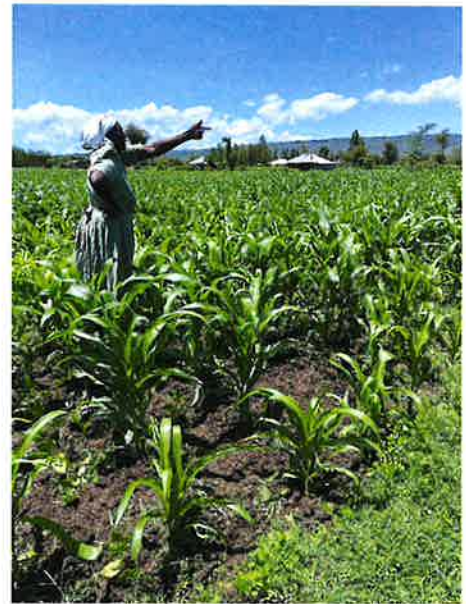


Small-Scale Farming, Gender Relations and Resource Allocation: Barriers to Adoption of Nature-Positive Solutions in Western Kenya



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Abstract

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The agricultural sector is a key driver of climate change and biodiversity loss and is in urgent need for transition. NATURE+, a large-scale CGIAR agricultural development initiative, aims to support small-holder farmers in shifting agrifood systems to more sustainable pathways by adopting nature-positive solutions. With gender equality at its core, it is crucial to enhance women's opportunities and to identify any barriers to the adoption of nature-positive practices. Yet, there is limited knowledge about mechanisms that reduce gender disparities in terms of resource allocation and strengthen women's empowerment, a knowledge gap that this study aims to fill.

The aim of this study is to explore gendered experiences of empowerment and intra-household allocation of resources in agriculture, and potential barriers to adoption of nature-positive solutions among small-holder farmers within the NATURE+ initiative. A theoretical framework of gender as a social construction, resources and empowerment is used to gain a deeper understanding of the mechanisms in play. The data were collected using qualitative methods and consist of 18 in-depth interviews with male and female farmers and village chiefs in Nyakach, in western Kenya.

The findings reveal a strict patriarchal allocation of resources, creating a barrier to the adoption of nature-positive practices with a disproportionate impact on women. This disparity was particularly evident concerning financial and social resources, along with physical resources such as land. Women were generally less empowered than men, but no clear generational differences were observed. The participation of women in decision-making had increased over time but was still limited by men's traditional role as head of household and women's internalised lower value. The policy implication is that gender-specific measures are needed for NATURE+ to be successful in supporting male and female farmers in the region.

Key words: *Small-Scale Farming, Resource Allocation, Gender, Kenya, Empowerment*

Sammanfattning

Småskaligt jordbruk, genusrelationer och resursfördelning: barriärer för införandet av naturpositiva lösningar i västra Kenya.

Jordbrukssektorn bidrar kraftigt till förlusten av biologisk mångfald och klimatförändringarna, och är i akut behov av omställning. NATURE+, ett storskaligt CGIAR-initiativ för jordbruksutveckling, syftar till att stödja småskaliga bönder i att ställa om till mer hållbara jordbruks- och livsmedelssystem genom införandet av naturpositiva lösningar. Jämställdhet är ett huvudfokus vilket innebär att det är avgörande att förbättra kvinnors möjligheter och att identifiera eventuella barriärer för införandet av naturpositiva metoder. Det finns begränsad kunskap om hur skillnader i resursfördelning mellan könen kan minska, eller hur kvinnors position kan stärkas, en kunskapslucka som den här studien syftar till att fylla.

Syftet med den här studien är att utforska genusbaserade erfarenheter av empowerment och resursfördelning inom hushåll i jordbrukssektorn, samt potentiella barriärer för införandet av naturpositiva lösningar bland småbrukare inom NATURE+-initiativet. För att få en djupare förståelse för påverkande faktorer används ett teoretiskt ramverk bestående av genus som en social konstruktion, resurser och empowerment. Den insamlade kvalitativa datan består av 18 intervjuer med manliga och kvinnliga småbrukare och byledare i Nyakach, Kenya.

Studien visar på en patriarkal fördelning av resurser och genusbaserade barriärer som negativt påverkar framför allt kvinnors möjligheter att införa naturpositiva metoder. Detta gällde särskilt ekonomiska och sociala resurser samt fysiska resurser i form av mark. Kvinnor var generellt sett mindre empowered än män, men inga tydliga generationsskillnader observerades. Kvinnors deltagande i beslutsfattandet hade ökat med tiden, men begränsades fortfarande av mäns traditionella roll som ledare och beslutsfattare och kvinnors internaliserade lägre värde. Genusspecifika åtgärder krävs för att NATURE+ med framgång ska kunna stödja manliga och kvinnliga jordbrukare i regionen och öka jämställdheten på ett hållbart sätt.

Nyckelord: *Småskaligt jordbruk, resursfördelning, genus, Kenya, empowerment*

List of Abbreviations

CGIAR - a global research partnership for a food-secure future dedicated to transforming food, land, and water systems in a climate crisis

CIAT - Centro Internacional de Agricultura Tropical (Part of the Alliance of Bioversity International & CIAT)

FAO - Food and Agriculture Organization of the United Nations

KALRO - Kenya Agriculture & Livestock Research Organization

NATURE+ - Nature-Positive Solutions for Shifting Agrifood Systems to More Resilient and Sustainable Pathways

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1. Introduction

1.1 Background

Agriculture is responsible for 60 percent of biodiversity loss and is a key driver of climate change as it accounts for up to one third of all anthropogenic greenhouse gas emissions (United Nations, 2021). The agricultural sector is likely to face considerable challenges with the on-going climate crisis, calling for an urgent need for transition (Ngigi & Muange, 2022). This is particularly relevant in Kenya, as more than 40 percent of the population, and 70 percent of the rural population, are employed in the sector (Food and Agriculture Organization of the United Nations (FAO), 2023).

In order to address these issues, the CGIAR research initiative NATURE+: Nature-positive Solutions for Shifting Agrifood Systems to more Resilient and Sustainable Pathways, is taking the lead to transform land, water and food systems at a large scale in five countries (Burkina Faso, Columbia, India, Kenya and Vietnam) (Fadda & Nikiema, 2022). Nature-positive solutions were formally recognized at the 2021 UN Food Systems Summit as a key pathway to sustainable food systems, but science and evidence for impacts at scale are lagging behind. The NATURE+ initiative aims at filling this gap by stress-testing and scaling up best practices of nature-positive solutions and supporting small-holder farmers in sustainable food production.

Within the framework of the NATURE+ initiative, the importance of ensuring equal opportunities for both women and men regarding training, management and community engagement is emphasised (Fadda & Nikiema, 2022). The project also aims to reach all age groups and contribute to farming individuals' empowerment. As many sectors in Sub-Saharan Africa, agricultural activities are heavily influenced by gender. Women constitute a large share of the labour force, and some mean that there is an ongoing feminisation of agriculture (Lastarria-Cornhiel, 2008). Yet, women farmers tend to have less access to resources used in agricultural production compared to their male counterparts, such as land, farmer networks and finances (Andersson Djurfeldt, 2018).

Understanding the role gender plays is therefore crucial when designing agricultural policies in order to contribute to their success (Doss, 2014). This can however be rather complex, as gender differences can be very nuanced and vary between communities (Bernier, Kristjanson, Neufeldt, Otzelberger, & Foster, 2013). Doss (2014) argues that there are key data gaps for

implementing appropriate policies and tracking their progress in terms of gender-inclusivity. Ensuring that women farmers are represented and heard remains one of the key challenges for studies concerning agricultural policy. In addition, few studies conceptualise gender as socially constructed but rather use the sexual categories of male and female (Wekesah, Mutua, & Izugbara, 2019). A gendered analysis can provide important insights about the socially constructed roles and how these impact the numerous activities and decisions in the agrarian sector. Farnworth, Sundell, Nzioki, Shivutse, and Davis (2013) also emphasise the need to bridge the gap between research and practice within the field of gender in agricultural policy.

1.2 Problem Definition, Aim and Research Questions

Due to gendered differences in resource-access, any development intervention will influence women and men differently, yet there is limited knowledge about how (Meinzen-Dick et al., 2014, p. 93). Moreover, gender relations both affect and get affected by the spatial context, thus evoking various forms of dominant masculinities and local power dynamics (Forsberg, 2003, p. 29). It is therefore highly relevant to incorporate a gender perspective into geographical analyses. Gender-disaggregated data are still relatively scarce, but ignoring gender as a factor is likely to lead to an increased gender-gap (Meinzen-Dick et al., 2014, p. 107). Women are generally excluded from adopting improved agricultural methods, such as nature-positive solutions, but this can vary between communities (Momsen, 2020, p. 1). Despite the existing body of knowledge, there are still many unanswered questions regarding the most effective mechanisms to ensure equal access to resources used in agricultural production.

This study therefore aims to explore gendered experiences of empowerment and intra-household allocation of resources in agriculture, and barriers to adoption of nature-positive solutions among small-holder farmers at a project site of the NATURE+ initiative. To achieve this, the following questions will be addressed.

What are the gendered patterns of intra-household allocation of resources in agriculture?

Are there any gendered differences or generational changes in empowerment?

Which are the potential barriers to adoption of nature-positive solutions?

With this objective, fieldwork was carried out in Nyakach in Kenya, one of the project sites of the NATURE+ initiative.

1.3 Scope

The area forming the geographical demarcation of the study is Nyakach Constituency in Kisumu County in Kenya, situated in the western part of the country bordering Lake Victoria. The study is limited to exploring the perspectives of small-holder farmers living in the area selected as a project site for the NATURE+ initiative. As the implementation of NATURE+ is just intended to start, the findings in this study make out a baseline to help shape effective interventions and do not evaluate any previous activities.

1.4 Relevance

The NATURE+ initiative provides a unique framework for this study to contribute to the growing body of literature analysing gender relations in agriculture in a large-scale development programme. To ensure the success of NATURE+, it is critical to support gender equality and women's empowerment. This support, in turn, has the potential to lead to both enhanced agricultural productivity and improved development indicators in multiple domains (Diirro, Seymour, Kassie, Muricho, & Muriithi, 2018). Gender relations are highly contextual, which reinforces the need to gain more knowledge of the nuanced and local realities before the project implementation, with this study focusing on the Nyakach area in western Kenya (Voronca, Walker & Egede, 2018). However, the findings of this study could also be of use in other regions where NATURE+ will be implemented as well as for other large-scale agricultural development programmes in Sub-Saharan Africa by providing a deeper understanding of gendered experiences.

1.5 Thesis Outline

The thesis begins by reviewing the findings of previous literature related to gender in agriculture in chapter 2, followed by a presentation of the main theoretical framework to be used in chapter 3. Chapter 4 describes the methodological approach and data collection techniques, along with related reflections. The study site and the Luo community are introduced in chapter 5. Furthermore, chapter 6 outlines the results, looking deeper into gender relations, resource allocation and barriers to the adoption of nature-positive solutions within the local context. This is followed by a discussion in chapter 6, which connects the main findings to previous literature and suggests practical and theoretical implications of the study. Finally, chapter 7 concludes the study by summarising the key outcomes.

2. Literature Review

As a general trend, resources are unequally distributed both between different socio-economic groups and genders (Hausmann, Tyson, & Zahidi, 2010). In Sub-Saharan Africa, as well as in Kenya, women control and own less resources compared to men both at community level and within households (Deere & Doss, 2006; Meinzen-Dick et al., 2014, p. 95). In the agricultural sector the pattern remains the same, and women both have access to, control, and own significantly less resources (Meinzen-Dick et al., 2014, p. 91), despite the general trend of feminisation of agriculture, i.e., “women’s increasing participation in the agricultural labour force, whether as independent producers or as unremunerated family workers, or as agricultural wage workers” (Lastarria-Cornhiel, 2008, p. 2). In addition to providing a large share of the on-farm labour, women in Kenya also devote a significant amount of time to household chores, leading to little time remaining to participate in other types of activities (Diirro et al., 2018). Sometimes this is referred to as time poverty, mainly affecting women due to their disproportionate share of time-consuming responsibilities. All these factors combined imply that any agricultural development intervention will affect men and women differently, yet more research is needed in this area (Meinzen-Dick et al., 2014, p. 93).

Rights to use or own a specific resource are also often acquired differently by men and women in Sub-Saharan Africa (Meinzen-Dick et al., 2014, p. 99). For instance, men are more likely to gain land rights through inheritance while women more often gain access to land through marriage. There is however no guarantee that she will keep control of this land in case of divorce or death of the husband. In addition, the most fertile plots are more often allocated to men (Nkedi-Kizza, Aniku, Awuma, & Gladwin, 2002). This, together with legal or customary rights favouring men, gives rise to large disparities when it comes to land ownership. Land, or the lack thereof, also interacts with the access to other resources, but further understanding is needed (Meinzen-Dick et al., 2014, p. 97). Moreover, in Kenya it is only as recently as 2010 that women gained legal rights to own land, but any larger impact of the new law remains to be seen (Farnworth et al., 2013).

The limited access to resources has major implications for agricultural production in the developing world. For example, the FAO (2011) estimates that if women had equal access to agricultural inputs such as fertilisers and labour, the yields in their farms could increase by 20-30 percent. This could lead to a drastic reduction of people going hungry in the world by up to

12-17 percent, showing the potential at scale (ibid., p. 5). Momsen (2020, p. 1) mentions that women generally are excluded to access improved agricultural methods, and that modernisation can further increase men's control of resources. Other types of gendered barriers to agricultural production include the way to access resources such as fertilisers, which are often sold in large bags of 50 kg and can be particularly hard for women to transport or afford (Gladwin, 2002). Nevertheless, gendered barriers vary considerably between different locations and communities, and more knowledge is needed. It is crucial for any development intervention to gain a deep understanding of the mechanisms at play for their target population before implementation (Voronca, et al., 2018).

Kristjanson et al. (2014, p. 213) found that there is not only a gender gap in the amount of resources in agriculture, but also related to the type or value of a specific resource. In an African context, men own large livestock such as cattle to a larger extent, whereas women are more likely to own smaller livestock such as goats or poultry. When it comes to human resources such as education, there is a gendered schooling gap, however this has decreased significantly in recent years in Kenya (Hausmann et al., 2010). Except for education, there is little knowledge on differences in allocation of these types of "softer" social and human resources (Meinzen-Dick et al., 2014, p. 99). Increasing women's access to and control of resources has many positive implications for the household and the society at large (Quisumbing, 2003, as cited in Meinzen-Dick et al., 2014, p. 96). For example, the more resources a woman controls, the more money is spent on children's education.

Resources, particularly in financial forms, are also crucial components of empowerment. Voronca et al. (2018) used a quantitative scale to measure empowerment in Kenya based on two indicators; the female partner's participation in decision-making, and the attitude towards domestic violence against a female partner. They found that women's empowerment was closely associated with increased wealth, and that it had increased over time. A conflicting pattern emerged of female respondents estimating their share in decision-making higher compared to how their partner would rank it.

In contrast to the positive relation between wealth and empowerment that Voronca et al. (2018) found, Jones et al. (2019) note that poverty sometimes weakens patriarchal structure as it forces women out of the private sphere to join the labour force. At the same time, poverty limits the access to resources and options. Moreover, the risk of domestic violence increases with higher

poverty rates (Voronca et al. 2018). Financial resources, or the lack thereof, can therefore influence women's empowerment in contradictory ways.

Women in East Africa tend to play a more significant role in income-generating livelihood activities within the household compared to women in other parts of the developing world (Jones et al., 2019). For instance, it is common for East African women to control the income from low-revenue products such as farm produce. However, high-revenue resources are still generally controlled by men, leading to gendered differences in intra-household power positions. This is particularly persistent in rural areas. Supporting women through income-generating activities is a popular approach for development interventions to address gender disparities and promote women's empowerment (Voronca, et al., 2018). Nevertheless, it is important to recognise that changing attitudes towards equal participation in decision-making can be just as critical as gaining access to financial resources in achieving this goal. Other factors that can be harder to measure but are important to include for a long-lasting empowering impact of development interventions are deeper structures, gender ideology and personal self-esteem (Kabeer, 2004, p 22). A qualitative approach has the potential to reveal these types of patterns that are harder to estimate quantitatively.

Even though agricultural development interventions often aim to reduce the gender gap in resources used for agriculture, little is known how they actually affect the resource allocation (Meinzen-Dick et al., 2014, p. 93). As inequalities have a tendency of being reproduced, it is crucial that enough attention is paid to this aspect. No development target will be fully met if gender disparities concerning resource access are not appropriately addressed, but much remains to be known about the mechanisms that best enhance women's access to resources in agriculture (ibid., p. 99).

3. Theory

3.1 Gender

In this study, gender is used to understand the socially acquired roles shaping men and women (Momsen, 2020, p. 3; Reddock, 2000, p. 37). Gender issues today have a high priority on the development agenda, and most projects do take them into account, at least to some degree (Momsen, 2020, p. 10). Although, achieving gender equality does not necessarily mean equal numbers of women and men in all activities or domains, but rather equal opportunities and abilities to lead fulfilling lives. Gender relations, i.e., “the socially constructed patterns of relations between men and women”, mutually affect and get affected by the process of development (ibid., p. 14).

There have been several different approaches to how to include women’s and gendered perspectives in development processes (Momsen, 2020, p. 14; Reddock, 2000, p. 38). From completely ignoring these issues, continuing with side-projects targeting women only, to nowadays mainstreaming gender issues in almost all development interventions, there is still no uniform answer to how to best address gender inequalities.

Gender roles take many different forms that vary in time and space, but the common denominator is that of female subordination (Momsen, 2020, p. 20). This might however be expressed in many different ways due to the spatial variation in the construction of gender. For example, division of labour by sex is present in all societies, but with varying outcomes, showing that there is no natural gender division (ibid., p. 19). In order to understand gender roles in production and labour, such as in agriculture, research has shown that it is equally necessary to gain comprehension of gender roles in the household (Andersson Djurfeldt, 2018, p. 54). These dynamics must be considered both in the public and private sphere, as particularly the latter might be ignored, potentially excluding important perspectives mostly affecting women (Connelly, Li, MacDonald & Parpart, 2000, p. 67).

To truly understand the impact of gender in society, there is a need to move beyond generalised patterns of gender and development on a large scale and link this to local realities and the voices of individuals in distinct places (Momsen, 2020, p. 21). In this way, new perspectives can be added to the research field. As mentioned, gender is a crucial factor influencing natural resource access and control along with other statuses such as class, age and ethnicity (ibid., p. 124;

Reddock, 2000, p. 47). A gender-based research approach can therefore contribute by identifying conflicting and complementary interests in the use of resources affecting the environment. The fact that women are reported to have less access to resources as well as less power in decision-making makes them more vulnerable in case of natural disasters or for climate change issues (Momsen, 2020, p. 145).

Many development initiatives aim to positively influence gender equality and women's power in decision-making, but this does not always give the desired outcomes and can lead to conflicts and a male backlash (Momsen, 2020, p. 282). Therefore, it is important to find ways to reduce patriarchal gender inequalities that support both women and men in realising their full potentials.

3.2 Resources

To be able to access, control, and own resources is essential for an individual's overall wellbeing and for agricultural production in general, as pointed out by Carter and Barrett (2006) and Andersson Djurfeldt (2018, p. 54). Additionally, resources can serve as a means of wealth accumulation, providing security during emergencies, and offering opportunities during periods of growth (Doss, Grown & Deere, 2011; Meinzen-Dick et al., 2014, p. 94). These resources can be categorised in six categories, which include natural, physical, human, financial, social, and political resources. In this study, the primary focus is on resources that are utilised for agricultural production. Some examples are provided in the list below, based on the framework used in Meinzen-Dick et al., (2014, p. 94).

- Natural resources: land, water, soil fertility
- Physical resources: crops, seeds, livestock, agricultural equipment and inputs, transport
- Human resources: education, skills, knowledge, health, time
- Financial resources: income, businesses, credits
- Social resources: membership in community groups, social network
- Political resources: effective participation in governance.

Households typically possess and invest in many different types of the aforementioned resources. However, one cannot assume that all individuals in a household share identical

preferences regarding their use (Meinzen-Dick et al., 2014, p. 94, Quisumbing, 2010, p. 161). Instead, within households, certain resources can be held by women, some by men, and others owned jointly (Meinzen-Dick et al., 2014, p. 101). The distribution of resources within a household plays a crucial role in determining how the household and its members utilise them to improve their well-being and livelihoods (Andersson Djurfeldt, 2018, p. 55; Quisumbing, 2010, p. 165). Strengthening women's control over resources has been shown to have a positive impact on the overall well-being of the entire household (Meinzen-Dick et al., 2014, p. 96; Quisumbing, 2010, p. 164). Adding a gendered lens, as proposed by Meinzen-Dick et al. (2014, p. 100), therefore has the potential to reveal important patterns when analysing resource control and ownership in relation to intra-household dynamics.

To illustrate, a gendered pattern can be particularly clear when it comes to resources such as time. Women often spend considerably more time on domestic chores compared to men and therefore have less time available to improve other types of resources such as farming skills or social connections (Meinzen-Dick et al., 2014, p. 102). Moreover, land is another classic example where customary tenure rights almost always favour men in Sub-Saharan Africa, even in cases where women are legally allowed to own it (ibid., p. 104).

Resources are crucial for individuals and households to avoid poverty and make a living. They are therefore a critical components of livelihood strategies, defined as the choices of allocation of resources towards various activities, with the intention of securing the needs of the household (Meinzen-Dick et al., 2014, p. 102). The Sustainable Livelihoods Framework aims to capture this relationship of resource control and the ability to make a living, and provides the possibility to include gendered patterns (Legesse, 2006, p. 51; Scoones, 2009). As people's livelihoods are constructed around a number of different resources, the access to and control of these do not only help to secure a life outside of poverty, but also enables individuals to make life more meaningful (Bebbington, 1999). Similarly to resources, gender roles heavily influence livelihood strategies, but so does the general environmental and cultural context as well (Andersson Djurfeldt, 2018, p. 55). This context is in turn experienced differently by men and women but is far from static and can change over time (Meinzen-Dick et al., 2014, p. 101).

This reveals the highly complex nature of livelihood strategies and resource control, even more so when the interactive effects of various resources are taken into account (Legesse, 2006, p. 53; Meinzen-Dick et al., 2014, p. 97). For example, social resources in the form of many network connections might transform into improved credit availability, or better access to good

quality seeds. However, social or human resources might not alone enable other livelihood strategies but could need additional inputs (Meinzen-Dick et al., 2014, p. 107). Another element to be considered is the actual meaning of control as it can refer to both the use, modification, and sale of a specific resource (ibid., p. 98). A woman might for example entirely control what is planted on a plot of land, but not necessarily own the land or receive all of the income generated by the sale of the crop. Shocks, in the form of natural disasters, illness, or conflicts among others, can also heavily influence the livelihood of a given household, and might be experienced differently by men and women depending on the ruling gender roles (ibid., p. 102).

Most agricultural development programmes aim to increase the access to and control of resources in different ways, for example physical resources in the form of equipment, or natural resources when improving soil fertility. Moreover, programmes commonly invest in strengthening human resources, for instance with various types of training, and might also intend to alter the gendered distribution of resources in general (Meinzen-Dick et al., 2014, p. 93). Nonetheless, this could be complicated in case the desired distribution of a specific resource does not align with customary rights in the community and can in worst case also backfire if the changes in intra-household power positions are perceived as threatening (ibid., p. 111). This is not necessarily the case however, as a strengthened bargaining position for women also can help increase women's role in decision-making in a positive manner and benefit the entire household (Andersson Djurfeldt, 2018, p. 57; Quisumbing, 2010, p. 163). According to Doss et al. (2011), the ownership of resources is also closely linked to women's empowerment and individual agency, making it a crucial component in this study.

3.3 Empowerment

Empowerment has become an important concept when studying gender-related power dynamics, in particular in development research. However, it is not necessarily so straightforward as such, but can contain a range of different dimensions and have many different meanings. Kabeer (2004, p. 19) defines it as "People's ability to make strategic life choices in a context where this ability was previously denied to them". In this study, it will be limited to household-members' perceived ability to make important choices, both in life in general as well as for agricultural practices.

In an attempt to understand empowerment, it is important to dive deeper into the underlying components. According to Kabeer's definition, choices are a key factor for empowerment, but not all choices can be considered equal. In each situation, there is a different significance of power contained as well as different consequences for people's lives. For example, it does not have the same implication being able to choose what to cook for dinner as deciding how the family income is spent. In addition, not all choices carry analytical relevance, as the interest here is limited to inequalities in people's capacities to make choices, not necessarily the actual differences in choices they eventually make (Kabeer, 2004, p. 22). However, certain choices or behaviours (or absence of such) can also be considered to manifest an internalised idea of lesser value (ibid., p. 24).

The change in people's abilities to make choices can be conceptualised as three interrelated dimensions; namely resources, agency and achievements (Kabeer, 2004, p. 19). As previously mentioned, resources can come in many different forms and be controlled to various degrees. There are several factors which affect an individual's access to a resource, and the terms of access can come in both very exploitative forms or support a sense of dignity. For example, certain informal employment might provide a similar salary as an official position in the public sector, but under very insecure or unethical conditions. However, access to a resource does not by itself mean that choices will be realised, but rather represents a potential.

Agency refers to a more internalised form of power, the power within to "define one's goals and act upon them" (Kabeer, 2004, p. 21). It becomes important to explore an individual's sense of self-worth and confidence as well as the lack thereof, as the internalised belief to be of lesser importance shapes his or her empowerment. Agency is also a major component of decision-making. Although, it is important to distinguish formal and informal decision-making, as women for example might be more influential in the household behind closed doors than will be communicated.

To realise achievements, or the failure to do so, is the third dimension of the empowerment theory. However, we are not interested in the lack of achievements due to laziness or other personal traits, rather asymmetries in the capabilities to attain achievements due to power imbalances (Kabeer, 2004, p. 21). To provide an estimate of empowerment, several different types of achievements can be measured, but it can be relatively complex to consider for whom it actually is an achievement. This relates to outsider and insider values that will be further discussed below. It is also important to consider whether an achievement really is indicative of

men or women as agents of transformation or whether it is just an increasing efficacy as agents in already pre-assigned gender roles.

Empowerment can thus be understood as the combination of these three different dimensions, and can be relatively hard to measure in a quantitative “exact” manner. Though, it can still provide a good indicator of the direction of change. Moreover, empowering women specifically is often recognised as having benefits for other members of society as well, but the empowerment itself must remain a purpose on its own and not only a means to reach other development targets (Kabeer, 2004, p. 50). This also relates to the issue of the normative values of what an empowered individual represents. From an outside perspective, it can sometimes be hard to recognise the meaning that certain indicators of empowerment actually carry in a given society. For instance, ploughing is seen as a man’s duty in the Luo community and if a woman was to be seen doing it people would likely suspect she is being mistreated by her husband. This implies that for her, it might not be an empowering experience to learn how to plough even though she has acquired new skills. Therefore, it is crucial to ensure that the indicators of empowerment align with the perception of empowerment in a particular context and represent the perceptions of men and women of this study.

3.4 Use of Theory

The notion of gender will be used throughout this study to better conceptualise and understand gender relations and inequalities within the community of the study area. While mainly focusing on agricultural activities, all choices and chores in life are deeply affected by gender, meaning that a wider perspective is required. As NATURE+ aims to support gender equality, an in-depth understanding of gender dynamics is crucial before any type of intervention takes place. This would ensure the project’s efficiency in empowering both women and men while at the same time addressing conflicts that could potentially be caused by altered power positions between the genders.

The gendered lens will be combined with the conceptual framework of resources in order to understand the current patterns of intra-household resource distribution. Different resources might be valued differently based on the use by each gender respectively. Identifying the differences in control and ownership of resources is therefore critical to design interventions aimed at supporting farming households and to avoid favouring the interests of one gender only. For example, cattle traditionally fall under the control of men in the Luo community,

meaning that any training or resource support provided in this domain is more likely to favour men than women. Actively directing this kind of support towards resources controlled by women could potentially be seen as controversial.

Moreover, the theoretical framework of empowerment can contribute to revealing dominating patterns for men's and women's ability to make choices and general power dynamics in the Luo community. Contextual variables significantly affect choices as both behaviours and values are influenced at a deeper, structural level. Differences in resource control, agency, and achievements between men and women are crucial to be aware of before the implementation of any type of development intervention aiming to change men's and women's lives and increase their empowerment.

4. Method

4.1 Methodological Approach

Since the aim of the study is to examine gendered experiences of empowerment and intra-household allocation of resources in agriculture, as well as barriers to adoption of nature-positive solutions, a qualitative approach in the form of semi-structured interviews was regarded as most suitable to capture individual perspectives and meanings.

According to Davies (2008, p. 105), interviewing is one of the most widely used methods in social sciences. In qualitative research in particular, semi-structured interviews are very popular to capture experiences from the interviewees' perspectives, diving deeper and providing rich information about the how and why. When conducting these types of interviews, it is crucial for the researcher to have a good understanding of the cultural context of the specific society, including basic knowledge of the structure of social relationships (ibid., p. 119). The fieldwork period contributed to this type of contextual understanding as it allowed for observations and informal conversations alongside the interviews. This enhanced the ability of the researcher to interpret the findings and to ensure the relevance of the analysis to local realities (ibid., p. 119)

4.2 Selection of Study Population

Nyakach in Kisumu County is one of three areas in Kenya where NATURE+ will be implemented. The selection of this study site was based on the fact that it was less researched compared to the other project areas, as well as the practical accessibility, which made it a suitable choice for conducting the study.

The study participants were recruited in equal numbers from two different areas within Nyakach: Agoro East and Jimo East. The recruitment process was supported by field assistants who regularly work with the Alliance of Bioversity International and CIAT. An equal representation of both genders was ensured in the interviews, with half of the interviewees being women and the other half being men. The objective was to gain an understanding of intra-household dynamics from both the male and the female perspective within a comparable context. For this purpose, both the wife and husband from each household were included, however in polygamous households only one of the wives was interviewed. Additionally, one widow and one widower took part in the study. Consequently, the study includes two single-

headed households and seven households where both the wife and husband were interviewed separately. This accounts for a total of 16 farmer interviews. Furthermore, two interviews were conducted with village chiefs in each of the two sub-locations.

The original plan was to have half of the households represent the youth, specifically those aged 34 years old or below. However, this approach proved to be complicated due to a large age gap between husbands and wives within the community. In many interviewed households, the wives were considerably younger, sometimes up to 15 years younger than their husbands. Additionally, it appeared that the number of farming households within this age category was fewer compared to other age groups. This could be explained by migration to cities for studies and work, with individuals returning later in life to settle and start farming. As a result, instead of focusing on a specific number of households in each age category, the sample selection aimed to include farmers from various age groups.

4.3 Techniques for Data Collection

This study is based on individual semi-structured interviews. Semi-structured interviews offer flexibility in the sense that the researcher arrives with a number of themes or questions of interest in mind, but may alter the wording and order of questions along the course of the interview. New questions on topics which were not known prior to the fieldwork can also be added (Davies, 2008, p. 106). However, it is inevitable that the interviewer will affect and shape the interaction, and it is thus important to be conscious of various power relations between the interviewer and the interviewee in this process, even more so when the research is conducted in a cross-cultural context as in this study. This entails that the researcher is involved in the meaning-making of the exchange and requires self-reflexivity (ibid., p. 110). As a student from the global north, there needs to be an awareness of how this can influence the exchange.

The interviews with the farmers covered a wide range of topics, from personal stories and life experiences, to access and control of resources, intra-household decision-making and gender relations. The main purpose was not necessarily just to collect and record their unique story, but rather to put it into context and improve the understanding of social and cultural processes in a more general manner (Davies, 2008, p. 207). Therefore, broad experiences, in-depth knowledge, and the ability to reflect upon events in general were more important characteristics of interviewees than a perfect representation of the population.

The qualitative interview guide used was an adapted version of the tools available from GAAP2, developed by the IFPRI Qualitative Team (2018, see Appendix 1), and the interviews ranged from 1-2 hours in length with most averaging at around 1h10 min. The research team consisted of two interview facilitators, one male and one female, one translator, and the researcher. Since the facilitators were both from the community and spoke the local language, the interviewees could choose between English, Kiswahili and the local Luo language for the interviews. Several interviewees, in particular men, insisted on speaking English whereas women to a larger extent preferred the local language. In many cases both languages were used to some extent. Separating the interview sessions for the wife and the husband from the same household was a way to ensure that both of them, in particular the wife, were able to express ideas and experiences freely without the influence or judgement of their spouse. The interview was conducted by one of the facilitators, with the translator simultaneously translating to the researcher on the side (see figure 1). When clarifications were needed, or a new topic of interest came up, the researcher could intervene at any time. The interviews with the village chiefs, who were both men, were facilitated by the researcher and entirely conducted in English.

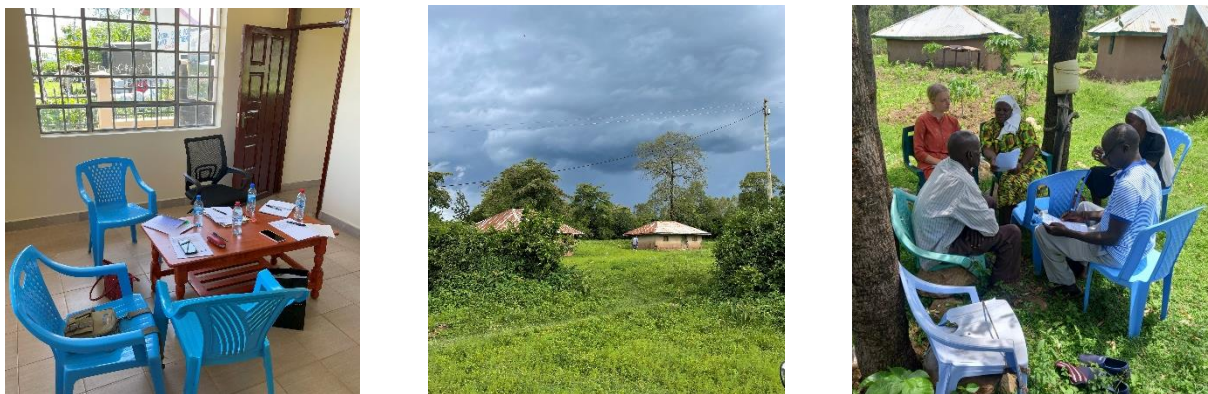


Figure 1. Training and interview sessions in Agoro East and Jimo East. Photo: Elsa Wallin

The original intention was for the interview with the wife to be conducted by the female facilitator and the interview with the husband to be conducted by the male equivalent. However, in some cases where the wife was already familiar with the male facilitator, she seemed to be more relaxed in his presence than with the female facilitator who was to her a stranger. The planned order was then altered without any visible signs that she was holding back due to the gender of the facilitators. Similarly, some men seemed to be more focused on showing status and achievements when interviewed by the male facilitator and felt less need to prove themselves when interviewed by the female facilitator. They then appeared to be more at ease

to open up and be vulnerable. It was therefore clear that there are many other factors to consider than just sharing gender with the facilitator to make the interviewee feel at ease.

At the end of the interview, compensation was given in the form of money in the local currency, equivalent to approximately 4 USD. This was the standard procedure for interviews within development projects in the area, and was an appreciated, but also anticipated, gain from participating. The village chiefs received a higher amount as that is common practice for government officials.

As the interviews were conducted in the study participants' homes, it was naturally accompanied by observations, farm visits, and informal conversations. This contributed to an increased understanding of contextual factors, such as farming practices and cultural values in the area, which in turn facilitated the interpretations of the interviews.

4.4 Data Analysis

The interviews were recorded using a digital audio recorder after oral permission had been given, as this was considered the best way to preserve the richness of the material for analysis. Notes were also taken to capture main themes and non-verbal aspects of the communication, such as facial expressions and gestures. The audio recordings were transcribed by a professional transcriber. For the interviews conducted in the local language, they were then translated based on the transcriptions. The rich and abundant material was thematically coded and analysed, each interview one by one. When cited in this study, individual interviewees are referred to by their code number (for example: woman no. 4, Agoro East).

4.5 Reflections

An interview must be seen as a situated encounter which affects the communication taking place. How individuals present themselves in a given situation depends on the context, making this method sensitive to power imbalances that can influence what, and how, information is shared (Davies, 2008, p. 110). Various statuses such as gender, age, and socio-economic status, interact in complex ways. If an interviewee perceives the researcher to have comparatively "higher status" it could lead to him or her trying to compensate for this by hiding or avoiding vulnerabilities out of shame. On the other hand, it can also result in the interviewee exaggerating problems in the hope of receiving support, especially if the research project is part of some type of development intervention, as in this case. In either situation, it creates a

distance between the interviewee and the researcher, which can be problematic. However, it can also be an empowering experience to be listened to and taken seriously by a researcher of a potentially “higher status”, so it does not necessarily pose a barrier to a valuable exchange (Davies, 2008, p. 111).

Another issue to be considered when pursuing research in a cross-cultural context is the language barrier. This meant that during the interviews, the sense of intimacy between the facilitator and the interviewee was partly removed due to the presence of a translator and the researcher on the side. Languages also carry many subtle meanings and nuances that cannot always be transferred, and with a translator it is inevitable for the exchange to be filtered through this person’s perspective (Davies, 2008, p. 124). It is therefore not theoretically neutral, but in this context, it is simply necessary in order to enable the voices of men and women not speaking English to be included.

Moreover, it was not unusual that there was some inconsistency showing up over the course of an interview, especially as the interviewee adopted different social identities such as a farmer, wife or husband, and mother or father, and responded from these positions, as is discussed by Davies (2008, p. 115). When carrying out semi-structured interviews focused on personal experiences and stories, this is also part of the process as the interviewee is asked to reflect upon several different stages during the life-course, and should not only be seen as a limitation as it can provide information about contrasting expectations on farming men and women. Inconsistencies between the interviews carried out with the husband and the wife from the same household also revealed important information about gender relations and conflict areas.

Another serious limitation when using these types of qualitative methods is the ability to empirically generalise the findings (Davies, 2008, p. 207). The aim in this study is however not for the results to be representative for the whole community or for any statistical generalisations to be made, but rather to enable a deeper understanding of individual men’s and women’s lived experiences. This can then with many advantages be combined with quantitative methods, and the results can be understood in a scaled-up perspective when compared to other qualitative studies in similar contexts. It is also possible to make theoretical contributions even without a statistically representative population (ibid.).

Finally, conducting research within the framework of an organisation, in this case the Alliance of Bioversity International and CIAT, has several implications. The recruitment of interviewees

as well as the data collection was made possible only because of the extensive organisational network in the study area, and the association with the name of the organisation provided a certain authority in the eyes of the study participants. Results were potentially affected as interviewees might try to present themselves as a household in particular need in the hope for future support from NATURE+. Concerning gender equality, some men clearly wanted to give an image of their wives having more influence in decision-making than what was actually the case, knowing that many development organisations find this important. However, as long as the material was analysed with this awareness, it was not deemed to affect the results negatively.

5. Study Area

5.1 Geographic Context

Kenya, located in East Africa, hosts a variety of climatic conditions, ranging from the coastal regions along the Indian Ocean to the highlands where the capital city of Nairobi is situated. The country is home to a rich diversity of cultures, with over 40 ethnic groups residing within its borders (CIA, 2023). Christianity is the predominant religion, with over 85 percent of Kenyans identifying as Christian, and religion holds a significant place in society and people's personal lives. Despite being a multiparty democracy, corruption is acknowledged to be a widespread issue, posing a serious challenge to the governance system (ibid.).

The study was carried out in the sub-locations Jimo East and Agoro East within Nyakach Constituency, Kisumu County (see figure 2). Located in western Kenya bordering Lake Victoria, this region shares the climatic conditions of the larger Lake Victoria Basin with temperatures between 18 to 34 °C and annual rainfall ranging from 600 to 1630 mm (Ajuang, Abuom, Bosire, Dida, & Anyona, 2016). There are two main rain seasons, with the short rains occurring in mid-October to early December and the long rains in March to May (Mugalavai, Kipkorir, Raes, & Rao, 2008). These rains are of high importance for farmers in the region as agriculture is predominantly rainfed. Some of the main problems facing the area are food insecurity, declining soil fertility and erosion (Obuoyo, Ochola & Ogindo, 2016).

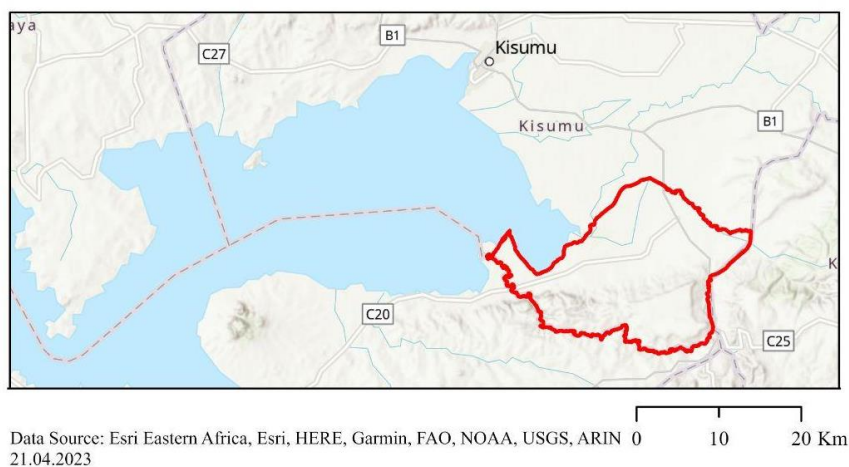
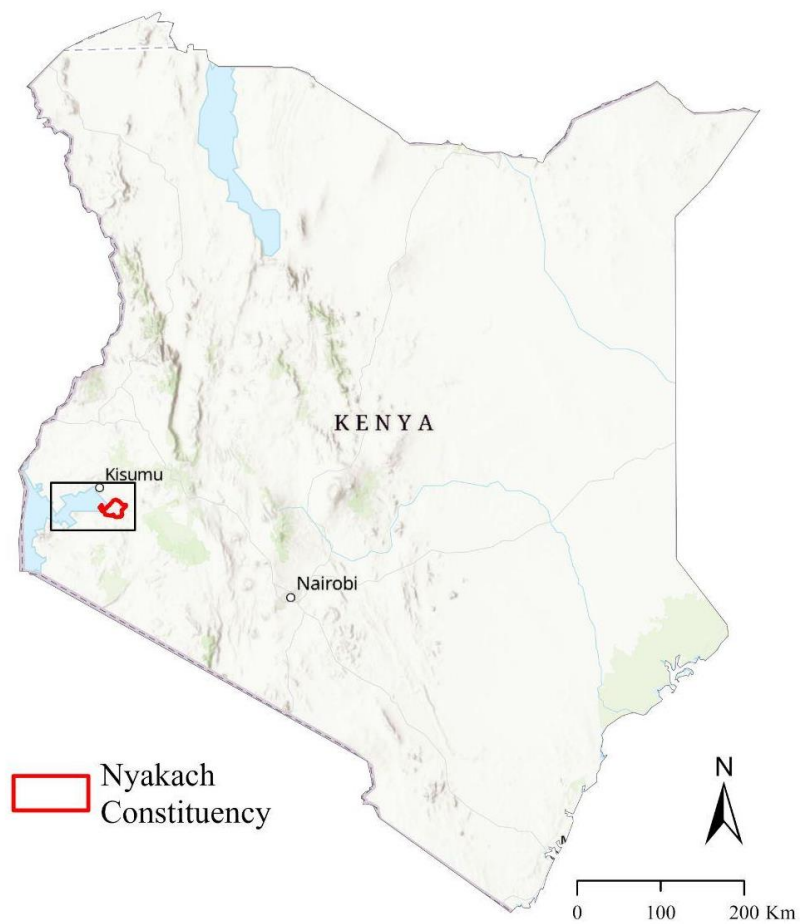


Figure 2. The study area in western Kenya, Nyakach Constituency in Kisumu County. Cartographer: Elsa Wallin

5.2 The Luo Community

Nyakach is mainly inhabited by the Luo, one of the major ethnic groups in Kenya (Wasonga, Omondi Olang'o, & Kioli, 2014). Politically, the Luo have been relatively marginalised, which is manifested in the low health and development indicators when compared to other parts of the country. Moreover, the Luo community is strongly patriarchal, and the man is regarded as the head of the household. Upon marriage the wife will relocate to the husband's family place, and the inheritance system is patrilinear. Polygamous marriages are common. The main economic activity is subsistence agriculture (see figure 3) and fishing, as well as migrant labour. Tasks are strictly divided based on gender and women traditionally carry the main responsibility for the household chores as well as much farm work. Men on the other hand, are more likely to engage in trade or other income generating activities outside of the homestead, and are also responsible for certain tasks on the farm such as ploughing and herding cattle. Despite outside influences, the Luo remain close to their traditional values and culture, especially when it comes to gender roles (Wasonga et al., 2014).



Figure 3. Subsistence agriculture is the most common economic activity.

Photo: Elsa Wallin

6. Results

6.1 Introduction

The results are based on individual interviews with farmers and village chiefs in the area, complemented by observations during farm visits and informal conversations with field assistants and other locals from the area. Firstly, the role of gender in family structures and labour division is presented, followed by the findings on intra-household resource allocation. Agricultural barriers are then discussed with specific focus on the adoption of nature-positive solutions, and lastly, decision-making processes are examined from an intergenerational perspective. Note that there can be major differences between communities in western Kenya, and that the findings in this study concern the Luo community specifically. In this case, no major differences were found between the two locations Agoro East and Jimo East in Nyakach.

6.2 Gender in Family Structures and Division of Labour

The tradition within the Luo community is for the man to be the provider and the head of the family. “Males are the head of the family, males are dominant” (man no. 7, Jimo East). In many cases, biblical explanations were given to explain female subordination. “According to the bible [...] the man was given a responsibility [...] and the wife to obey” (woman no. 5, Jimo East). A man was clearly looked down upon if he could not provide for his family. The women interviewed seemed to adhere to these ideals and would only challenge this division if they were forced to (for example due to an alcoholic man, severe poverty, or in the case of widows). In general, there was a big age gap between spouses, with wives being on average nine years younger than their husbands among the interviewed households, negatively affecting their intra-household power position.

If a woman lost her husband, it was common practice for her to be “inherited” by her brother-in-law. If a man lost his wife on the other hand, he was free to remarry as he liked. One man shared that after his first wife died, “I requested for a lady to upkeep the children, so they gave her to me” (man no. 8, Jimo East), showing how women are sometimes treated as commodities that you can inherit or request.

Gendered divisions of labour were often motivated by tradition, and the fact that it has been that way for a long time. “There are some duties, if you look at them they are just for women really. [...] I was born and found things that way” (woman no. 8, Jimo East). Sometimes, the

reason was based upon ideas of physical differences between men and women, such as “mostly women are good at planting, more than us [men], because they can bend a lot more” (man no. 5, Jimo East). Tasks involving heavy lifting or digging were performed by men as more bodily strength was required. If an activity was commercially oriented, it was also more likely to involve men as they were more present in the public sphere. “Somebody who is doing it for commercial purpose don’t leave it to women” (man no. 6, Jimo East).

Children were involved in household and farming activities from a relatively young age. The division of responsibilities resembled that of adults but was generally less strict. Many parents considered it important for their children to learn several types of chores so that they would be self-reliant in case they would live alone for some period. Still, girls were more likely to perform household duties such as cleaning the house and cooking, whereas boys were charged with heavier tasks outside such as clearing bushes and herding cattle.

For both women and men, marriage represented a transition in life towards more responsibility, less playfulness and more limited social interaction with friends. It also meant stricter gender roles, as married men no longer could participate in female chores if the wife was present. “Before getting married, sometimes my mother could let me cook but after getting married I can’t cook. [...] I could bring water but now I can’t” (man no. 8, Jimo East). Just the thought of their husband bringing water from the river seemed comical to many women. Table 1 below shows a general division of female and male responsibilities that was found in the majority of the households.

Table 1. Gendered Division of Labour.

Women’s responsibilities	Men’s responsibilities
Cleaning house	Spraying pesticides
Cooking	Applying chemical fertilisers
Fetching water	Applying manure
Fetching firewood (dead wood)	Cutting trees
Applying manure	Constructing houses
Washing utensils	Fencing and building a gate
Sweeping	Harvesting cash crops
Washing clothes	Buying land
Harvesting vegetables and sorghum	Herding cattle
Planting	Clearing bushes
Weeding	Ploughing
Taking care of children	Planting trees
Milking	Milking
Smearing the floor	Digging

Source: Field notes

Challenging these gender roles was complicated, but widowers and widows were often slightly less confined by them. Widows performing what the community considered male tasks were sometimes even admired and seen as strong. If a man was present, however, it was believed that she was being mistreated, or that she was threatening to overpower him. For a man on the other hand, it was more complicated to be associated with traditionally female tasks. “It brings down your ego as a man and you can not walk tall in the village [...] you will be embarrassed” (man no. 7, Jimo East). It would also lead to lost respect from other men. To perform certain tasks, women were forced to go through men, limiting their ability to make choices and act upon goals. “For example, I have money and I want to go build at our home, I cannot go and do so without the help of a man, you must get someone even if it is a brother of yours” (woman no. 8, Jimo East).

6.3 Resource Access and Intra-household Allocation

6.3.1 Natural Resources

Land

Among the interviewed households, many reported owning land large enough for a house (and sometimes houses for the sons’ families as well), a vegetable garden, shelters for the animals, and a smaller field. In addition to this, several households leased larger fields, most often in direct proximity to their homestead. When asked about ownership of the land, many first replied that they owned it jointly with their spouse. After insisting on the name on the title deed it turned out that the land was without exception owned by a man, despite the new law which entered into force in Kenya in 2010, which allows women to own and inherit land. The land was not always in the name of the husband in the household, but in some cases in the name of his father or another male relative. One interviewee said never having heard of a woman owning land and that if she would “they have played you, that land [...] will be taken away” (woman no. 4, Agoro East). This did not stop her from saying that “I would love to have my own [land]”.

In the case of one widow, the land was still in the name of her father-in-law. She reported issues after the death of her husband, as her in-laws claimed and took control of a portion of the land she used to farm. She then decided to fence the remaining area (which traditionally was a male task), and since then she had not been disturbed. Despite this, she was still unable to change the name of the title deed due to lack of money for transport and the necessary administrative

fees, showing the interactive effect of limited resource access. “If I could get a way of having my title deed, I could have already done so. [...] But you must have money” (woman no. 1, Agoro East).

In polygamous families it was common for the land to be subdivided for use to allow each wife to farm her own plot. “I own them [the plots] but I have divided and gave them their portions that they use” (man no. 5, Jimo East). In most monogamous families on the other hand, it was relatively common for the majority of the land to be managed jointly by the wife and the husband with the exception of a vegetable garden which was exclusively the responsibility of the wife. In some cases however, “managing jointly” seemed to mean that the man was the “supervisor” giving orders, and the wife was the one putting in the labour in the field. In this sense, wives in polygamous families tended to have slightly more freedom in deciding what to plant on their land as the husband had less overview (woman no. 5, Jimo East). But the pattern of the man holding the power position in the household as a supervisor whereas the wives did the labour on his farm remained. “I am the overall boss [...] They [the wives] take care but I do the supervision” (man no. 5, Jimo East).

Most farmers estimated the soil to be relatively infertile, but when regularly adding animal manure it would become more productive. The type of soil seemed to vary much in the area, with some farmers struggling with sandy soil that did not hold water well, whereas others reported having mainly clay soils that often got waterlogged. The fertility of the land in the same farm could also vary, and in some cases the vegetable garden controlled by the wife was recognized to have the best soil. The use of the land was not always thought to be very efficient due lack of resources, as “the lifestyle we are adopting is forcing us to waste a lot of land [...] it can only change when we are out of poverty” (man no. 6, Jimo East).

Water

There were a variety of ways to access water in the area, although none of the households claimed to have enough to fill their needs. Some households would fetch water in rivers or streams, certain would have access to a tap or a well, while others would have water tanks and roof catchment systems in the homestead. The latter type of structure was almost always installed by men. Contrarily, the time-consuming task of fetching water from the river by carrying it on the head was exclusively carried out by women or sometimes children, but a man could participate in case it involved a motorcycle or wheelbarrow to get it (man no. 2, Agoro East). This followed a general pattern of tools and machinery making a chore more “manly”.

For the farm, all households depended on rain for irrigation and only exceptionally had access to other types of irrigation systems with water pumps etc. This was regarded as the main bottleneck to improve farming in the area by all households, especially in recent years as the rains were becoming more unpredictable, likely due to climate change. Irrigation would not be unproblematic either, as the river was said to be highly polluted with waste from factories, and some suspected the water from boreholes to be too salty.

6.3.2 Physical Resources

Crops and Seeds

Common crops grown in the area were sorghum, maize, beans, cowpeas, groundnuts, cassava, sweet potato, sugar cane, and local varieties of vegetables (among others Crotalaria, Spider plant, Black nightshade). Some farmers also reported having fruit trees and produced bananas, oranges, papaya and mangoes (see figure 4). In a few cases, other types of vegetables such as tomatoes, capsicum and onions were grown. Getting good yields was important not only to provide food and income, but also for the identity as a farmer. Particularly women in vulnerable situations saw it as the main way to improve their lives, and put much pride in having a productive farm. Their achievements in this area were however often limited due to the lack of other resources.

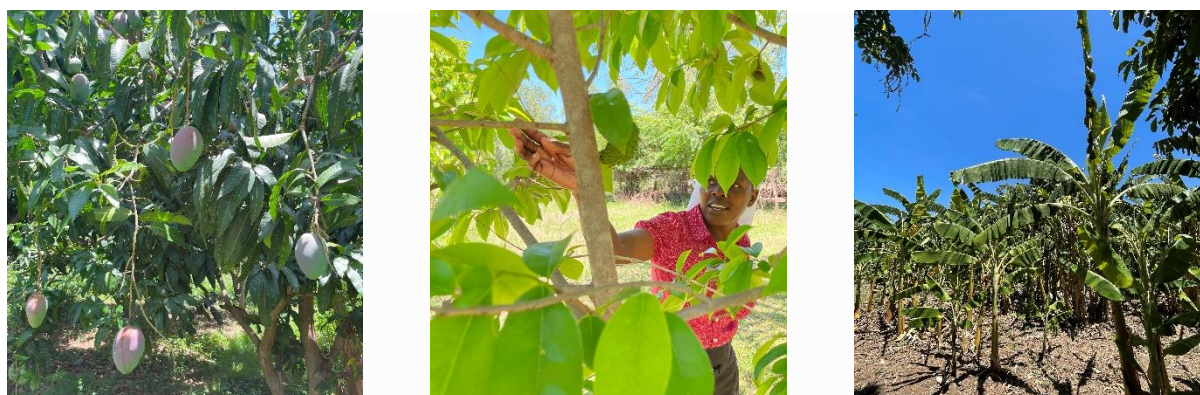


Figure 4. Various types of fruit trees were grown by some farmers in the area.

Photo: Elsa Wallin

As the vegetable plot was considered to be the domain of women, a man who harvested vegetables would risk being judged by the community. Despite this, when asked about an area they would like to learn more about, two out of eight men were curious about vegetable farming, one in particular mentioning traditional varieties that men generally do not know how to grow. Sorghum, being one of the staple foods in the region, was another crop where the

process of threshing (i.e., loosening the grain from the straw) and winnowing (i.e., removing the husk from the grain) was strictly carried out by women.

Most households got their seeds from the Agrovet, a store supplying seeds, fertilisers, pesticides and animal feed, among other things. A few were storing their own seeds from the last harvest. Several households were also members of either the Nyando or the Kabudi-Agoro Community Seed Bank, where they could access a wide variety of traditional seeds (see figure 5). After harvest, farmers would bring back the new generation of seeds, where the drying and storage would be supervised by a board member in charge of quality assurance. These seed banks were launched in 2019 and 2021 with support from among others the European Union, FAO, CGIAR, the Alliance of Bioversity International & CIAT, and Kenya Agriculture & Livestock Research Organization (KALRO). Generally, it seemed to be more common for the husband to get the seeds due to the higher degree of mobility among men, but this was not always the case. The quality of the seeds was viewed as good, and the seed banks had considerably contributed to the access of traditional varieties.



Figure 5. The Nyando community seed bank was one of the two seed banks in the area, where traditional varieties of seeds would be stored under monitored conditions.

Photo: Elsa Wallin

Livestock

The general pattern of livestock ownership followed what is regarded as common in the region, with men controlling larger livestock, such as cows and often goats and sheep, and women being in control of smaller animals, such as poultry. Though in several cases, this did not hinder women to be the main day-to-day caretakers of the smaller ruminants (i.e., goats and sheep), but in case they were to be sold the man would normally be the one to decide, again revealing a gendered difference in resource control. “You know for a man even if he has a cow or a sheep, he will take it to the market without consulting his wife, but a woman cannot do that. [...] The

man will tell you that this is my livestock” (woman no. 1, Agoro East). Regarding poultry, women in many households were allowed to sell or slaughter them without consulting the husband beforehand. The only exception seemed to be if the household only had poultry and no bigger livestock or if it was on a commercial scale, then the man would still be in charge.

Among the interviewees, the only woman to own a cow by herself was a widow. The absence of the husband enabled the woman to control male-dominated resources and forced her into acquiring a higher level of independence. However, the circumstances with the loss of her husband also implied less income for the household in total and an even heavier burden of responsibilities for her, not to speak of the personal feeling of loss and sorrow.

In polygamous families, smaller ruminants as well as chickens were often divided between the wives, allowing them more control over the animals compared to in monogamous relationships. The wives could often decide to sell their animals on their own, but still had to inform the husband. However, the cattle were still mostly under the control of the man due to the higher value and income-generating potential.

Having livestock was a sign of wealth in the community, and it provided milk, manure, and means to get money to educate children. It also offered a sense of security in times of crisis, as selling an animal could give protection from shocks in the form of diseases or financial problems. It was therefore a significant achievement to have many animals, particularly cows, but in terms of gender this type of wealth accumulation was less accessible for women.

Pesticides and Fertilisers

It was relatively varied among the interviewed farmers if they used chemical fertilisers or pesticides. Some mentioned that certain modern crops required treatments, in contrast to the traditional varieties (man no. 2, Agoro East). Many still expressed a preference for cow manure instead of chemical fertilisers, and some had tried the latter but gone back to using only animal manure again. One reason for this was the price, which had increased significantly due to supply disruptions caused by the Russian invasion of Ukraine.

There was a very clear trend for chemical fertilisers and pesticides to be bought and applied by the husband, whereas manure or bio-pesticides could be applied by everyone in the family including the children. This was motivated by the fact that “women are very delicate people” (man no. 6, Jimo East), and thus resulted in men being more exposed to potential health risks. In some cases, labourers were also hired to do the job. Farmers were well aware of the negative

health effects of chemical pesticides. Several reported to use home-made biopesticides instead with ingredients such as pepper and ash, and even more farmers said they would be willing to use these types of methods if they were taught efficient options.

Farming Equipment, Communication and Transport

The access to farming equipment was relatively limited and most activities were carried out manually with tools such as jembes (a type of farming hoe). When asked about what tools they would desire to access, a majority of the farmers mentioned that hand-held tractors would be extremely useful, as they were currently struggling to plough and plant in time. Other examples were water pumps and pipes for irrigation, and shade nets.

Common sources of weather information were the radio, mobile phones, and local Barazas (a type of public meeting). Almost all households had access to mobile phones, and had subscribed to various types of farming information services through SMS. In some cases, both the wife and the husband had access to the information, whereas in others it was only the husband and the wife was dependent on him sharing it. One man explained the fact that he was the only one to receive this information as “I think you people [women] when you go to the duties, you are performing them so much so that you don’t have time to put yourself to listen to the radio” (man no. 5, Jimo East). The heavy and labour-intensive burden on women therefore negatively influenced their access to important farming information, reinforcing a dependence on their husband.

Most interviewees were moving around by renting motorcycles, locally known as boda bodas. Matatus, a form of minivan commonly used in Kenya as means of public transport, were also used. In some cases, the household would have their own boda boda, or a bicycle, but women generally did not know how to use them by themselves. This created a form of barrier for women, limiting them to the area nearby the homestead, alternatively forcing them to depend on the husband or to pay to use the service of boda boda drivers. However, women running their own businesses increased their mobility, although they still had to pay more attention compared to men not to come back late in the evening for safety reason.

6.3.3 Human Resources

Education and Trainings

Among the interviewees, the level of education achieved ranged from 6 years of schooling to college graduation. The farmers who were younger had, on average, obtained slightly higher

levels of education. A majority once had high career ambitions and strived for white-collar jobs, but had to stop their education due to lack of money. “My heart did not want me to stop there but the poverty level would not allow me to go any further” (Man no. 8, Jimo East).

On average among the individuals interviewed, women had 2 years less of schooling than men in both Agoro East and Jimo East, and no woman had attended school for more years than her husband. This is not statistically representative for the whole community due to the sample size being too small, but it shows a general disadvantage for women. One reason for leaving earlier was marriage, for some women even as young as at the age of 13. In addition, several women mentioned having experienced other types of discrimination during school years such as being forced to help with household duties in the teacher’s home (woman no. 1, Agoro East) as well as “some teachers that used to disturb the girls” (woman no. 6, Jimo East), and in another case male teachers forcing to be her “friend” and becoming harsh if she refused (woman no. 7, Jimo East). The village chief in Jimo East mentioned that ensuring that girls got safely to school had been a significant problem, but it was generally improving in the area. Such experiences can drastically limit women’s mobility as well as their sense of agency and self-worth, reducing their achievements in both the public and private sphere.

Regarding farm knowledge, a woman who had been able to receive training on a certain topic or carried with her specific knowledge from her home area appeared to have a strengthened bargaining position within her household. For example, one woman shared that when deciding about what seeds to buy with her husband they “sit down and talk because he knows that I attend those seminars [referring to training for farmers]” (woman no. 4, Agoro East). The fact that she had accessed knowledge that might be new to him seemed to make him more willing to include her in the decision-making process. But on a higher scale in the community, men were more likely to have leadership positions and to be consulted by villagers.

The knowledge and skills to carry out typical male responsibilities were limited among women. For example, one interviewee claimed that there were only five women in the area who knew how to use oxen to plough, she being one of them. The reason why these five women in particular knew how to plough was either because they came from another region where the gendered labour division was different, or in general less rigid, which highlights the importance of context, or due to the absence of their husband. “Their husbands were not around, they only had their father-in-law at home, so he is the one who would teach them how to use the plough” (woman no. 1, Agoro East).

The absence of the husband enabled the wives to enhance their human resources in terms of skills and perhaps created a sense of independence and increased self-esteem. In this sense, enabling women to plough could be considered empowering. Indeed, several women complained about not being able to plough in time as labourers would not be available when needed, negatively affecting the harvest and thus their achievements. However, they were not only lacking the knowledge of how to plough but also the physical resources in the form of equipment. Many women expressed a wish for either oxen to plough with or a manual tractor. On the other hand, this would further increase their share of the labour burden at the farm, and it is not sure that it would be positively experienced by all women. One woman revealed that it would most likely appear to the community as if her husband was “mistreating” her, and that “she will not be able to get children” (woman no. 6, Jimo East). This relates to the notion of “insider” and “outsider” values, with an outsider perhaps considering a woman ploughing as more empowered than an insider within the Luo community would.

Time and Health

Without almost any exceptions, the interviewed farmers reported bodily pain after working at the farm. Mostly, it would be in the form of back pain, or potentially in the shoulders, ankles, or hands. “I can’t deny that I am always feeling pain” (man no. 2, Agoro East). One woman had given birth through a caesarean section a few years back, and since then she was feeling more pain, particularly when bending for long. The heavy burden of responsibilities on women negatively influenced both their physical well-being and the time available for other activities. “Most of the time you find them [women] at home and doing some duties, finding them sitting is not very easy” (Village chief, Agoro East). Another woman shared that “here, women work a lot more than men, but if you find a very hard-working man you can walk a very long distance before finding another” and “most of them are just relying on their women to bring food and put on the table, like mine” (woman no. 5, Jimo East).

6.3.4 Financial Resources

Business and Income

The livelihood strategies in the area generally consisted of the farm as the base in combination with a variety of informal jobs and businesses, such as offering labour on other farms and selling handicrafts or surplus produce. Some, predominantly men, worked outside the community and only came back occasionally to the family home. This resulted in the woman

taking the main responsibility for the farm, as one woman expressed it: “he used to be in Kisumu, [...] he could not care about going to the farm” (woman no. 1, Agoro East).

One woman wished to work but was refused to do so by her husband. “They [men] think when women have money then they will disrespect them [...] I can only do that [work] if there is violence” (woman no. 2, Agoro East). The in-laws would also express their discontent, and considering that the wife generally moves to the family home of the husband this would put her in a vulnerable situation. She knew about another woman working, but that was because the income of the husband was so low so she had no choice. Again, gendered barriers seemed to be challenged only when absolutely necessary. Gender was not the only factor potentially hindering an individual to find off-farm employment, age also reduced the chances starting already at the age of 50. “At this stage nobody can employ me, they need young people” (man no. 8, Jimo East).

Despite gendered barriers regarding income-generating activities, it was not rare to find women running their own businesses, for example selling crops or fish (which is common in the area close to Lake Victoria) at the market. The income they received was often used to contribute to school fees and food costs. A woman earning her own money seemed to have greater mobility and more bargaining power in the household. One man shared how his wife started a business of cooking mandazi (a traditional form of fried sweet bread) and taught him how to make them as well. Through this business, he was able to buy land, pay school fees for the children and buy a house, and he acknowledged that “it was the wife’s idea that brought this household up” (man no. 8, Jimo East). This shows the impact the livelihood strategy of a woman can have for a family, but it is important to note that the land bought with the money from her business would still only be in his name. Similarly, another woman who was running a business stated that “even the money I get, he is the one I give it to keep” (woman no. 4, Agoro East). According to her, this was to make him feel comfortable and not accuse her of careless spending. Controlling income and money was closely tied to the man’s identity as a provider and head of family, and if this responsibility was overtaken by the woman, it could quickly alter power relations and be perceived as threatening to men.

Regarding income, many households experienced not being able to get the sufficient amount. “Sometimes there is no flour in the house, so it forces you to look for a way that the children will eat” (woman no. 1, Agoro East). A dominant expense for all families were school fees. The farm could in some cases contribute to the school fees in other ways than just income, as

one woman reported being able to reduce the school fee by providing crops to the teachers. “Sometimes I can even talk to the teachers, maybe if I have beans or sorghum [...] they can take that so that they cut it from the fees” (woman no. 1, Agoro East). Otherwise, the most common way to sell surplus produce was to bring it to the local market, for example in the nearby town of Katito (see figure 6). Other households also reported selling produce at the doorstep to people in the community.



Figure 6. The local market in Katito town, where various farm produce and fish were sold.

Photo: Elsa Wallin

Loans and Credit

Certain, but far from all interviewees, had access to or were currently taking loans. Some reported that the process to get credit was too complicated and that they could not meet the requirements, at least not to get the desired amount. A few of the interviewees had access to credit through a community group, showing how social and financial resources interact. Women’s groups seemed to strongly contribute to the availability of credit for women. Loans through mobile phone services were also sometimes used.

Almost all households reported consulting each other before taking major decisions regarding credit. A widow, who was now under the responsibility of the brother-in-law, had slightly more financial liberty as her brother-in-law was not living under the same roof as her. “I cannot ask him for permission, I just go and borrow money” (woman no. 1, Agoro East).

6.3.5 Social Resources

Community Groups

Several, but not all of the interviewees, were participating in various types of community, farmer’s, or women’s groups. A number of them were for example members in either the Nyando or the Kabudi-Agoro Community Seed Bank.

Many benefits as well as challenges were identified within these community groups. For instance, one of the main advantages was the access to knowledge and the exchange of information with other farmers. In the case of the Kabudi-Agoro Community Seed Bank, the board members were all women, and these women seemed to have gained respect within the community due to their positions. Farmers would now frequently come and ask them for advice. Their social resources were therefore significantly increased, along with their human resources in the form of knowledge and physical resources in terms of seeds for the whole community. The pride that the women on the board of the seed bank showed indicates that it represented a significant achievement for them. In this sense, it could be considered empowering as it both increased their resources, their agency in the form of self-esteem, and was a concrete achievement. There was however a risk of much unpaid time being taken in demand, which added to the already significant burden of time-consuming responsibilities for women in particular. One of the women on the board expressed this by saying “sometimes you have been abandoned with a lot of work as an individual, so you will bear all that alone until it becomes tough”. Another challenge frequently brought up for community groups in general was finance, especially in groups where members share money and loans. “You get someone borrowing and when it is payback time, they decline” (woman no. 4, Agoro East).

In one household, the wife even reported to pay the member fee for her husband to a community group, but not having the time to attend herself. “I registered my husband. [...] So on financial stuff I take care, but in attending as a member it is my husband who used to, he is counted as a member” (woman no. 8, Jimo East). Moreover, with modern technology and the access to mobile phones, new possibilities are being created for farmers to connect and exchange information. One farmer (man no. 7, Jimo East) reported being part of a farmer’s group in Kisumu, and despite not being able to attend in person due to transport limitations, he could attend through his phone.

Social Network and Leisure

Many of the interviewees reported being too busy at the farm to see their friends, especially in the rainy seasons when farming activities were more demanding. Yet, men were in general favoured and had bigger social networks and more time to spend with friends. They also had greater mobility.

As the wife moves to the husband’s homestead upon marriage, she leaves her own friends and family behind only to visit them occasionally. In addition, the wife’s chores and responsibilities

are often closely bound to the house, limiting her mobility and the time available to socialise outside the homestead. This leads to a clear gap between men and women in both the number of social connections and the time available to spend with them. Consequently, women generally had a smaller network to rely upon during times of crisis and got fewer occasions to exchange knowledge and information. It was even more limiting in case the wife did not belong to the same ethnic group as the husband, in this case Luo, as she then faced a language barrier as well (woman no. 3, Agoro East).

Only in two households did the wife report that she spent as much or more time socialising as her husband. In these two cases, it was because of her participation in women's groups, indicating that these initiatives can have a real impact on women's access to social networks. Specifically targeting women for activities and networks can therefore be a way to contribute to bridge the gender gap in this area, which could prove particularly empowering if simultaneously enabling the women to access and control additional resources and thus gaining in confidence and agency.

6.3.6 Political Resources

In the Nyakach area, one farmer reported that “corruption has taken place, serious corruption” (man no. 3, Agoro East). To gain influence on political processes he mentioned that “it is important to have stronger organisations”, as he as an individual could not make his voice heard alone. The only way was to act as a group and “go and complain with one voice”. This could be hard however, especially as “the Luos were always in opposition”, accusing the government of taking “advantage [...] and] making sure they put a rift and deprive” the Luo community. For instance, one man accused the government of purposefully wiping out the cotton and coffee industries in the area starting in the 1970s.

The government is primarily present in the region through the village chiefs. They receive information from higher instances and implement the orders given in the local area (Village chief, Jimo East). Not all farmers were content with the system and accused certain chiefs to behave badly with locals, and not being engaged enough in the community (man no. 3, Agoro East). Many farmers wished for government action in several areas, among others to prevent river pollution, deforestation, and gully erosion. One woman, whose land was at risk to be swept away by a gully, expressed feeling powerless after government agents had promised action but yet done nothing. Overall, farmers' capacity to effectively participate in governance

was limited, and the only option seemed to be through strongly organised groups. Still, this would not necessarily give them the financial resources, nor the connections often required to be truly influential in the Kenyan political system.

6.4 Agricultural Barriers

6.4.1 Future Vision of Farming in the Community

The vast majority of the interviewees were proud to pursue farming as a livelihood strategy, and considered it an achievement to be able to be “self-reliant” and “independent” (man no. 6, Jimo East). In almost all cases, their parents had been farmers as well which inspired them to follow a similar path, and they would be proud to see their children do the same. However, not all children shared this desire but generally seemed to prefer white-collar jobs, but due to the difficulty to get employed many were likely to end up farming anyway. It was said that the young generation therefore was less interested in investing in their homestead in the area (woman no. 3, Agoro East).

When asked about how they would like to see the next generation farm, almost every interviewed farmer visualised it to be large-scale and extensive farming, using modern technology and machinery. They all wished for the children to receive bigger harvests and more income than themselves. “Let my kids reach to an extent whereby they can produce to do even exporting and to do value addition [...] even to bring up factories in my area” (man no. 5, Jimo East). Industrialised agriculture was seen as the most attractive future pathway.

6.4.2 Changes in Resource Availability

The farmers interviewed had noticed several changes in resource availability as well as environmental problems in the region. The population pressure was considered a major challenge in the future, primarily for the availability of arable land. Another issue was the cutting of forests. Yet, in recent years the trend seemed to have been reversed due to increased awareness of the benefits of forest cover, among others to attract rain. The importance of replacing cut trees with new ones was highlighted several times. “If somebody cuts a tree, he has to ensure that he replaces it with even two beside it” (woman no. 8, Jimo East). This awareness seemed to be due to the presence of development agencies in the region addressing deforestation, which appeared to have given results.

Another pressing issue worrying farmers in the region was the decreasing water availability. For example, interviewees had observed that the rivers were drying up, but also that the river water was highly polluted due to waste from human activities and factories. As commonly observed during the period in the field, many people washed their motorbikes or vehicles directly in the river which also contributed to the level of pollution. Agricultural activities were considered to negatively impact the water quality through the use of chemical herbicides, and no solution was seen in the near future. “The water is going to continue getting worse, it can’t be reversed to be like the older times” (man no. 8, Jimo East).

Regarding weather patterns, a majority of the interviewed farmers reported having seen the rains become less reliable, with more extreme precipitation events as well as less regularity resulting in droughts. If these changes persist or even aggravate due to climate change, this will lead to huge challenges in a region where almost all small-scale farming is rainfed. “It is now unlike the other times, now it [the rain] is not there, the system has changed, the climate has changed, you cannot predict when you will be having the long rains” (man no. 6, Jimo East). The same man also mentioned that 15 years ago, his home would have been inaccessible by road due to the mud after the long rains, but this year there was no mud to be seen. For many farmers the implication of this was clear; “we need not to depend on rainfed agriculture” (man no. 7, Jimo East).

There was serious and rapid erosion going on in the area, particularly in the form of gullies expanding, reportedly destroying farmland and cutting off roads (see figure 7). Informal sand harvesting further aggravated the problem, which the village chief in Jimo East pointed out as a major environmental problem in the region. No solution seems to be readily available other than trying to offer alternative livelihood strategies. The increasingly intensive rains also lead to significant topsoil erosion. “So you find it is a flood that comes through the farm, it flows through the farm, making a deep gully thereby eroding the fertility of the farm” (woman no. 8, Jimo East).



Figure 7. Rapid and extensive gully erosion threatened to destroy farmland in the area.

Photo: Elsa Wallin

The interviewed farmers were very interested in attending training sessions, and had a wide array of topics they wanted to learn more about. A few examples were: bed technology, no-till practices, more details about planting and growing various types of crops (among others traditional crops), organic farming, bio-pesticides, “modern farming”, flower farming, nitrogen-fixing trees, and soil conservation. “Maybe soil erosion is taking your place but you don’t know how to conserve that one, we need capacity building to train these people” (man no. 6, Jimo East).

6.4.3 Barriers to Adoption of Nature-positive Solutions

When asked about main barriers to adopt more environmentally friendly farming practices, many farmers mentioned lack of financial resources. “But it is very expensive, isn’t it? [...] One has to be empowered” (man no. 3, Agoro East). The main priority was for it to be economically viable, “I can’t do something that is not profitable” (woman no. 2, Agoro East). This also connects to the issue of time, as many farmers, in particular women, already worked long hours just for basic maintenance of the homestead. The time available to be dedicated specifically to learn and implement new methods was restricted, and in case a new method was more sustainable but also more labour-intensive, they would likely not be interested. Additionally, almost all farmers reported suffering from bodily pain due to overwork, making physically heavy practices unattractive. “I have low financial status and also weariness of the body” (woman no. 6, Jimo East). On the other hand, low-input, accessible, and labour-saving practices would be a welcomed change in all farmers’ daily lives, particularly for women.

Access to land was another critical and concrete barrier as the availability was restricted, and many households leased a significant proportion. This prevented long-term investments. The

fact that none of the interviewed women had their name on the title deed also added to their disadvantaged position, as there was a risk that their husband or other male relative would take control of the land the women farmed if it became too profitable. Moreover, water was perceived as the main bottleneck for farming in the area, and with climate change this issue is likely to exacerbate, limiting the available options of farming practices. Low input water harvesting- and storage techniques will therefore most likely play a crucial role in the future.

The market opportunities in the region were relatively limited, and one farmer reported that the “market is not there so you sell at a throw away price” (man no. 7, Jimo East). Female-run businesses were frequent and accepted, but only to a certain scale where the husband might want to take control of the income. Numerous development agents have been active in the area, and a new initiative would be welcomed and valued by the interviewees. At the same time, some mentioned that the presence of external agents had led to a passive attitude among the locals and that they were expecting “outsiders” to come solve their problems, thus reducing their own power as agents of change. “They have not been empowered, they are waiting for handouts” (man no. 3, Agoro East). The same farmer mentioned that development projects often only come and “throw breadcrumbs”, in the end not being enough for a proper transition. He would instead prefer new initiatives to focus on properly empowering a reduced number of farmers who can then function as model farms to educate others. The fact that industrial and mechanised agriculture was considered the ideal for the future also influenced which type of farming practices the households would be willing to adopt.

Finally, women faced additional barriers compared to men due to strict gender roles and limited resource-control. They were more dependent than men on hiring labourers for tasks they were not allowed to perform themselves (such as building structures) and were thus disproportionately affected by financial restrictions. Challenging these gender roles, especially when done successfully, could potentially lead to friction in the community and threaten the husband as the main provider and breadwinner. Many men would lose their identity and self-esteem in case their wife got more power, and no longer receive the same respect from the community or other men. “You will have no voice where your fellow men are” (Village chief, Jimo East). Expanding the agency of women could therefore provoke a male backlash or a perceived reduced agency for men.

6.5 Decision-making and Intergenerational Changes

Many men as well as women shared that it was important to consult each other before making decisions. “Discussing brings success, while if you don’t discuss you are doomed to fail” (man no. 8, Jimo East). Nevertheless, the man was regarded as the head of the household, and generally had the final say as “the wife has to yield” (man no. 3, Agoro East), reflecting his power position. Many women did not feel listened to by their husbands; “I think we [women] should also bring ideas, and that our husbands should also listen and not just despise us” (woman no. 6, Jimo East).

Sometimes men and women would share contrasting versions of the decision-making process within the same household. For example, one woman shared her frustration with her husband by describing their marriage as “you are staying with somebody as your big brother who just dictates you and he don’t want to hear from you [...] we don’t sit and discuss anything with him, if it is something which involves him first he just do it without even telling me” (woman no. 5, Jimo East). At the same time, her husband described their decision-making as “we sit down and we decide and you will find that we reason up in a good way” (man no. 5, Jimo East). One field assistant afterwards said that “mostly women spoke their truth on their decisions and men were hiding”.

Women were perceived to be more careful when making decisions, as they were more “family-oriented”, whereas men were said to be more likely to spend money (man no. 3, Agoro East). The absence, or irresponsibility, of the husband would enable a woman to participate to a higher degree in decision-making. “There are some homes where women are strong, probably the husband is an alcoholic or you see the husband is irresponsible, there the wife will be the one to decide. [...] Or the woman is a widow” (man no. 7, Jimo East). Despite being forced to expand their agency, and even showing important achievements just by using the resources they had in a more independent way, these women often lived in deep poverty, resulting in low levels of empowerment. None of the interviewed women preferred this type of dynamic, but instead they would have wished for a providing husband not requiring them to step up as a head of household.

Altering gender roles in decision-making in a household with both husband and wife present proved challenging, partly because of the threat of domestic violence. “Sometimes when you differ [in opinions] then you slap her” (man no. 6, Jimo East). Some women reported that if

they made decisions on their own, they would be beaten. “If you tell him you want to sell this bull, and he refuses but you insist then you sell the bull [...] you will be beaten because you were warned but you were tough headed” (woman no. 1, Agoro East). Even if domestic violence was not occurring in a particular home, the presence of it in the community could still serve as a reminder for the woman not to provoke the man. “You can even hear someone beating his wife at night and she is wailing, you did something without my knowledge, and that would mean they didn’t agree” (woman no. 8, Jimo East). Excessive consumption of alcohol among men was recognised as a widespread problem, which also contributed to the presence of violence. Domestic violence was however said to have decreased in recent years as people were aware of it being illegal (Village chief, Jimo East). This was also true for child abuse, with various views among parents; “you know back in the ages if my child did something wrong, you had the rights to correct him, but now... [...] these children have known their rights, so they have become tough headed” (woman no.1, Agoro East).

Decision-making processes were found to be slightly different in polygamous households, compared to monogamous ones. Having several wives was seen as a status symbol for men, as it meant that they had the economic status to provide for all of them. The hierarchy among the wives could be strict, for example it was said that according to traditional beliefs the second wife had to wait until the first wife had harvested her plot before she could do the same. She would even leave her crops to rot if that was necessary. These beliefs were being loosened up, but to what extent varied between families.

Polygamous marriages rarely seemed to provide an advantage for women. “Girls do prefer to be in a monogamous family, but they are forced with situations to be in a polygamous [family]” (Village chief, Jimo East). One polygamous wife shared that “every woman fights to be loved. [...] When they go for another woman you are useless and you have no value to him” (woman no. 5, Jimo East). A man often seemed to have his “favourite wife”, and the other wives then risked getting less attention and resources. However, the fact that in many polygamous families each wife would have her own home, between which the husband would rotate, also seemed to provide a sense of independence to the women and increased resource control. But by the wives themselves, this was not considered as expanding their agency and control over resources, rather as the husbands becoming more “irresponsible and again they are trying to run away from their duties” (woman no. 5, Jimo East). Polygamy could however also result in the man

deciding more on his own as it was too complicated to take the wishes of several wives into account (man no. 7, Jimo East).

However unhappy a woman would be in a marriage, divorce was hardly an option. One woman described her marriage as “we are enemies living under one roof”, but would not consider divorce because “I love my child, I don’t want to disturb my child. [...] It is shameful. [...] They will call me prostitute because I was once married I have left my husband” (woman no. 5, Jimo East). Another woman said that she would have left her husband “long ago” if it was not for the children (woman no. 6, Jimo East).

Despite still being strongly patriarchal, changes in power relations and decision-making had been observed compared to the previous generation. In older days, fathers were reported to be “dictators” (man no. 8, Jimo East), and “before, the women were not allowed to talk where men were” (woman no. 2, Agoro East). All interviewees meant that since then it had changed significantly, “this generation we discuss” (man no. 2, Agoro East), mostly because of the influence of education and the church. It was mostly considered a good change, but some individuals, including women, were worried that men “will feel undermined in the house” and that “a woman should not be much powerful” (woman no. 6, Jimo East). The reason for this was the bible. Women themselves therefore did not always desire equality, and had internalised the idea of lesser value and importance in decision-making, acting as a barrier to their own agency and empowerment; “they also believe that they can do just what they were told to do [...], that women are weak” (Village chief, Jimo East).

Still, no significant or consistent differences were found between younger and older interviewees in terms of decision-making, but it rather seemed to vary between individual households depending on their educational level and socio-economic status. The reported shift towards women’s participation in decision-making seemed to have happened longer ago, but making decisions “jointly” could still mean anything between the wife just receiving the information of what the husband had decided by himself, to actually sitting down together and listening to her opinion.

7. Discussion

7.1 Results in the Light of Previous Research

What are the gendered patterns of intra-household allocation of resources in agriculture?

Regarding the first research question, the findings of this study align with previous literature, such as Deere & Doss, 2006, Hausmann et al., 2010, and Meinzen-Dick et al., 2014, by revealing strictly gender separated responsibilities and an unequal distribution of resources in agriculture favouring men. The specific division could however vary quite significantly between households. Women were indeed providing a large share of the labour on the farm whereas men were more likely to be active in the public and commercial sphere, consistent with the trend of feminisation of agriculture that Lastarria-Cornhiel (2008) refers to. This does not mean that men did not contribute on the farm as especially older men were limited in their chances of finding employment elsewhere, making the farm their main livelihood strategy.

The pattern of women generally controlling resources of lower value compared to men was clearly visible, in accordance with the findings of Kristjanson et al. (2014). Yet, the share of land used to grow vegetables by women was in some cases judged to be more fertile than other areas of the land, contradicting the statement by Nkedi-Kizza et al. (2002) of men controlling the most fertile plots. The land was still only owned by men as often reported in the literature (Andersson Djurfeldt, 2018; Meinzen-Dick et al., 2014), indicating that the law which entered into force in 2010 allowing women to own and inherit land as mentioned by Farnworth et al. (2013), so far has little effect due to the patriarchal structure in the Luo community.

Intra-household resource allocation and decision-making patterns varied depending on the household structure, and polygamous households stood out more than expected. Polygamy was mainly benefitting men and strengthened their position as head of household as well as farm “supervisor”. At the same time, resources were often strictly divided, allowing each wife to claim more control of what was considered “hers”. When the husband failed to live up to his responsibility to provide for one of the wives, she was forced to expand her agency and independence, often against her wishes. This was similar to the experiences of widows or wives in households suffering from severe poverty. The absence or the low resource-control of the husband seemed to weaken patriarchal structures allowing women to take a more active role in domains outside the traditional gender division. A conflicting pattern of more independence and agency for women, but also low resource-access and sometimes increased domestic

violence emerged. Similar findings have been reported by Jones et al. (2019) and Voronca et al. (2018). Kagotho and Vaughn (2018) found that in Kenya, women in polygamous households have less autonomy in economic decision-making compared to women in monogamous marriages. It is likely that the second or third wife has even less to say than the first wife. However, relatively little is known about decision-making processes in polygamous households, thus limiting the potential of designing effective development interventions aiming to empower polygamous women and enhance gender equality.

Are there any gendered differences or generational changes in empowerment?

Concerning the second research question, this study did not find significant differences between the gendered resource access and decision-making of younger and older farmers, despite reported changes compared to previous times. The only exception was regarding human resources, with younger individuals generally having attained a higher level of schooling. Considering women's increased participation in decision-making, it is difficult to specify exactly when this shift is supposed to have occurred due to its gradual nature. It is also likely that such changes towards equal participation are negatively influenced by women's sense of lesser value. No major intergenerational contrasts were therefore found in relation to individuals' empowerment.

The increased levels of women empowerment over time reported in Kenya by Voronca et al. (2018) are likely to be less noticeable in rural areas compared to urban sites. The comparison in this study is also made more difficult due to a varying, but in general large, age gap within the same household. Omwami (2015), focusing mainly on intergenerational differences in women's empowerment in rural Kenya with regards to education, did not find any major differences due to continuous lack of access to higher education. However, women were presented as more family-oriented when making decisions, and their increased influence would likely benefit the household as a whole as shown in previous literature, such as Quisumbing, 2003, cited in Meinzen-Dick et al. (2014, p. 96). More research is needed in this field as it is likely to vary significantly between communities.

Which are the potential barriers to adoption of nature-positive solutions?

Lack of resources (particularly financial resources and water), or changes in resource availability due to climate change (i.e., irregular precipitation patterns) were some of the main barriers to farming in general in the region. According to Ngigi & Muange (2022), this is likely

to deteriorate in coming years as the impacts of climate change becomes more noticeable and threaten to amplify existing gender inequalities. The fact that almost all small-scale farmers in the region depend on rain-fed agriculture further aggravates their vulnerability. Moreover, gendered differences in resource-control and agency constituted a significant barrier for women to access and adopt improved farming practices, aligning with the findings of Momsen (2020, p. 1). The prevailing ideal of industrialised farming as a future pathway, with sustainability as a low priority, limited the interest in alternative practices. More research would be needed on how these types of ideals influence the will to implement nature-positive practices specifically.

7.2 Implications of Findings

The findings highlight several aspects of importance to the implementation of NATURE+. The limited resources among the households in the region, in particular financially, imply that there is a low capacity to cushion any transition period or shock that may arise while adopting nature-positive solutions. The perceived risks of adoption need to be minimal to non-existent from the farmer's perspective, and the benefits must be clear in the form of productivity gains. Environmental benefits can also contribute to motivate a farmer to transition, especially if awareness is built around a specific environmental issue, but it will be of lower importance compared to the productivity or economic viability of the system. But given the current context of increased prices for agrarian inputs, such as fertilisers and pesticides, the timing is very fitting for NATURE+ and other development interventions to assist farmers in adopting organic or low-input farming methods.

Time poverty among women is an important factor to take into consideration for NATURE+. Making it a priority to introduce labour-saving, low-input techniques in female-dominated farming tasks can be one way of addressing this, as it is likely to increase the rate of adoption. This also implies that if the use of traditional crops such as sorghum would be promoted, it is very likely to lead to an increased labour burden for women. Since attending training sessions was perceived as highly appealing, it is still probable that both men and women would be able to make time if the announcement was made in advance. To further enhance the likelihood of women attending, it may be beneficial to alleviate their daily responsibilities by, for instance, providing childcare services during the training. The time poverty also led to limited social resources for women, but community groups and networks reserved for women could be an effective way to counteract this, at least if it does not add large amounts of additional unpaid labour and responsibilities.

Another way to reduce women's time poverty would be to support the mechanisation of traditional female chores, thus both reducing the labour and time required by women but also allowing men to participate to a higher degree. This could be particularly useful in a traditional female task such as threshing and winnowing sorghum, where men doing it manually risk being judged by the community. Low-input mechanisation of these tasks could therefore empower women by enhancing their access to and use of technology (otherwise often dominated by men), reducing their time and labour costs (thereby the time poverty, and increasing the time available for other activities), while at the same time loosening up gender roles by removing the barrier for men to take part in the process. Further research on bridging the gender gap in agriculture through mechanisation could provide valuable insights.

Challenging gender roles within the framework of NATURE+ would not come without friction. Yet, altering the patriarchal structures favouring men is a necessary part of empowering women. When men's traditional importance of provider and household head is reduced, this has been associated with increased rates of self-harm among men as well as violence against women (The World Bank, 2011). Moreover, it leads to a significant loss of self-esteem, reducing men's agency. It is therefore crucial to work simultaneously with men to transform the locally dominant masculinity and by that creating an enabling environment for women's empowerment, avoiding the situation of one gender receiving advantages at the expense of the other. The risk of a male backlash, as described by Momsen (2020, p. 282), poses a serious challenge to the success of any development intervention aiming to reduce gender inequalities, perhaps particularly so if the control of financial resources is altered in favour of women. If supporting income-generating activities for women, there is a clear probability that the income will end up being under the influence of men and not resulting in the desired female empowerment. Careful and continuous evaluation of any activity within the framework of NATURE+ must therefore be carried out with a gendered lens.

Another barrier to support women's empowerment in the study area is women's own perception of ideal gender roles. With biblical references, many of them seemed to accept female subordination as a natural state, leading to an internalised feeling of lesser value and a reduced agency and ability to act upon goals. In addition, the fact that women preferred the husband to be the main provider instead of having to take this responsibility themselves shows that their interest to change the patriarchal structures might be limited. Activities to increase women's own sense of self-worth are thus needed. Moreover, women forced to expand their

agency due to an irresponsible or absent husband, such as widows or other women in a vulnerable position, were found to be more likely to have the interest in transforming the traditional gender roles. If NATURE+ would provide the necessary resources for these women to empower themselves, it could quickly result in impressive achievements because of the high level of agency these women already have acquired. More research is still needed on how religion influences women's and men's perception of gender, and if there are any generational differences in these views.

A majority of farmers had access to mobile phones and with the rapid expansion of technology expected to continue, this provides an enormous possibility for development interventions such as NATURE+ to reach farmers with information on nature-positive solutions. Still, this should only be used as a complement to in-person training and activities, and women need to be able to access the information independently. It is also likely to be more effective for the younger generation, requiring other types of measures for older farmers. However, there is a large knowledge gap on this topic and more research on how mobile phones can be used in development interventions aiming to reach small-scale farmers in rural areas is required.

Lastly, successfully including the youth is likely to be one of the main challenges for NATURE+ as few see farming as an attractive livelihood strategy, and in case they do it is under industrialised forms with sustainability as a low priority. Offering an alternative discourse of what future and modern farming can look like as well as enhancing market opportunities in the region are two important measures that could increase the interest of the youth.

7.3 Discussion of the Methodological Approach

When conducting interviews, it is not possible to know whether the information provided by the interviewee regarding their behaviour is consistent with their actual actions. The husband and the wife of the same household would sometimes share contradictory details, particularly when related to decision-making, and no version can be confirmed as more truthful than the other. Yet, it is still an interesting finding in itself that the perceptions of decision-making processes can vary significantly between women and men.

Generally, men appeared to be more likely to present the gender dynamics in their marriage as more equal than they actually were, possibly with the assumption that this was what the research team wished to hear. This shows that the researcher, as well as the perception of him

or her from the farmers perspective, clearly influences the exchange and therefore the data. The effect could be slightly diminished with the local facilitators, but the interviewee could still possibly alter certain details in the wish to make a positive impression. In order to address this, interviewees were often asked to illustrate their statements with examples, but it remains a limitation of the methodological approach. In addition, the researcher being a student from the global north did influence the interaction and seemed to add an element of status to the interviewee's participation, as one field assistant expressed it; "the farmers were proud of having a foreigner in their homestead with a car".

It proved very fruitful to interview both the husband and wife in order to receive information from both a male and female perspective in a comparable context. The richness in the data would never have been possible if the interviews were not held strictly separate. Men appeared to have no problem in letting their wife participate without them being present, but most often only after having been interviewed first themselves. If only desiring to include women in the sample, this could have proven more challenging.

The findings of this study are contextual and can not necessarily be applied to other areas or communities. This also constitutes one of the main limitations. However, the sensitivity to contextual factors in the methodological approach also represents one of the main strengths, as voices of individuals and local realities are preserved (Momsen, 2020, p. 21). Moreover, the process of analysis and interpretation of the results highly benefited from complementary methods such as observation and informal conversations during the research period.

8. Conclusion

This study aimed to explore gendered experiences of empowerment and intra-household allocation of resources in agriculture, and barriers to adoption of nature-positive solutions among small-holder farmers within the NATURE+ initiative.

Within the community, gendered patterns of resource allocation were found to be favouring men due to their cultural role as the household head, both in the amount and value of a specific resource. Men also reported higher agency in the form of confidence to act upon their goals and more economic and agricultural achievements, and were thus more empowered than women. Women, on the other hand, suffered to a higher extent from time poverty due to the heavy burden of responsibilities in the homestead. Moreover, many women had internalised a sense of lesser value, negatively affecting their agency. Women in particularly vulnerable situations were sometimes forced by their situation to expand their agency and therefore had a higher efficacy in acting upon their goals, but their empowerment was limited due to low resource-access. Generational differences in empowerment were not found to be significant, but decision-making processes had reportedly gradually transformed compared to previous generations to now at least partly allowing women to participate. Gender-based disparities in resource control and agency will likely pose a significant barrier for women in accessing and adopting nature-positive solutions. If these gender roles were to be challenged, it would likely create friction within the community and reduce men's self-esteem and status which is closely tied to their identity as main providers. At the same time, strengthening women's access to resources and agency is a necessary step towards gender equality.

It would be valuable to further examine intergenerational aspects of farming and empowerment, as well as differences in decision-making processes in various household structures (i.e., monogamous versus polygamous). Moreover, comparison with other communities in rural Kenya would likely reveal significant dissimilarities that are relevant to the implementation of agricultural development programmes. Lastly, continuous evaluation of the NATURE+ initiative provides an interesting opportunity to conduct more research on how gender disparities best can be addressed, and how barriers to the adoption of nature-positive solutions can be alleviated.

References

- Ajuang, C.O., Abuom, P.O., Bosire, E.K., Dida, G.O., & Anyona, D.N. (2016). Determinants of climate change awareness level in upper Nyakach Division, Kisumu County, Kenya. *SpringerPlus*, 5, 1015. doi: 10.1186/s40064-016-2699-y
- Andersson Djurfeldt, A. (2018). Assets, Gender, and Rural Livelihoods. In A. Andersson Djurfeldt, F. Mawunyo Dzanku & A. Cuthbert Isinika (Eds.), *Agriculture, Diversification and Gender in Rural Africa* (pp. 54–80). Oxford: Oxford University Press.
- Bebbington, A. (1999). Capitals and Capabilities: a Framework for analyzing Peasant Viability, Rural Livelihoods and Poverty. *World Development*, 27(12), 2021–2044. Retrieved from [https://doi.org/10.1016/S0305-750X\(99\)00104-7](https://doi.org/10.1016/S0305-750X(99)00104-7)
- Bernier, Q., Kristjanson, P., Neufeldt, H., Otzelberger, A., & Foster, K. (2013). Addressing Gender in Climate-Smart Smallholder Agriculture. *ICRAF Policy Brief*, 14. Nairobi: World Agroforestry Centre (ICRAF).
- Carter, M.R., & Barrett, C.B. (2006). The economics of poverty traps and persistent poverty: an asset-based approach. *The Journal of Development Studies*, 42(2), 178–199. doi: 10.1080/00220380500405261
- Central Intelligence Agency (CIA). (2023). Kenya. In *The World Factbook*. Retrieved from <https://www.cia.gov/the-world-factbook/countries/kenya/> [10.05.2023]
- Connelly, M.P., Li, T.M., MacDonald, M., & Parpart, J.L. (2000). Feminism and Development: Theoretical Perspectives. In J.L. Parpart, M.P. Connelly & V.E. Barrieau (Eds.), *Theoretical Perspectives on Gender and Development* (pp. 51–159). Ottawa, ON: International Development Research Centre.
- Davies, C.A. (2008). *Reflexive Ethnography: A Guide to Researching Selves and Others* (2nd ed.). Abingdon: Routledge.
- Deere, C.D., & Doss, C. (2006). The gender asset gap: what do we know and why does it matter? *Feminist Economics* 12(1–2), 1-50.

- Diirro, G.M., Seymour, G., Kassie, M., Muricho, G., & Muriithi, B.W. (2018). Women's empowerment in agriculture and agricultural productivity: Evidence from rural maize farmer households in western Kenya. *PLOS ONE*, 13(5). Retrieved from <https://doi.org/10.1371/journal.pone.0197995>
- Doss, C. (2014). Data Needs for Gender Analysis in Agriculture. In A.R. Quisumbing, R. Meinzen-Dick, T.L. Raney, A. Croppenstedt, J.A. Behrman & A. Peterman (Eds.), *Gender in Agriculture: Closing the Knowledge Gap* (pp. 55-68). Dordrecht: The Food and Agriculture Organization of the United Nations and Springer Science.
- Doss, C., Grown, C., & Deere, C.D. (2011). *Gender and Asset Ownership: A Guide to Collecting Individual-Level Data*. Policy Research working paper, no. WPS 4704. Retrieved from <https://openknowledge.worldbank.org/entities/publication/412d2296-1b3a-553f-8787-eca447c6af91>
- Fadda, C., & Nikiema, J. (2022). *NATURE+: Nature-positive Solutions for Shifting Agrifood Systems to More Resilient and Sustainable Pathways - Initiative Overview*. CGIAR.
- FAO. (2011). *The state of food and agriculture 2011—women in agriculture: closing the gender gap for development*. Rome: Food and Agriculture Organization of the United Nations (FAO).
- FAO. (2023). *Kenya at a glance*. Retrieved from <https://www.fao.org/kenya/fao-in-kenya/kenya-at-a-glance/en/>. [12.01.2023]
- Farnworth, C., Sundell, M.F., Nzioki, A., Shivutse, V., & Davis, M. (2013). *Transforming Gender Relations in Agriculture in Sub-Saharan Africa*. Stockholm: Swedish International Agricultural Network Initiative (SIANI).
- Forsberg, G. (2003). *Genusforskning inom kulturgeografin – en rumslig utmaning*. Stockholm: Högskoleverket.
- Gladwin, C. (2002). Gender and soil fertility in Africa: introduction. *African Studies Quarterly*, 6(1/2). Retrieved from <http://web.africa.ufl.edu/asq/v6/v6i1a1.htm>
- Hausmann, R., Tyson, L., & Zahidi, S. (2010). *The global gender gap report*. Geneva: World Economic Forum.

- IFPRI Qualitative Team. (2018). *GAAP 2 Qualitative Research Protocols*. Washington, D.C.: IFPRI.
- Jones, R., Haardörfer, R., Ramakrishnan, U., Yount, K.M., Miedema, S., & Girard, A.W. (2019). Women's empowerment and child nutrition: The role of intrinsic agency. *SSM - Population Health*, 9. Retrieved from <https://doi.org/10.1016/j.ssmph.2019.100475>
- Kabeer, N. (2004). Reflection on the Measurement of Women's Empowerment. In A. Sisask (Ed.), *Discussing Women's Empowerment: Theory and Practice* (pp. 17-57). Stockholm: Sida.
- Kagotho, N., & Vaughn, M.G. (2018). Women's agency in household economic decision making in Kenya. *International Social Work*, 61(6), 767-780. doi: 10.1177/0020872816663291
- Kristjanson, P., Waters-Bayer, A., Johnson, N., Tipilda, A., Njuki, J., Baltenweck, I., Grace, D., & MacMillan, S. (2014). Livestock and Women's Livelihoods. In A.R. Quisumbing, R. Meinzen-Dick, T.L. Raney, A. Croppenstedt, J.A. Behrman & A. Peterman (Eds.), *Gender in Agriculture: Closing the Knowledge Gap* (pp. 209-233). Dordrecht: The Food and Agriculture Organization of the United Nations and Springer Science.
- Lastarria-Cornhiel, S. (2008). Feminization of Agriculture: Trends and Driving Forces. *Background Paper for the World Development Report 2008*. Washington: Rimisp-Latin American Center for Rural Development and The World Bank.
- Legesse, B. (2006). Risk Perceptions, Risk Minimizing and Coping Strategies of Smallholder Farmers in the Eastern Highlands of Ethiopia. In K. Havnevik, T. Negash & A. Beyene (Eds.), *Of Global Concern: Rural Livelihood Dynamics and Natural Resource Governance* (pp. 47-83). Stockholm: Sida.
- Meinzen-Dick, R., Johnson, N., Quisumbing, A.R., Njuki, J., Behrman, J.A., Rubin, D., Peterman, A., & Waithanji, E. (2014). The Gender Asset Gap and Its Implications for Agricultural and Rural Development. In A.R. Quisumbing, R. Meinzen-Dick, T.L. Raney, A. Croppenstedt, J.A. Behrman & A. Peterman (Eds.), *Gender in Agriculture:*

Closing the Knowledge Gap (pp. 91-115). Dordrecht: The Food and Agriculture Organization of the United Nations and Springer Science.

Momsen, J.H. (2020). *Gender and Development* (3rd ed.). London: Routledge.

Mugalavai, E.M., Kipkorir, E.C., Raes, D., & Rao, M.S. (2008). Analysis of rainfall onset, cessation and length of growing season for western Kenya. *Agricultural and Forest Meteorology*, 148, 1123-1135. doi: 10.1016/j.agrformet.2008.02.013

Ngigi, M.W., & Muange, E.N. (2022). Access to climate information services and climate-smart agriculture in Kenya: a gender-based analysis. *Climatic Change*, 174(21). Retrieved from <https://doi.org/10.1007/s10584-022-03445-5>

Nkedi-Kizza, P., Aniku, J., Awuma, K., & Gladwin, C. (2002). Gender and soil fertility in Uganda: a comparison of soil fertility indicators for women and men's agricultural plots. *African Studies Quarterly*, 6(1), 27–43. Retrieved from <http://web.africa.ufl.edu/asq/v6/v6i1a2.htm>

Obuoyo, J.A., Ochola, C.O., & Ogindo, H. (2016). Livestock for Household Food Security- A Case Study of Small-Scale Mixed Farmers in Semi-Arid Nyakach, Kenya. *International Journal of Livestock Research*, 6(1), 57-67. doi: 10.5455/ijlr.20151129022328

Omwami, E.M. (2015). Intergenerational comparison of education attainment and implications for empowerment of women in rural Kenya. *Gender, Place and Culture*, 22(8), 1106-1123. Retrieved from <http://dx.doi.org/10.1080/0966369X.2014.939152>

Quisumbing, A.R. (2010). Gender and Household Decision-making in Developing Countries: A Review of Evidence. In S. Chant (Ed.), *The International Handbook of Gender and Poverty: Concepts, Research, Policy* (pp. 161–166). Celtenham: Edward Elgar Publishing Limited.

Reddock, R. (2000). Why Gender? Why Development? In J.L. Parpart, M.P. Connelly & V.E. Barrieau (Eds.), *Theoretical Perspectives on Gender and Development* (pp. 23–50). Ottawa, ON: International Development Research Centre.

- Scoones, I. (2009). Livelihoods Perspectives and Rural Development. *The Journal of Peasant Studies*, 36(1), 171–196. doi:10.1080/03066150902820503
- The World Bank (2011). World Development Report 2012: Gender Equality and Development. *The decline of the breadwinner: Men in the 21st century*, 2, 194-196. Washington, DC. Retrieved from <http://go.worldbank.org/6R2KGVEXP0>.
- United Nations. (2021). *Global Summit Dialogue on nature positive food systems highlights food systems impact on the environment*. Retrieved from <https://www.un.org/en/food-systems-summit/global-summit-dialogue-nature-positive-food-systems-highlights-food-systems>. [12.01.2023]
- Voronca, D., Walker, R.J., & Egede, L.E. (2018). Relationship between empowerment and wealth: trends and predictors in Kenya between 2003 and 2008–2009. *International Journal of Public Health*, 63, 641–649. Retrieved from <https://doi.org/10.1007/s00038-017-1059-1>
- Wasonga, J., Omondi Olang'o, C., & Kioli, F. (2014). Improving Households Knowledge and Attitude on Water, Sanitation, and Hygiene Practices through School Health Programme in Nyakach, Kisumu County in Western Kenya. *Journal of Anthropology*. doi: 10.1155/2014/958481
- Wekesah, F.M., Mutua, E.N., & Izugbara, C.O. (2019). Gender and conservation agriculture in sub-Saharan Africa: a systematic review, *International Journal of Agricultural Sustainability*, 17(1), 78-91.

Appendix

1. Interview Guide

Instructions: Introduce yourself, the purpose of the study, and read informed consent statement.

ORAL INFORMED CONSENT

My name is Elsa Wallin, and I am coming from the CGIAR NATURE+ team and Gothenburg University. I am conducting a study as my Bachelor Thesis to understand the roles of men and women in farming and other livelihood activities in your community.

Since you are living in one of the areas where the NATURE+ project will be implemented, we are asking you to participate in this study. In this interview, you will be asked questions about your life, your household members, your roles and responsibilities in your household and your views about decision-making. The duration is approximately 1,5 hours.

This discussion is for study purposes only, and all the information obtained will be kept safe in our files. You will not be identified in any presentation of the study reports. With your permission, we would like to audio record the interview. In case you would approve, we may also take pictures.

Your participation in this study is completely voluntary, and you may leave the discussion at any time. Also, you are free to refuse to answer any questions that you feel are not appropriate or that make you feel uncomfortable. You may ask us any questions about the study at any point during the interview. Your participation or non-participation in the interview will not affect any services you currently receive in any way.

There is no anticipated discomfort for those contributing to this study, so risk to participants is minimal. Although you may not directly benefit from taking part in this study, the information you provide may lead to improved programmes and services in the community.

We will provide a small gift of monetary compensation for your participation in this study.

You can have a copy of this form, if you want. Do you have any questions?

[Check whether the participants has understood the question and any part of the informed consent.]

If you have any concerns about this study, you may contact:

Elsa Wallin
Dirigentgatan 4, 421 37, Vastra Frolunda, Sweden
+46 76 813 47 40
Elsawallin77@gmail.com

Do you agree to participate in this study? *[If YES, indicate below that the oral informed consent has been obtained. Then proceed with the question below regarding audio recording. If they refuse, thank them for their time and dismiss them.]*

☐ Oral informed consent received

Do you agree to be audio recorded? *[If YES, indicate below. If participant responds "NO", proceed with the interview without recording.]*

☐ Consent to audio record interview received

☐ Consent to take pictures received

Signature of interviewer: _____ Date: ____/____/____

A. Background information

A1	Name of site/community/village	
A2	Date (dd,mm,yyyy)	
A3	Name of facilitator	
A4	Name of note taker	

B. Characteristics of the study participant

B1	Name of study participant	
B2	Sex	
B3	Age	
B4	Marital status	
B5	Number of years married or year of marriage	
B6	Primary activities	
B7	Level of education completed	

LIFE STAGE/QUESTIONS

- A. **Topics:** General understanding of empowerment (dimensions); Gender roles/norms; Education

Childhood and adolescence

- Were you born in this community?
- If not, how long ago (what year) did you move here?
- Where did you grow up as a child?
- What kinds of activities did your mother do? (**Probe for: income-generating activities, household chores, agricultural chores*)
- What kinds of activities did your father do? (**Probe for: income-generating activities, household chores, agricultural chores*)
- What kind of tasks did you have as a child? How did you help your parents with the farm?
- How did your life change when you got married? What are some things you could do as a child that you can't do as married woman/man? What about things you can do now that you're married, that as a child you couldn't do?
- How is your wife/husband different from your mother/father as a person? (**Probe for: more or less equal decision-making*)
- What did you want to be or do when you grew up? Did you have someone you wanted to become like? Why?

- Did you go to school? How many years? Were you a good student? What did you like/not like about school?
- How far did you go in school (level of schooling completed), and why?

B. **Topics:** General understanding of empowerment (dimensions); Gender roles/norms; Resources; Decision-making related to production, income-earning; Household harmony/ intra-HH dynamics; Group participation

Adulthood

- How many members are there in your household? Who are they?
- (if ever married) How did you meet your spouse/partner?
- How many children do you have? When were they born?
- Do you raise your girl/boy children differently? If so, how? Why?
- Do your children participate in farming activities? What type of tasks do they do? Is it different for daughters and sons?
 - Would your children like to farm in the future? What do you think of that?
- What activities do you spend most of your time on? (**Probe for: income-generating activities, household chores, agricultural chores*)
- Please tell me about any activities you do for income. What do you like or not like about it? How is your income used?
 - If you don't have your own income, how do you get cash to buy things? Can you get the amount you need every time?

Natural resources

- Who owns the land you farm? How big are the plots?
- Do you have separate plots with your wife/husband or do you manage it all together?
- What crops do you grow? Who takes care of the different crops (you or your partner?) Who decides what to plant? (If separate plots:) What is planted on whose plot?
- Do you have any animals that you take care of? What kind of animals? Who takes the most care of them? You or your partner? Who owns them?
- Is the soil of good quality? Is there any difference between the plots you manage in your household?
- Do you have access to enough water for the farm? From where do you get it? Who gets it? Do you use any type of irrigation?
- From where do you get seeds? Are the seeds you use of good quality? Who decides which seeds to buy between you and your husband/wife?
- Have you observed any changes in the availability of these resources during the years? How do

you believe this will change in the future? What actions would be needed to ensure good quality of these resources?

Physical resources

- Is there any type of farming equipment you wish you had access to? (*Irrigation equipment, fertilizers, better tools etc*)
- What means of transport do you have? (*ie., bicycle, motorcycle, scooter*)
- Do you use any type of fertilizer? What type? Who applies them? When?
- Do you use any type of pesticide? What is your opinion on that? Who applies them?
- Do you have access to information about weather conditions through a radio or Mobil phone? Who uses it?

Human resources

- Is there any type of farming practice you would wish to gain more knowledge about? To receive training?
- Would you have the time to participate in these trainings? If not, why? Would your partner?
- Do you experience any bodily pain when working at the farm?
- Is there any difference between how much time you or your husband/wife spends with his or her friends/free time?
- Do you wish you had more time for certain activities? Which ones? Are there certain activities that you wish you didn't have to do?

Financial resources

- Do you have access to any type of agricultural credits?

Social resources

- Do you belong to any groups inside or outside your community related to farming, and why? If yes:
 - How do you participate in these groups?
 - What are some benefits to participating in these groups?
 - What are some difficulties/challenges to participating in these groups?

Decision-making and perception of climate-smart agriculture

- How are decisions usually made in your household related to the household and the farm?
[*Probe for decisions related to income-generating activities, agricultural production process, use of production outputs, use of income, what foods to purchase and eat, health, child care, etc.]
 - What are some decisions you make on your own? What are some decisions that your wife/husbands make on her/his own?
 - What are some decisions you make together with your spouse/partner?
 - Do you think all decisions should be taken together or are there some areas which your husband/wife should decide about on his or her own?
 - Do you agree on most decisions, or do you often have different opinions? Why?
 - Do you take more or less decisions together for your farm compared to what your

parents did? Do you think your children will take more or less decisions together in their marriage in the future? (If change:) Is this change good or bad?

- Are there any changes you would like to see in farming practices in the region?
 - Any environmental problems you are aware of? (**Probe for: soil erosion, pollution, over-use of water, over-use of pesticides*)
 - Would you be willing to change the way you farm in case it is better for the environment and long-term sustainability of the farm? Why or why not? (**Probe for: soil and water conservation techniques, switching crop varieties, changing crop types, planting trees, and changing planting dates*)
 - Are there any problems in changing the way you manage the farm (**Probe for: lack of resources (natural/physical/financial etc), need for training etc*)
- In your community is there anything in agriculture that men can do that women can't? Is there anything that women can do that men can't?
 - Are there certain women/men who can do/not do those things? Why?
 - How do you feel about that?
- **FOR WOMEN:** Are there any things you would like to do, but cannot because you are a woman? Why? Under what conditions would you be able to do these things? What would happen if you did those things today?
- Is there anything you would like to be different for your children if they would become farmers in your village?