PARTICIPATION OF MEN AND WOMEN NON-PRODUCER ACTORS IN THEDAIRY VALUE CHAIN: A CASE STUDY OF SIRIKWA DAIRY HUB IN UASINGISHU COUNTY, KENYA

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DECLARATION AND RECOMMENDATION

Declaration

This thesis is my original work and has not been presented in this university or any other for the award of a degree.

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DEDICATION

This work is dedicated to my family members, colleagues and friends who have offered their unrelenting support throughout the study period. Thank you all and may God bless you!

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ABSTRACT

Dairy farming has the potential to increase household income and improve food and nutrition security globally. Estimates from the International Livestock Research Institute (ILRI) reveal that about 40% of smallholder farmers' income in Kenya can be attributed to dairy farming. Studies focusing on dairy farming and its entire value chain indicate that women and men participate across the nodes, although in varying capacities. While the presence of women at the production node of the dairy value chain is well-documented, it is generally on terms deemed different from and unequal to men's. There is an immense knowledge gap on the gender dynamics that influence men's and women's participation in dairy post-production activities. The main objective of the study was to assess participation of smallholder women and men non-producer actors in Kenya's dairy value chain with a focus on Sirikwa Dairy hub in Uasin Gishu County. A gender-based analysis of the non-producer actor categories within the dairy value chain is vital to gaining a comprehensive understanding of the challenges faced by both women and men, their perceptions and relationships, their participation in different actor categories, and the critical constraints that hinder full participation and, consequently, the competitiveness of smallholder male and female actors in the non-producer categories. The specific objectives were to identify the socio-economic factors influencing women's and men's participation as non-producer actors in the dairy value chain, to identify the sociocultural factors influencing women's and men's participation in the non-producer actor categories in the dairy value chain, and to identify the perceived benefits for women and men in the non-producer actor categories in the dairy value chain with a focus on Sirikwa dairy hub in Uasin Gishu County. The Gender, Agriculture and Assets framework was employed to identify the socio-economic and socio-cultural factors at play. The study and its pretest were conducted in Sirikwa dairy hub. It was purposively selected and 39 respondents were identified through snowballing. Of the 39 respondents, 30 were male respondents and 9 were female smallholder farmer respondents. Key informant interviews were used for data collection. In analyzing dominant themes on perception of women and men participation, NVIVO software was used. Women's limited agency and their triple role in the family were results that featured as negative shocks that adversely affected women's participation across the value chains. Male managers indicated that farmer organizations are predominantly male and there is a skewed preference for male candidates for managerial positions. The study provided policy recommendations that include incentivizing women to participate in non-traditional economic activities across the post-production nodes of the dairy value chain through more targeted approaches by various stakeholders in the post-production nodes of the dairy value chain.

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LIST OF ABBREVIATIONS AND ACRONYMS

ABS	African Breeding Services
AHA	Animal Health Assistant
AISP	Artificial Inseminator Service Provider
DFBA	Dairy Farmers Business Association
EADD	East Africa Dairy Development Project
FAO	Food and Agricultural Organization
FFS	Farmer Field Schools
FSD	Financial Sector Deepening
ICRAF	International Agroforestry Centre
IGAD	Intergovernmental Authority on Development
ILRI	International Livestock Research Institute
KCC	Kenya Cooperative creameries
KNBS	Kenya National Bureau of Statistics
MCC	Milk Collection Center
NGOs	Nongovernmental organizations
PO	Producer Organization
VC	Value Chain

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CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

More than 80 percent of milk produced in Sub-Saharan Africa comes from small-scale dairy producers (Muehlhoff et al., 2013). If fully developed, dairy farming could improve food security and provide employment and income to millions of smallholder farm-families across the region. Increased availability and consumption of milk in Sub-Saharan Africa could therefore help accelerate the achievement of the sustainable development goals (SDGs) 1 (no poverty) and 3 (good health and well-being for people). As such, developing the dairy value chain in Sub-Saharan Africa has the potential to impact positively on the health of both infants and adults in the region (Hill, 2017).

While the presence of women at the production node of the dairy value chain in the developing world is well-documented, their participation is generally deemed to prevail on terms different from and unequal to men's. In Kenya dairy industry, for instance, men tend to attend to more profitable roles involving animal health services, including veterinary treatment, artificial insemination, and the marketing of meat and live animals. Women, on the other hand, are inclined to concern themselves with the traditional marketing of milk and other by-products (Majiwa et al., 2013).

An even deeper look into Kenya's economy at the production level reveals that about 5.7% of Kenya's population is to some extent engaged in the country's dairy value chain, and that most of the country's milk production comes from the provinces of Rift Valley and Central (Blackmore et al., 2015). While men and women in Kenya are likely to participate at different stages of the economy's dairy value chain, women generally tend to be involved in areas they deem to be less visible (temporary work, home working, etc.). These very areas constitute vital links that require change and/or upgrading in order to sustainably develop the chain (Majiwa et al., 2013). Baltenweck et al. (2013) underscore the foregoing by highlighting that the gendered division of labour often reinforces existing inequalities and restricts women's opportunities for forward mobility within the value chain.

Anecdotal research indicates that while women play a crucial role in the production of food, growing approximately 70% of Africa's food, they often lack access to land ownership and other essential resources, severely inhibiting their ability and capacity to engage effectively in post-production processes (World Economic Forum, 2020). Societal norms and legal frameworks in Kenya, additionally often constrain women's roles, making it difficult for them to assert their rights in agricultural markets, where men have been seen to traditionally dominate. A study by Doss and Meinzen-Dick (2020) for instance, highlights the barriers smallholder women face, including limited access to financial services, agricultural training, and markets, which impede their full and meaningful participation in value chains. In dairy value chains, specifically, women's participation is unequal to men owing to limited access to credit and they face additional challenges such as the inability to negotiate with milk distributors (Galiè et al., 2022). As elucidated in the study above, these challenges, compounded by gender norms, dictate that women's responsibilities primarily lie within the domestic sphere, further marginalizing them.

The aforementioned findings can lead to the suggestion that due to the fact that value chains exist, persist, and operate within different social contexts that differently affect the distribution of important resources, returns, and opportunities for men and women, men's and women's participation in dairy-related activities after milk production is also on unequal terms (FAO, 2018). Although women participate at the local level in production, they miss out in subsequent more profitable levels such as processing, marketing, and trade, and in accessing membership in farmer organizations (Baltenweck & Mutinda, 2013). Numerous challenges bar women from fully participating in milk marketing, milk trade, milk transportation, and extension service provision. These range from node characteristics, gender dynamics in the community, and overall control of gains attributed to their participation (Waithanji et al., 2013).

The integration of male and female smallholders in high-end value chains has been promoted throughout the global South as a strategy for poverty alleviation, economic growth, employment generation, gender equality, and improved wellbeing (Guarín, 2021). It is alluded that women in aquaculture - which is an agricultural value chain, tend to occupy the lowest-paying and least secure jobs, whereas men control the more profitable and visible

roles (Kruijssen et al., 2018). It is therefore important that women get to move and participate in those nodes of the value chain where they have historically been marginalized and underrepresented.

These inferences suggest that gender roles within households have the ability to influence the dynamics of participation in post-production, often resulting in unequal power relations where men may dominate decision-making processes even in activities traditionally designat ed and viewed as women's work (Farnworth & Colverson, 2015). Conducting a gender analysis is imperative to improve participation and address these inequalities in agricultural value chains. Understanding the entry barriers faced by both women and men in post-production work can inform targeted interventions that enhance inclusivity. For example, improving access to training and financial resources specifically tailored for women could empower them to take on more prominent roles within dairy value chains (Njuki et al., 2016).

Addressing the societal and legal barriers that restrict women's land ownership and property rights is crucial for fostering an equitable agricultural environment where both genders can thrive. To facilitate behavioral change and achieve this end, support, careful analysis, and dedicated resources are required (Quisumbing et al., 2013). An analysis of some of the challenges to and opportunities for entry by women presented by various value chains will therefore make possible a deeper understanding of possible value chain interventions with the potential for in- come- and equity-focused outcomes (FAO, 2018). This thesis focuses on investigating the existing differences in gender roles, activities, needs and interests in the "non-producer categories of the dairy value chain" context.

This study conceptualizes the socioeconomic and sociocultural factors influencing the participation of smallholder women and men along Kenya's dairy value chain, as well as the benefits accruing to the two genders' participation in the non-producer actor categories within the chain. The study's resulting body of knowledge will especially be useful in the designing of gender redistributive interventions aimed at improving women's participation in Kenya's post-production dairy value chain nodes.

1.2. Statement of the Problem

Major differences exist between women's and men's participation in Kenya's dairy value chain mainly due to the fact that value chains exist, persist, and operate within different socialcontexts that affect the distribution of resources, rewards, and opportunities for men and women (FAO, 2018). While the presence of women in dairy value chains is documented, it is generally on terms different from and unequal to men's. Women may participate at the local level at the production node of the dairy value chain, but they often miss out in subsequent more profitable levels such as processing, marketing, trade, and in accessing membership in farmer organizations (Baltenweck & Mutinda, 2013).

Numerous challenges bar women from participating fully in milk marketing, milk trade, milk transportation and extension service provision. Among these challenges are traditional gender role differences within the household - which largely explain the existing variations inwomen's and men's labor input and control over resultant income. Men's and women's visibility in certain actor categories is also rooted in demographic trends, cultural patterns and entry prerequisites. As such, it is important to assess the gendered nature of the complexities that limit women's participation in and entry into some nodes of Kenya's dairy value chain.

1.3. Objectives

1.3.1. General Objective

The general objective of this study is to assess the participation of smallholder men and women non-producer actors in the dairy value chain with a focus on Sirikwa dairy hub in Uasin Gishu County.

1.3.1. Specific Objectives

i. To identify the socioeconomic factors influencing women's and men's participation as non-producer actors in the dairy value chain with a focus on Sirikwa dairy hub in Uasin Gishu Count.

ii. To identify the sociocultural factors influencing women's and men's participation in the non-producer actor categories in the dairy value chain with a focus on Sirikwa dairy hub in Uasin Gishu County.

iii. To identify the perceived benefits for women and men in the non-producer actor

categories in the dairy value chain with a focus on Sirikwa dairy hub in Uasin Gishu County.

1.3.2. Research Questions

i. What are the major socioeconomic factors influencing smallholder women and mennon-producer actors' participation in Kenya's dairy value chain?

ii. What are the major sociocultural factors influencing smallholder women and mennon-producer actors' participation in Kenya's dairy value chain?

iii. What are the major perceived benefits for smallholder women and men non-produceractors associated with participation in Kenya's dairy value chain?

1.4. Justification of the Study

The International Livestock Research Institute (ILRI) avers that of the 1.3 billion people living in destitution globally, 80% reside in rural areas, and 67% keep livestock (FAO, 2018). With access to markets, knowledge, and full participation, many research institutions contend that livestock ownership and rearing has the potential to lift millions of the world's rural poor out of poverty. It is important to appreciate the reality that value chains are embedded in social contexts on the basis of three dimensions. First, markets and households interact in ways that affect access to and control of labor, land, other assets. Secondly, legal frameworks exemplify social beliefs such as property rights and inheritance laws that restrict women's and men's ability to access and accumulate wealth according to gender categories. And lastly, social institutions embody social norms that ultimately inspire a gender-differentiated labor force. Due to the gendered nature of labor, asset ownership and agricultural activities, there is need to take cognizance of the different roles that women and men play in the non-producer actor categories of dairy value chains as a vital means of identifying the underlying socio- economic and socio-cultural factors at play between women and men, and tailoring projects and programs to their specific needs. Integrating these variables and gender dynamics in projects and programs can significantly improve their outcomes and effectiveness (Dugdill et al., 2013). As highlighted by Food and Agriculture Organization (FAO, 2018), gender roles significantly influence access to resources and opportunities in rural areas, impacting the efficacy of agricultural initiatives; which include value chain. Women often face systemic barriers in livestock ownership, management and control which in turn limits their ability to engage fully in dairy value chains.

Research indicates that when gender dynamics are not considered, programs aimed at improving agricultural productivity and poverty alleviation can inadvertently reinforce existing inequalities (Kleinwechter & Driessen, 2021). The forementioned argument is further reinforced by a study conducted by Njuki et al., (2023), which highlights that initiatives that fail to recognize women's contributions and challenges may overlook essential areas for support, such as access to training in post-production processes or credit facilities tailored to their needs. Understanding and addressing these gendered barriers can lead to improved outcomes not only for women but also for the entire agricultural ecosystem. By enhancing women's participation, research shows that rural households can experience increased income, better nutrition, and enhanced livelihoods (Aldana et al., 2021). Incorporating gender analysis into dairy value chain assessments, therefore, is not only a matter of equity but also a strategic approach to improving and maximizing the potential of livestock farming as a sure pathway out of poverty.

1.5. Scope of the Study

The study took place in Kenya's Uasin Gishu County, and focused only on dairy value chain actors' post-production. Target respondents included milk traders, milk transporters, the Uasin Gishu Dairy Hub manager, community facilitators, artificial inseminators, agro-vet attendants, animal health assistants, and milk handlers. There responders will emanate from the dairy value chain in Sirikwa Dairy Hub.

The dependent variables will be the following:

1. **Level of Participation:**

The extent to which men and women participate as non-producer actors in Kenya's dairy value chain (e.g., in roles such as milk traders, transporters, and agro-vet attendants).

2. **Perceived Benefits:**

The advantages or returns that men and women gain from participating in the dairy value chain. These may include family status, agency, income, access to resources, control over assets.
Independent variables - which are the factors that influence these outcomes are the following:

1. Socioeconomic Factors:
   - **Income Level**: Economic standing of individuals, affecting their capacity to participate in the dairy value chain.
   - **Education Level**: Access to education and training, influencing the skills and knowl-

edge needed to engage in various roles.

- **Asset Ownership**: Control over resources such as land, cattle, or financial capital that enables participation.
- **Employment Status**: Whether individuals are self-employed, wage-employed, or un-employed, influencing their roles in the chain.

2. **Sociocultural Factors:**

- **Gender Norms/ rules of the game**: Cultural expectations and roles assigned to men and women, affecting their visibility and participation in the value chain. There are also unwritten rules for participating in certain actor categories.
- **Social Institutions:** Legal and social frameworks (e.g., inheritance laws, property rights) that influence access to resources for men and women.
- **Household Labor Division**: The traditional division of responsibilities between men and women within households, influencing the time and resources they can dedicate to value chain activities.

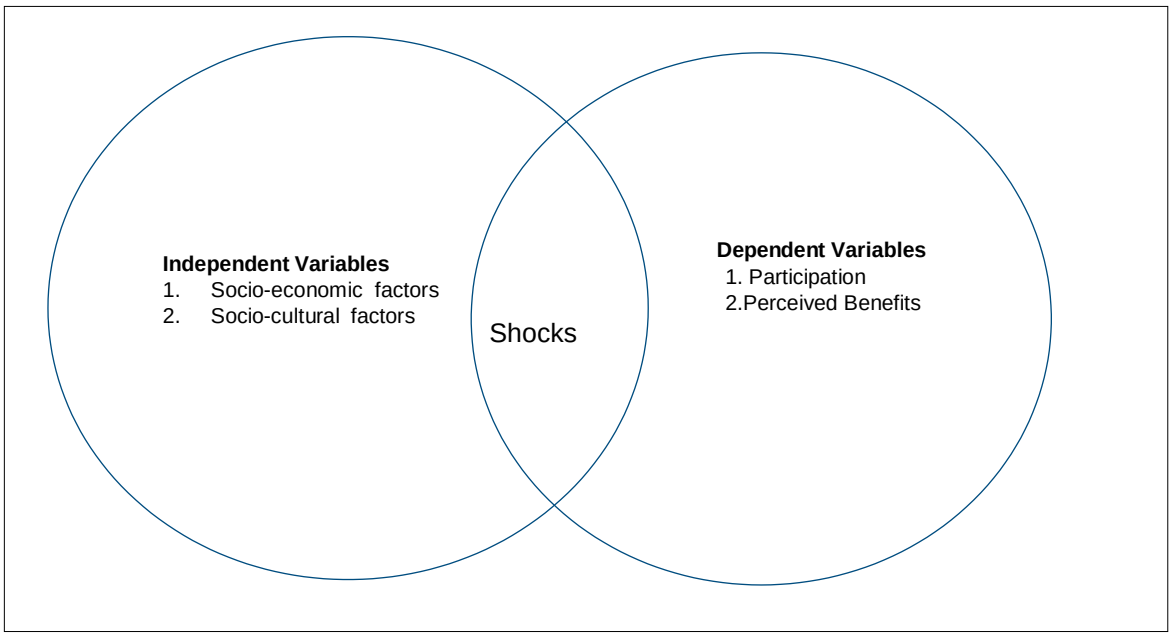

Figure 1: Dependent and Independent Variables for the study

These **independent variables**—socioeconomic and sociocultural factors—are expected to influence the **dependent variables**, which are the levels of participation, the perceived benefits, and the inclusiveness of men and women in Kenya's dairy value chain.

1.6. Limitations of the Study

In this study, several scientific limitations influenced my decision to conduct the research in Uasin Gishu County. The sample size of 39 respondents, including 9 females and 30 males is relatively small, limiting the ability to numerically generalize findings across larger populations. Studies show that larger sample sizes often provide more reliable and generalizable data (Smith, 2018). While this is accurate, my focus was on realising repetition of themes and therefore, achieving saturation in the resulting inferences and common themes. The gender representation, additionally in the study is uneven, with only 9 female respondents, possibly limiting the depth of insight into women's perspectives and participation. As elucidated by Etikan et al. (2016), the choice of participants in qualitative research impacts the viability of data, and a more balanced gender representation could have provided a better understanding of gender dynamics in the dairy value chain. Focusing on Uasin Gishu County narrows the geographic applicability of the findings. Regional differences in Kenya regarding socioeconomic and cultural factors mean that outcomes in one county may not represent those in oth- ers (Baltenweck & Mutinda, 2013). The time frame of the study, conducted between 2016 and2017, may also limit its relevance, as gender dynamics and economic conditions can shift over time. Qualitative research methods, while valuable for gaining deep insights, are sometimes critiqued for their limited ability to measure broad trends across larger populations. As Creswell (2013) notes, qualitative studies may lack the statistical power to generalize findings which is critical for policy-oriented research. To counter an anticipated language barrier, a translator from the study area were heavily relied upon. Existing literature was used to back up raw data obtained from the field.

1.7.Operational Definition of Terms

Age: This refers to the chronological count of number of years of existence of the respondents. It is an important factor in understanding the roles and responsibilities of men and women within the dairy value chain, as age often correlates with experience, decision-making power, and economic contribution within the household and community.

Agency: This refers to the capacity of women and men to make independent choices, influence decisions, and act upon their interests within the socio-economic framework of

agricultural practices. It encompasses their ability to access resources, participate in decision-making processes, and control the outcomes that affect women's and men's livelihoods and well-being

Culture: Culture, as operationalized in this study, refers to the set of shared values, norms, beliefs, and practices in Uasin Gishu County that shape gender roles and influence the participation of men and women in the dairy value chain. Cultural norms play a pivotal role in determining decision-making power, resource ownership, and engagement in various stages of the dairy value chain. The study examines how these cultural frameworks influence both opportunities and barriers for male and female participants.

Dairy Value Chain: This refers to the interconnected activities and processes involved in the production, processing, distribution, and marketing of dairy products, which ultimately affect the livelihoods of smallholder farmers.

East Africa Dairy Development Project (EADD): The East Africa Dairy Development Project is a regional initiative aimed at improving dairy farming and market access for smallholder farmers in East Africa. The program seeks to boost the milk yields of smallholder farmers through linking farmers to necessary finance-based resources, skills and markets for improved outcomes for families to come out of poverty.

Gender: These are socially constructed roles, behaviors, activities, and expectations that societies attribute to individuals based on their sex.

Gender Analysis: This is the systematic examination of the roles, responsibilities, and needs of women and men within the context of the dairy value chain. This analytical approach helps to identify and understand the different experiences and challenges faced by both genders, particularly in post-production activities such as processing, marketing, and distribution of dairy products.

Gains: These are the personal achievements, benefits, and/or returns that men and women accrue from their participation in every actor category within the dairy value chain.

Household dependents: Household dependents are a group of people bound together by joint production and consumption decisions, share a single, and are answerable to one individual identified to be the overall decision maker.

ILRI: The international Livestock, Research Institute (ILRI) is an institution that partners globally to enhance the roles that livestock play in food security and poverty alleviation. It predominantly operates in Africa and Asia.

KIT: KIT is a knowledge institute, business location and conference centre that seeks to work towards an inclusive and sustainable world, through empowering people and communities to bring about global positive change.

Inclusiveness: This term is used to refer to the extent to which women are seen to participate in the non-production actor levels of Kenya's value chain.

Non-producer Actors: These are individuals or entities that play critical roles in the agricultural value chain but are not directly involved in the production of dairy products. These actors can include a variety of stakeholders that influence or facilitate various aspects of the value chain. They include the following:

a. **Processors:** These are entities that transform raw dairy products into value-added goods, such as cheese, yogurt, and milk powder. They play a crucial role in enhancing the marketability and shelf-life of dairy products
b. **Marketers and Distributors**: These actors are involved in the marketing and distribution of dairy products. They connect producers with consumers and often include wholesalers, retailers, and food service providers. Effective marketing strategies can significantly impact the profitability and visibility of dairy products in local and international markets
c. **Service Providers**: This category includes organizations that offer essential services to producers, such as veterinary services, financial institutions providing credit, agricultural extension services, and technical support. They help improve production efficiency, animal health, and overall farm management

d. **Policy Makers and Regulators**: Government agencies and regulatory bodies that set the legal frameworks, standards, and policies affecting the dairy industry also fall into this category. Their decisions can significantly affect market access, trade, and the overall sustainability of the dairy value chain (FAO, 2018).
e. **Civil Society Organizations (CSOs)**: These include non-governmental organizations (NGOs) and advocacy groups that focus on issues like food security, women's empowerment, and sustainable agricultural practices. CSOs often work to ensure that the voices of smallholder farmers are represented and that policies are equitable

Key Informants: Refers to individuals who possess specialized knowledge or insights about the research topic. They are often selected for their expertise, experience, or unique perspectives related to the dairy value chain in Uasin Gishu County, Kenya.

Labor: The gender division of labor within the family denotes the appropriation of different labor assignments within the household according to gender. In many societies across the world, women are mostly responsible for housework and childcare duties regardless of their other productive work responsibilities, while men's primary responsibilities often consist in non-domestic work within the larger economic, social, and cultural spectra. It is important to note, however, that the gender-based division of labor in society does not necessarily mean men and women assume different work responsibilities.

Participation: Within the context of Kenya's dairy value chain, this study conceptualizes participation to mean, at the non-producer actors' levels, the extent of women's engagement as actors in these levels, as well as their control and access to resources, opportunities, and income generated from those value chain activities vis-a-vis men.

Producer Organization: This refers to a collective group formed by smallholder farmers that aims to enhance their collective bargaining power, improve access to resources, and increase overall productivity in the dairy value chain. Producer organizations can take various forms, including cooperatives, associations, and informal groups, and they play a critical role in the agricultural sector, especially in developing countries like Kenya.

Sex: This refers to the biological distinctions and variation between males and females. Understanding sex distinctions helps to analyze the division of labor and access to and control of resources based on biological differences, which are often culturally reinforced.

Social institutions/sociocultural factors: These refer to the rules of the "game." They speak to those social norms, stereotypes, and unwritten rules in society that govern work and the appropriation of tasks to members of the family within the society.

Smallholder cattle keepers: These are identified as livestock farmers keeping less than twenty cattle per acre of land.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

The intersection of gender analysis and agricultural value chains, particularly within the dairy value chain, reveals critical insights into the roles and contributions of women and men in enhancing food security and economic development. Gender roles in families, firstly, significantly influence agricultural practices, decision-making processes, and the overall dynamics of dairy value chains. In many households, men typically control resources and decision-making power, which can limit women's agency and participation in dairy production (Agarwal, 2016). This imbalance hampers not only women's potential contributions but also the overall efficiency and sustainability of dairy value chains.

When women have access to resources such as training, credit, and land, they can significantly improve dairy productivity and family welfare (FAO, 2011). Women play a crucial role in post-production activities within the dairy value chain, contributing significantly to both household and community livelihoods (Njuki & Kaaria, 2017). Their involvement spans several activities, including processing, marketing, and managing dairy products, which are vital for adding value and ensuring food security. In Uasin Gishu county, traditional gender roles in Uasin Gishu County often dictate the responsibilities of men and women. As highlighted by Andriano et al. (2021) the primary decision makers in the home and the family are men. Men in traditional livestock systems take on the traditional role of primary decision making and they are providers in the agricultural setting (Duncan & Brenner, 2020). Women, on the other hand, are primarily tasked with domestic responsibilities, child-rearing, and smaller- scale agricultural activities, including the management of dairy production at the household level (Njuki & Sanginga, 2013).

Conducting a gender analysis within agricultural value chains, particularly in the dairy sector, is essential for recognizing and addressing the differentiated roles and challenges faced by men and women. Implementing gender-sensitive interventions can enhance productivity, promote equity, and ultimately lead to improved livelihoods for all stakeholders involved in the dairy value chain (World Bank, 2012).

2.1.1. Theoretical Framework

This thesis considers The Gender, Agriculture, and Assets conceptual framework (GAAP) as the most applicable theoretical framework. GAAP is the preferred theoretical framework because it is best suited to the study's overarching objective of revealing gender gaps with regards to the different distribution of assets between men and women across the dairy value chain, and how agricultural development interventions can be tailored to improve women's access to assets and thus diminish the gender gap. According to the framework, gender, assets and well-being (benefits) can be said to be interrelated (Quisumbing et al., 2013). Women and men are deemed to have different capacities for access to assets. This reality is underscored as a component of socioeconomic factors. As demonstrated by Rubin and Manfre (2014), women and men have different opportunities and access to work. Women and men, additionally, use different machinery and technology, which in turn influences which actor categories they participate in and to which extent.

The following figure represents a summary of the modified theoretical framework.

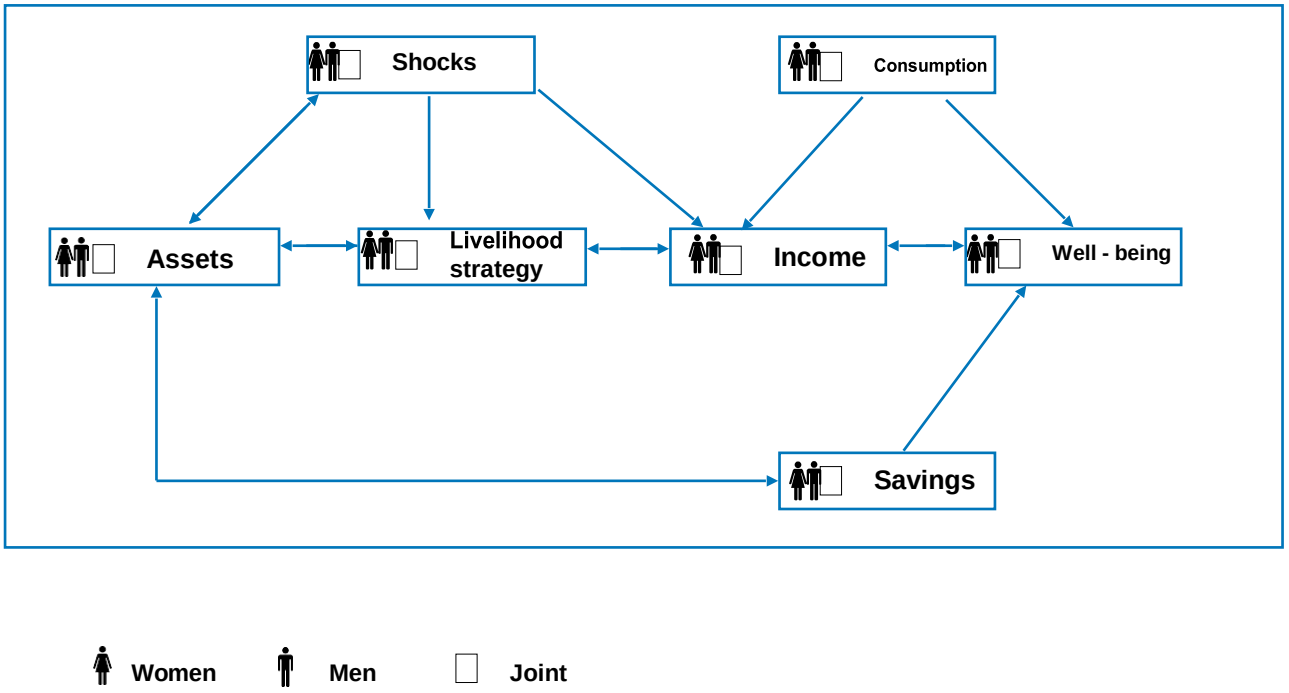

Figure 2: Summary of theoretical Framework

Source: Gender, Agriculture and Assets framework (2013)

On its part, the Integrating Gender in Agricultural value chains (INGIA) framework influenced this study, but was not a preferred framework. It provides the underlying rubric for socio-economic and cultural understanding as a means to assist practitioners, policymakers, and implementers better understand how gender roles and relations impact value chains and program outcomes. This was in recognition of the fact that although gender issues have often been overlooked in value chain development, they fundamentally shape activities along value chains, from production to distribution and consumption. The framework was therefore important for purposes of investigating how gender issues affect dairy value chain activities, as well as analyzing and addressing gender concerns in dairy value chains.

By analyzing the integral socioeconomic factors of age, sex, marital status, and level of education, as well the sociocultural factors of mobility, culture, gender roles, and agency, the study envisioned a comprehensive understanding of women's participation in the dairy value chain. This understanding informed the mapping of gender relations and roles within the dairy value chain as highlighted by Rubin and Manfre (2014).

2.1.2. Justification for using GAAP theoretical Framework

The Gender Agriculture and Assets conceptual framework was specifically tailored to analyse agriculture value chains. It derives its matrices from analysing gender norms, roles and relationships within the household and how it affects men's and women's participation across the nodes. This serves as the best lens to examine gender issues in the context of agricultural production and Marketing. These aspects of access to resource, decision-making (agency) labour allocation, and market participation cannot be looked into in isolation. This is because gender roles can significantly differ across transportation, processing, and Marketing stages. Looking at the cultural profile of men and women smallholder farmers in Uasin Gishu County, the GAAP framework provides a better context analysis approach.

Men are typically viewed as the primary decision-makers and providers for the family, responsible for large-scale agricultural practices and livestock management. Women, on the other hand, are primarily tasked with domestic responsibilities, child-rearing, and smaller-scale agricultural activities, including the management of dairy production at the household level (Njuki & Sanginga, 2013). Using this understanding as the rubric for prosecution of a gendered analysis across thenodes, the Gender and Agricultural Assets conceptual framework provides more value because it focuses on Gendered assets - which include, Land, livestock and education; and how their distribution among male and female value chain actors affects their roles within the value chain. In the dairy sector, access to assets which include land, or credit can impact participation significantly. This framework therefore provides an avenue to capture these nuances.

2.2. The Value Chain Concept

A value chain includes a sequence of activities aimed at transforming raw materials and constituent components to a finished commodity - where parties actively and consciously seek to support one another so they can escalate their competence and competitiveness. Such

parties devote time, effort and money, build and nurture relationships with other players to attain a common objective of meeting consumer needs if only so they can grow their profits (McLeod, 2013). A value chain may also be seen as describing the gamut of exercises necessary to bring a product from conception, through the different stages of production, and delivery to its final consumers (Blackmore et al., 2015). It is also defined as a chain of activities that serve to transform raw materials into something that can be purchased by a final consumer. It may further be conceptualized as a business-oriented style that aims at capturing the best outcome at all stages of production, processing, and trading (FAO, 2018).

In the dairy sector, value addition to milk is at its most intense at the processing stage. Other utilities of milk value addition are to be found at the input and service provision, transportation, marketing, and trading levels. Along a value chain, many players cooperate as the product moves from one phase to the next. These actors may coordinate to bring the final product to the consumer without actually understanding how they may be linked with their counterparts upstream and downstream along the chain (Zezza et al., 2016). The activities associated with a value chain may be conducted within a single institution or shared among different institutions, as well as within one geographical area or spread over wider regions.

The value chains of most agribusiness entities comprise the following actors: suppliers of inputs, producers, transporters, processors, wholesalers, distributors, retailers, and final consumers (Springer, 2021). It is also common for one actor to participate in more than one function within the value chain. There are often barriers to entry into many of the potentially more profitable nodes of value chains. Such barriers may be gender-based – like having particular activities designated only for men, women or children – or occasioned by such factors as know-how and capital. This thesis set out to highlight the major barriers to entry for women and men wishing to participate fully in Kenya's dairy value chain.

2.3. The Dairy Hub Model

A dairy hub refers to a community dairy development program (CDDP) in which farming villages within a radius of 15-20km are considered to be one community. Efforts to improve milk yields are then targeted towards such a community. Important services such as mobile veterinary clinics and dairy training programs are extended to the community with the view to improving their daily milk yields and, ultimately, profitability. Tetra Pak insists that dairy

hubs are designed to make milk hygienic, safe, and easily accessible for human consumption while promoting efficiency in milk production in order to meet increasing demand (Waithanji et al., 2013).

The dairy hub model, as developed by the East Africa Dairy Development project (EADD), was designed to:

- Organize farmers and strengthen farmer organizations.

- Link farmers to improved and yet affordable production technologies – artificial intelligence (AI), proper animal feeding regimens, animal health care, etc.
- Link farmers to markets – invest in farmer-owned and farmer-run chilling plants and bulk marketing, as well as make it possible for farmer groups to negotiate and sign milk supply contracts with buyers.
- Build the capacity of service providers and stimulate Business Development Services in Dairy Producer Organizations.

The major processes and actors defining the EADD dairy value chain are summarized by the following diagram.

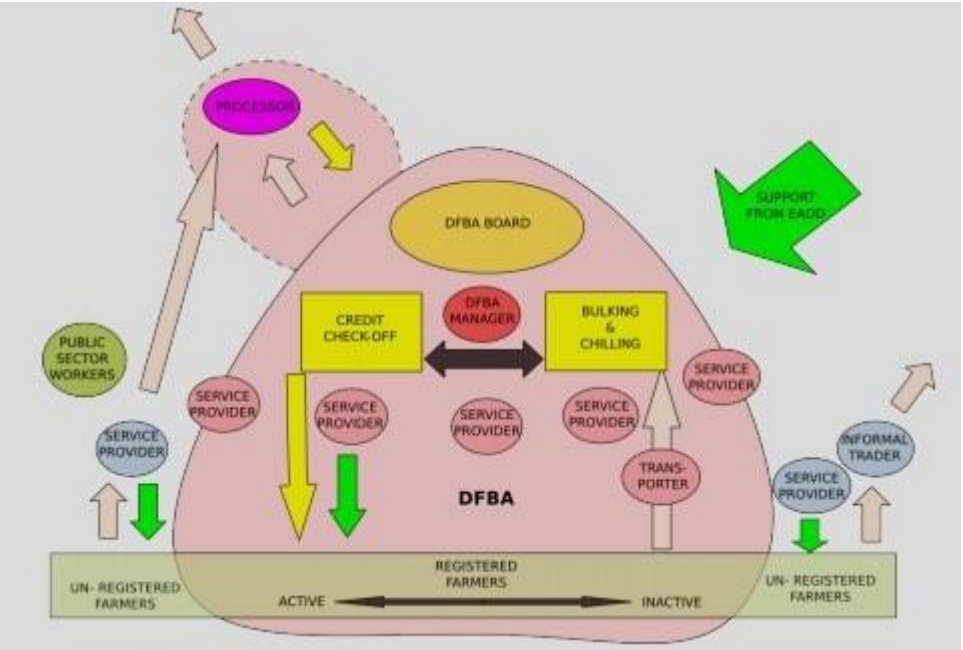

Figure 3: The dairy hub model as designed by the East Africa Dairy Development project (EADD)

Source: EADD Report, (2013)

The EADD hub model is a brainchild of five consortium partners: Heifer International (lead), African Breeding Services (ABS), TechnoServe (TNS), International Livestock Research Institute (ILRI), and International Agroforestry Centre (ICRAF). The vertical lines upward of the consortium partners at the country level represent reporting links connecting staff back to their home organizations. The circles for consortium partners at the cluster level serve to show that there are some cases in which some staff are shared among clusters. The small pink "eggs" are representations of the hub model developed and show the relationship between EADD's implementation structure and the relevant hubs. Each country cluster supports some hubs. The primary source of support for hubs is at the EADD cluster level, but hubs may still receive support from the other EADD levels.

The smallholder dairy value chain, on the other hand, comprises production, collection and bulking, cooling/freezing/chilling, processing and packaging, transport and distribution, wholesale and retailing phases (Waithanji et al., 2012). In Kenya and Uganda, markets within the value chain are fragmented into informal and formal categories. The informal value chain links producers to consumers normally through a number of brokers, while along the formal market value chain, milk is typically transported to chilling and bulking centers, and then to a processing facility, after which agents and/or distributors deliver it to a point of sale (Davis Jr,

2018). With milk as the only recurrent revenue earner along the dairy value chain, traders and hawkers need cash on a daily basis if only to cover routine expenses. This reality tends to create a strong preference among participants for trade in informal markets. Formal markets, on the other hand, offer bi-monthly payment arrangements to hawkers, a reality that does not support their preference for instant cash. They also present the additional risk of quality control checks that could hinder hawkers from dealing in poor quality milk.

2.4. Gender Issues and Gender Roles in Dairy Value Chains

Gender issues, as discussed by Baltenweck and Mutinda (2013), fundamentally underscorethe totality of production, distribution, and consumption activities within an economy, and yet they have often been ignored in value chain development endeavors. From production through processing, distribution, and disposal, gendered patterns of behavior influence women's and men's jobs and responsibilities, the distribution of resources and benefits associated with income-generating activities across the chain, as well as the efficiency and competitiveness of value chains within the global market (Rubin & Manfre, 2014). Gender issues are a specific consequence of inequality between men, women, boys, and girls. As highlighted by Galiè et al. (2012), women and men farmers experience different circumstances because most rural institutions working on rural livelihood tend to target their policies and research outputs to male farmers only. The impact of the invisibility of women, has been shown to affect the ability of women to access extension services, crucial information and their ability to use productive resources for better gains.

Njuki & Sanginga (2013) suggest that men and women cannot be considered as two homogenous groups. Studies continue to reveal that the social stratification of men according to age and marital status is a crucial consideration for the gender analysis of the dairy value chain. A study conducted by Galiè et al. (2022) underscore that older married men found milk trading to be a more lucrative business than women and younger men. A study conducted by Sikira et al. (2018) also suggests that women smallholder farmers dominate the informal markets, therefore affirming the rubric that underscores value chains operate in socio-cultural and economic contexts.

2.4.1 Gender and Social cultural norms in post-production nodes of the dairy value chain

According to Rubin and Manfre (2014), gender roles are behavior tasks and responsibilities considered and deemed appropriate for women and men because of sociocultural norms and beliefs. In this regard, it is well understood that social and cultural factors influence the construction and structure of organizational arrangements and how women and men participate in the life of a society. In the light of this reality, value chains are entrenched in social contexts that influence participation, division of roles, tasks, benefits, and responsibilities along the various actor categories. As a consequence, roles played by women, men, female children, male children, and hired labor cannot be generalized across societies.

Recent research highlights that men typically engage in decision-making roles related to financial management, contract negotiations, and market linkages, thereby controlling access to more profitable value chain nodes. This imbalance reflects cultural and systemic factors that limit women's involvement in post-production processes. In a study by Wangu et al. (2021) men were found to play a significant role in market-oriented dairy production, man- aging business activities and commercial relationships. This pattern is consistent across several African countries where dairy production is not just a family subsistence activity but an economic enterprise. The commercialization of dairy farming has enhanced men's participation in the value chain by positioning them as key negotiators and managers of downstream activities, particularly in urban markets. While women contribute significantly to milk pro- duction and basic processing, they often remain excluded from higher-value activities due to limited access to markets, technology, and financial resources.

2.4.2 Gender issues in Transportation and marketing in the post production node of the dairy value chain.

According to a study by Njuki et al. (2016), women generally have lower access to transportation assets and infrastructure, restricting their involvement in long-distance milk transport. This is also compounded by the fact that men traditionally control the revenues from milk sales, further limiting women's capacity to invest in transportation resources. Women aremore likely to be involved in local, short-distance transportation, often on foot or by using rudimentary means like carts. In contrast, men typically dominate the higher-value transportation tasks, which involve transporting larger quantities of milk over longer distances to urban markets or processing centers. Culturally, men in African dairy farming communities, particularly in Kenya, Ethiopia, and Uganda, control the household's livestock and the revenues generated from them. These cultural norms often discourage women's involvement in market-related activities, further entrenching gender disparities. According to Oxfam (2017), men's dominance in market-facing roles has also been linked to their greater access to formal education, exposure to business networks, and ownership of transportation assets like trucks or motorcycles used for distribution.

The gender gap in transportation not only limits women's income opportunities but also affects their bargaining power within the value chain. Cultural norms that prioritize male control over household assets, including transportation equipment, exacerbate these disparities. As a result, women's roles in the dairy value chain are often confined to production and small-scale processing, with little access to more lucrative market opportunities that arise in post-production activities like transportation. The gendered division of labor in post-production is also influenced by legal and social structures that prioritize male ownership of land and cattle, which are key assets in dairy farming. A report by Njuki et al. (2016) emphasized that men's control of these assets directly impacts their participation in the value chain's more lucrative segments, leaving women with limited opportunities in milk processing and small-scale selling. These dynamics reduce women's bargaining power and control over household income, even though they may be the primary labor force in the initial production stages.

As Rubin and Manfre (2014) elucidate, value chains mirror the consequences of gender relations all the way from the household to the firm. Gichohi (2014) contends that input

delivery, livestock extension, and financial services staff roles are typically dominated by men who are likely to engage other male family members on, for example, how to improve livestock feeding and housing efforts. Ideally, men and women are involved at different capacities at every step of the value chain. In production, women are generally deemed likely to manage their work using low-cost equipment, e.g. bowls and knives in fisheries, due to disparities in access to capital and property. Men, in contrast, dominate value addition on the back using efficient high-cost resources such as processing facilities. Additionally, males generally assume management duties in value chain activities while women participate as employees.

The tables below summarize gender roles in dairy marketing and support services in Uasin Gishu County.

Men (mostly)	Role	Women (mostly)
Male youth contracted by MCCs	Milk trans-porters	Fewer women are involved.
Male farmers are the ma-jority in management po-sitions		Work at MCC: Few work at MCCs as milk clerks, agro-vet clerks, SACCO managers, and subordi-nates.
Dominate roles that re-quire more physical strength		Been increasing steadily over the years.
Dominate field-based roles (extension)		MCC membership: Few women, men dominate.

Table 1: Gender roles in Milk Collection Centre (MCC) Base Activities – Uasin Gishu County

Men (mostly)	Role	Women (mostly)
Male farmers domi-nate	Leadership at MCC	Few
Male farmers domi-nate as milk distribu-tors	Milk trading	Dominate small-scale vending at stationary locations in shopping centers.

Table 2: Gendered strata in dairy hub and milk collection centres' leadership – Uasin Gishu County

Men (mostly)	Role	Women (mostly)
Males dominate as business owners	Agro-vet and AI	Few women own support service businesses;
Dominate as practitioners		Many women dominate as employed sales assistants

Table 3: Gender roles in dairy support services– Uasin Gishu County

The focus of this thesis was inspired by the reality that while women play an important roleas farmers and producers in many parts of the world (IGAD, 2013), there is the need to supplement information on women's and men's participation as transporters, traders, and input and service providers within the dairy value chain.

Women face a unique set of reproduction- and life-cycle-related challenges during their otherwise prime years of labor-force participation. These challenges include, but are not limited to, marriage expectations and requirements, pregnancy responsibilities and childbirth concerns, the postnatal period, childcare responsibilities, and enduring gender-specific health concerns such as menstruation and contraception (Njuki & Sanginga, 2013).

2.5. The influence of culture on Women's and Men's Participation in the Dairy Value Chain

As elucidated by Kimani and Kombo (2011) Kenya's socioeconomic landscape is ridden with a number of challenges to the ideal of gender equity. This suggests that most of these challenges have to do with the ingrained patriarchal culture evident in most communities, which also perpetuates and reinforces such negative practices as gender-based violence (GBV), early marriages for girls, and customary practices associated with property ownership and inheritance, all of which more or less favor males. For women, this reality often translates to limited access to capital financing, limited mobility, and disproportionately heavy domestic responsibilities. As a result, benefits for the majority of women in Kenya's dairy value chain are yet to be fully realized.

Women's vulnerability in dairy value chains is closely related to the contexts in which they are located, which intersect in ways that uniquely shape both women and men's experiences,

roles and responsibilities (Katothya, 2017). The role of women in the non-service nodes ofthe dairy value chain is also linked to what happens in households and how members negotiate within households. Intra households' power dynamics and relations are central to women's economic empowerment and determine their mobility and decision making. Owing to cultural imperatives, women involved in the non-productive strata of Kenya's value chain find themselves operating at a smaller scale compared to men. They are also less mobile than their male counterparts. Inbound transportation (from the farm to milk collection centers, for instance, is mostly executed by male youth mostly riding on bicycles, motorcycles, donkeys, and carts, because of cultural imperatives that speak to the physical nature of milk transportation (Katothya, 2017).

Female milk entrepreneurs often miss out on business obligations because they have to prioritize domestic responsibilities, especially given dairy activities largely take place in the mornings and evenings – precisely when domestic chores are at their peak. These women also face such challenges as limited access to the use of basic technologies (plastic basins andpails to cool and store milk, as well as firewood with which to boil it, etc.), operating away from shopping centers, and costly legal requirements such as business licenses (FAO, 2017). Consequently, female milk traders often find themselves relying on such informal sources of credit as family and friends, and are more inclined than their male counterparts to rely on credit supply of milk, a phenomenon that almost always renders them deb-trapped (Blackmore et al., 2015).

Owing to their limited mobility, women are less likely than men to attend training aimed at upgrading the business and technical acumen for entrepreneurial success. And because they have to juggle business responsibilities with domestic burdens, they often find themselves ill-prepared for market success, lack prerequisite knowledge and skills, and are easily attractedto business activities that can be integrated with domestic chores for convenience purposes (Katothya, 2017).

A study by Pannell Keer Forster (PKF, 2013) found that the gender ratio among employees at milk processing plants was 78% males to 22% females. The study also established that females in Kenya's dairy value chain tend to render their services in milk quality checks and recording, agro-vet stores, and SACCO activity centers established by milk collection centers

(PKF, 2013). Reasons given to explain this gender disparity in employment included the fact that dairy activities demand hefty physical work, some are field-based, and others require working at odd hours, all conditions unfavorable to women. It is also worth noting that in many Kenyan cultural contexts, women with more children, more years in marriage and with a source of employment have more bargaining power in the home and can therefore negotiate on the use of money, something unmarried women are rarely at liberty to do ((Blackmore et al., 2015)

Culture reinforces the glaring gender disparities observed along Kenya's dairy value chain. Social norms dictating the assumption of loading, offloading, and transportation of milk containers, coupled with fieldwork requirements and conditions, work to hinder women's full participation in the chain. It can therefore be argued that the function of agency in improved participation and empowerment for women depends of the structure of family inter-relationships and structure relationship and the ways women may enhance these in order to negotiate in the household and the other structures they encounter. In order for these changes to occur in the way institutions operate, it is imperative that deep-seated structures and implicit socio-cultural norms change (Njuki et al., 2023). In this study, Agency features as a positive shock in the context of the Gender, Agriculture and Assets framework for this thesis.

2.6. Gains Accruing to Women due to Participation in Kenya's Dairy Value Chain

In many countries across the world, Kenya included, it is more common for women to own livestock jointly with men than it is for them to claim sole ownership. Besides, smallholder women farmers are to a large extent financially dependent on men who own the livestock. These realities notwithstanding, women reap a number of benefits as result of their involvement in activities that have to do with dairy farming and trade.

Small-scale dairy production and distribution constitute activities considered to be beneficial to women, men, and children. According to Zezza et al. (2013), milk sales generate regular income that is often accessible to women, while dairy products are important in helping diversify the diets of the poor, and in particular children over the age of 12 months and undernourished expectant women (Zezza et al., 2013). Because of the unique ability ofdairy production to ensure a regular and sustained flow of milk revenue, many women

participating in dairy value chains rely on milk sales to not only meet domestic provision need, but also a diverse range of financial needs including school fees, healthcare, loan repayments, contributions to community welfare activities, and participation in merry-go- rounds (informal savings and credit groups). Elsewhere, Quinsumbing et al. (2013) established that involvement in dairy value chain programs in Bangladesh had the desirable effects of increasing the value of assets jointly owned by women and men and giving women a wider range of options in terms of saving or access to credit.

Participation in dairy value chains gives women the opportunity to belong to community groups with the potential to grow their social capital. Milk collection centers (MCCs) and dairy groups provide newer and extra spaces where community members can consciously and unconsciously overcome certain restrictive cultural norms, where women can collectively learn new ideas, gain confidence, and develop and nurture leadership skills. The opportunity to control and manage income from milk sales allows women to demonstrate and develop their management capacities for the betterment of their households. This ultimately earns them esteem and recognition at both the household and community levels. The resulting agency is associated with such outcomes as an increased sense of leadership, improved access to credit and financial services, access to value chain services, and participation in dairy meetings and training.

2.7. Obstacles to Men's and Women's Participation in Dairy Value Chains

The barriers to entry or shocks into post-production roles are multifaceted. For women, these include traditional gender roles that assign them responsibilities primarily in the domestic sphere, thus limiting their time and opportunities to engage in post-production activities. Gendered norms and societal expectations often restrict women's participation in dairy-related commercial activities, as they are typically expected to focus on household and caregiving roles, leaving business-oriented tasks, such as marketing and processing, to men" (Njuki et al., 2011; Theis et al., 2018). Women have historically faced a number of sociocultural and socioeconomic challenges in their quest to full participate in dairy value chain activities.

As explained by Blackmore et al. (2015), women persistently face more household demands and family responsibilities even when working away from home because they are still expected by society to be the primary caregivers within the household. Such household duties reduce the time they may have available for working outside the homestead. They also increase stress levels for women, leading to more work-family conflicts, behaviors and attitudes that interfere with work and business leadership (Blackmore et al., 2015). Men, on the

other hand, are expected to be financial providers for their families, and therefore devote most of their time to business (Majiwa et al., 2013). Because of these realities, most employers often prefer male managers, believing and assuming that work has more implications on women than men.

Work-family conflict dwindles women's ability to exploit such profitable dairy value chain opportunities as extension work. A study that sets a contrast on men's and women's expectations from work activities is reported by Heyland (2014). It asserts that male leaders tend to make greater sacrifices at home and within the family in order to maintain expectations on their work responsibilities, whereas women tend do the opposite. Family- work constraints have been seen to make women pull double duty combining home and work responsibilities. This in turn restricts women's business opportunities. Women also tend to give priority to their spouses' careers and make sacrifices on behalf of the children and family (Heyland, 2014). Even when they opt to have businesses, they are part of smaller businesses that generate limited employment spaces, revenues, and income levels. Childcare responsibilities prevent women from inclusion in value chain nodes that could otherwise provide because they rob them of the flexibility they need to take care of household responsibilities. Consequently, women reap fewer benefits than men as far dairy value chain participation perks as are concerned (Majiwa et al., 2011).

2.8. Conceptual Framework and its Justification

Based on the research questions, the thesis identifies and cross examines the relationship between socio-cultural factors and socio-economic factors and how they influence participation in posts-production nodes of the dairy value chain. As such, age, sex, marital status and the number of dependents are the overarching socio-economic factors. Socio- cultural factors include legal frameworks or rules of the game, culture and perceptions on income responsibility, business expertise, agency and income control.

As the figure above shows, socioeconomic factors such as sex, age, marital status, level of education, and number of dependents are viewed to affect women's and men's participation in Kenya's value chain. Consequently, a number of sociocultural factors also come into play. These include gender stereotypes, cultural practices, and perceptions. These are organized under the following themes: spouse mobility, income responsibility, childcare responsibilities, business capability, investment autonomy, and control over income. Gains leading to im- proved livelihood constitute the major outcome of participation in dairy value chains.

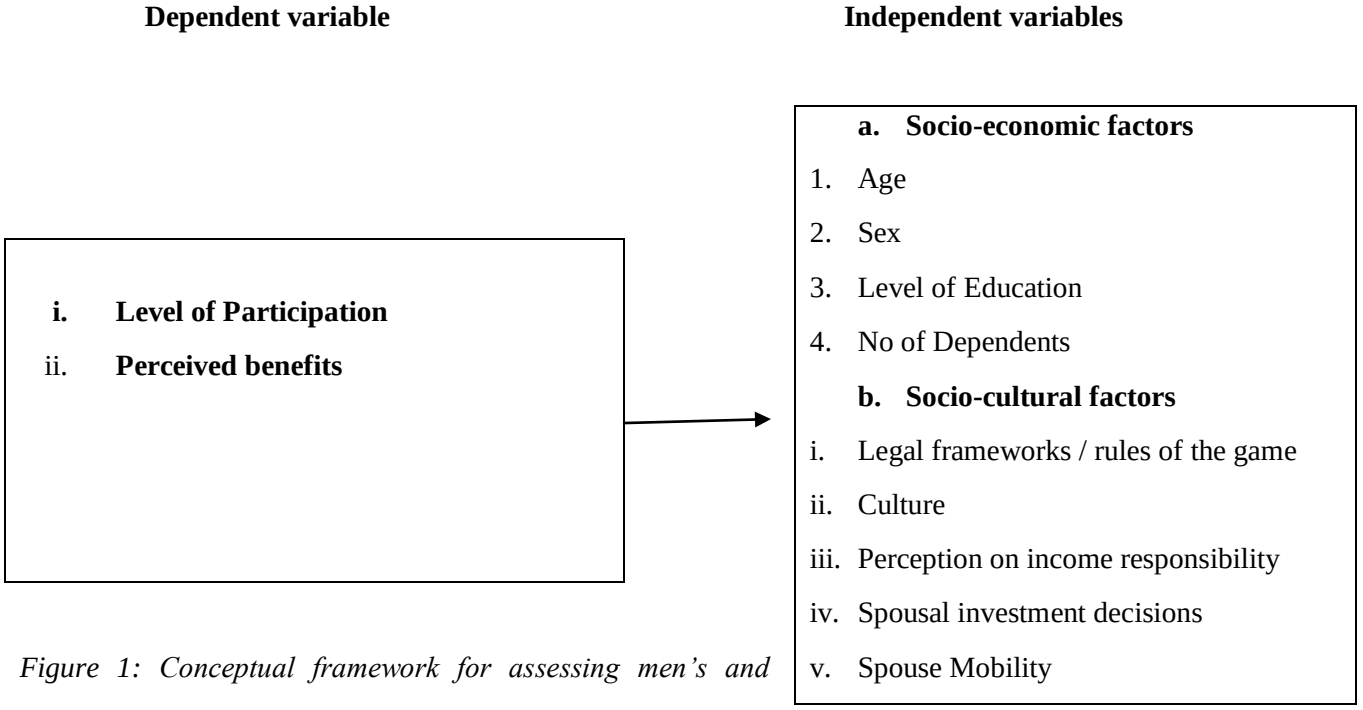

Figure 1: Conceptual framework for assessing men's and women's participation in Kenya's dairy value chain

Source: Author's conceptualization

CHAPTER THREE

METHODOLOGY

3.1. Introduction

This chapter starts with a comprehensive description of the study area in terms of geography, topography, climatic considerations and accessibility. It then proceeds to articulate the researcher's preferred sampling techniques and procedure, research design, methods of primary and secondary data collection, and the processing, analysis and presentation of collected data. The study's analytical framework is then analyzed in detail before the chapter concludes with an articulation of the ethical considerations adopted by the researcher to guarantee the robustness of the study.

3.2. Study Area

The study targeted one dairy hub established under the East African Dairy Development Project (EADD) in Kenya's Uasin Gishu County. The site was selected using purposive sampling.

Uasin Gishu County was especially chosen because it records relatively high milk production levels and is easily accessible. The county is geographically situated within the western partof Kenya's Rift Valley. It specifically lies between longitudes 34 degrees 50'east and 35 degrees 37' west and latitudes 0 degrees 03' south and 0 degrees 55' north (Uasin Gishu County Development Plan 2013-2014).

The county shares common borders with Trans Nzoia County to the north, Elgeyo Marakwet County to the east, Baringo County to the southeast, Kericho County to the south, Nandi County to the southwest, and Kakamega County to the northwest, and covers a total land area of 3,327km^2. It comprises three main regions: Eldoret North, Eldoret South, and Eldoret East.These regions are further divided into six sub-counties: Soy, Turbo, Kapseret, Kessess, Ainabkoi, and Moiben.

Ecologically, the county is located in the high potential (>1,800m) and low potential (<1,800m) agro-ecological zones. The county's high potential zone generally receives more rainfall over a longer period of time than its low potential zone. Rainfall ranges from 500 to

1,000mm in low potential zones and 1,200mm to 1,800mm in high potential zones. The average annual rainfall is between 900 and 1,200mm/year, with peaks in May and October. Temperatures range from 8.4^{o}C to 26.2^{o}C (a mean of 18^{o}C). This climate makes the county conducive for dairy farming, and its entire value chain is assumed to be fully developed.

Demographically, the county has a population of 894,179 (going by the 2009 national statistics), of whom 50.2% are male and 49.8% are female, and a population density of 267 persons per km^{2} (KNBS, 2009). Approximately 2,603.2km^{2} of the county's total area comprises arable land, while 218 km^{2} is land under water, swamps, rocks, and hills. Urban areas cover about 196km^{2}, and current total land under agricultural production is 134,490ha. Maize, wheat, beans, and passion fruits are the crops commonly grown by smallholderfarmers in the county. As far as the livestock sector is concerned, cattle, goats, sheep, and poultry are kept by the majority of households (Uasin Gishu County Development Plan)

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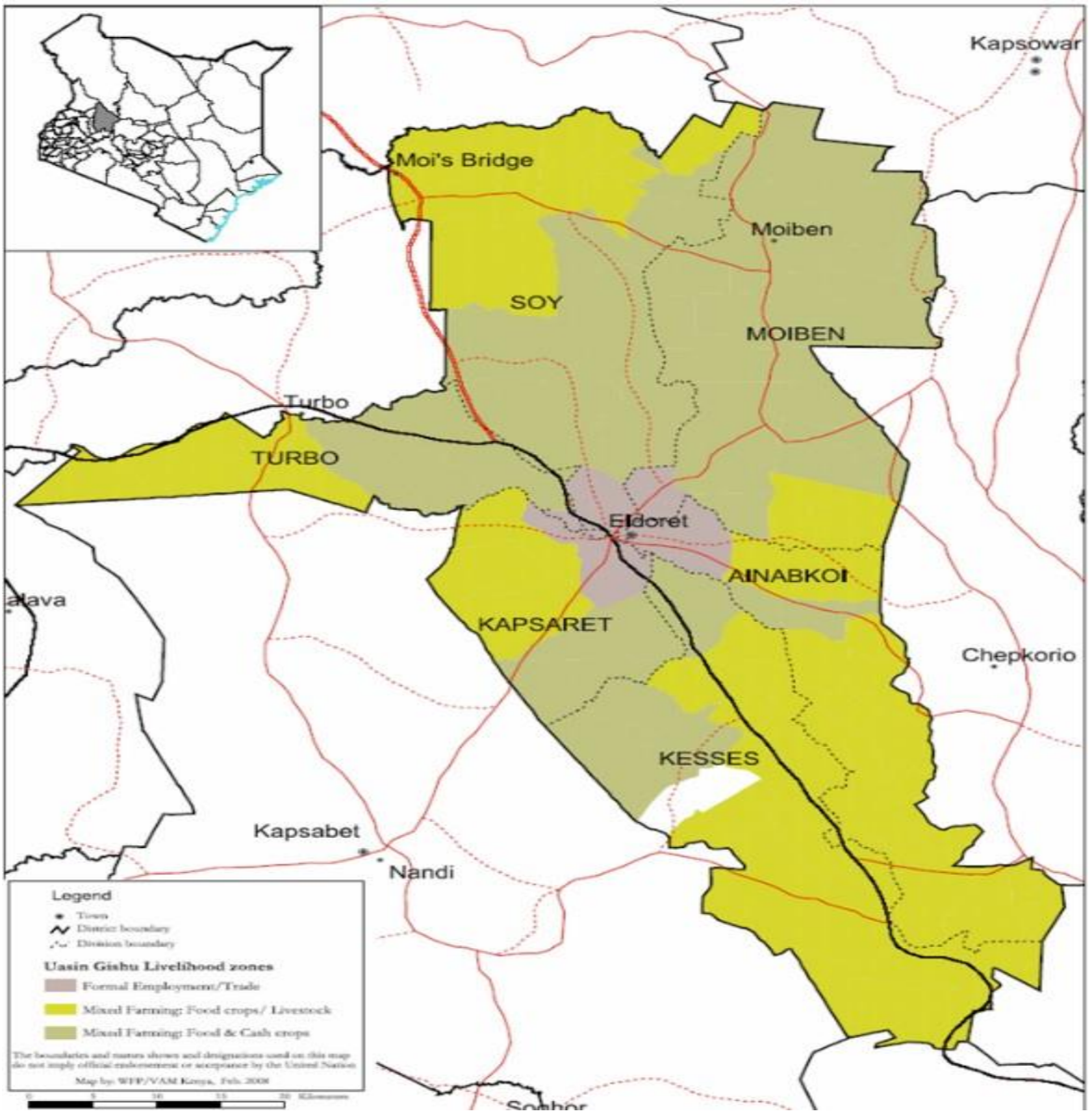

Figure 5: Map of Uasin Gishu County

Source: Uasin Gishu County Integrated Development Plan 2013-2018

3.3. Sampling Design and Procedure

Uasin Gishu County was purposively selected for study, as was Sirikwa Cooperative Society Limited's dairy hub, given the fact that all actor categories are present across its activity schedule. Multi-stage sampling technique was used to collect data from respondents. I began by approaching the country offices of the East Africa Dairy Development Project (EADD), from where he secured access to the hub manager. The hub manager drew up a comprehensive list of all value chain actors operating within the hub's catchment area. Where

the hub manager was unable to provide all the required information, snowballing was used to identify the respondents.

3.4. Research Design

The study was primarily qualitative. This included the use of desk research and document analysis. In identifying the study, site, purposive sampling was employed. Value chain (VC) actors such as input and service providers (agro-vet shop attendants, Artificial Inseminators and Service Providers, Animal Health Assistants, veterinary doctors, extension persons, SACCO officials and members, etc.), milk processors and bar attendants, transporters, and traders were identified and interviewed. In total, 39 respondents were identified through snowballing. The hub managers were the first key interviewees – who then identified hub staff and other participants within the hub. The researcher compiled a comprehensive list based of gendered findings on the various value chain actor types identified at each study site.

3.5. Primary Data Collection

The study relied on key informant interviews to collect primary data from respondents. The researcher adopted this approach based on Bryman's emphasis that suggests while collecting context specific information, like value chains, key informants' interviews provide the latitude for research to collect diverse perspectives across complex systems (Bryman A., 2016).

Key informant interviews were designed for every actor category. A semi-structured questionnaire with open- and close-ended questions was constructed to aid the collection of information concerning roles played by women and men in various milk value chain activities, perceptions on female employment in "male spaces," control of resources, benefits associated with participation in milk value chains, and decision-making dynamics.

A checklist was also deployed to guide discussions involving respondents' involvement in trade,transportation, extension service provision and hub managerial work.

In underscoring socio-economic factors for the hub managers, transporters, Animal Health assistants, financial service assistants, the following questions were administered using an interview schedule:

i. Level of Education
ii. No. of household dependents
iii. Age
iv. Type of training respondent had undergone in relation to the job title
v. Sex

The hub managers were additionally interrogated on their personal opinions concerning the following themes:

i. Perceived income responsibility in the family between spouses.
ii. If women are able to make important investment decisions by themselves in the family
iii. If men can engage in childcare as well as women can.
iv. A woman's ability to move around the neighbourhood without permission from the husband.
v. If a married man can have their own savings and use as they please and if married women can have their own savings and use as they please.
vi. If women can do business better than men and if men can do business better than women.

A pre-test was conducted to determine the length of the process and to improve the interview schedules and questions.

3.6. Secondary Data

Information concerning the population of dairy keepers, value chain structure, other value chain research findings, EADD livestock reports, books, and publications on value chain gender dynamics was obtained from Egerton University and ILRI libraries, online libraries, and Internet-based repositories.

3.7. Data Processing, Analysis and Presentation

Survey data obtained from smallholder dairy farmers, transporters, milk handlers, processors, hub managers, animal health assistants, artificial inseminators, extension service providers was prepared for analysis through editing and coding. For purposes of the study, data analysis was done using Nvivo® software, and involved the use of such descriptive statistics asmeans, frequencies, and percentages to accentuate important aspects with respect to the non- producer categories of Kenya's dairy value chain. Independent variables like age, marital status, education level, and number of household dependents were comprehensively investigated. Qualitative data was also analyzed using Nvivo® software.

3.8. Analysis of Data

Data collected from respondents was analyzed according to the objectives of the study.

Objective 1: Descriptive statistics and the Gender, Assets and Agriculture Development framework were used to identify the socioeconomic factors influencing women's and men's participation in Kenya's dairy value chain. Percentages and means were calculated to shed light on dynamics relating to such important variables as gender and age denominations. Time allocation and activity loci dimensions for both men and women were also investigated in order to bring out the relationship between the socio-economic factors and participation.

Objective 2: The Harvard analytical framework, and specifically tool 3 of influencing factors, was used to identify socio-cultural factors which influence gender relations anddetermine opportunities and constraints for men and women wishing to participate in thedairy value chain. Such factors include community norms and social hierarchies, demographic dynamics, non-written 'rules of the game', and decision-making dynamics at home. The study finds this analytical framework as the most appropriate owing to the factthat the tool was designed to analyse gender dynamics, identifying cultural beliefs and assessing how resources differs amongst genders.

Objective 3: Inferential statistics were used to process information regarding the third objective of perceived gains using Nvivo® software.

3.9. Ethical Considerations

Every respondent was given an opportunity to read, understand, and volunteer their participation in the study by appending their signature to a consent form the researcher had attached to the interview schedule. For those unable to read English, a local translator tagged along for purposes of translating the consent form and various interview questions. The researcher incorporated a clause reiterating his commitment to maintaining respondents' anonymity and confidentiality. All relevant permits were secured from International Livestock and Research Institute (ILRI) and the university before embarking on the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1. Introduction

This chapter analyzes and presents data and information regarding the various socioeconomic and sociocultural factors that influence women's participation in Kenya's dairy value chain,as well as the perceived benefits accruing to such participation.

For purposes of the study, such socioeconomic factors as age, sex, actor category, level of education, and marital status were investigated. Some of the sociocultural factors investigated included norms governing the appropriation of childcare responsibilities at home and marriage expectations. Perceived gains for women's and men's participation were populated in a word cloud.

4.2 Respondents Socioeconomic Characteristics

In an effort to understand the socioeconomic factors influencing women's participation in the non-producer levels of Kenya's dairy value chain, the following variables were analyzed:

- Age and sex
- Marital status
- Level of education
- Number of household dependents

4.2.1 Age and Sex Profile

Thirty-nine respondents were interviewed for purposes of this study. Their ages ranged from 19 to 56 years. Of the 39 respondents, 9 were female, and 30 were male. The study revealed that the majority of respondents fell between the ages of 18 and 30.

AGE	FEMALE	MALE	TOTAL
10-19	1	0	1
20-29	4	11	15
30-39	3	10	13
40-49	1	7	8
50-60	0	2	2
GRAND TOTAL	**9**	**30**	**39**

Table 2: Respondents' Age and Gender Profile

The author's study findings suggest that individuals between the ages of 20 and 39 are the most involved in the non-producer levels of Kenya's dairy value chain. This is evidenced in the table above, where there were more male and female respondents within the age of 20 and39.

At twenty-three percent (9 out of 39 respondents), women's participation in the non-producer components of Kenya's dairy value chain is extremely low. Of the nine women interviewed, three were agro-vet shop attendants who identified either as single or never married, and who were all younger than 35. Only one male respondent identified as an agro-vet shop attendant, and he was below 35 years of age. The histogram that follows accentuates these findings.

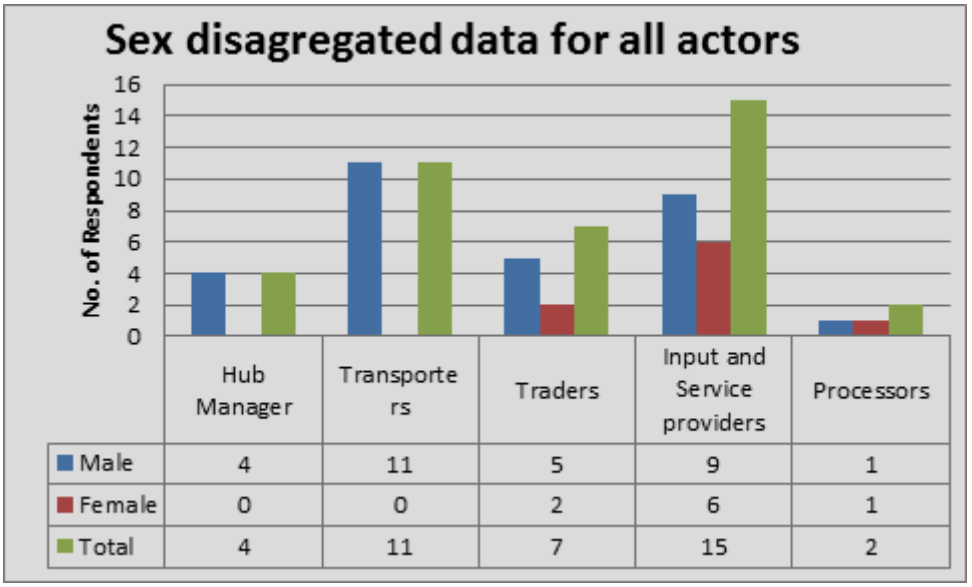

Figure 6: Sex-disaggregated data on respondents across the various actor categories

The author's study established that the job position of agro-vet shop attendant was the first choice for single young women and men (<35yrs) participating in the non-producer categories of Kenya's dairy value chain. Young women beat men in this category in terms of participation (3 women and 1 man). According to Quinsumbing et al. (2013), young women and men tend to work in shops as attendants because less-stimulating jobs fit their profile of fewer household and familial responsibilities compared with older people. Moreover, young people prefer to work in settings that allow them to use the waiting time between customer engagements to distract themselves using social media (Gichohi, 2014).

Persisting gender stereotypes suggest that shop attendance is a job for young women because a shop presents itself as a "socially acceptable space" where young women can interact with others and get to know more people. Milk transportation, on the other hand, is perceived as a duty that would keep young women isolated and restricted from talking to too many people. This study particularly established that women who undertake job assignments and agricultural activities that do not follow societal expectations often find themselves at risk of being socially marginalized.

Gichohi (2014) contends that the preference for work as shop attendants among singlewomen is generally higher compared to married women. This is especially so because unlike single women, married women have to confront the reality of possible refusal by their

husbands to their requests to have paid jobs or full-time assignments outside the household.In other words, women often have to ask permission from men in order to work outside the home. Gichohi also found that married women see men as the authority figure within their families. An additional inference could be that unmarried women do not have childcare responsibilities which tie them down to the home, while married women have traditionaltriple roles.

The aforementioned contentions resonate with the findings of this study. Entrenched social and gender norms in relation to the matching of occupations on the basis of long-held gender stereotypes explain why female respondents in the study were more likely than men to assume roles such as shop attendance and social work – roles often associated with femininity and high levels of empathy (Heyland, 2014).

The following words by a male transporter respondent compound what Heyland (2014) concluded regarding the role of social and gender norms and beliefs in assigning women and men different roles.

> *"Most women traders are uniquely knowledgeable when it comes to attracting customers. They are "smooth talkers" and do steal from the business unlike the men." – Male Kalenjin trader from Uasin Gishu County, Kenya*

The above statement resonates with the findings of McLeod (2013), who associates good customer service with femininity. Many respondents believed men were less inclined to use affirmation words and stay truthful in their business dealings, both important tools for winning and sustaining customer loyalty.

4.2.2 Marital Status

Women tend to get married earlier than men, usually by the age of 35. In terms of participation in non-producer activities associated with Kenya's dairy value chain, the study established that older married women participated less compared to married women under 35. Of the 6 married women who participated in the value chain as non-producer actors, only 1 was older than 35, and she worked as a milk handler. Younger married women are less constrained by and emancipated from the culture of home-dwelling compared to older

married women, hence their tendency to be more active in the non-producer components of the dairy value chain. In comparison to older women, married men who have a higher number of dependents participate more in non-producer activities. More men than women work as animal health assistants and extension officers.

Herrero et al. (2014) found that married Canadian men with children had higher daily participation rates for labor exchange. Their study established that married men with children were more motivated to participate in value chain activities compared with single men due to the high number of dependents and the increased financial burden they face.

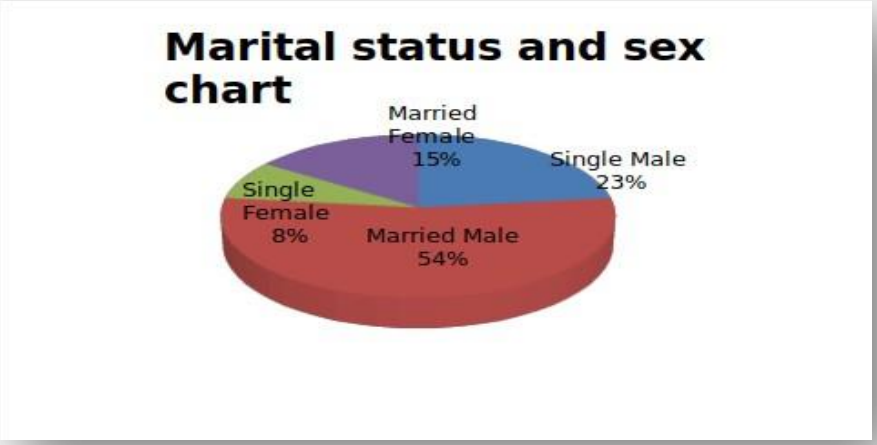

Figure 7: Marital status and sex chart

The chart above and table below accentuate the author's study findings as far as the marital profiles of the respondents is concerned.

Single		**Married**	
Male	**Female**	**Male**	**Female**
9	3	21	6

Table 3: Marital status by sex

Of the 30 male respondents interviewed for purposes of the author's study, 9 were single, while 21 were married. Three female respondents identified as single, while six identified as married.

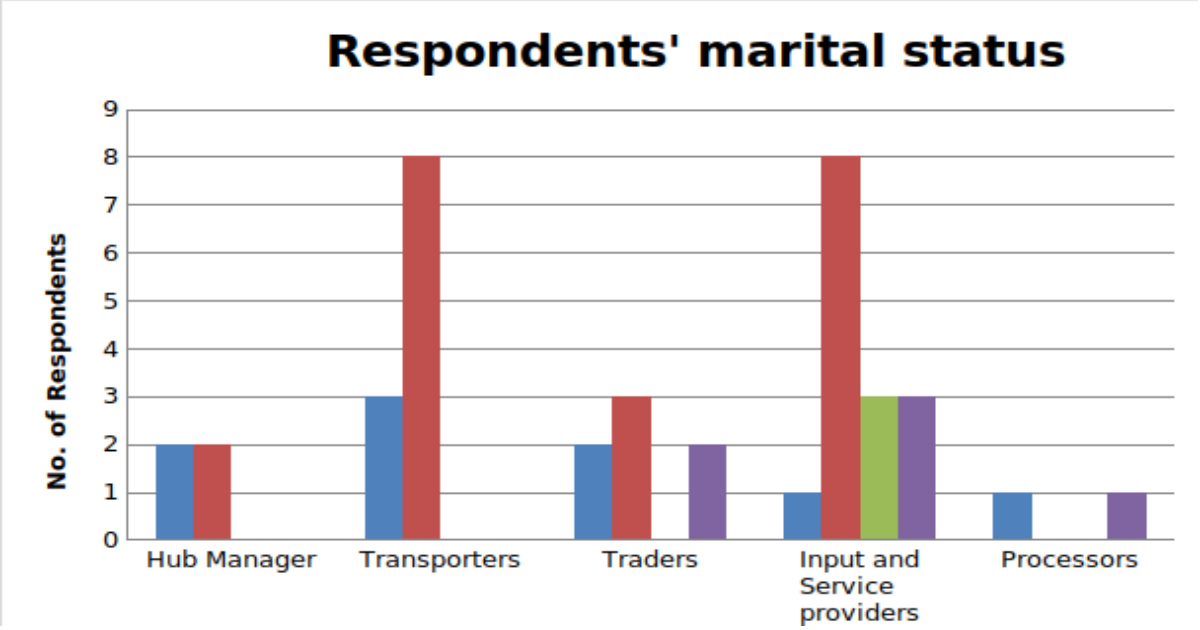

Figure 8: Respondents' marital status relative to sex and category

Older married women with a higher number of dependents and more household expectations appeared to be limited in terms of their participation in non-producer activities associated with the dairy value chain. Respondents suggested a possible pathway to increasing women's participation in non-producer dairy value chain categories: that of including men in childcare responsibilities and ensuring the sharing of responsibilities with women at home. I asked menin the study if they would be willing to take up childcare responsibilities within the family, and their displeasure was unanimous. The following statement made by one of the male respondents highlight the challenges women face in this regard.

4.2.3 Level of Education

For purposes of the study, a respondent's education level was assessed on the basis of the following four categories:

Level 1: No schooling
Level 2: Primary schooling
Level 3: Secondary Education
Level 4: Post-Secondary/Tertiary Education

Sex	Level 1: No Schooling	Level 2: Primary Schooling	Level 3: Secondary Education	Level 4: Post-Secondary/Tertiary Education
Male	1	3	12	14
Female	0	1	1	7

Table 4: Respondents' education profiles

Hub managers interviewed stated that their work requires high skills and knowledge on business management and dairy technology. All hub managers were male, and belonged in level 4 of the researcher's educational classification (they all identified with tertiary education). These managers were all graduates with either agricultural or business backgrounds.

There was no female hub manager in any of the 4 sites under study. It was interesting to find that hub managers are conventionally elected by the cooperative's board, which also happened to be male-dominated. These findings resonate with those of McLeod (2013), who demonstrated that there was an overwhelming preference for male candidates in hiring and election processes across many countries in the global south.

In the input and service provision (ISP) category, 15 respondents were identified. Of these, fourteen acquired education level number four. Of these level 4 respondents, 8 were men, while 6 were women. The six women in the input and service provision (ISP) category were found to have achieved the highest level of education among all female respondents. Three of them were found to be in the agro-vet assistant (AGA) category, one woman was a financial service attendant (FSA), another woman a human health attendant, and the sixth a communityfacilitator.

There were no women in the animal health and/or artificial insemination work categories, both level 4 education categories, even though women were found to be just as qualified and knowledgeable as men. A number of factors work to hinder women from entering "male

spaces". Quisumbing et al. (2013) state conclude that women livestock health workers continue to experience the "glass ceiling" barrier closely linked to social restrictions on women's freedom to work late hours. Animal health and AI work also tends to require one to frequently travel long distances, meaning women AI workers would find it difficult to fulfill the domestic responsibilities imposed on them by society.

There is also the fear that, in order to carry out their professional duties, female AI practitioners would have to socialize with non-family members and strangers, thereby going against long-held cultural customs. These perceptions still predominate in patriarchal societies like the Kalenjin, who still view agriculture as a space meant to be overseen by men, especially with regard to those activities with the potential to generate income and economic gains.

In a qualitative study conducted by Galie et al. (2013) in Syria, it was established that married female farmers are traditionally assigned the role of helpers in agricultural activity, and are hardly considered independent farmers. Such perceptions dissuade women from actively participating in agricultural work (Galie et al., 2013). This study reinforces the same findings, as the following comments made by two male artificial inseminators would attest.

> *"... that job is for women. In fact, most of the time we are busy outside the home, trying to make ends meet. Our culture does not allow us to take up that work." – Male transporter, Ziwa*

> *"... women are expected to be at home at all times. Additionally, sometimes there are cases I attend to at night - which makes it very risky for women." – Kalenjin male artificial inseminator, Ziwa Machine*

The fact that highly educated women and men were found to work in the input and service provider categories informs the study's conclusion that the most knowledgeable and highly-skilled members of society tend to have access to "more rewarding" employment opportunities. According to the study, such jobs included those of hub managers and input and service providers, gender considerations notwithstanding. The study also established that men and women in these two categories were equally educated.

Disparities, however, were noted with regard to women's representation in Artificial Insemination (AI) work and general Animal Health Assistance (AHA) work. Some of the reasons fronted by respondents to explain this disparity included the fact that artificial insemination work often requires individuals to work in spaces located away from home, a space considered to be women's mainstay. Besides, there exists a negative perception among the Kalenjin of women serving semen to cows. Findings from a study conducted by Leyland et al. (2014) on community-based animal health workers fortify these findings. The study concluded that because women's participation in training was lower in comparison to men's (Leyland et al., 2014), women were less equipped to access new employment spaces, especially given job requirements demanded constant physical work and highly-trained qualifications.

4.3 Sociocultural Factors

Numerous studies indicate that there are marked differences between men's and women's participation across all nodes of the dairy value chain. This reality can be attributed to the fact that value chains exist, operate and persist within social contexts guided and commanded by social and gender norms and ideas that affect the distribution of resources, opportunities, and benefits for men and women (FAO, 2018).

In an effort to investigate the sociocultural factors that influence gender participation in dairy value chains, the following statements were investigated.

1) Men are primarily responsible for earning income on behalf of the family.
2) Women are capable of making important investment decisions by themselves.
3) Men take care of children as well as women can.
4) A woman cannot leave home without the permission of her husband.
5) It is acceptable for a married man to have his own savings that he can spend as he wishes.
6) Women are better than men at doing business.

Statement 1 highlights the perceptions of both male and female respondents as far as income-related responsibilities are concerned.

Statement 2 highlights the agency of women and the degree of their autonomy in household decision-making processes.

Statement 3 bears the overall nature of childcare roles and the gendered division of labor within the family.

Statement 4 hinges on women's and men's mobility, which in turn influences gender participation across the actor categories.

Statement 5 measures the respondents' perceptions of shared income responsibilities between spouses.

Statement 6 unpacks the dynamics of the overall notion around women in business pitted against men.

The six statements reveal how, in a contextual sense, social and gender norms, beliefs and practices are entrenched in society (Njarui, 2012), and how they influence the participation of women and men in dairy value chains. Patterns in relation to social and gender norms are present in each of the nodes of the non-producer dairy value chain.

Many of these realities work to hinder women from taking advantage of or benefiting from new opportunities and technologies across the value chain. It is often the case, if only culturally, that both women and men believe a woman's place is within the homestead, and that childbearing is her highest call of duty. As such, society's understanding of what is considered acceptable for women and men to be, do, own, and control may continue to impose barriers for women's participation in value chains (Njarui, 2012).

4.3.1 Gendered Perceptions on Income Responsibility

Eleven of the 39 respondents interviewed (2 women and 9 men) agreed that culture dictates that men ought to be primarily responsible for the generation of household income. The study established that this contention held true in both Kalenjin and Banyankole cultural settings.

On their part, women were ideally required to be homemakers, as the following quote would affirm.

> *"In my culture, women are only allowed to do household work and not work that takes them outside the home." – Kalenjin male milk trader from Uasin Gishu County, Kenya*

> *"Some areas past Ntuusi are quite difficult to reach due to bad roads. The only means of transport is a motorbike – which most women do not know how to ride. Besides, our culture does not allow women to ride the bikes." – Male trainer of trainers from Sirikwa*

Twenty-one respondents out of the thirty-nine interviewed contended that income responsibilities should be shared between husband and wife. They indicated that as times have changed, many women are now learning to support their husbands in income generation efforts, and show appreciation for their husbands' struggles by attending to activities with the potential to improve family income. At Ziwa-Sirikwa (Kenya), two female milk traders were seen selling milk in small quantities in milk bars. The following quote was a shared sentiment among the two traders.

> *"Women nowadays are learning to avoid complete dependency on their husbands."*
>
> *Kalenjin Female Milk Trader*

Five of the thirty male respondents stated that women assumed overwhelming childcare responsibilities, and that for that reason, income responsibilities should be left to men in line with prevailing cultural beliefs and traditions, as well as gender norms.

> *"Men do jobs in far-off towns, therefore leaving women with all home-based chores. Men should therefore be responsible for providing income for the waiting families." – Kalenjin male hub manager in Kenya*

Research by Rubin and Manfre (2014) supports the researcher's findings. The two established that in post-industrial countries, women generally assume more household chores and spend more time doing house chores compared to men. This tends to reduce the total dispensable time for women to engage in dairy activities, particularly given most of their work has to be

executed within the confines of a homestead. Men, on the other hand, can engage in dairy activities outside the home as a way of earning income to sustain the family's economic life.

Overall, non-written social rules that perceive men to be sole income earners within the family setting influence the participation of women and men in dairy value chains. As Quinsumbing et al. (2013) affirm, even as women in traditionally less egalitarian communities assume an equal role in income responsibility, most of their contribution leans towards subsistence, family, and food-related work.

4.3.2 Gendered Perceptions on Women's Agency and Capability in Making Investment Decisions

The following statement was read to the respondents: "Women are capable of makingimportant investment decisions by themselves."

Interestingly, one male respondent was of the opinion that women can only make important decisions concerning "small" family investments, but not "large" ones.

> *"Women can only make small investments, and that only after consulting."* - *Kalenjin male hub manager in Kenya*

A male respondent maintained that women are required by culture to tell their husbands everything because their husbands "own" them. This is in view of the fact that the payment of bride price in most communities in Kenya is interpreted to mean ownership of the bride.

> *"The lady must tell her husband because her husband owns her." – Banyankole male milk transporter from Uganda*

Other comments resonating with the above statement maintained that the privilege of self-sufficiency and ability to make important investment decisions on the part of women is reserved only for divorcees and widows. No female respondent attempted to challenge the prevailing norms and beliefs. Gender integration programs and interventions ought to make women and men aware that these long-held ideas only serve to limit the development and general well-being of communities. Such interventions need to be more gender-sensitive and responsive by including men and women in training and social learning processes.

"Consultation is paramount. This can only be allowed for divorcees and widows." – Kalenjin male animal health assistant from Kenya

Female responses were not too far off themselves, and largely echoed similar sentiments.

"Yes, women can make important investment decisions by themselves, but this does not include women who have husbands." - Kalenjin female agro-vet attendant from Kenya

The comments above suggest that households with females as heads enjoy exclusive autonomy when it comes to making investment decisions, especially as compared to married women. It can therefore be concluded that culture works to deny women the privilege of acting independently from men.

It is often expected that men solely take up leadership and overall decision-making responsibilities within the family setting. Findings by Galie et al. (2013) highlight that while decision-making related to animal-feeding activities is often the preserve of women, their decision-making capacity over activities relating to dairy investment, economic concerns, and animal healthcare is limited. Men exercise dominance where such activities are concerned.

"Traditional norms discourage women from acting independently from their husbands." – Kalenjin female handler from Kenya

4.3.3 Gendered Perceptions on Men's Ability to Take Care of Children Just as Well as Women

Responses from the field were unanimous in affirming that childcare work is solely a task meant for women. The following comments point to this reality.

"Women are always closer to children compared to men." – Kalenjin male transporter from Kenya

"Kalenjin culture does not allow a man to be involved in childcare activities." – Male transporter at Ziwa

Similar responses came from four hub managers.

"Men are not reliable at the family level because they are always mobile." – Male hub manager from Longisa

"Husbands have a lot of responsibilities outside the home." – Kalenjin male transporter from Kenya

It is evident that cultural perceptions and beliefs confer on women roles that are basically limited to the household. On the other hand, men generally assume roles outside the home. These findings are echoed in sentiments made by male respondents during the study, many of whom would not entertain the idea of assuming childcare responsibilities, including helping the children with school-related activities and assignments.

Many male respondents also affirmed that they would not cook or take care of their sick wives and children because they believed such to be women's responsibilities. They also contended that it is not men's responsibility to monitor their children's overall growth. While there is increased evidence of improved child nutrition attributable to women's active participation in income-generating activities and household income control, there is still need to encourage men to take part in the sharing of childcare responsibilities in order to give women more time to venture out economically (IGAD, 2013).

Gichohi (2014) posits that the empowerment of women within the agricultural sector can significantly affect their capacity to take care of children. The author justifies this statement by demonstrating, using qualitative data, that women are better placed than men to take care of children at home. However, his study does not reveal the reasons behind this perception. Women in the study identified with chores that tended to reduce their availability for engagement in productive milk work. The following comments from key informants resonate with these findings.

"Most men do jobs that are too demanding, and don't have time to bond with their children." – Animal health assistant, Ziwa

On the contrary, very few women attested that men can take care of children the same way women can.

"My husband is always comfortable with taking care of our children even when I am around." – Female community facilitator, Ziwa

4.3.4 Gendered Perceptions on Women's Mobility

The following was the guiding statement that opened up the discourse on women's and men's mobility: *"A woman cannot leave home without the permission of her husband."*

Several responses revealed that women cannot venture out even if it is for business without prior consultation with their husbands.

"No, I have to consult my husband even if I am going for a training in Town." – Female community facilitator, Ziwa

Several sentiments from respondents reveal that men must know where their wives are at all times, and that it is culturally prohibited for a man to ask women for permission before venturing outside the home.

"Women are not allowed to ask their husbands of their whereabouts, but should always tell their husbands where they need to go." – Kalenjin male trader from Kenya

As observed, the two cultures represented in the study restrict women from leaving home without permission from their husbands. It is at the husband's discretion that a woman may be permitted to leave home.

"The man is the head of the family, and women must say where they are going. Men, on the other hand, can leave at their own pleasure even for days without informing their spouses." – Kalenjin female milk handler from Kenya

The study established that traders, transporters and extension service providers prefer to ride motorbikes to transport milk, seek artificial insemination (AI) clients, and mobilizing farmers for meetings, especially where long distances are involved. Davis Jr (2018) argues that bike riding is socially understood to be a man's activity in many communities in East Africa. This social reality discourages girls and women from riding alone, especially in isolated and rural

areas. Young women's movements are also frequently monitored by male chaperones and patrons with the authority to determine if they are working or not (Njarui et al., 2012). Respondents explained that women cannot ride motorcycles because women cannot mobilize away from home or at night.

It is also the case that among the Kalenjin people of Uasin Gishu County, women require permission from their spouses in the event that they want to leave the confines of thehomestead, a reality that makes it even more difficult for female farmers to participate fully inthe dairy value chain. Women are generally considered a vulnerable gender category among the Kalenjin, and are therefore associated with roles designed to be carried out within the household (home production and reproduction), rather than "manly" activities (insemination, riding motorbikes, etc.). This study, however, could not demonstrate the contextual reasons behind the assumption that women are vulnerable entities.

The majority of both male and female respondents affirmed that women cannot move freely without consent and permission from their husbands, even if it is on business. Men, on the other hand, can freely interact with other traders and seize opportunities for business training and networking to improve their skills and knowledge in milk trading, managerial work, milk handling, and milk transportation.

4.3.5 Gendered Perceptions: Should Married Men Maintain their Own Savings Accounts and Spend at their Discretion?

Qualitative data collected by the SOT Dairy Cooperative and SACCO indicated that female farmers accounted for about 90% of persons with registered bank accounts. Although the study did not set out to establish whether women and men maintained separate or joint accounts in relation to their spouses, responses revealed that most married men maintained separate bank accounts for savings accruing from milk-related activities.

The most common sentiment volunteered by respondents was: "It is acceptable for a married man to have his own savings account, and he may spend as he wishes." The comments that follow lay the basis for this conclusion.

"No, joint accounts are better because men are always extravagant; wives should always monitor their expenditure closely." – Female agro-vet attendant

Other responses indicated that joint accounts encourage transparency where family expenditure is concerned, and that savings and spending responsibilities should be shared between spouses. Twenty-one out of thirty banking respondents reported that they prefer joint accounts, citing spousal accountability as a virtue they would wish to nurture within their families.

"Not at all. A Joint account is advisable. Decision-making together as a family for financial issues is important for development." – Male agro-vet attendant

One male respondent, who was an animal health assistant was of the idea that men are spendthrifts by nature.

"No. The family may suffer since I may misuse such money." – Kalenjin male animal health assistant

A hub manager from the hub made the following sentiments.

"Yes, I prefer separate accounts. Men are spendthrifts, but women are good financial managers. – Kalenjin male hub manager

4.3.6 Gendered Perceptions on Women's Capacity for Doing Business Better than Men

The guiding statement was coined to test the perceptions of the respondents as to whether women were better in business than men: "Women do business better than men."

Two male traders had the following to say:

"... No, most men here own successful businesses. They employ ladies to enhance the marketing of their products and services for business success." – Male transporter

"...While women are the best, most businesses they run are owned by men, since cattle business is mostly affiliated with men in this area." – Male trader

Studies show that women continue to have less access and control over productive resources, including financial resources (Njarui et al., 2012). In this study, two male hub managers acknowledged that although women are better at doing business, milk and livestock businesses within the Kalenjin community are solely owned by men. Women only form part of these businesses as employees. Elsewhere, most banks require women to provide collateralbefore they can access startup loans, essentially meaning they have to own property or earn wages before they can be in a position to access financial credit.

Two female respondents who sold milk and vegetables mentioned that they had gotten their startup capital from their husbands. While studies document that there is potential for improving female entrepreneurship through the introduction of microfinance institutions (Njuki & Sanginga, 2013), there is need to engender female-focused lending services by among financial institutions to enable women take up startup loans.

4.4 Perceived Benefits from Participation by Non-Producer Actors

A number of parameters were used to analyze and assess the benefits accrued by women and men as a result of their participation across the various actor categories in the dairy value chain. To begin with, an aggregation of the overall benefits accruing to both men and women actors was coded and analyzed using Nvivo® software. Statements relating to women's and men's expenditure relative to milk-related income were then analyzed.

Figure 7: Word cloud on overall perceived benefits for both men and women

The word cloud above aggregates the frequency with which specific benefits were claimed by both male and female respondents. Overall, there was a significant difference between "benefits of participation" mentioned by men and those mentioned by women. Female respondents intimated that the income they accrued was utilized to meet dependents' basic needs back at home. Eight out of nine female respondents demonstrated that women's needs revolve around food, school fees, clothing, and health care.

Quisumbing et al. (2013) found that women in Bangladesh benefiting from CARE's Strengthening the Dairy Value Chain Program used gains from milk trade to buy medicine and feed their cattle as a way of re-investing in their businesses (Quisumbing et al., 2013). Others reported using the proceeds for subsistence and settling school fees.

The following quotes by respondents affirm this discourse.

> *"This work always provides me with school fees and food for my children." – Kalenjin Female trader from Ziwa*

> *"Demand for vegetables from other women is high. This makes it possible for me to get some cash for my children's school fees." – Kalenjin female trader from Ziwa-Sirikwa*

Fourteen male respondents mentioned that they used gains from milk trade to maintain their bikes, emphasizing the fact they considered these to be the most important resources in their non-productive category work.

The study also established that while women were more concerned with the well-being of family members and gave more attention to primary household needs, male respondents considered household needs to be of a "secondary nature."

The following quotes serve to affirm this discourse on asset investment and secondary needs.

> *"I am a councilor because the farmers I have traded with over the years know me. The money I earn has helped me conduct campaigns and get elected councilor." – Trainer of trainers, Ziwa Machine*
>
> *"This work provides me with the money I need to pay workers on my farm and to settle hospital bills." – Male trader, Ziwa-Sirikwa*
>
> *"I have gained management skills over time, and have been able to network with various milk stakeholders." – Kalenjin male hub manager, Ziwa Machine*
>
> *"The money I get from my work is mainly channeled towards repairing my bike which is my main means of transportation." – Kalenjin male trader, Ziwa*

The responses above suggest that men participate in the dairy value chain in order to invest outside the families. It is evident that men are not concerned with the nutrition of the familyas a basic need. When respondents were asked whether they would benefit more or less ifthey were male or female, female respondents had a lot of reservations. Responses from both male and female transporters affirmed that mobility for women in Kalenjin culture is limited.

A similar study conducted in Bangladesh reports that community members perceive milk collection to be a very difficult responsibility for women because they have to be away from home for long hours. The attendant activities also require physical strength to ride the carts drawn by bicycles (Quisumbing et al., 2013).

Of the eighteen respondents working as transporters and traders, two women worked in the trader category. Female traders generally worked in local markets and traded in low volumes of milk – usually one aluminum milk can with a carrying capacity of 50 liters. They tended to be located in fixed locations, and were often stationed in milk bars. Unlike male transporters who move around using motorbikes, female traders lacked transportation means. The following quotes confirm the discourse on mobility.

> *"This work does not favor women due to their tight schedules at home that require them to look after children and perform various household chores. These cannot allow them to move outside the home as we men always do." – Male transporter, Ziwa Machine*

The study's findings also point to how social norms and rules are still entrenched in the two communities represented in the study. Men's mistaken perceptions on fixed and assigned roles for women within the household are associated with men's exercise of power over women. If women ride bicycles or mobilize outside the household, men view them as being unorthodox with respect to their beliefs and culture. Given that men still perceive extra household activities as men's only activities, they end up restricting women's mobility and access to economic resources. The following statements from the study set the precedence forthis observation;

> *"Women benefit less because they have to hire male motorbike riders who end up taking most of the business proceeds. This makes it more expensive for women as it is considered a taboo for women to ride bikes." – Male trader, Ziwa*

> *"Women would benefit less because they are at a high risk of rape when moving in unprotected areas. Most women lack the tenacity and knowledge required to make minor repairs to their bikes – which may make them end up spending a lot of money on small complications. Most mechanics here in Kidokolo are male, and can take advantage of women's ignorance." – Male hub manager, Ziwa*

A female respondent had the following to say:

"Men prefer work that involves a lot of traveling, work away from home. Selling in a milk bar within the trading centre would be challenging for most men since they can hardly stay stationery for a long time. Men are also able to carry heavy volumes of milk as opposed to us who can only sell small volumes of milk at our milk bars." – Kalenjin female trader, Ziwa-Sirikwa

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This chapter contains a summary of the principal findings, the conclusion, recommendations and areas for further research. The study used qualitative research with key informant interviews providing the primary data. The summary of the data analysis is provided in the first part while the conclusion emanating from the data and inferences are hereby presented. The conclusions and recommendations will be critical for individuals and for institutions in improving women's and men's participation in post-production activities in the dairy value chain.

5.2. Summary of the Findings

Granted the objectives, women and men are clearly participating in Kenya's dairy value chain in different capacities and at different levels. Existing gender relations, unequal opportunities, and unfair norms especially prevent women from participating in more meaningful capacities up the dairy value chain. Young single women were seen to be dominant in input and service provision categories as attendants in agrovets or as credit providers. This observation is a testament that the overarching socio-economic factors of age and marital status were critical factors. Consequently, younger women and men are seen to participate in these activities because they do not have family responsibilities and are knowledgeable on these aspects which require tertiary education. It is evident that education, marital status, and number of dependents are additional socio-economic factors that greatly influence women's and men's participation.

From the study, other overarching socio-cultural factors that influence women's and men's participation include perceptions about income responsibility in the family. These can be collapsed under culture. There was a unanimous inference on men being the sole providers of the family and women as care givers of the family. These observations provided the understanding that women should be relegated to only engage in value chain activities which were around the home and the family. In the study, women were seen to be engaged in local and rudimentary processing, or value addition. They used inferior equipment and knowledge which includes using yoghurt culture to make yogurt for subsistence and family consumption.

In prosecuting the second objective, the themes of culture and organisational stereotypes

come into play. Most farmer organisations opt for male managers. While most managers indicated that they were married and had dependents, appointing deserving women into similar positions would set a positive precedence into increasing the visibility of women in managerial positions. All artificial inseminators and extension assistants were men. An overbearing undertone was that women in Kalenjin community were not allowed to move outside the home without the consent of their spouses. This serves as a deterrent to women who are qualified and may want to serve in these nodes. Women, additionally, were not allowed to perform animal insemination as it is considered as a male preserve and responsibility. In obliterating these unfounded stereotypes, it would be desirous for farmer organisations and higher education institutions to incentivise the entry of women into these courses; especially since women have more contact time with farm animals at home. Women artificial inseminators can also serve as role models to other clients who require extension assistance in animal husbandry and other medical needs. Consequently, women were more concerned about the nutrition and education of the household.

The study established various benefits that act as push factors for both men and women across the dairy value chain after the production node. The following benefits are the pull factors; Education, bike maintenance, food, training, networking, clothing, investment, hospital bills, rent, prestige, vegetable farming investment, dairy technology investment, vehicle repair, experience, electricity. The study identifies that most respondents value education as an asset that provides them more agency across the value chain. By investing in education, both men and women are able to harness their knowledge to either be employed higher up the ladder as managers or as animal health assistants or as financial service assistants. In resonance to the study, it is clear that human capital, as highlighted in the Gender, Agriculture and Assets framework, takes precedence as the most preferred form of benefit for both men and women.

It could be argued that because 30 of 39 respondents were male, their obvious choice of investing in human capital reflects reflects on their immediate focus is not on family nutrition. With bike maintenance as the second most predominant benefit, the study highlights that agency and freedom of movement is a social resource that women lack in the dairy value chain. With traditional culture relegating women to the home, women are unable to attend farmer field schools, or training from extension service providers. This can

consequently diminish their ability to participate and interact in farmer organizations competitively. Men, on the other hand, being able to move with ease, this provides men with an undue advantage over women. The rules of the game / nature of the value chain denotes that the primary dependable means of movement is through the motorbike. The study identified that Kalenjin community subtly recognises the motorbike as a male type of transportation means. Women are therefore not allowed to openly use motorbikes. The study confirms that for women who were in transportation, some would hire their motorbikes and have young men ride for them, therefore losing out on maximum profit. With most of the participants in the value chain between the age of 20 and 29 years, it is evident that married women above the age of 30 years with dependents cannot compete with younger men across the value chain. The study acknowledges that women's political capital may, therefore not be at par with younger men or married men in the value chain, especially in terms of participation in the governance of the farmer organisations.

5.3. Conclusion

5.3.1. Theoretical Conclusions

As a means to improve women's and men's participation in post-production activities in the dairy value chain, this analysis provides the socio-cultural and socio-economic rubric for more gendered action. Social norms are culturally shaped and unlearning punitive tendencies will help to unshackle women and men participants in the value chain. The realisation that value chains operate on cultural nuances provides the best entry point for improving relations and participation for both men and women. This study concludes that while men in Kenya are more socially adapted to participating and coping with the demands of value chain activities, women find themselves disadvantaged by social-economic and socio-cultural hindrances in the first place. Equity in participation, however, cannot be achieved through direct confrontation; the sensible approach is to place men at the center of equity-seeking interventions, because cultures have favoured the operation of men in dairy value chains. Women and men will be able to pursue different nodes depending on which assets are apportioned to them; this is because women and men pursue different strategies while in some cases, they may pursue the same strategies depending on the assets they own jointly.

The study identifies redistributive organizational gender policies as part of the positive"shocks" that will influence women's presence in farmer organizations, and the increased control and access of assets by women for them to pursue value chain nodes the replicability that will improve their well-being. Engendering the "shocks" will be inevitable since men and women have different roles and responsibilities and their experiences of "positive shocks" require an understanding of their difference in participation. As such, understanding and appreciating the 'gender puzzle' of intra-household distribution of income generated from dairy activities is critical in identifying interventions with the potential to help women enter and benefit from livestock and dairy markets and for men's improved benefit in their participation.

5.4. Recommendations

5.4.1. Limitations of the Study

The major limitation of the study was finding a corresponding number of women to form part of the sample population. With a huge ratio of 3:10, against women, it is evident that women were less represented in the study. An evenly gender distributed number of respondents will be essential in capturing a more nuanced understanding of gender dynamics in the dairy value chain. Future studies should aim for this parity to ensure that the perspectives of both men and women are adequately explored. In order to improve the replicability and generalisation of the findings, future studies should include a larger and more diverse group of respondents, including those within different locations. As recommended by Smith (2018), a larger sample size makes that data to be reliable and provides a broader representation of the population in different regions.

In order to account for the varying socioeconomic and cultural dynamics across Kenya, future research can include multiple regions beyond Uasin Gishu County. This will allow for comparative analysis and improve the study's applicability across different contexts, aligning with insights from Baltenweck and Mutinda (2013). In addition, while qualitative methods provide valuable insights, incorporating quantitative methods would offer broader trend data and allow for more statistical analysis. This could strengthen the findings and support policy recommendations, as noted by Creswell (2013).

5.4.2. Policy Recommendations

As argued by Guarín, (2021) inclusiveness is not a state of being, but mainly a process, consequently, approaches that recognizes smallholders differentiated and gendered realities, as well as their knowledge, innovation capacity and agency, is key to making this process more inclusive. Recognizing the gender participation disparities along Kenya's dairy value chain, this study makes the following specific policy recommendations on how best to develop and implement a gender-inclusive dairy development program:

i. Producer organizations should embrace farmer extension field schools which target both men and women. These would allow for the sensitization of both men and women on the importance of allowing women access to and control over such resources as capital and knowhow. This targeted approach will transcend to the curriculum delivery and pedagogy. This will allow men to view women as equal partners in value chain processes and capable to participate more meaningfully.

ii. Producer organizations, higher education institutions and development partners should incentivize women's participation in the dairy value chain. By implementing incentive programs like subsidies, grants, or quotas, women will be encouraged to participate in non-traditional roles within the dairy value chain, including milk collection and transportation. Molding entrepreneurial development interventions to suit women-led dairy enterprises are additional conscious efforts that will transform community and household gender norms. Men should be sensitized to assist with the traditional roles of the family, in a bid to create more time for women to participate in the dairy value chain.

iii. The study recommends adopting the imperative that no more than two-thirds of either gender constitute boards of management at dairy hubs. The gender composition of leadership reinforces cultural tendencies. By involving more women in management meetings, policies will be more redistributive to accommodate women and their concerns. This would allow women to influence the choice of qualified women as hub managers, ultimately allowing women access to more benefits such as inputs and service provision information.

iv. Strengthen the capacity of value chain enablers to design gender-inclusive value chains, and offer them the resources they need in order to sell the business case of gender-inclusive dairy value chain development to milk processors.

5.4.3. Recommendation for further research

It would be desirable to understand the impact of gender interventions. This study recommends an evaluation of the effectiveness of existing gender-focused interventions in the dairy value chain; to understand what strategies have been successful in increasing women's participation and overcoming cultural stereotypes.

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APPENDICES

Appendix A: Questionnaire

Hub managers

Section A

1. Name……
2. Sex…….
3. Village……..
4. Main operational trading center ……..
5. Cell phone…….
6. Age……
7. No. years of schooling (1= No schooling, 2= Primary, 3= secondary, 4= Post-secondary):

……..

8. Marital status……..
9. No of Household dependents…….
10. Date…….

Section B

Questions

1. Where do you get your milk from? (Source)
2. What is the end product(s) of your processing?
3. What are the various activities in processing?
4. Do you have staff?
5. In general, what is the ratio of men to women in your staff? How many are the women, how many are the men?

6. Which activities require high technical knowledge?
7. Does education have any importance in your work?
8. Why?
9. What is the representation of women in these activities?
10. How do you schedule your day for processing milk?
11. What kind of skills and knowledge does one need for your work?
12. Is access to training getting simpler or harder for women? / For men over time?
13. How do you market your produce?
14. Does Education help in this business? (Opening to Gender discourse)
15. To what extent? (Why do you think so?)
16. What difference does your being male/female make in this business?

Section C

Statements

1. Men are primarily responsible for earning income for the family. (Income responsibility)
2. Women are capable of making important investment decisions by themselves.
3. Men can take care of children as well as women can. (Labor)
4. A woman cannot leave home without the permission of her husband. (Mobility)
5. It is acceptable for a married man to have his own savings that he can spend as he wishes.
6. Women do business better than men. (Perception)

Section A

Traders

1. Name……
   …
2. Sex…….
3. Village……..
4. Main operational trading center ……..
5. Cell phone…….
6. Age……
7. No. years of schooling (1= No schooling, 2= Primary, 3= secondary, 4= Post-secondary):

……..

8. Marital status……..
9. No of Household dependents…….
10. Date…….

Section B

Questions

1. What is your main source of income? (Income)
2. What are the various sources of your income?
3. How do you spend your income? (Time and activity schedule)
4. Is this your business? (Ownership)
5. Did you have any start-up cost? (Start-up)
6. How did you finance your start-up cost?
7. What are the milk products that you are selling? (Goods sold)

8. What motivated you to start selling milk and or milk products?
9. Who are your clients? (Formal and informal of formal alone or informal alone)
10. What percentage do you spend/save/invest?
11. Who steps in when you are busy/emergencies arise?
12. At what time do you experience peak hours of sale? (Time and Activity Schedule)
13. What makes you continue trading in Milk business? (Motivation and preference for specific business)
14. How do you schedule your day for selling milk?
15. What can you do to improve profits for this business? (Constraints)
16. Why have you not done it?
17. What is your payment arrangements? (Loan/check-off system, cash)
18. What is your preferred timeline for payment? (Monthly/daily/ weekly/quarterly)
19. Does Education help in this business? (Opening to Gender discourse)
20. To what extent? (Why do you think so?)
21. What difference does your being male/female make in this business?

Section C

Statements

1. Men are primarily responsible for earning income for the family. (Income responsibility)
2. Women are capable of making important investment decisions by themselves.
3. Men can take care of children as well as women can. (Labor)
4. A woman cannot leave home without the permission of her husband. (Mobility)

5. It is acceptable for a married man to have his own savings that he can spend as he wishes.
6. Women do business better than men. (Perception)

Transporters

Section A

1. Name……
   …
2. Sex…….
3. Village……..
4. Main operational trading center ……..
5. Cell phone…….
6. Age……
7. No. years of schooling (1= No schooling, 2= Primary, 3= secondary, 4= Post-secondary):

……..

8. Marital status……..
9. No of Household dependents…….
10. Date…….

Section B

Questions

1. What are the various modes of transportation? (Nature of business)
2. What is the approximate distance in Km?
3. What is your preferred mode of transportation? (Resources available)
4. Why is this so?
5. What is the average time lag between buying and selling? (Indicate time unit: hours / days / weeks / months) (*Remember the gendered consequences*)
6. What are the challenges you face in transportation? (Constraints)
7. Why do you think this is so?
8. Where do you get the milk from? (Ownership)
9. Who pays the transport?
10. Where do you take it to? (Relationship to hub)
11. What types of technologies can improve your performance? (Access to and control of resources) (Temperature devices, handling devices, quality control devices)
12. What constrains you from getting them?

Section C

Statements

1. Men are primarily responsible for earning income for the family. (Income responsibility)
2. Women are capable of making important investment decisions by themselves.
3. Men can take care of children as well as women can. (Labor)
4. A woman cannot leave home without the permission of her husband. (Mobility)
5. It is acceptable for a married man to have his own savings that he can spend as he wishes.
6. Women do business better than men. (Perception)

Milk Handler

Section A

1. Name……
   …
2. Sex…….
3. Village……..
4. Main operational trading center ……..
5. Cell phone…….
6. Age……
7. No. years of schooling (1= No schooling, 2= Primary, 3= secondary, 4= Post-secondary):

……..

8. Marital status……..
9. No of Household dependents…….
10. Date…….

Section B

Questions

1. Where do you get your milk from?
2. How long have you been working in this section?
3. What is the end product of your processing?
4. What is the activity you are involved in?
5. Does any activity you do require high technical knowledge?
6. What is the representation of women in these activities?

7. How do you schedule your day for processing milk?

8. What kind of skills and knowledge does one need for your work?

9. Is access to training getting simpler or harder for women? / For men over time?

10. Does education have any importance in your work? (Opening to Gender discourse)

11. Why?

12. To what extent? (Why do you think so?)

13. What difference does your being male/female make in this business?

Sections C

Statements

1. Men are primarily responsible for earning income for the family. (Income responsibility)
2. Women are capable of making important investment decisions by themselves.
3. Men can take care of children as well as women can. (Labor)
4. A woman cannot leave home without the permission of her husband. (Mobility)
5. It is acceptable for a married man to have his own savings that he can spend as he wishes.
6. Women do business better than men. (Perception)

Inputs and Service providers

Section A

1. Name_____
2. Sex_____
3. Village
4. Main operational trading center
5. Cell phone (1)_____
6. Cell phone (2) _____
7. Age_____
8. No. years of schooling (1= No schooling, 2= Primary, 3= secondary, 4= Post-secondary):
9. Marital status (single, married, divorced)
10. No of Household dependents

Section B

1. Which inputs or services do you sell? (Products sold and why the trend)
2. Which inputs or services do you provide on credit basis? (Nature of pay/arrangement)
3. How do you acquire your equipment for operation? (Loan/check-off system, cash)
4. How do you disseminate information? (TVs, radio. Door to door, internet?) (Access to information question) - Men and women have different accesses to marketing structures.
5. Who are your clients? (Men or women)
6. Why do you think there are more men or more women clients?
7. What is your main source of income?
8. How do you spend your income?

Sections C

Statements

1. Men are primarily responsible for earning income for the family. (Income responsibility)
2. Women are capable of making important investment decisions by themselves.
3. Men can take care of children as well as women can. (Labor)
4. A woman cannot leave home without the permission of her husband. (Mobility)
5. It is acceptable for a married man to have his own savings that he can spend as he wishes.
6. Women do business better than men. (Perception)

Appendix B: Key Data Analysis Outputs

RESULTS DATABASE

Marital status vs age.

	MEN (n) 30				**WOMEN (n) 9**			
Actor Categories	Married men 21		Single men 9		Married women 6		Single Women 3	
	<35 **5**	≥35 **16**	<35 **9**	≥35 **0**	<35 **5**	≥35 **1**	<35 **3**	≥35 **0**
Hub managers	2	0	2	0	0	0	0	0
Transporters	1	7	3	0	0	0	0	0
Traders	1	2	2	0	2	0	0	0
Animal Health assistants	1	2	0	0	0	0	0	0
Human Health Assistants	0	0	0	0	1	0	0	0
Agro-vet attendants	0	0	1	0	0	0	3	0
Artificial Inseminators	0	4	0	0	0	0	0	0
Community Facilitators/ TOT	0	1	0	0	1	0	0	0
FSA	0	0	0	0	1	0	0	0
Milk handlers	0	0	1	0	0	1	0	0

Table 1.0

Notes for table 1.0.

- No women respondents in Hub Manager actor category.
- Available men were all below 35 years. 2 male were married while 2 male were single.
- No female respondents in the transporter category.
- There were 11 male respondents. 8/11 of the transporters were married. 7/8 were above 35 years. 4 were below 35 years. ¾ of the male respondents below 35 years were single.
- There were 7 respondents in the trader actor category. 2 were married women below 35 years and all were in Sirikwa. Of the 5 men, 3 were married while 2 were single. All the single men were below 35 years. 2/3 of the married men were above 35 years while 1/3 were below 35 years.
- There was only 1 human health assistant in SOT area that was female. She was not linked to the hub.
- There were 4 agrovet attendants. 3 were female while 1 was male. The 3 female were single and below 35 years. The male was also below 35 years and was single.
- There were only 4 artificial inseminators. All were male, married and above 35 years.
- There were 2 community facilitators. 1 male and 1 female. They were both married. The male was above 35 years while the female was below 35 years.
- There was only 1 female FSA attendant and she was below 35years and married.
- There were 2 milk handlers. 1 was female while the other was male. The male was single and below 35 years while the female was married and above 35 years.
- There were 2 milk handlers. 1 male and 1 female.

EDUCATION STATUS - LEVEL OF EDUCATION

Establish education cut off point

	MEN (n) 30				**WOMEN (n) 9**			
Actor categories	Less educated 4		More educated 26		Less educated 1		More educated 8	
	<35 **2**	≥35 **2**	<35 **12**	≥35 **14**	<35 **1**	≥35 **0**	<35 **7**	≥35 **1**
Hub managers	0	0	4	0	0	0	0	0
Transporters	1	1	3	6	0	0	0	0
Traders	1	1	2	1	1	0	1	0
Animal Health assistants	0	0	1	2	0	0	0	0
Human Health Assistant	0	0	0	0	0	0	1	0
Agro-vet attendants	0	0	1	0	0	0	3	0
Artificial Inseminators	0	0	0	4	0	0	0	0
Community Facilitators/ TOT	0	0	0	1	0	0	1	0
FSA	0	0	0	0	0	0	1	0
Milk handlers	0	0	1	0	0	0	0	1

Table 2.0

Key: Levels of Education

1. No Schooling
2. Primary
3. Secondary

4. Post-Secondary

Less Educated – Level 1&2

More Educated – Level 3&4

Notes for Table 2.0

- All hub managers were male, below 35 years and were the most educated of all respondents.
- There were 11 transporters. All were male. 9 were more educated while 2 were less educated. Of the more educated, 6/9 were above 35 years while the rest were below 35 years. 2 of the less educated transporters were each above 35 years and below 35 years.
- There were only 3 animal health assistants. They were all more educated. All were male and 2/3 were above 35 years while 1/3 was below 35 years.
- There was only 1 human health assistant and she was female. She was more educated and below 35 years.
- There were 4 agro vet attendants. 3 were female while 1 was female. They were all more educated and below 35 years.
- All artificial inseminators were male. They were 4 and were all more educated. They were all above 35 years.
- There were 2 community facilitators. They were both more educated. 1 was male while the other was female. The male was above 35 years while the female was below 35 years.
- There was only 1 FSA attendant. She was female, educated and below 35 years.
- There were 2 Milk handlers. 1 male and 1 female. They were both more educated. The female was above 35 years while the male was below 35 years.

HOUSEHOLD DEPENDENTS

Establish the number of dependents

	MEN (n) 30				**WOMEN (n) 9**			
Actor categories	Four or fewer **14**		More than four **16**		Four or fewer **7**		More than four **2**	
	<35 **12**	≥35 **2**	<35 **2**	≥35 **14**	<35 **6**	≥35 **1**	<35 **2**	≥35 **0**
Hub managers	4	0	0	0	0	0	0	0
Transporters	3	1	1	6	0	0	0	0
Traders	3	0	0	2	2	0	0	0
Animal Health assistants	1	1	0	1	0	0	0	0
Human Health assistants	0	0	0	0	1	0	0	0
Agro-vet attendants	1	0	0	0	2	0	1	0
Artificial Inseminators	0	0	0	4	0	0	0	0
Community Facilitators/ TOT	0	0	0	1	0	0	1	0
FSA	0	0	0	0	1	0	0	0
Milk handlers	0	0	1	0	0	1	0	0

Table 3.0.

Notes for table 3.0

- The hub managers were in the category of 4 or fewer dependents. They were all below 35 years.
- There were 11 transporters. All were male. 7/11 were above 35 years and 6/7 had more than four dependents while 1/7 had four or fewer dependents. 4/11 respondents were below 35 years and of the 4, ¾ had 4 or fewer dependents.
- There were 7 traders. 5/7 were male. Of the 5, 3/5 had four or fewer dependents and were below 35 years while 2/5 had more than 4 dependents and were above 35 years. 2/7 of the total transporter respondents were female and they were below 35 years and had 4 or fewer dependents.
- There were 3 animal health assistants. All were male and 2/3 had four or fewer dependents.
- There was only 1 human health attendant. She was female and was below 35 years. She was in the 4 or fewer dependents category.
- There were 4 agrovet attendants. ¼ was male, below 35 years and was in the 4 or fewer dependents category. 3 female Agrovet attendants were all below 35 years. 2/3 were in the 4 or fewer category while 1/3 was in the more than 4 category.
- There were 4 artificial inseminators. They were all male above 35 years and were in the category of 4 or more dependents.

Appendix C: Snapshot of the abstract page of paper published from the work.

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19 DAIRY VALUE CHAINS IN EAST AFRICA: WHY SO FEW WOMEN?

Isabelle Baltenweck, Immaculate Omondi, Elizabeth Waithanji, Emmanuel Kinuthia and Martin Odhiambo

International Livestock Research Institute

Organizations

ILRI

Species

Locations

Methods: Document review with a gender lens; facilitated discussion; key informant interviews.

Summary: These exploratory studies focus on gender dimensions of the dairy cattle chain in Tanzania, Kenya and Uganda. They address producer organization sustainability and women's participation in the "hub approach" to chain development.

WOMEN FARMERS do a lot of the dairying in East Africa: they look after the cows and calves, keep them well fed and watered, and milk the animals. They often sell milk to friends and neighbours, or to small-scale traders who

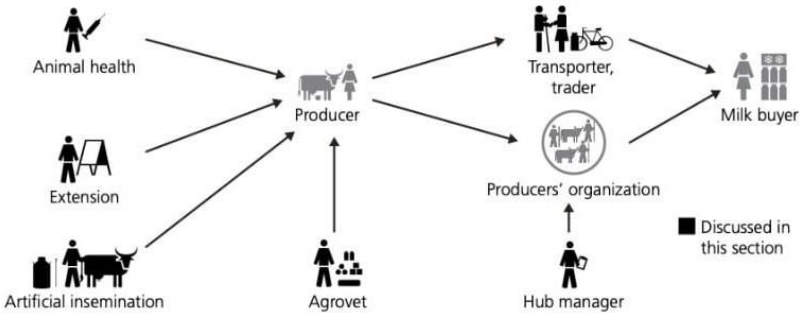

Figure 19.1 The dairy value chain in East Africa

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Appendix D: Research Permit

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

CGIAR

Our Ref: IS12/Nov/5/2024

CONFIRMATION OF RESEARCH ACTIVITIES

This is to certify that Odhiambo Martin Sam, a graduate research fellow of the International Livestock Research Institute, Nairobi, Kenya conducted research in Uasin Gishu county on the topic: PARTICIPATION OF MEN AND WOMEN NON - PRODUCER ACTORS IN THE DAIRY VALUE CHAIN: A CASE STUDY OF SIRIKWA DAIRY HUB IN UASIN GISHU COUNTY, KENYA - for the period ending in 2018. The project was conducted as part of the Livestock Collaborative Research Program
https://livestock.cgiar.org/index.html

Kindly extend your cooperation to him and please accept the esteemed courtesies of the International Livestock Research Institute.

Yours Sincerely,

Dr. Isabelle Baltenweck
Principal Scientist & Program Leader,
People, Policies and Institutions (PPI) Program,
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Patron: Professor Peter C Doherty AC, FAA, FRS

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