp contributes to food insecurity and heightens stress among the women, affecting their mental and emotional well-being (Nisbet et al., 2022). The food aid provided often fails to meet the nutritional requirements, as respondent RW03 narrated, *“the food we receive is not always fresh or of good quality, and sometimes it is even expired or spoiled, but we have no other option but to consume it”*. The rationing technique, often managed by humanitarian groups like UNHCR and WFP, fails to meet the nutritional requirements of individuals and households.

The distance to distribution centres and unpredictable environmental conditions further compounds the challenges. The geographical placement of food distribution facilities is an obstacle to food accessibility for numerous refugees, particularly women. The considerable distances to these distribution points make it difficult for individuals to regularly access food, especially those with restricted mobility. Women may encounter challenges in traveling to the distribution centres access relief food. A respondent working with one of the organizations explained the different risks and challenges women face, *“If they don’t have money to pay for transportation, they have to sell a portion of the food portions they receive to pay for transportation or carry the food on their head and walk for long*

distances. If they walk they face the risk of being raped and gender based violence or thieves can snatch them food”

The environmental conditions in Kakuma Refugee Camp; unpredictable rainfall and water scarcity, as well as climate shocks such as drought and locusts contribute to the limited availability of food within the camp. The dry climate and irregular precipitation patterns make it difficult for agricultural activities to be productive, leading to crop failures and food shortages. Women, who are typically responsible for household food production, bear the burden of these environmental challenges as they struggle to grow crops and ensure their families have enough food.

The study identified market dynamics and access to financial services as other factors influencing food access and nutritional well-being. The refugee women particularly those without employment, a business or a source of income face structural constraints that impede their ability to secure affordable and nutritious food for themselves and their families. One respondent confirms that, *"Limited income-generating activities contribute to food insecurity (HW03)."*

Transportation options, inadequate infrastructure, and high transaction costs exacerbate vulnerability to food insecurity and limit the ability to access affordable and nutritious food. Other market dynamics, including price fluctuations and supply chain disruptions, further compound the challenge of securing food perpetuating cycles of deprivation.

4.2.4 Food shortage

Despite efforts by humanitarian organizations such as Danish Church Aid and the Ministry of Agriculture, among others, in implementing a variety of projects including kitchen gardens and climate-smart farming methods, to food production, as well as supporting livelihoods in the camp and host town, food insecurity persists, affecting more than 70% of the population, causing the refugees to heavily rely on food rations. Although humanitarian organizations have made efforts to distribute food aid, the quantity supplied frequently falls short of fulfilling the nutritional requirements of the recipients. Rations are distributed according to the number of people in a household, and don't meet the food requirements of most families. Respondent HW03, emphasised this, *"Rations are not enough; individuals may receive 4 kg of maize per month. If one does not have other*

sources of income like a business or external support, they have to manage the food rations well. Life is challenging.” (HW03)

To extend the duration the food to last until the next distribution, most refugees have to make the choice of eating one meal per day. It was revealed that some people in the camp die of hunger. The limited amount and variety of food aid fail to satisfy vulnerable groups like pregnant women, breastfeeding mothers, and young children. Consequently, refugees may suffer from nutritional deficiencies in essential nutrients such as protein, vitamins, and minerals, which can negatively impact their health and well-being.

Food shortage has psychological effects especially to the women who are responsible for feeding their families. One organization worker stated, *“When food is not enough and are unable to feed their families, they are affected when their children go to school hungry It makes them emotionally and psychologically unstable”*.

4.2.5 Empowerment

Intersections of gender vulnerability in food security with broader socio-economic inequalities perpetuate cycles of deprivation and reinforce women's vulnerability in Kakuma. The organisations working in Kakuma have initiated interventions and programs to mitigate food insecurity, financial independence, community-based resilience-building initiatives, psychosocial and trauma-informed care for mitigating the adverse psychological effects of food insecurity and promoting mental well-being in the camp. Most programs in Kakuma target the women more to help them be self-reliant.

The average household has six members. This highlights the significance of comprehending and addressing the distinct perspectives and challenges confronted by larger families residing within the camp. Families with more members may face unique obstacles in obtaining sufficient food and accessing income-generating opportunities compared to smaller households. Recognizing and catering to the specific needs of these more populous families is crucial, as their experiences and difficulties may differ considerably from those of smaller household units in the camp.

4.2.5.1 Sustainable agriculture

There are various projects by humanitarian organizations and the Kenya ministry of Agriculture whose role is coordinating all activities that are implemented by partners, i.e. the organizations working at Kakuma for example WFP, World Vision, DCA and others. The Kenya ministry of agriculture offer advice regarding climate smart agriculture activities (CSA) as well as offer training and monitoring of projects.

A project called K Dream initiative (Kaluboiye Drought response emergency programme) is funded by Korea International Cooperation Agency. K Dream is a nutrition-sensitive initiative that educates participants about climate-smart agriculture, establishes home gardens, provides water stations, and distributes goats. It targets women's participation in organizations while also meeting the needs of people with disabilities and those who are disadvantaged.

The Kenyan government in collaboration with the Swedish government runs a project called Agriculture Sector Development Support Program (ASDSP) which prioritizes women. An interview with a participant working with the ministry of Agriculture revealed that, *“when there are climate shocks, the most disadvantaged are women and children.”*(HW05).

IsraAid is helping women in establishing kitchen gardens, encouraging them to use domestic water for vegetable production to alleviate food insecurity. They also connect refugees with organizations that supply farm inputs such as seeds and farming equipment for establishing the kitchen gardens in the camp.

The research found the significance of implementing climate-resilient farming methods to mitigate the effects of climate change on agricultural productivity in Kakuma Refugee Camp. Climate-resilient farming techniques provide promising avenues for building the adaptive capacity of refugee farmers and improving agricultural sustainability in the camp.

“Sustainable agriculture involves employing climate smart technologies and innovation. So, you'll find that we are able to use the little available resources like water and space. Remember that if it is a very limited space. The technologies

ensures that they can produce food for both household and meet local market needs (HW05).”

Respondents highlighted the utilization of drought-resistant crop varieties and traditional cultivars adapted to the region's climatic conditions as effective strategies for enhancing crop resilience and ensuring food security. By selecting resilient crop varieties capable of withstanding water scarcity and extreme temperatures, farmers can minimize crop losses and maintain agricultural production under challenging environmental conditions.

Promoting traditional crop cultivars adapted to the local environment enhances agricultural biodiversity, preserves genetic resources, and strengthens food sovereignty within the camp.

Through the ministry of Agriculture, the farmers are empowered to plant high value crops to generate income and to meet their nutritional needs by ensuring diverse dense and nutritious foods.

“Sustainable agriculture contributes to reducing the rates of malnutrition. So, Turkana West is not rated as badly off in terms of malnutrition compared to other sub counties. It could be attributed to these intensive farming technologies that we are employing, unlike the other areas, having irrigation and are planting one crop, sorghum only (HW05).”

Integrated farming that combines livestock and crop production offers a comprehensive approach to sustainable agriculture in Kakuma Refugee Camp. Participants recognize the benefits of incorporating livestock components, such as poultry, goats, and rabbits, with crop cultivation to optimize nutrient cycling, soil fertility, and pest management. Livestock provide valuable inputs, including manure for organic fertilizer, draft power for land preparation, and supplementary income through the sale of animal products.

Cultivation of a wide range of crops with varying growth characteristics and nutritional profiles is a strategy employed to enhance resilience to environmental stresses, improve dietary diversity and ensure food security in Kakuma Refugee Camp. Participants emphasize the importance of promoting diverse crop cultivation to mitigate the risks associated with climate variability, pests and diseases. By growing a variety of crops with

different maturation periods, water requirements, and nutritional profiles, refugee farmers can buffer against crop failures and ensure a steady food supply throughout the year

Given the limited water resources and the arid climate in the region, water conservation is a crucial aspect of sustainable farming practices in Kakuma Refugee Camp. Respondents emphasize the significance of utilizing wastewater for irrigation to recycle and optimize water use in agricultural production. Implementing practices to minimize water loss, such as drip irrigation, mulching, and soil moisture conservation techniques, can help maximize water efficiency and enhance agricultural productivity. By adopting water conservation strategies, refugee farmers can mitigate the effects of water scarcity, improve crop yields, and sustainably manage water resources for long-term food security.

“Water is a big, big, big, big challenge and needs a concerted effort in ensuring that there is sufficient water for both domestic and agricultural production.

Because without water, water is life. We can have big dams, because when it rains here, it really pours. And we have potential to trap water runoff. And we also have potential underground water. We were told we have water which is able to last up to 70 years or whatever, it's saline, so there is need for technologies that are able to desalinate the water (HW05).”

Use of agroecological practices involve applying ecological principles to agricultural systems, focusing on biodiversity, natural resource preservation, and ecosystem resilience in Kakuma Refugee Camp. Agroecological practices offer promising solutions for promoting sustainable agriculture and enhancing food security in Kakuma Refugee Camp. Respondents advocate for the adoption of non-intensive farming methods, such as agroforestry, organic farming, and permaculture, which prioritize environmental sustainability, soil health, and biodiversity conservation. These agroecological approaches promote the integration of trees, shrubs, and crops to create diverse and resilient farming systems that mimic natural ecosystems. By enhancing soil fertility, water retention, and pest regulation, agroecological practices reduce the reliance on external inputs, such as chemical fertilizers and pesticides, and improve the long-term viability of agricultural production in Kakuma Refugee Camp.

Agroecological farming systems contribute to climate change mitigation by sequestering carbon, enhancing ecosystem services, and promoting climate-resilient crop varieties. However, scaling up agroecological practices requires supportive policies, investment in farmer training and extension services, and access to appropriate technologies and inputs. Collaborative efforts between research institutions, NGOs, and local communities are essential for mainstreaming agroecology and promoting its adoption as a sustainable farming approach in Kakuma Refugee Camp.

4.2.5.2 Economic empowerment

The Refugee women need support for financial inclusion and entrepreneurship because low literacy levels, and limited employment opportunities limits their financial abilities to access food. There is a need for targeted support and empowerment programs to address the financial gap.

Danish Church Aid (DCA) supports economic empowerment among the women, as stated by a humanitarian worker from the organisation, *“we have some components of financial inclusion where we build the entrepreneurial capacities of the refugees and the host community, the youth and we also have components of competitive entrepreneurship funds. We also support innovative ideas, and we fund them (HW02).”*

Lutheran World Federation (LWF) has various programs of empowering the refugees by providing vocational training for youth, men, and adolescent mothers. They also assist groups who make various handicrafts with branding, quality control and market linkages. LWF teach their beneficiaries about VSLA, a savings concept, so they can save and improve or start new businesses. They also identify vulnerable groups in the communities of both the host and the refugees, and train them on basic business management, providing them with seeds and cash in the form of grants or loans.

Partnerships with different players at Kakuma provide additional support, including access to markets, value-added processing facilities, and financial services, thereby stimulating local economic development and livelihood opportunities. Community-driven approaches to agriculture have empowered refugees to take ownership of their food production systems, build social cohesion, and collectively address food security challenges in Kakuma Refugee Camp

4.2.5.3 Psychosocial empowerment

A respondent working for IsraAid, shed light on their role in offering psychosocial support to the refugees;

“In IsraAid we conduct identification and referral. Once we identify a person who is food insecure or facing other challenges, even though we don’t directly help them access food, we provide psychosocial support where we talk with them about their thoughts, plans and expectations or we refer them to other organizations that can offer them the required support. We help them brainstorm and reach the point where they can make the best decision for their family. We need to help them be resilient. Many refugees have gone through traumatic experiences from their countries such as war, loss of property and family members and when they come to the camp, they have to start from zero. Coping and starting life afresh is not easy. Some stagnate, commit suicide or just sleep in the house unable to perform any duties due to stress. We help them get back on their feet by making the right decision. Some get motivated and take the step to tackle the challenges and that is our main role (HW03).”

Additional efforts are needed to address the psychosocial according to another worker from IsraAid who shared that, *“the demand is higher than the available services. Only the most vulnerable can be helped but then every refugee is vulnerable, so choosing some to access such services damages the community psychologically.” (HW03)*

Comprehensive health interventions that prioritize nutrition-sensitive programming, access to vital healthcare services, and preventative actions to lower the burden of diet-related illnesses among women in the camp are offered. Holistic approaches that develop community solidarity strengthen social support networks, foster empathic communication can help minimize the negative impacts of food insecurity on interpersonal relationships and increase community resilience in the face of adversity. IsraAid also focuses on protection and integrates Water, Sanitation, and Hygiene (WASH) programs with nutrition and health components.

Participating in agriculture reduces idleness and promotes social wellbeing.

“It reduces idleness and all that, keeps people busy and be productive. It reduces the social deviance in terms of, you know, people are busy. So when they're busy, we have less problems in the society (HW05).”

Community-based agricultural initiatives play a crucial role in fostering collective action, knowledge sharing, and resource mobilization for sustainable farming practices in Kakuma Refugee Camp. Participants emphasize the importance of promoting household production of diverse food crops with community support to improve food security and nutrition outcomes. By encouraging collaboration among farmers, sharing best practices, and pooling resources, community-based initiatives empower refugee households to adopt climate-resilient farming techniques, diversify crop production, and enhance agricultural productivity.

4.2.6 Challenges

The study found considerable obstacles that women encounter when participating in sustainable agricultural initiatives within the Kakuma Refugee Camp. The challenges encompass an array of socioeconomic, cultural, and institutional factors that hinder women's access to resources, involvement in decision-making processes, and the fulfilment of their full potential in agriculture.

Respondents informed that culturally land is predominantly allocated to men, leaving women with minimal to no land for cultivation. The uneven distribution of land rights between genders perpetuates the prevailing gender disparities in access to productive resources (Kang et al., 2023). The disproportionate allocation of land heightens women's vulnerability and marginalization in agricultural efforts, as they lack autonomy over land and are incapable of cultivating crops independently (Kang et al., 2023). This poses a significant hindrance to women's empowerment and financial self-sufficiency, as land ownership is an essential determinant of agricultural productivity and household food security. Addressing land tenure rights and advocating for gender-inclusive land policies is pivotal for enhancing women's participation and empowerment in sustainable agricultural initiatives.

The prevailing cultural and societal conventions have become significant impediments that perpetuate gender inequalities and restrict women's autonomy and decision-making power

in agricultural pursuits. The study found that traditional gender roles and societal expectations dictate that women should prioritize domestic responsibilities and childcare over agricultural work, thereby limiting their engagement in farming activities. This statement underscores the influence of patriarchal norms and stereotypes on women's roles and obligations within the household and community.

Despite the empowerment projects contributing positively, food insecurity persists due to high population and limited interventions, *“because now the population is high. The interventions are not targeting. We have 300 farmers whereby we have 150 host and 150 refugees, and we are having around five farming units. So it's like we have 1500 direct beneficiaries against a population of over I would say 100,000. So yes, we are contributing to some but others who are not part of it. We are doing something good but they still have some food insecurity”* (HW05).

Respondents highlighted problems that women confront in obtaining financial services, credit, and agricultural resources, which are indispensable for their participation in sustainable agricultural practices. As respondent HW03 remarked, women encounter challenges in securing credit and accessing indispensable inputs such as seeds, fertilizers, and tools, which are essential for agricultural production.

The obstacles of gender-based violence (GBV) and security issues that compromise women's involvement in agricultural endeavours and jeopardize their safety and well-being were also highlighted in the findings. A respondent, identified as RW11, conveyed that women confront the risk of gender-based violence when accessing agricultural fields or gathering firewood, particularly in areas of the camp that lack security.

Accessibility to educational and training opportunities featured prominently as a hindrance to empowering women and developing their capabilities in sustainable agriculture. As participant HW04 noted, *“Many women in the camp lack formal education and training in agricultural techniques, restricting their capacity to adopt contemporary farming practices and technologies”* (HW04). The educational and knowledge challenges obstruct the enhancement of their skills and innovation in agriculture. From the study Lutheran World Foundation is the biggest employer in Kakuma, with over 1200 refugee staff, majority being men, about 80% men, and 20% women.

There is a necessity for policy support and institutional frameworks to cultivate an environment that is conducive to sustainable agriculture. Interviewee HW05 articulated that government policies and institutional backing are crucial for advancing sustainable agriculture and addressing food security challenges. By establishing an enabling environment, policymakers can facilitate investment, innovation, and collaboration within the agricultural sector. This underscores the paramount importance of policy harmonization and institutional collaboration in driving progress towards sustainable agriculture and addressing food security challenges (Beyuo, 2018). Multi-stakeholder cooperation, community engagement, and policy-level backing can enable the successful implementation of sustainable farming methods within the Kakuma Refugee Camp.

4.2.7 Opportunities

The research findings highlight the significance of women's empowerment in the implementation of sustainable agricultural practices to address food security within the Kakuma Refugee Camp. The participants emphasize the importance of providing women with agricultural expertise and capabilities to augment their capacity to contribute to food production. When women are empowered through agricultural training and resources, they become actively engaged in farming, making considerable contributions to the food supply (interviewee HW04). The women's central role in agricultural production and food provisioning contrasts with their marginalized position within market systems, where they face barriers to market access, limited economic opportunities, and systemic discrimination. One participant, a humanitarian worker, revealed the major role played by women in agriculture;

“Women are very active in terms of providing labor in agriculture. They are responsible for setting up the farms doing most of the hard work in farming. Also, in terms of market linkages, you'll find that if they're not involved in farming, they act as buyers and sellers of the agricultural produce. If they don't produce, they will sell and if they sell, they make money. So in essence, maybe getting additional income or any other source of income for them now to buy food for their households (HW02).”

The crucial role of women as drivers for promoting environmental sustainability through their involvement in conservation activities and natural resource management cannot be

underscored. Interviewee HW05 asserted, "*Women play a pivotal role in preserving our natural resources by adopting sustainable farming practices such as agroforestry and soil conservation. Empowering women ultimately empowers entire communities.*"

The many organizations at Kakuma play an important role in encouraging the implementation of sustainable agricultural techniques and addressing food insecurity concerns within the Kakuma Refugee Camp. All the respondents highlighted the importance of cooperation between governmental entities, non-governmental organizations (NGOs), and international partners in empowering the refugees. The respondents mean that, NGOs and international organizations are crucial in supplying technical knowledge, funding, and capacity-building support to refugees engaged in agriculture. Their involvement is indispensable for broadening sustainable farming initiatives. This asserts the pivotal role of non-governmental organizations (NGOs) and international entities in offering essential support and resources to refugees, underscoring the indispensable need for collaboration among multiple stakeholders in addressing the challenges at the camp.

Respondent RW02 emphasizes that cooperation between non-governmental organizations, government agencies, and local communities is pivotal for implementing sustainable farming practices and addressing food security challenges. By working in unison, they can leverage their resources and expertise to catalyse lasting positive transformation (UNHCR, 2023).

CHAPTER 5: DISCUSSION

This chapter explores the findings in the preceding chapter. The findings are explored in reference to the frame of reference from chapter two. The factors in the frame of reference are discussed from the topics for discussion in this chapter. The discussion explores the interaction of the factors in the combined two frameworks in shaping the experiences and outcomes at Kakuma Refugee Camp. The chapter synthesizes empirical findings, theoretical insights, and practical implications to elucidate pathways towards more inclusive, resilient, and sustainable solutions that prioritize the well-being and agency of refugee women within the Kakuma camp.

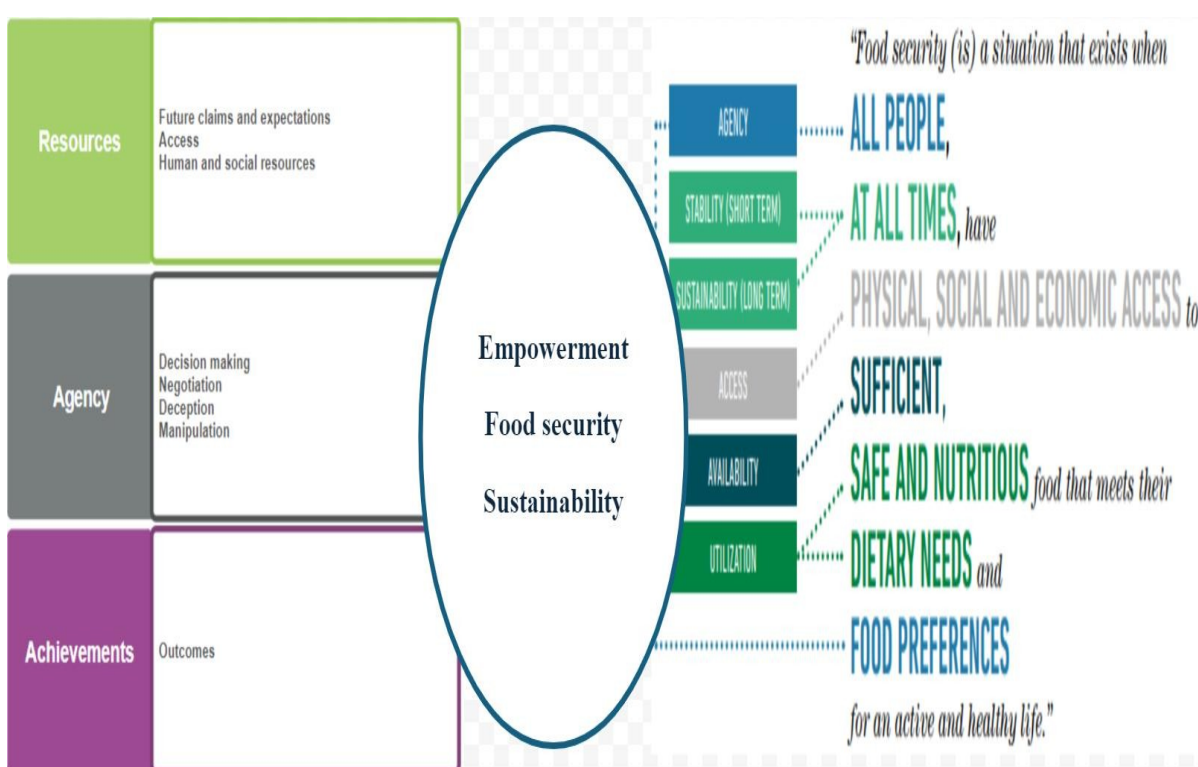


Figure: A conceptualized frame of reference

1.1. Availability

The dimension of availability, as described by Clapp et al. (2022), encompasses the physical presence of food and the ease with which people can access it; food production, distribution networks, and market accessibility. It takes into account the overall quantity and quality of food available within a specific geographic region or community and the equitable distribution of these resources among different segments of the population (Clapp et al., 2022). In the context of the Kakuma Refugee Camp, food availability is a

crucial factor in ensuring the nutritional well-being and sustenance of refugee women and their families. Food availability provides the necessary sustenance and nourishment to maintain good health and overall well-being during their time of displacement and vulnerability.

The findings demonstrated that the availability and abundance of food poses a considerable obstacle for the majority of refugee women at Kakuma. Many of the women are heavily dependent on the food rations supplied by humanitarian aid groups, which have been steadily decreasing due to donor fatigue and other contributing factors. Furthermore, the environmental conditions in the region, such as prolonged droughts and climatic shocks, have further exacerbated the limited availability of food, leading to inconsistent agricultural productivity. Despite the initiatives undertaken by humanitarian organizations and their partners to support agricultural projects, including the establishment of kitchen gardens, lack of adequate water resources for agricultural purposes remains a significant challenge impeding the successful implementation of these interventions.

The challenge of improving food availability for refugee communities requires a multi-layered approach that goes beyond solely focusing on agricultural production (Wood, Booth, Margerison, & Worsley, 2021). It is essential to also address the critical issues of income generation and market access, particularly for refugee women. Providing support and resources for income-generating activities, such as agribusiness ventures and small-scale enterprises, can significantly increase the purchasing power of refugee households. This, in turn, enhances their ability to access and afford nutritious foods, thereby improving overall food security within the camp.

The development of robust market linkages and systems is a crucial component in this multifaceted strategy. By creating market opportunities, refugee farmers are empowered to sell any surplus food they produce, enabling them to generate much-needed income (Lozano-Corona, 2023). This added revenue stream can play a pivotal role in bolstering the food security of refugee households, as it allows them to afford and access a wider variety of food options.

The findings of this study align with the assertion made by Clapp et al. (2022) that the availability of food extends beyond its mere physical presence. It requires a comprehensive

understanding and consideration of factors such as income support and livelihood opportunities, particularly for refugee women. By empowering these individuals through targeted interventions, the overall food security within the refugee camp can be significantly improved and sustained over time.

Existing studies conducted in comparable settings found the necessity of addressing not only food production but also income generation and market accessibility to enhance food availability for vulnerable communities (Jabbar & Zaza, 2015; Dehnavi & Süß, 2019). By incorporating insights derived from the existing body of literature, this research expands the overall comprehension of the intricate dynamics that influence food availability within refugee camps.

5.2 Access

Access focuses on the ability of individuals or households to obtain food for adequate diets. It considers factors such as affordability, without threatening the fulfilment of other basic needs, and ensuring access to adequate food for all, including vulnerable populations (HLPE, 2020). This aspect considers both economic and non-economic impediments that may obstruct individuals' access to food, including income levels, market pricing, infrastructure, transportation networks, as well as social and cultural factors (Clapp et al., 2022). In the specific setting of the Kakuma Refugee Camp, access to food is of paramount importance for safeguarding the nutritional well-being of refugee women and their households.

The study's findings shed light on the significant obstacles faced by refugee women in Kakuma when it came to accessing food. Throughout history, famine situations have escalated due to people's inability to access food, influenced by factors such as market availability, productive land, employment status, ownership of assets, and societal rights. If these avenues fail, access to food is affected, even in surplus production and market availability (Clapp et al., 2022, Sen, 1981). This was very evident in our study. Although there are efforts to increase food production in Kakuma through the support of the different partner organisations through agriculture, there is still a gap in accessing food for majority of the refugees. The study found that access to food rations in the camp reduces every year and majority of the refugees can only access one meal per day for their families since the food rations provided are small and can barely last a month. This had profound implications for the nutritional well-being of refugee households. Many of the women

expressed dissatisfaction with both the quantity and quality of the food rations provided by humanitarian organizations, explaining that the rations were inadequate to meet the nutritional requirements of their families. The women's dissatisfaction with the quantity and quality of the food rations, coupled with the physical distance to the distribution centres, created a multifaceted problem that requires thoughtful and comprehensive solutions to address the needs of this vulnerable population (Muhangi, Ainamani, & Opiyo, 2022). Inequalities and challenges in accessing food aid were evident in the study.

Pregnant women can line up for hours in the distribution centres to access food rations with some giving birth at the distribution centres. The humanitarian organisations offering the food rations need to come up with more fair ways such as prioritising pregnant and breastfeeding mothers, the disabled and elderly when distributing food so they don't have to queue up for long hours. It is also important to have more distribution centres near the residential areas in the different camps to give all refugees an equal chance of accessing the rations.

Factors such as income and employment status directly influenced access to food. Those who have jobs or a business proved to have better access to food since they can implement the kitchen gardens or buy food at the local market while the unemployed and without a business lacked the financial capacity to practise agriculture, or buy other foods to supplement the WFP food rations and consequently end up being dependent on food rations which are not sufficient. By supporting refugees to engage in sustainable agricultural practices, such as organic farming and agroecology, sustainable agriculture can help them secure livelihoods, reduce dependency on humanitarian aid, and build resilience against economic shocks (Grosrenaud, et al., 2021). Agriculture plays a big role in helping improve access to food for refugee women in Kakuma since they are the ones mostly participating in agricultural activities. One reason being culturally, agriculture is viewed as a woman's activity but also because women are interested in agriculture as it helps them access vegetables for their families. Women are also involved in selling surplus vegetables in the markets which helps them raise money to buy other types of food for their families.

Since majority of the household heads are women, there is need to increase their capacity to access food. Drawbacks such as low literacy levels limit their access to skilled jobs

limiting majority to lowly paid unskilled jobs. This also limits access to support from financial institutions to obtain loans to start small businesses as many cannot read or write. Although many humanitarian projects target the women to train them on farming techniques, providing seeds and cash transfers, grants and loans, there is more that can be done in helping them access basic education, consequently helping them access loans from financial institutions to support entrepreneurship and other income generating activities.

5.2 Stability

The concept of stability factors the consistent availability and accessibility of food over time, including the ability to withstand and recover from various disruptions and fluctuations. This dimension encompasses both short-term shocks, such as natural calamities, and long-term stresses, economic disparities that can significantly impact the stability and sustainability of food systems (Clapp et al., 2022).

In the context of the Kakuma refugee camp, the stability of the food supply is crucial for ensuring the well-being and resilience of refugee women and their families, as they navigate the multifaceted challenges posed by environmental, economic, and social factors. The stability of the food supply is not merely about the consistent availability of food, but also the accessibility and affordability of these essential resources for the refugee population. Disruptions in the food system, whether caused by natural disasters, political instability, or economic turmoil, can have far-reaching consequences for the vulnerable communities residing in the camp (Clapp et al., 2022). These challenges can lead to fluctuations in food availability, price volatility, and restricted access, further exacerbating the already precarious living conditions of the refugee women and their families.

Ensuring stable food supply at the camp is crucial for maintaining the overall well-being and resilience of the refugee population. This includes addressing immediate food security needs and developing long-term strategies to build the capacity of the food system to withstand and recover from various shocks and stresses (Krause, 2014). Diversifying food sources, strengthening local production and distribution networks, and implementing resilience-building measures safeguards the food supply against future disruptions.

The results of this research uncovered substantial challenges with the reliability and consistency of food supply networks within the Kakuma Refugee Camp. Environmental conditions, the unpredictable nature of rainfall and the occurrence of severe droughts, were

identified as the principal contributing factors to food insecurity. These challenges had a detrimental impact on agricultural productivity and the livelihoods of camp residents, as exemplified by the statement from interviewee HW04 "*sometimes rain fails which means that crop production is difficult. Even livestock production is difficult.*" This finding is consistent with literature on the challenges of conventional agriculture in refugee camps facing limitations due to harsh climatic conditions (Kanere, 2011).

Dependence on rain for agricultural production as in the many parts of Kenya can lead to inconsistent crop yields (Guido et al., 2020). The results also revealed that with availability of water, sustainable agricultural practices are successful in Kakuma. In the context of refugee camps, where conventional agriculture struggles to address food security challenges, sustainable agriculture is a promising alternative (Securing Water for Food, 2019). Sustainable farming methods offer distinct advantages – reduced water usage, minimized land requirements, and optimized nutrient delivery – making them particularly relevant in resource-scarce and challenging climates (Securing Water for Food, 2019).

These innovative techniques hold the potential to revolutionize food production within refugee camps, enhancing nutrition, increasing crop yield, and mitigating the limitations of conventional agriculture.

The case of Kakuma Refugee Camp illustrates the critical importance of stability in achieving comprehensive food security. In this context, stability concerns are inextricably linked to the variability of the local environment and the impacts of climate shocks. To enhance the overall food security of refugee populations in such settings, it is necessary to develop adaptive strategies that bolster the resilience of food systems and their ability to withstand and recover from disruptive events over time.

The findings underscore the urgent need for multifaceted and comprehensive solutions to foster stability and resilience in these critical food systems (Harley & Hobbs, 2020). One of the key strategies identified for addressing this vulnerability is tackling the persistent issue of water scarcity through long-term interventions, such as the construction of wells and dams. By enhancing the availability and accessibility of water resources, these interventions can significantly improve agricultural productivity and, in turn, bolster food security within the camp.

Existing research has emphasized the significant influence that environmental variability and natural disasters can have on food security within refugee communities. These studies have consistently highlighted the necessity for comprehensive approaches to address concerns regarding stability, such as effective water management, efficient pest control, and the diversification of agricultural practices (Harley & Hobbs, 2020). By drawing upon and integrating the insights and knowledge gained from the existing body of literature, this study has contributed to a more profound and nuanced understanding of the intricate interconnections between environmental factors, the role of sustainable agriculture and food security outcomes in refugee contexts. Ultimately, this work underscores the paramount importance of implementing resilience-building strategies to promote long-term stability and sustainability within these vulnerable populations.

5.3 Utilization

Utilization, as defined by Clapp et al., (2022), delves into the intricacies of dietary quality and the body's capacity to absorb and effectively utilize the nutrients derived from food consumption. This dimension encompasses the assessment of malnutrition, dietary diversity, and the ways in which food is consumed, processed, and utilized by individuals or populations, food safety, preparation practices, hygiene, and access to healthcare, all of which contribute to the efficient and optimal utilization of the available food resources (Clapp et al., 2022).

The study's findings uncovered substantial obstacles regarding the use of food resources among refugee women residing in the Kakuma Refugee Camp. The participants conveyed that the food rations they received were inadequate to fulfil their nutritional needs and lacked the necessary diversity in nutrients, leading to health issues within the refugee community. As one respondent HW01 stated, "*You can't go to three households without getting a malnourished child,*" underscoring the widespread prevalence of malnutrition and dietary deficiencies, especially among vulnerable refugee populations such as pregnant and breastfeeding women. This portrays the dire situation faced by the refugee community, where the lack of access to adequate and nutritious food has had a profound impact on the health and well-being of the most vulnerable members of the population. These challenges are also supported by previous research indicating that refugees grapple with different nutritional and health challenges such as irregular food distribution within the camps, limited access to diverse sources of food, and inadequate sanitation facilities. These challenges contribute to elevating the rates of malnutrition and illnesses among refugees.

Vulnerable groups, especially women and children, often bear the brunt of these challenges (UNHCR, 2007). The urgency to address these issues underscores the need for innovative strategies that not only provide sustenance but also empower individuals, particularly women, to take control of their nutritional status and health outcomes.

The findings reveal the pressing need for targeted nutritional interventions to enhance the overall well-being and quality of life for these displaced individuals.

The results also highlighted the significance of addressing disparities and implementing tailored solutions to bolster food security and nutritional well-being within this specific context. Prioritizing the most vulnerable groups, such as pregnant women and breastfeeding mothers, in food aid distribution efforts and providing dietary supplements can help alleviate nutritional deficiencies and improve overall health and wellness outcomes for these individuals (Hunt, 2008). Recognizing the unique challenges and circumstances faced by refugee communities is crucial in developing effective strategies to improve their access to diverse, nutrient-rich food sources and promote better nutrition security (Hunt, 2008). Implementing context-specific interventions that cater to the specific needs and barriers encountered by this population is essential for enhancing their long-term food and nutrition security.

The sustainable agriculture initiatives implemented within the Kakuma Refugee Camp have made a substantial contribution to enhancing the utilization of food resources, particularly through the cultivation of vegetables. By engaging in agricultural activities, refugee women have been empowered to establish kitchen gardens and grow nutritious vegetables for their families, thereby improving their access to a diverse and healthy range of food options. This has had a direct impact on their nutrition and health, as the increased consumption of vegetables has provided essential vitamins, minerals, and dietary fibre necessary for a balanced diet and overall well-being.

The practice of sustainable agriculture in Turkana West, including the Kakuma Refugee Camp, has resulted in better nutritional outcomes compared to other counties. According to one of the humanitarian workers interviewed, Turkana West is not as severely affected by malnutrition as other sub-counties, which can be attributed to the intensive farming technologies utilized in the region (HW05). Sustainable agriculture initiatives in the camp,

such as climate-smart farming methods and crop diversification, ensure the availability of a variety of nutrient-rich foods, thereby mitigating malnutrition and improving overall health among the refugee population. This emphasizes the importance of sustainable agriculture in enhancing nutrition and reducing the prevalence of malnutrition in food-insecure settings like refugee camps.

Comprehensive nutritional interventions should encompass not only access to a diverse array of food sources but also the provision of healthcare services and the promotion of sustainable agricultural practices. By building upon and integrating the insights gleaned from the existing body of literature, this study contributes to a deeper and more nuanced understanding of the intricate interplay between food utilization, nutritional status, and overall health outcomes in the context of refugee communities (Hobbs, Sayre, & Gupta, 2007). Ultimately, this research emphasizes the pressing need for holistic and multifaceted approaches to address the profound challenges surrounding food security that these vulnerable populations face.

5.4 Sustainability

As described in our conceptual framework, the sustainability dimension refers to practices in the food system that promote long-term regeneration of ecological, social, and economic systems, meeting current food demands without jeopardizing future needs (HLPE, 2020). It also includes the concept of resilience in food systems ensuring sufficient food availability, equitable access, agency for all, resilience in crises, nutrient uptake and utilization, and a sense of agency for marginalized groups (Clapp 2022).

The results of this research underscored the critical role that sustainable farming methods play in bolstering food security and improving the livelihoods of refugees residing in the Kakuma refugee camp. The findings revealed the different sustainable agricultural methods that are implemented in Kakuma including; cultivating climate-resilient crops, implementing water conservation practices, adopting agroecological farming methods, and launching community-based initiatives for improving food security, well-being, and empowerment of refugee women.

These kinds of techniques offer advantages such as reduced water usage, minimized land requirements, and optimized nutrient delivery, making them particularly relevant in resource-scarce and challenging climates like Kakuma (Securing Water for Food, 2019).

According to literature, some of these strategies have been successfully implemented in regions with similar climatic conditions, such as the Middle East, where water scarcity, high temperatures, and limited arable land prevail (Van Gerrewey et al., 2022) and have proved to meet population demands and generate surplus by leveraging technology and innovative agricultural methods like green houses and other controlled settings (Farm ERP, 2021).

Through the coordinated efforts of humanitarian aid groups like Danish church aid, governmental entities, and community-based programs, climate-smart agricultural initiatives and water management practices have been successfully implemented. These collaborative interventions are designed to alleviate the detrimental effects of environmental disruptions and promote the reliable provision of food supplies for the refugee populations. By embracing ecologically-sound farming techniques, the refugee communities have been empowered to enhance their self-sufficiency and resilience in the face of the challenging environmental conditions that often accompany displacement and instability. The findings of this study reinforce the importance of adopting sustainable agricultural approaches as an effective strategy for strengthening food security and supporting the broader socioeconomic well-being of vulnerable refugee communities.

The findings highlight the significant challenges faced by refugee communities in attaining sustainable food security. Despite the efforts to address this issue, limited resources, high population density, and adverse climatic conditions remain substantial obstacles that hinder the achievement of this crucial goal. To overcome these challenges, it is essential to implement multifaceted strategies that focus on capacity building, establishing market linkages, and targeted interventions for financial inclusion (Pasha, 2019). These approaches are crucial for fostering self-reliance and resilience among the refugee farming population, enabling them to become more self-sufficient and better equipped to navigate the complex landscape of food production and distribution. By addressing these fundamental issues, the study emphasizes the need for a comprehensive and holistic approach to promote sustainable food security within the refugee camp setting.

Encouraging the cultivation of a diverse range of crop species and varieties that are resilient to drought conditions has proven to be an effective approach for bolstering crop resilience and safeguarding food security in resource-limited environments like the

Kakuma refugee camp. Integrating traditional and indigenous crops that are well-adapted to the local agro-ecological conditions can not only enhance agricultural biodiversity, but also strengthen the community's food sovereignty by reducing reliance on external food sources. This diversified cropping system helps mitigate the risks associated with environmental stresses and market fluctuations, making the local food system more robust and self-sufficient (Pasha, 2019). The study's findings demonstrated that traditional cropping systems centred on monocultures like sorghum may lack the resilience necessary to withstand climate-related shocks and may contribute to malnutrition due to restricted dietary diversity (HW05).

As seen in the findings of this study, there are many humanitarian aid agencies working with refugees at Kakuma Refugee Camp to embrace sustainable agriculture initiatives implemented that address the challenges faced in the region. These initiatives promote climate-smart agricultural practices and resilience-building strategies to enhance stability in the food system by mitigating the effects of climate change and improving agricultural productivity. The K Dream initiative supported by Korea international cooperation agency is a nutrition sensitive project that offers training on climate smart agricultural techniques, support establishment of kitchen gardens and develop water points as well as provision of goats. It is an example of initiatives and interventions that support sustainable agriculture in Kakuma. These projects emphasize the importance of employing climate-resilient farming methods, such as drought-resistant crop varieties and traditional cultivars adapted to local climatic conditions, to enhance crop resilience and ensure food security.

The study also highlights the emphasis on women's involvement and empowerment within sustainable agriculture initiatives in the Kakuma Refugee Camp. These efforts acknowledge the disproportionate impact of climate-related challenges on women and their pivotal role in ensuring household food security. Initiatives such as the agriculture sector development support program (ASDSP) prioritize women's participation and aim to empower them through providing access to resources and training. By empowering women and promoting gender equality in the agricultural sector, these initiatives contribute to enhancing community resilience and improving long-term food security outcomes. The findings are supported by different studies on sustainable agricultural development requiring sustained investment in capacity building, infrastructure development, and

institutional support to strengthen community resilience and promote self-reliance among refugee populations (Dhanarajan, 2017).

Targeted interventions by supporting partners and humanitarian organisations are important as the study revealed that some previous methods were not sustainable. Interventions need to encourage farmers to cultivate and provide them with technical support to ensure their farms produce enough food for improved food security and additional income. The study revealed that majority of the refugees especially those from Burundi and Somalia who were formerly farmers in their origin countries understand the benefits of agriculture and passionately farm around shallow wells which they manually dig, revealing their determination to improve their livelihoods and food security. The host community on the other hand, are traditionally pastoralists and used to eating meat, so changing their mindsets to embracing agriculture requires more support and capacity building.

The sustainable development goals (SDGs) have a strong emphasis on the interconnectedness between sustainability and food security. This holistic approach recognizes that ensuring food security for present and future generations requires a comprehensive consideration of the environmental, social, and economic factors that shape the complex and dynamic food landscape (Clapp et al., 2022). By implementing policies and practices that promote the long-term viability and resilience of food systems, the Kakuma refugee camp may advance toward a secure future.

5.5 Agency

The concept of agency within food systems encompasses the ability of individuals and groups to assert control over their circumstances and actively engage in the governance processes that shape these complex systems (HLPE, 2020). It represents a shift from a passive role as mere consumers to a more active and participatory involvement, enabling people and communities to contribute meaningfully to the decision-making processes and policies that ultimately influence their food security and sovereignty. Agency can enhance local food governance, accountability, transparency, and empower marginalized groups like small-scale producers, women, and indigenous communities through comprehensive social protection programs and equitable resource access, fostering more inclusive, equitable, and resilient food systems (Clapp et al., 2022).

Kabeer's Women's Empowerment Framework, defines the concept of agency as the capacity of individuals to make strategic choices and subsequently act upon them, thereby exerting a significant degree of control over their own lives and personal circumstances (Kabeer 1999). More specifically, agency encompasses not only the power to make decisions, but also the capability to set and subsequently achieve personal goals, ultimately reflecting the autonomy and self-determination of the individuals in question.

Active participation and self-determination are a common goal of agency in both frameworks reflecting the need to empower the refugee women to be actively involved and have the determination to change their circumstances. Empowering individuals and communities to exercise agency is crucial for addressing the underlying inequalities and power imbalances that often plague food systems, ensuring that the voices and needs of all stakeholders are heard and considered in shaping the policies and practices that determine the accessibility, availability, and distribution of food resources.

In the context of refugee women residing in the Kakuma refugee camp, agency involves their ability to make autonomous decisions regarding various aspects of their livelihoods, such as agricultural practices, crop cultivation, and marketing strategies. This decision-making power enables them to actively shape and influence their own well-being and overall quality of life, rather than being passive recipients of external circumstances.

The research underscored the transformative power of agricultural involvement, enabling women to overcome the challenges they faced and assert their agency in meaningful ways. The cultivation of crops, especially vegetables, emerged as a critical strategy for securing household food supplies and improving nutritional standards. Women's active participation in agricultural projects provided them with valuable economic opportunities, allowing them to generate income and engage in market-based transactions.

The findings revealed that the women who participate in agriculture do so passionately as it helps them acquire vegetables for their households considering majority of them are the household heads. This shows the determination of the refugee women to provide adequate diets for their households instead of passively depending on food rations. The findings also indicated that some women only require minimal capital to start small enterprises like hawking tea and snacks in the camp to help them improve their livelihoods.

Involving the women when coming up with interventions on agency would have great impacts on their empowerment. This is also highlighted by previous research by Beogo et al. (2018) on the significance of incorporating the perspectives of refugees when designing programs to address their fundamental requirements. Involving the refugees in decision making processes, or in designing interventions can help to improve their self-determination which would then make the interventions even more successful as it would encourage innovation, sharing ideas, collaboration in agriculture, and businesses which would then contribute to empowerment and food security.

The research study provided valuable insights into the intricate and multifaceted nature of agency experienced by refugee women residing in the Kakuma camp. The findings revealed the substantial obstacles that the refugee women encountered in their pursuit of employment opportunities, which ultimately constrained their capacity to make strategic decisions regarding their livelihoods. The study highlighted the correlation between low literacy rates and the lack of formal education among the women, which significantly impeded their ability to engage in meaningful income-generating activities and access financial support from various institutions. Low literacy and limited access to employment opportunities substantially limited the agency and autonomy of the refugee women, as they were unable to fully exercise their decision-making power and control over their own lives and economic well-being.

The study's findings also highlighted significant gender inequities in terms of access to resources and opportunities. Women were disproportionately employed in unskilled positions, facing substantial barriers in obtaining financial services and securing loans. Discriminatory practices and entrenched social norms further compounded women's marginalization, as financial institutions frequently exhibited a high degree of scepticism and unwillingness to extend credit to women, often citing their lack of documentation and financial literacy as justification for this reluctance. Wiggett's study (2014) examines the gender dynamics prevalent within refugee communities, illuminating the frequently disregarded perspectives of female refugees. Through an analysis of gender roles and power dynamics, the research underscores the agency exhibited by women within refugee populations and the significance of acknowledging and amplifying their voices. Agency plays a crucial role in shaping community dynamics, informing decision-making procedures, and cultivating resilience in the face of challenging circumstances.

The study's findings suggest that while humanitarian organizations and government entities have made concerted efforts to address food security issues in the Kakuma region, there is still a pressing need to enhance the agency and empowerment of refugee women. Despite the implementation of initiatives such as the K Dream project and the Farmer Field School approach by the Ministry of Agriculture, the research indicates that more collaborative and inclusive strategies are necessary to truly empower women and promote their active participation and decision-making authority in the realm of food production. The findings underscore the importance of adopting a comprehensive and participatory approach that centres the voices and experiences of refugee women, in order to effectively address the persistent challenges related to food security in the Kakuma community.

Engaging and collaborating with a diverse range of stakeholders, such as community organizations, extension workers, and humanitarian aid groups, has emerged as a promising approach to empower and foster self-sufficiency among refugee women. By actively involving these women in agricultural training programs, providing them with initial resources and support, and gradually transitioning them towards self-reliance, organizations like Danish Church Aid are playing a crucial role in empowering and uplifting refugee women in Kakuma.

There is a clear need to expand and strengthen these capacity-building efforts to encompass a more comprehensive range of skills and knowledge. In addition to agricultural training, it is essential to incorporate entrepreneurship development, financial literacy and savings concepts, as well as a broader set of practical skills (Wright, et al., 2015). This holistic approach would better equip refugee women with the necessary tools and resources to become more self-reliant and resilient, enabling them to better navigate the challenges of food insecurity and other pressing issues they face. By investing in these multifaceted capacity-building programs, stakeholders can further amplify the agency and self-sufficiency of refugee women, leading to more sustainable and empowered communities.

By promoting collaboration and knowledge exchange between refugees and local communities, agency can be reinforced at the grassroots level, resulting in more inclusive and responsive food systems that better address the needs of all stakeholders. The Farmer

Field School approach, for example, enables farmers to learn through hands-on experience, adapt to emerging technologies, and enhance their management of pests and diseases, thereby cultivating a cooperative and productive learning environment.

The existing body of research strongly emphasizes the critical importance of empowering and uplifting marginalized and underrepresented populations, such as small-scale agricultural producers, women, and indigenous communities, in order to enhance their agency and influence within complex food systems. Voices of women are often silenced when it comes to matters of governance and resource allocation, ultimately hindering their ability to influence policies and decisions that are likely to affect their wellbeing in the refugee camps (Omata, 2021). Restrictive gender norms, cultural inclinations often limit women to domestic roles, limited mobility and safety concerns further restrict women's access to resources and livelihood opportunities (Peters, et al., 2019). This has detrimental effects on their physical and mental health and wellbeing (Ramos et al., 2020; Mwangovya, 2011). These factors limit their ability to engage in income-generating activities, leading to economic disempowerment and limited food insecurity.

Addressing these challenges requires recognizing women as key stakeholders in camp dynamics and promoting their active participation. Empowering women to play a more significant role in shaping their communities' trajectory not only improves their individual agency but also contributes to more inclusive and sustainable solutions to challenges such as food security and health.

Many studies have demonstrated that comprehensive social safety net programs and equitable access to essential resources and assets can effectively empower these marginalized groups, ultimately fostering more inclusive, resilient, and sustainable food systems that better serve the needs of all stakeholders (Wright, et al., 2015). The findings presented in this work align with and build upon these previous studies, further underscoring the pressing need for targeted interventions and capacity-building initiatives aimed at promoting agency, autonomy, and self-determination among refugee women residing in the Kakuma refugee camp.

Community-driven agricultural strategies recognize the invaluable knowledge and experiences of marginalized groups, providing them with a platform to actively participate

in shaping the policies and practices that directly impact their lives. By involving local communities in the decision-making process, these approaches harness the collective wisdom and diverse perspectives of the people, enabling more responsive and tailored solutions to emerge (Wright, et al., 2015). This collaborative dynamic fosters a sense of ownership and agency among the participants, empowering them to take an active role in ensuring the long-term sustainability and resilience of their local food systems.

The research findings are consistent with the established body of knowledge on gender, individual agency, and empowerment. This existing literature underscores the critical role that access to education, job opportunities, and financial resources plays in bolstering women's autonomy and their ability to make meaningful decisions that impact their lives (Kabeer, 1999).

Studies have demonstrated that investing in women's educational attainment and vocational skill development can substantially augment their agency, or their capacity to act independently and make choices that align with their own interests and aspirations. Such investments in women's human capital have been shown to contribute significantly to poverty alleviation and the achievement of sustainable development goals (Kunyu et al., 2022).

Collaborative efforts between different stakeholders, humanitarian organisations, and the county governments to support adult literacy and educative programmes in agriculture and entrepreneurship are required to increase their agency. There is not a one size fits all solution to overcoming the challenges in agency and empowerment the women face. It is important to have targeted interventions based on the women's interests and cultural context considerations.

Involving refugee women in decision-making about improving their circumstances, such as resources and training, can foster self-reliance and empowerment. Targeted interventions by humanitarian organizations and partners can improve their agency, leading to empowerment, food security and sustainability.

5.6 Resources

In Kabeer's Women's Empowerment Framework, the concept of resources refers to the various material, human, and social assets that can enhance an individual's capacity to make informed decisions and take meaningful actions (Kabeer, 1999). These resources can encompass a wide range of elements, such as access to land, seeds, tools, financial services, education, and social networks. In the specific context of refugee women in the Kakuma camp, these resources are particularly vital as they empower these women to engage in sustainable agricultural practices, improve their overall livelihoods, and ultimately enhance their overall well-being and quality of life (Kabeer, 1999). The availability and accessibility of these resources are crucial in enabling refugee women to exercise their agency, make choices that align with their goals, and actively participate in the betterment of their own lives and communities.

The research study uncovered crucial insights regarding the relationship between available resources and women's empowerment within the Kakuma Refugee Camp. The limited accessibility to financial services and essential agricultural resources emerged as a significant obstacle impeding women's capacity to implement sustainable farming practices and reduced income-generating opportunities for the women in the camp which had a direct impact on their overall economic empowerment, and further exacerbated the existing socioeconomic disparities faced by the women in the camp.

The findings underscored the critical importance of addressing the financial constraints and improving access to essential agricultural resources as key strategies to enhance women's empowerment in the Kakuma refugee camp. By addressing these fundamental barriers, the study suggested that the women could be empowered to invest in and implement more sustainable farming techniques, thereby increasing their agricultural productivity, income generation, and overall economic independence.

Research studies have provided insights into the specific types of resources that are accessible to women in refugee camp settings as well as the ways in which they organize themselves to utilize these resources efficiently (Braun-Lewensohn & Al-Sayed, 2018). These include a diverse array of tangible and intangible assets. These resources comprise seeds, financial loans, educational programs, social networks, and personal agency.

Various international and non-governmental organizations help in providing indispensable services and support to refugees in Kakuma. Entities such as the United Nations High Commissioner for Refugees (UNHCR), Lutheran World Federation (LWF), IsraAid, Danish Church Aid, and numerous others are actively engaged in implementing projects related to food security, livelihoods, education, healthcare, and protection within the camp. These organizations collaborate to address the multifaceted needs of the refugee population and promote sustainable solutions to the challenges they confront. The relationship between the refugees in Kakuma refugee Camp and the surrounding host community has been complex mainly due to the different economic advantages the camp has benefited from through support by partner organizations. Such interactions exert pressure on local resources, occasionally resulting in tensions between the refugees and the host populations (Tureti, 2003).

The study findings highlighted the different challenges the refugee women in accessing resources to improve their livelihoods and empowerment. Women being the primary caregivers of their families face challenges such as low literacy levels that make them face various disadvantages like unemployment or having lowly paid unskilled jobs which hinders them from having meaningful incomes. Access to financial support is also a challenge for some women especially the uneducated as financial institutions are cautious or suspicious of giving them loans to start small businesses. Lack of proper documentation is also a barrier for many women to receiving loans.

While accessibility to financial services is undoubtedly essential in supporting the refugee women, it is merely one aspect of promoting self-reliance and empowerment. Equally crucial for enhancing the financial well-being of refugees are investments in supportive conditions, such as access to employment opportunities, education, identification documents, and long-term stability. Existing literature emphasize the role of external organizations, including non-governmental entities and government initiatives, in furnishing resources and support to empower women within refugee communities.

Dhawan et al. (2023) propose a shift in focus from mere financial inclusion to a more holistic strategy of promoting financial health to better address the financial needs of refugees. This multifaceted approach can help in empowering the refugee women in Kakuma, promote access to equal employment opportunities and improved livelihoods.

The research results are consistent with the existing body of literature underscoring the critical role that access to various resources plays in enhancing women's agency and overall well-being. Many studies have demonstrated that when women are empowered through access to essential assets such as land ownership, seeds, agricultural tools, and financial services, there is a subsequent improvement in agricultural productivity, income generation, and food security for their households and communities (Velten, et al., 2015; Doss, 2001).

The study highlighted the critical significance of achieving gender balance in the planning and implementation of agricultural practices.

It was deemed essential to include women's participation across all stages of agricultural activities, from the selection of seeds to the harvesting process, for the successful implementation of sustainable farming initiatives. The study recognized that gender-inclusive strategies were pivotal in guaranteeing women's equitable access to resources and opportunities within the agricultural sector (Velten, et al., 2015). This emphasis on gender parity underscored the importance of empowering women and ensuring their active involvement in the decision-making and execution of agricultural programs, as their contributions were deemed vital for the overall success and sustainability of farming endeavours.

The research findings highlighted the profound interconnectedness between women's empowerment, environmental conservation, and the resilience of local communities. Incorporating gender-inclusive approaches into sustainable agricultural initiatives was recognized as a powerful and transformative strategy for tackling the complex challenges of food security within the Kakuma Refugee Camp. By empowering women and integrating their perspectives and participation into sustainable farming practices, the study demonstrated how this holistic approach can bolster environmental sustainability and strengthen the overall resilience of the camp's community. The findings underscore the critical importance of centring gender equity and inclusive development when addressing issues of food security and environmental management, particularly in vulnerable and marginalized contexts like refugee settlements.

The findings also highlight the importance of humanitarian aid and livelihood opportunities in facilitating the implementation of sustainable agricultural techniques within the Kakuma Refugee Camp. This shows the pivotal role of humanitarian aid in furnishing the indispensable support that enables refugees to pursue agricultural livelihood options (UNHCR, 2023). In addition to food aid, sustainable livelihood opportunities such as income-generating activities and vocational training are required to foster resilience and diminish reliance on external support. This underscores the importance of diversifying livelihood options to bolster economic stability and self-sufficiency among refugees, which is in accordance with the principles of sustainable development (MacPherson & Sterck, 2021).

The study underscores the crucial role of collaborative efforts between humanitarian organizations, governmental entities, and community-based initiatives in amplifying the impact and long-term sustainability of interventions aimed at empowering refugee women through sustainable agricultural practices (UNHCR, 2023). By adopting a holistic, multi-faceted approach that brings together various stakeholders, these interventions can more effectively address the complex and multifaceted issues that refugee communities grapple with, particularly in the realm of food security and self-reliance (UNHCR, 2023). The diversification of livelihood options and the promotion of inclusive partnerships are essential components of a comprehensive strategy to support the resilience and well-being of refugee populations, ultimately contributing to the realization of sustainable development goals.

Although sustainable agriculture plays a big role in empowering the refugee women, not all refugee women are enthusiastic about farming. Cultural backgrounds and country of origin is a factor to consider when identifying the different ways of empowering the women. Those who practiced farming in their country of origin like the Burundi and Somali Bantu can be empowered through sustainable agricultural initiatives. For the refugee women who did not practise agriculture in their origin countries, other targeted initiatives like cash transfers to start small businesses, training on entrepreneurship, creating market linkages can be more appropriate strategies for empowering them. This underscored the multifaceted nature required in implementing strategies that empower the refugee women towards self-sufficiency.

By actively addressing the systemic obstacles that constrain women's autonomy and by championing gender-inclusive approaches within agricultural and livelihood initiatives, refugee communities like Kakuma can foster greater gender parity and strengthen their resilience. This underscores the transformative potential of the agricultural domain in empowering marginalized women and securing sustainable food supplies, which are crucial elements in fostering more equitable and resilient communities.

5.7 Achievement

The concept of achievement refers to the tangible and measurable improvements in the overall well-being and living conditions of women, which arise as a result of the expansion of their agency and access to vital resources (Kabeer, 1999). This achievement component reflects the transformative impact that the empowerment of women can have on their individual lives as well as the broader communities in which they live. The achievement dimension encompasses a wide range of areas, including economic prosperity, social standing and recognition, health outcomes, and the general quality of life experienced by women (Kabeer, 1999). These various elements serve as indicators of the extent to which women have been able to exercise their agency and decision-making power, ultimately leading to positive and meaningful changes in their lived experiences.

The research study revealed the remarkable accomplishments that emerged from women's active involvement in sustainable agricultural programs within the Kakuma refugee settlement. Notably, the findings underscored the pivotal role of women's participation in these initiatives, which led to substantial improvements in food security and nutritional well-being within their households and the broader community. By engaging in agricultural activities, such as the cultivation of vegetables and other crops, the women were able to establish a reliable and consistent food supply. This, in turn, enhanced dietary diversity, addressing nutritional deficiencies and promoting enhanced health and wellness among their family members. The study's findings highlighted the transformative impact of empowering women to take an active role in sustainable agriculture, as it enabled them to enhance food security and ensure their families had access to a more varied and nutritious diet.

In the context of agricultural communities, women's active participation in farming activities was closely linked to enhanced income generation and greater economic

empowerment. By leveraging their ability to sell surplus agricultural produce in local marketplaces, women were able to earn additional income for their households, thereby reducing their reliance on external aid or support. This newfound financial independence and control over resources empowered women, granting them increased autonomy and recognition within the domestic sphere. As women's economic contributions to the household became more visible and valued, their social standing and decision-making influence within the family also improved, allowing them to have a greater say in the management of household affairs and the overall well-being of their families. This transformation highlighted the crucial role that women's engagement in agricultural activities can play in fostering economic self-sufficiency and gender equity within rural communities.

The research findings emphasized the critical need for incorporating sustainability and resilience-building strategies into agricultural programs within the refugee camp setting. By collaborating closely with community-based organizations and refugee-led initiatives, humanitarian agencies were able to ensure the long-term continuity and sustainability of agricultural projects, even after the withdrawal of external support. This collaborative approach not only enhanced the resilience and self-sufficiency of the agricultural initiatives but also fostered a greater sense of community ownership and empowerment, as refugees and members of the host community actively participated in the management and implementation of the projects. This holistic and inclusive approach allowed the agricultural interventions to have a more lasting impact, as the local stakeholders took on greater responsibility and decision-making roles, ultimately strengthening the community's ability to independently manage and maintain the agricultural activities over time.

The research findings presented are consistent with the existing body of knowledge on the empowerment of women and sustainable agricultural practices. This literature highlights the multifaceted advantages that arise from women's involvement in agricultural activities, including enhanced food security, economic empowerment, and community resilience (Doss, 2001). Many studies have demonstrated that investments aimed at empowering women and promoting gender-inclusive agricultural initiatives can lead to substantial improvements in household well-being and nutrition, ultimately contributing to the alleviation of poverty and the advancement of sustainable development (FAO, 2011). The

existing research emphasizes the profound and far-reaching benefits that can be achieved by prioritizing and supporting the active participation of women in the agricultural sector.

The research findings emphasize the critical need to implement gender-transformative strategies that address the systemic obstacles perpetuating gender disparities in refugee communities' access to resources and decision-making authority (UNHCR, 2023). By empowering women to challenge traditional gender norms and assert their rightful claims to land, resources, and decision-making processes, humanitarian organizations can cultivate greater gender equality and resilience within refugee communities. This can lead to more sustainable and inclusive development outcomes, as women's active participation and leadership contribute to the overall well-being and long-term prosperity of these communities.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

This research explored the need for strategies to address food insecurity and empower women in refugee context. The study found the importance of incorporating sustainable agricultural techniques, promoting gender equity, and fostering community collaboration to create a more equitable food system, enhancing livelihoods and empowerment. Through interviews, this study provides insights into the interconnected challenges of being a refugee, food security, sustainable agriculture, and women's empowerment in the Kakuma Refugee Camp. The importance of partnerships, collaboration and coordination in addressing challenges of food security and women empowerment is key.

It is of paramount importance for policymakers, humanitarian organizations, and local stakeholders to prioritize the empowerment of women and the advancement of sustainable agriculture as fundamental components of refugee assistance and development initiatives.

The study found the pivotal role that sustainable agriculture can play in strengthening the resilience and self-sufficiency of refugee communities, particularly in the context of the Kakuma refugee camp, where environmental factors pose significant obstacles to food production and access. Despite facing many daunting challenges, such as limited access to essential resources like sufficient water for agriculture, the research learned the remarkable fortitude and adaptability of the refugee women and their vital contributions to the social and economic fabric of their communities, even in the face of adversity.

The study suggests the need for a more inclusive, gender-sensitive approaches in humanitarian assistance and development programs. By incorporating sustainable agricultural techniques, advancing gender equity, and cultivating community collaboration, it is feasible to construct a more equitable and resilient food system in Kakuma Refugee Camp.

Humanitarian organisations, different partners and the ministry of agriculture have different projects that prioritise women as they recognise the challenges and inequalities the women face. The key informants highlighted that over the years, there has been an increase in the number of women doing entrepreneurship, businesses, and involvement in decision making, but still there is a gap in financial access for women. Fundraising for

different categories of businesses can help many women not only overcome food security challenges leading to empowerment.

Some of the models that partners are using in the camp are not women inclusive. Many women have low literacy levels and are not able to realign with such programs. There is need for targeted interventions customized for the different needs of the women.

Sustainable agriculture has improved the livelihoods of many women in Kakuma, especially those involved in farming. More support from stakeholders, and partners in facilitating structured access to credit facilities, seeds, farming equipment, and intensive coaching and mentoring is needed to support the farmers and encourage more to participate in agriculture.

Agri-businesses and its ripple effect earns income for many refugee women, even those who don't necessarily engage directly in farming, as they are involved in buying and selling vegetables from farmers in the local markets. Creating market linkages for them and training them on entrepreneurship and saving concepts can further promote women's resilience and improve their wellbeing.

Customized innovations should be developed to fit the local conditions and culture, as well as the environmental conditions in Kakuma. Water availability is a major challenge, and concerted efforts from all stakeholders are needed to ensure sufficient water for domestic and agricultural production.

Kenya is currently experiencing heavy rains, causing flooding and overflow from rivers and lakes, also in the Kakuma area. Much of the water is wasted due to lack of water harvesting means and technologies. Effective water harvesting techniques and innovations to improve water availability can help overcome the water challenge and to enhance provide water required for the sustainable agricultural projects in Kakuma.

Strategies for sustainable food production include utilizing local innovations and technologies, ensuring farmer-led, community-owned projects, and creating ownership by the community, allowing for independent production even without recurring humanitarian

projects. This can lead to increased stability and resilience of the food system and more self-reliance among the refugees.

Future studies can build upon the findings of this research by studying the long-term impacts of the current sustainable agricultural practices and how it is impacting women empowerment not only at Kakuma Refugee Camp but also in the host community. The research can be widened to study different refugee camps in Northern Kenya who share similarities with Kakuma.

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APPENDIX

Interview Guide for Humanitarian Workers

Topic: Empowering Women in Refugee Camps through Sustainable Agriculture

Introduction:

Thank you for participating in this study. Your insights are invaluable to our research. Your personal information will be kept confidential, and your participation is entirely voluntary. You are free to withdraw from the study at any point. We would also like to record the interview for data collection and analysis purposes only. Your privacy will be respected, and the recordings will be securely stored.

PART ONE: PERSONAL INFORMATION

Section 1: Personal Information (For Humanitarian Workers):

1.1 Name (Optional):

1.2 Organization:

1.3 Role in Ensuring Sustainable Food Production in the Camp:

1.4 Number of Years Working in the Camp:

1.5 Any Specific Projects or Initiatives You're Involved In:

PART TWO: QUESTIONS

(For humanitarian workers, inquire about their experiences, challenges, and perspectives related to supporting sustainable agriculture initiatives in the refugee camp.)

2.1. What would you say is the state of food security in the camp?

2.2. In your opinion, what role do women play in ensuring access to quality food and nutrition for their families?

2.3. What are some of the challenges that the women face in accessing good quality food and nutrition for their families in the camp?

2.4. How do you perceive the role of sustainable agriculture in promoting food security and ensuring sustainable agricultural production in the camp?

2.5. Can you share success stories or challenges in implementing sustainable agriculture projects?

2.6. In your role, what strategies have you found effective in supporting sustainable food production?

2.7. How do you collaborate with refugee women to ensure the success of sustainable agriculture initiatives?

2.8. What recommendations can you make that will uplift the state of women in the camp through sustainable agricultural production?

Closing:

Thank you for your time and valuable insights. Your contribution will greatly contribute to our understanding of empowering women through sustainable agriculture in refugee camps.

Interview Guide for Refugee Women

Topic: Empowering Women in Refugee Camps through Sustainable Agriculture

Introduction:

Thank you for participating in this study. Your insights are invaluable to our research. Your personal information will be kept confidential, and your participation is entirely voluntary. You are free to withdraw from the study at any point. We would also like to record the interview for data collection and analysis purposes only. Your privacy will be respected, and the recordings will be securely stored.

PART ONE: PERSONAL INFORMATION

Section 1: Personal Information

Name (Optional):

Age:

Country of Origin:

Length of Stay in Kakuma Refugee Camp:

Family Structure :

PART TWO: QUESTIONS

1. Can you share more about your daily life and activities in the refugee camp?
2. What is your understanding of sustainable agriculture?
3. How do you access food on a regular basis?
4. Are there opportunities for women to participate in sustainable agricultural production in the camp?
5. Do you believe that women in the camp have a fair chance of participating in decisions regarding their nutritional intake?
6. Have you ever been involved in any sustainable agricultural project in the camp?

7. Are there specific challenges you have encountered in trying to get good quality food and nutrition?
8. If so, how have you been able to navigate those challenges?
9. What would you say is the role of women in ensuring access to quality food and nutrition in the camp?
10. Do you believe women can be empowered through participating in sustainable agricultural production?
11. Would you be willing to participate in any such project aimed at empowering women in the camp through sustainable agriculture?
12. What impediments, if any, would you have to overcome if you were to take part in such a project?
13. What recommendations can you make that will ensure women in the camp are empowered through participating in sustainable agricultural production?

Closing:

Thank you for your time and valuable insights. Your contribution will greatly contribute to our understanding of empowering women through sustainable agriculture in refugee camps.



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