MAKERERE UNIVERSITY

MAKERERE UNIVERSITY BUSINESS SCHOOL

ACCESS TO LIVELIHOOD CAPITAL AND THE SUSTAINABLE LIVELIHOOD OUTCOMES OF THE BATWA IN KISORO DISTRICT

BY:

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PLAN A

NOVEMBER, 2025

DECLARATION

I **Kisakye Diana Persis** confirm this dissertation as entirely my own creation and has never been handed in to any educational establishment for any academic award.

Signature: ..... Date: 4th / Nov / 2025

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APPROVAL

I Confirm that this dissertation was compiled with our supervision and its now ready for submission.

Signature ..... Date 04.11.2025

Dr. Kiconco Michelle

Signature ..... Date 04/11/2025

Mr. Jjuko Julius

DEDICATION

This dissertation is dedicated to my parents, siblings and nephew for the overwhelming support, comfort, guidance and encouragement given to me during the entire research programme. May God bless you

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I pray the Almighty God showers you with endless blessings.

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LIST OF ABBREVIATIONS AND ACRONYMS

BMCT	Bwindi Mgahinga Conservation Trust
CVI	Content Validity Index
GDP	Gross Domestic Product
NGO	Non-Governmental Organization
SD	Standard Deviation
USD	United States Dollar

ABSTRACT

This study sought to find out ways of enhancing livelihood outcomes of the Batwa in Kisoro, with a purpose of improving resilience and long-term outcomes amidst displacement and marginalization. The study largely focused on examining the relationship between physical capital access and sustainable livelihood outcomes, social capital access and sustainable livelihood outcomes, financial capital access and sustainable livelihood outcomes, natural capital access and sustainable livelihood out comes, and human capital access and sustainable livelihood out comes of the Batwa. The research design incorporated cross sectional with a quantitative approach. From a sample size of 327 people, 271 responses attained yielded a response rate of 82.9%. To ascertain its reliability, the data collected was analyzed through and based off of IBM SPSS (Version 23) functions. Results of the study indicated that access to livelihood capital (physical, social, financial, natural, and human capital) explains 16% of the variance in sustainable livelihood outcomes (Adjusted $R^2 = .160$), suggesting that while access to livelihood capital plays a role, a significant portion (84%) of the variance is attributed to unmeasured factors, such as vulnerability context, policies and institutions and livelihood strategies. Among the predictors, physical capital access emerged as the strongest contributor, underscoring its pivotal role in enhancing Batwa livelihoods. Therefore, the study recommends enhancement of physical capital access through investing in infrastructure such as roads and shelter for the Batwa community. Policymakers and development organizations should improve financial capital access through introduction of targeted financial inclusion programs, including microcredit and financial literacy training, for the Batwa in Kisoro. Further studies should investigate other predictors, such as livelihood strategies, policies, institutions and processes and vulnerability context to explain the remaining 84% of variance in sustainable livelihood outcomes among the Batwa.

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

The tourism sector is a cornerstone of Uganda's economy, serving as the largest source of foreign exchange and contributing significantly to national development. In 2019, the tourism sector generated UGX 7,996.92 billion (USD 2.2 billion) in total expenditure and directly contributed UGX 5,093 billion (USD 1.37 billion) to the Gross Domestic Product (GDP), accounting for 3.64% of the national total. Additionally, it supported 1,559,147 jobs, representing 14.7% of the workforce, with two out of ten Ugandans employed in tourism-related roles (Uganda Bureau of Statistics, 2023). These statistics spotlight the sector's pivotal role in fostering employment and enhancing sustaining livelihood outcomes.

Uganda's Vision 2040 emphasizes sustainable development through conservation of natural resources alongside protection of indigenous communities' livelihoods near national parks (National Planning Authority, 2013). Tourism has provided some opportunities for marginalized groups like the Batwa, through income from cultural performances and recognition of their heritage. However, these benefits have been inconsistent and minimal (Manyisa & Van der Duim, 2013; Mwongoso, 2024). Despite being located in areas that support significant tourism activities, such as gorilla trekking, birding, and guided nature walks, the Batwa remain marginalized. They face systemic challenges, including poverty, health issues, discrimination, and limited access to education and economic opportunities, leaving them reliant on inadequate livelihood strategies (Patterson, Yang, Sargeant, Lwasa, Berrang, Kesande & Harper 2022).

Tourism in Uganda has grown significantly, however communities like the Batwa living adjacent to national parks, continue to experience persistent poverty (Kitole & Sesabo, 2024).

The Batwa were already marginalized due to their distinct cultural practices, traditional lifestyle, social structure and short stature with a lean and agile build which were often seen as inferior by neighboring communities (Tumushabe & Musiime, 2006). This cultural isolation and the Batwa's reliance on forest resources made them targets of prejudice and exclusion, even before they faced the additional hardship of eviction which highlights the need for targeted policy interventions that enhance their sustainable livelihood out comes.

Recent empirical studies highlight the systemic marginalization and livelihood challenges of the Batwa in Kisoro. Research shows that post-eviction from forests, their restricted access to land and natural resources has intensified poverty and food insecurity (Paterson, 2022). Persistent discrimination in education and employment is evident, with only 12% of Batwa children attending primary school, severely constraining human capital development (Patterson, 2022; Satyal et al., 2021). Health disparities, such as elevated rates of malnutrition and infectious diseases, further exacerbate their vulnerability (Patterson et al., 2020; Scarpa et al., 2022). Moreover, social exclusion by neighboring communities limits their engagement in tourism-related income opportunities (Kesande, 2023). These findings underscore the urgent need for targeted interventions to improve the Batwa’s access to livelihood capital and achieve sustainable livelihood outcomes.

The Sustainable Livelihood Framework offers a structured approach to analyzing these challenges. It provides a comprehensive lens to study the interconnections between livelihood capital (natural, human, physical, financial, and social), livelihood strategies, the vulnerability context, transforming structures (such as policies and institutions), and livelihood outcomes (sustainable use of natural resources, income, wellbeing, vulnerability, food security), (Scoones, 2013).

For this study, the focus will be on two key factors livelihood capital (natural, human, physical, financial, and social) and Livelihood outcomes (employability, increased income and reduced vulnerability).

Although recent studies on livelihoods such as access to livelihood capital and sustainability of outcomes among communities bordering Ugandan national parks (Kiconco et al., 2025), and the participation of vulnerable groups in community-based tourism (Kesande, 2023) have adopted generalized approaches that overlook the Batwa's distinct historical evictions, cultural stigmatization, and resource dependencies, leaving a critical gap in context-specific analyses of how these factors mediate capital access and outcomes. This study addresses this lacuna by adopting a targeted, contextualized focus on the Batwa of Kisoro, interrogating their unique socio-economic and cultural challenges, including systemic marginalization. By examining how the ability to secure livelihood capitals influences sustainable livelihood outcomes, this research aims to identify actionable pathways for enhancing the Batwa's employability, income, and vulnerability reduction in Kisoro.

1.2 Statement of the Problem

In the 1990s, the Batwa an Indigenous community in Uganda historically dependent on forest resources were forcibly displaced from their ancestral lands. This displacement has entrenched them in chronic poverty, with most Batwa surviving on low-wage, casual labor and earning less than $1 per day (Ampumuza & Van der Duim, 2020; Mongabay, 2021). Their daily access to basic needs such as food is largely contingent on securing temporary work. While previous research has extensively examined issues of eviction, marginalization, and the implications of Batwa displacement for conservation (Brubacher et al., 2024), there remains limited empirical attention to practical, context-specific strategies for improving their livelihoods. In particular, the deficit in access to critical livelihood capitals land, natural

resources, financial assets, social networks, and human capital continues to constrain their economic resilience and social inclusion (Satyal et al., 2021). This study therefore seeks to fill this gap by exploring how improved access to these capitals can enhance employability, income stability, and sustainable livelihood outcomes among the Batwa in Kisoro District.

1.3 Purpose of the Study

To find ways of enhancing livelihood outcomes of the Batwa in Kisoro, with a purpose of improving resilience and long-term outcomes amidst displacement and marginalization.

1.4 Specific Objectives of the study.

i. To examine the relationship between physical capital access and sustainable livelihood outcomes of the Batwa.

ii. To establish the relationship between social capital access and sustainable livelihood outcomes of the Batwa.

iii. To determine the relationship between financial capital access and sustainable livelihood outcomes of the Batwa.

iv. To analyse the relationship between natural capital access and sustainable livelihood out comes of the Batwa.

v. To find out the relationship between human capital access and sustainable livelihood out comes of the Batwa.

1.5 Research Questions

i. What is the relationship between physical capital access and sustainable livelihood outcomes of the Batwa?

ii. What is the relationship between social capital access and sustainable livelihood outcomes of the Batwa?

iii. What is the relationship between financial capital access and sustainable livelihood out comes of the Batwa?

iv. What is the relationship between natural capital access and sustainable livelihood outcomes of the Batwa?

v. What is the relationship between human capital access and sustainable livelihood out comes of the Batwa?

1.6 Scope of the Study

1.6.1 Geographical Scope

This research was done in Kisoro district, because most of the Batwa community in Uganda resides there.

1.6.2 Content Scope

This study focused on livelihood capital access and sustainable livelihoods of the Batwa in Kisoro.

1.6.3 Time Scope

This research was conducted from August 2024 to June 2025.

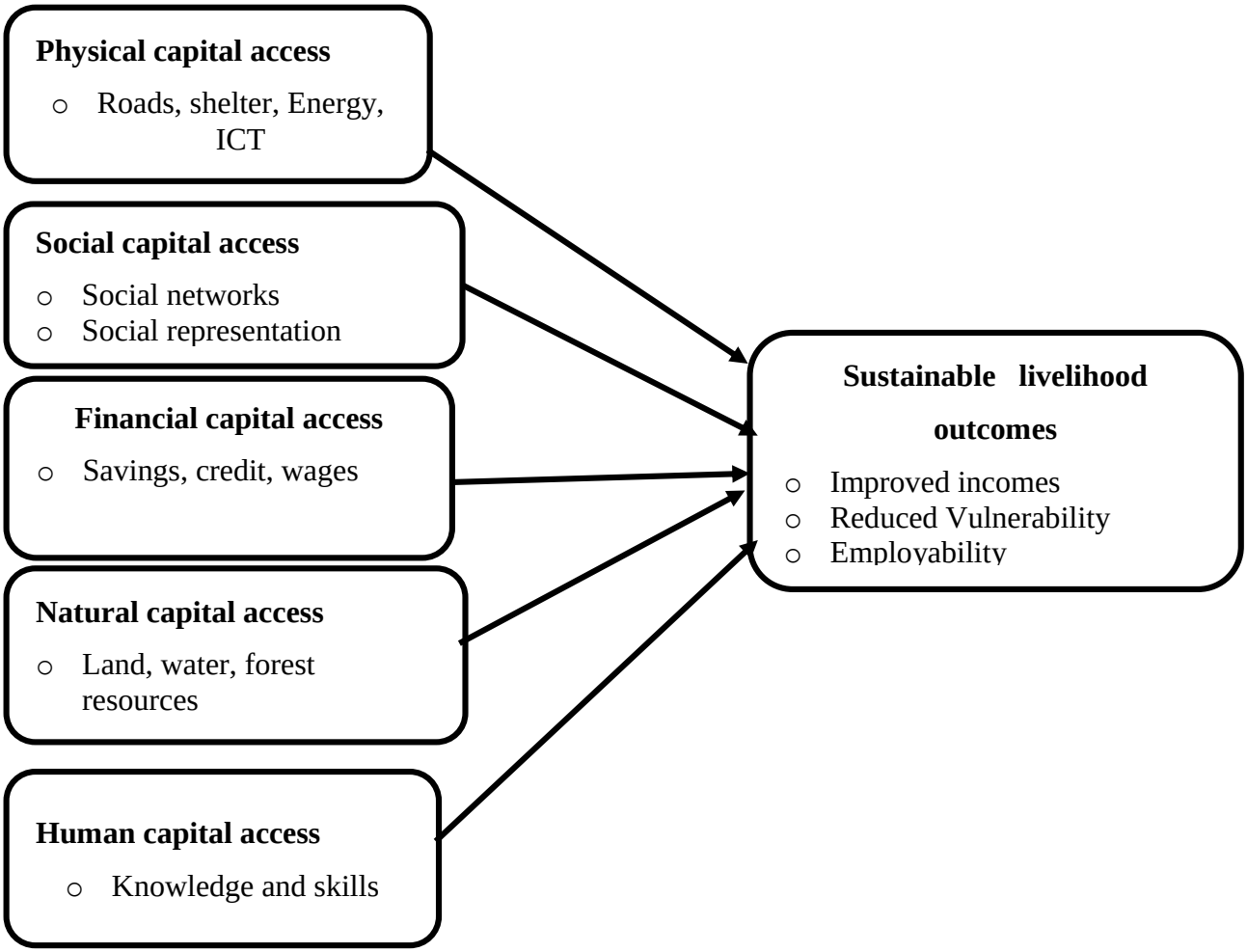
1.7 Significance of the Study

i. This study may provide organizations with evidence-based recommendations to enhance employability initiatives, aiming to increase employment rates by 20% for the Batwa through targeted skill development and income generation programs, while reducing vulnerability through improved access to financial resources.

ii. It may guide academicians and researchers toward best practices for integrating conservation with indigenous livelihoods, fostering inclusive approaches that measurably improve the Batwa's access to natural resources and participation in sustainable tourism by 15%.

iii. The study may equip policymakers and development organizations with insights into the Batwa's specific needs, enabling the formulation of inclusive policies that enhance well-being, evidenced by a 25% improvement in access to education and healthcare services.

1.8 Conceptual Framework



Source: Adapted from Scoones 1998, Kiconco *et al.*, 2025

Figure 1, is based on Ian Scoones' (1998) and Kiconco *et al.*, 2025 frameworks.

This model, guided by the Sustainable Livelihood Framework, explains how people's access to different forms of livelihood capital physical, social, financial, natural, and human shapes their ability to build sustainable lives. Physical capital includes access to essential infrastructure and access to technology that make daily activities and production easier. Social capital reflects the networks, relationships, and community support systems that help people connect and share

opportunities. Financial capital involves access to savings, credit, and regular income, while natural capital represents the land, water, and forests that many depend on for survival. Human capital relates to the knowledge, education, and skills that enable people to work and innovate. When these forms of capital are well balanced and accessible, they work together to improve incomes, reduce vulnerability, and create better employment opportunities helping individuals and communities build more resilient and sustainable livelihoods

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1.9 Structure of the Report

This research was organised in five chapters and presented as follows;

Chapter One: This chapter serves as an introduction to the report, offering a thorough overview of the entire research. It encompassed the contextual background, problem statement, objectives, research questions, and the study's scope and significance.

Chapter Two: This chapter presented a comprehensive literature review for the research, critically examining current theories and empirical literature concerning the variables of the study.

Chapter Three: This chapter introduced and explain the methodology that the researcher employed to conduct the study. It describes the types of research techniques to be used, specify the sources of information, and outline how the gathered information was analyzed and presented.

Chapter Four: This chapter detailed the findings and implications derived from questionnaires collected. It analyzed data gathered from the field, comparing it with relevant theoretical and empirical literature to offer a fresh perspective on the issue at hand.

Chapter Five: It consolidated findings, conclusions, and recommendations of the study. This chapter addressed the study's aims and objectives, providing practical, theoretical, and empirical suggestions based on the research outcomes.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Literature review analyzes existing studies, identifies key theories, methods, and gaps (Creswell & Poth, 2018). It contextualizes the study within existing findings and establishes its significance. This review will focus on the relationship between livelihood capitals and sustainable livelihoods outcomes in tourism-dependent communities, aligned with the study objectives.

2.1 Theory underpinning of the Study

The investigation drew its foundation from sustainable livelihood framework (Scoones,1998) and was supported by Theory of Access (Ribbot and Peluso, 2003)

The framework by Scoones (1998) examines how access to natural, human, social, financial, and physical capital influences livelihood outcomes, particularly in poverty and development contexts. It highlights the role played by external factors i.e. the transforming structures such as policies and institutions in shaping access to these capitals and the vulnerability context i.e. the external shocks that communities have to adapt to in order to become resilient. Futher more it shows the livelihood strategies which are actions done to achieve desired objectives which are the livelihood outcomes i.e. income, well-being, sustainable use of natural resources, vulnerability and food security.

According to Scoones (1998), sustainable livelihoods are influenced by five key forms of capital, which individuals and communities utilize to improve their wellbeing and resilience. These capital assets are natural, human, social, financial, and physical capital, and they interact with one another to shape livelihood outcomes.

Natural capital is environmental assets that communities utilize for subsistence and economic activity, such as land, water, forests, and biodiversity. They are essential for livelihoods, especially in rural and resource-dependent settings (Scoones, 1998).

Human capital is the skills, knowledge, education, and state of health that individuals possess, which are vital for engaging in productive activities. It includes the ability to work, access to education, and the physical health necessary for sustaining livelihood strategies. Human capital is critical for improving the capacity to adapt to changes and challenges (Scoones, 1998).

Social capital is the network of relationships, social norms, trust, and community ties that facilitate cooperation and collective action. It includes the social networks and support systems that provide individuals with access to resources, information, and opportunities, which can enhance resilience in times of crisis (Scoones, 1998).

Financial capital is the monetary resources and assets that individuals or communities have access to, including savings, credit, and income. It allows people to invest in livelihood activities, smooth consumption, and cope with shocks or changes in their environment (Scoones, 1998).

Physical capital includes the infrastructure and tools necessary for livelihood activities, such as buildings, roads, transportation, and machinery. It includes ability to obtain essentials like clean water and electricity, crucial for enhancing productivity and well-being. (Scoones, 1998).

De Haan and Zoomers (2005) recognize the Sustainable livelihood framework for its strength in providing a comprehensive approach to understanding livelihoods by integrating human, social, natural, financial, and physical capitals. This holistic perspective is valuable for analyzing the dynamics of resources and their interconnections.

However, the framework overlooks crucial structural factors, such as political and economic systems, and fails to adequately address power dynamics and inequalities. These limitations undermine the framework's ability to fully capture the complexities of livelihoods, particularly in contexts where marginalized groups are involved (De Haan & Zoomers, 2005).

The Sustainable livelihood framework offers a critical lens for assessing livelihoods of communities, such as the Batwa, by focusing on the vulnerability context, including external shocks like displacement and marginalization. It further sheds light on gaps in the Batwa's access to livelihood capitals, with particular attention to the role of natural, human, social, financial, and physical resources.

However, the sustainable livelihood framework operates on the assumption of equal access to livelihood capitals, this is problematic for the Batwa, who face obstacles like access to natural resources, limited financial and physical assets. Additionally, the framework's limited consideration of power dynamics and governance challenges further complicates its application to the Batwa's socio-political realities. Therefore, while it provides valuable insights into the Batwa's livelihood strategies and outcomes, it requires adaptation to better account for the structural inequalities and governance issues that significantly influence their access to resources and opportunities.

The Theory of Access supported the livelihood framework in examining how power dynamics and social relations influence individuals' ability to access and benefit from resources, making it an essential framework for understanding sustainable livelihood out comes in relation to their access to livelihood capital.

The Theory of access offers a comprehensive framework for realizing how individuals and groups gain access to resources, and how this access is influenced by various forms of power,

control, and social relations. The theory emphasizes that access is not simply about ownership or property rights, but also involves being able to use, gain from, and control resources (Ribot & Peluso, 2003).

Central to the theory of Access are these Pillars: Authority, which refers to the power to control access to resources; Intervention, which involves state or institutional influences on access; Social identity, where access is shaped by the social positioning of individuals; and Market mechanisms, which dictate how resources are distributed. Ribot and Peluso argue that access is dynamic, contingent on social, political, and economic factors, and influenced by both formal and informal power structures (Ribot & Peluso, 2003).

Myers and Hansen (2020) affirm the relevance of the theory of access in analyzing resource dynamics, particularly its emphasis on power relations and structural mechanisms. However, they identify key limitations, such as inadequate attention to marginalized groups, the temporal evolution of access, and emerging factors like technology and intersectionality. Furthermore, the theory's limited focus on localized contexts and global concerns like inequality and climate change, highlights the need for refinement to ensure contemporary applicability (Myers & Hansen 2020)

The theory of access gives a detailed insight into obstacles and opportunities shaping Batwa's access to livelihood capital, offering a basis for evaluating the factors that support sustainable livelihoods.

The theory of access shows important perspectives into resource access however its application to livelihood capital access has limitations. It may overlook the influence of local cultural practices and indigenous knowledge in resource use. Additionally, its focus on structural barriers and power dynamics can underestimate the marginalized groups like the Batwa i.e.

Over emphasis on structural issues, might paint the Batwa only as victims rather than as active participants in their struggle for better livelihoods and rights. Moreover, the theory's limited consideration of the changing nature of access over time may restrict its ability to address long-term sustainability in evolving socio-economic contexts.

The integration of the sustainable livelihood framework with the theory of access facilitates a critical analysis that not only examines the Batwa's internal capacities to mobilize resources but also addresses the external structural constraints they face, thereby offering a robust framework for comprehensively understanding their pursuit of sustainable livelihoods.

2.2 Physical capital access and sustainable livelihood outcomes

Access to infrastructure, housing, and transportation is vital for enhancing household resilience and their living conditions. Furthermore, it is pivotal in facilitating participation in economic activities, supporting resource acquisition, and improving mobility, which are essential for sustainable livelihood outcomes (Munanura *et al*., 2021).

Infrastructure improvements and accessibility, such as transportation, irrigation systems, and market access, are essential for enabling economic diversification and enhancing income opportunities, particularly in rural areas undergoing transitions to non-agricultural income sources. Furthermore, access to tools and equipment increases agricultural efficiency, allowing households to pursue alternative livelihoods while maintaining long-term sustainability (Shi *et al.,* 2024).

Physical capital, including infrastructure such as roads, transportation, and tourism facilities

improves access to resources which not only enhances tourism development but also diversifies income sources for local communities, thus reducing economic dependence on traditional agricultural activities. Furthermore, a well-managed physical capital contributes to both

economic growth and environmental conservation, enabling a balanced approach to sustainable development. (Aazami & Shanazi, 2020).

Access to digital tools, ICT, and smart systems improves resource management, economic opportunities, and environmental conservation. Technology facilitates efficient tourism operations, broadens market access for local businesses, and encourages community involvement in decision-making. Additionally, it supports knowledge sharing and capacity building, promoting resilience and reducing dependence on vulnerable sectors like agriculture, thus fostering long-term sustainability in tourism (Ali, 2022).

Access to physical capital, particularly shelter, is fundamental in promoting sustainable livelihoods during post-disaster reconstruction. Safe and resilient housing provides the necessary stability and security for affected communities, allowing individuals to resume income-generating activities and rebuild their socio-economic foundations. Furthermore, investing in robust physical infrastructure not only supports immediate recovery efforts but also establishes a lasting framework for sustainable development by reducing future vulnerabilities and enhancing community resilience (Gyawali *et al.,* 2020).

The scholars established that physical capital comprising infrastructure, housing, and transportation is essential for promoting sustainable livelihoods and facilitating economic diversification (Munanura *et al.,* 2021; Shi *et al.,* 2024). Moreover, the integration of digital technologies enhances resource management and market access (Ali, 2022), while resilient housing contributes significantly to both immediate recovery and long-term development (Gyawali *et al.,* 2020). Despite these findings, there is still so much need to access how physical capital impacts on the sustainable livelihood outcomes of native communities such as the Batwa, which this study intends to address.

2.3 Social capital access and Sustainable livelihood outcomes

Networks, relationships, and trust within a community that facilitate the access and sharing of resources are social capital (Kunjuraman, 2024). Social capital is essential for the success of community-based ecotourism, as it strengthens local communities by improving cooperation, information sharing, and collective action. These social networks help communities access financial resources, enhance market opportunities, and facilitate the preservation of local cultures and environments, all of which are integral to the sustainability of livelihoods (Kunjuraman, 2024).

Social capital through bonding offers direct support within the community, bridging social capital facilitates connections to wider networks, and linking social capital allows for access to higher-level institutional resources (Zhang *et al.,* 2024). Furthermore, social capital collectively facilitates access to essential resources, such as financial aid and labor opportunities, thereby promoting economic stability and resilience which essential for ensuring the long-term sustainability of livelihood outcomes, particularly among marginalized groups, by fostering adaptability and collective action in the face of challenges (Zhang *et al.*, 2024).

Social capital mitigates economic vulnerability among farmers by leveraging social networks, trust, and community engagement to enhance resilience to economic shocks. It facilitates access to resources, information sharing, and collaboration, which are vital for sustainable livelihoods. In rural areas with widespread income inequality, social capital buffers against the adverse effects of income disparities, promoting economic stability. Additionally, strong social capital supports long-term wellbeing, showing its critical role in enhancing sustainable livelihood outcomes (Zhang & Zhao, 2024).

Social capital, which encompasses community networks, relationships, and trust, is essential for strengthening the community's ability to cope with economic and environmental challenges.

By encouraging collective action and facilitating access to resources like information, support, and finances, social capital facilitates sustainable livelihood out comes. (Wei, Xu, & Wall, 2024).

Social capital enables individuals, especially women entrepreneurs, to gain access to financial support, market information, and valuable social networks, which in turn enhance their ability to sustain and expand their businesses (Mahato & Jha 2024). Furthermore, Mahato and Jha (2024) emphasize that women's participation in entrepreneurship, when supported by strong social capital, leads to more resilient and sustainable livelihoods, particularly in rural communities.

While studies like Zhang *et al.* (2024), Kunjuraman (2024), Wei, Xu, & Wall (2024) and Mahato & Jha (2024) explore the role of social capital in rural and marginalized communities, they do not fully consider the unique context of Indigenous groups such as the Batwa, who face historical displacement and marginalization. Additionally, while bonding and bridging social capital are well documented, the role of linking social capital connecting communities to higher-level institutional resources remains underexplored. For the Batwa, enhanced linking social capital will facilitate access to government support and tourism-related benefits. This research will address these gaps by investigating how social capital operates within the Batwa community, fostering resilience and sustainable livelihood outcomes amidst development and socio-economic challenges.

2.4 Financial capital access and sustainable livelihood outcomes

Access to funding facilitates the development of essential infrastructure, enhances capacity-building efforts, and fosters sustainable business practices, thereby improving socio-economic outcomes Kesande (2023). However, hindrances like inability to get credit, inadequate

financial literacy, and insufficient inclusion in financial systems, hinder the full participation of fragile collectives (Kesande, 2023).

Communities with better access to finance resources experience improved socio-economic outcomes, including increased income levels, better education, and enhanced community resilience (Kiconco *et al.,* 2025). However, disparities in capital access can create inequalities, limiting some households' ability to leverage tourism opportunities for sustainable development. It's important to have equitable capital distribution and targeted interventions to enhance the livelihoods of park-adjacent communities, thereby fostering long-term sustainability in the region (Kiconco *et al.,* 2025)

Financial literacy is essential for sustainable development in rural communities, as it empowers individuals to manage financial capital effectively, enhancing livelihoods and personal financial stability (Kyeyune & Ntayi, 2025). By fostering community resilience and supporting long-term socio-economic sustainability, financial education becomes a critical component of development programs, enabling rural communities to optimize financial resource utilization for enduring development outcomes (Kyeyune & Ntayi, 2025).

Financial capital plays a pivotal role in livelihood sustainability by facilitating investments in education, skill development, and entrepreneurship (Gunashekhar *et al.,* 2024). It enhances economic opportunities and strengthens the resilience of rural youth to external shocks. Furthermore, when integrated with other capitals human, social, and natural financial capital contributes significantly to long-term livelihood sustainability out comes. Improved access to financial resources empowers rural youth to establish sustainable income sources and enhance their livelihoods over time (Gunashekhar *et al.,* 2024).

The scholars highlight how financial capital in vital in improving livelihoods, with Kesande (2023) identifying barriers like limited credit access and financial literacy, and Kiconco *et al.* (2025) emphasizing the need for equitable capital distribution and targeted interventions. Gunashekhar *et al.* (2024) stress that financial capital supports investments in education, skills, and entrepreneurship, while Kyeyune & Ntayi (2025) highlight the importance of financial literacy in strengthening personal and community resilience.

However, a gap remains in understanding how financial capital and literacy specifically impact the livelihoods of the Batwa, historically marginalized and displaced due to conservation efforts, faces significant challenges in accessing land, resources, and economic opportunities. Addressing this gap is crucial to helping the Batwa overcome historical disadvantages, increase income, and achieve long-term sustainability in a tourism-dependent area.

2.5 Natural capital access and sustainable livelihood outcomes

Natural resources, such as land, water, and biodiversity, serve as critical assets for vulnerable populations, providing the foundation for agricultural activities, income generation, and food security (Asante *et al.*, 2025). Equitable access and sustainable management of natural capital are essential for reducing vulnerability and fostering resilience among rural communities (Asante *et al.*, 2025).

Access to forests, water, and arable land is essential for sustaining local communities, providing food, raw materials, and income opportunities critical for sustainable livelihoods (Astaman *et al.*, 2024). Effective management of these resources ensures environmental preservation and economic viability, enabling communities to build resilience against socio-economic and environmental challenges (Astaman *et al.*, 2024). Additionally, adopting innovative practices and technologies can enhance the socio-economic and environmental benefits of natural capital (Asghar *et al.*, 2024).

Access to natural capital plays a critical role in enhancing household resilience, as it supports both economic stability and environmental adaptability (Ma & Wang 2023). In addition, integrated resource management, alongside access to diverse livelihood capitals can significantly strengthen resilience and improve living conditions for resettled communities (Ma & Wang 2023).

While these studies emphasize sustainable resource management and community-based initiatives there is limited focus on how these strategies specifically apply to marginalized communities like the Batwa. This research will provide empirical evidence on how tailored interventions and innovations can enhance the Batwa's resilience and sustainable livelihoods.

2.6 Human capital access and sustainable livelihood outcomes

Access to human capital, including education, skills development, and health services, is crucial for fostering sustainable livelihood out comes in tourism-dependent communities. (Kitole & Sesabo 2024). Tourism provides economic opportunities, but without adequate human capital, local populations may struggle to fully capitalize on these opportunities. It's important to invest in education and training to enhance neighborhood's capability to participate in diversified commercial activities, thus ensuring long-term poverty reduction and sustainability (Kitole & Sesabo 2024).

Enhancing human capital, such as increasing farmers' access to education, training, and resources, equips farmers with knowledge and skills and they are better able to adopt agricultural practices that are more resilient to wildlife disruptions (Rusoke, 2024). Furthermore, fostering human capital development in such areas contributes to long-term poverty alleviation and ecological conservation (Rusoke, 2024).

Human capital, which includes education, skills, and health, is a fundamental component in enabling communities to not only survive but also thrive in tourism-dependent regions (Huang *et al.*, 2024). Empowering local populations through capacity-building initiatives, ensuring they have the necessary resources and knowledge to improve their livelihoods (Huang *et al.*, 2024). Furthermore, strengthening human capital, ethnic tourism destinations can achieve sustainable development while reducing poverty, as it allows communities to diversify income sources, enhance resilience to external shocks, and preserve their cultural heritage

Human capital is essential in strengthening the ability of localities to adjust to environmental and fiscal constraints. Access to human capital allows people to have alternative revenue streams to enhance their adaptive capacity to external shocks, particularly in coastal regions dependent on tourism and natural resources. Integrating human capital with other forms of capital, such as social, financial, and natural assets creates a more resilient and sustainable livelihood system (Wei *et al.,* 2024).

Policies focused on education, healthcare, and skill development play a critical role in empowering communities and enabling them to engage in diverse economic activities. There is need for policies that promote equitable access to resources, ensuring that vulnerable populations are included in the development process, ultimately contributing to both individual and community resilience (Sethy & Sha, 2024).

These studies emphasize that human capital education, skills, and health is key to sustainable livelihoods in tourism-dependent communities. Kitole & Sesabo (2024) highlight the need for education and training to help communities capitalize on tourism. Rusoke (2024) stresses human capital's role in agricultural resilience and poverty reduction. (Huang *et al.*, 2024) discuss how human capital enables income diversification in ethnic tourism areas, while Wei

et al. (2024) stress its integration with other capitals for resilience and Sethy & Sha (2024) advocate for policies promoting equitable access to education.

However, these studies overlook marginalized groups like the Batwa, who face barriers in accessing human capital. Studying the Batwa's human capital access is crucial in understanding how improving their education, skills, and health foster sustainable livelihoods outcomes.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter shows the approach that was used to gather the relevant data of this research. It covers the research design, the population and sample for the study, sources of data, methods for data collection, variable measurement, the reliability and validity of the instruments used, data handling and analysis, as well as ethical considerations.

3.1 Research Design

The study employed a cross-sectional research design. It is considered more appropriate as it helps collect data on several variables from respondents within a limited time frame and at one point in time (Creswell & Poth, 2018). The study took a Quantitative approach to systematically measure and analyze the bond between livelihood capital access and the sustainable livelihood outcomes of the Batwa.

3.2 Study Population

The study focused on the Batwa communities residing in Kisoro district, specifically those registered in the 2020 Bwindi Mgahinga Conservation Trust (BMCT) census, totaling 2,099 individuals. These communities are primarily located in the settlements of Mgahinga, Rushaga, and Nkuringo. The Batwa, an indigenous group, are of particular interest due to their unique socio-economic challenges and historical marginalization, which impact their access to livelihood capital and sustainable outcomes.

3.2.1 Unit of Analysis and Inquiry

The unit of analysis for this study was the individual Batwa members within the settlements of Mgahinga, Rushaga, and Nkuringo in Kisoro district. The unit of inquiry was adults in the Batwa households because they actively take part in fending for livelihoods of their families.

3.3 Sample Size

A sample of 327 participants was selected for the study, determined using the Krejcie and Morgan (1970) statistical table, which ensures a representative sample for a population of this size. This sample size was designed to provide statistically significant insights into the livelihood dynamics of the Batwa in Kisoro. The selection aimed to balance feasibility with the need for robust data about livelihood capital access and the sustainable livelihood outcomes of the Batwa.

Table 3.1: Showing Population, Sample size and number of responses

Settlement	Population	Sample Size	Response
Mgahinga	937	146	121
Rushaga	581	91	75
Nkuringo	581	90	75
Total	2099	327	271

Source: Bwindi Mgahinga Conservation Trust (BMCT), 2020

3.4 Sampling Procedures

The study utilized stratified purposive sampling to ensure equitable representation of the Batwa population across the three settlements of Mgahinga, Rushaga, and Nkuringo in Kisoro. From a total population of 2099 individuals, it was divided into three strata based on these distinct settlement areas, with each stratum defined by its geographical location and population size, as provided by the Bwindi Mgahinga Conservation Trust (BMCT, 2020). The sample size for each stratum was determined using the Krejcie and Morgan (1970) statistical table, which allocated proportional samples based on the population size of each settlement: Mgahinga (937 residents, 146 samples), Rushaga (581 residents, 91 samples), and Nkuringo (581 residents, 90 samples), resulting in a total sample of 327 participants. Within each stratum, participants to participate in the study were selected using purposive sampling, where adults who engage in looking for livelihoods for their households where chosen as respondents. The researcher recognized the potential for non-response bias arising from the Batwa community's historical

marginalization and limited trust in outsiders. To mitigate this, local leaders and facilitators were engaged to introduce the study and encourage participation, thereby fostering trust, improving response rates, and ensuring a more representative inclusion of Batwa perspectives within the research. This approach ensured proportional representation, minimized bias, and enhanced the reliability of the study's findings on livelihood capital access and sustainable livelihood outcomes for the Batwa.

3.5 Data Sources

Primary and secondary data sources was used.

3.5.1 Primary Data

The research employed structured questionnaires while gathering primary information from respondents. These questionnaires focused on gathering information concerning firm livelihood capital access and sustainable livelihoods of the Batwa.

3.5.2 Secondary Source

A systematic review of published and unpublished academic literature provided secondary data on livelihood capital and sustainable outcomes for the Batwa in Kisoro. This data informed the literature review by identifying key variables and contextual insights. It also guided the interpretation of findings, ensuring alignment with existing research and highlighting gaps in knowledge. The review process ensured a robust foundation for analyzing the Batwa's livelihood dynamics.

3.6 Data Collection Methods

3.6.1 Questionnaire

In this study, the researcher employed a structured questionnaire to collect data, administered with the assistance of three research assistants, each assigned to one of the Mgahinga, Rushaga, and Nkuringo settlements in Kisoro. The assistants interpreted questions for respondents,

particularly illiterate Batwa, ensuring comprehension and accurate responses. This approach facilitated effective data collection from a large sample, capturing quantitative data as supported by Creswell (2014). Questionnaires were completed at respondents' convenience during the study period. Questionnaires were divided into sections covering various aspects of the study.

3.7 Measurement of Variables

3.7.1 Livelihood Capital Access

Since social, financial, physical, natural and human capital access are indicators of livelihood capital access adapted for this study. Physical capital access was measured through the availability of roads, housing, energy, information and communications technology. Social capital access was measured based on the extent of access to social networks and representation. Financial capital access was measured by access to savings, credit, wages. Natural capital access was gauged by access to land, water, and forest resources. Human capital access was determined by the availability of knowledge and skills (Scoones, 1998; Kiconco *et al.,* 2025).

3.7.2 Sustainable livelihood outcomes.

Sustainable livelihoods outcomes was evaluated using three key indicators: employability, improved incomes, and reduced vulnerability. Employability focused on access to employment opportunities and skill development programs. Improved incomes analyzed changes in household income levels. Reduced vulnerability assessed resilience to economic, environmental, and social shocks, considering safety nets, income diversification, and adaptive strategies. (Scoones, 1998; Kiconco *et al.,* 2025).

3.8 Validity and Reliability of the questionnaire

3.8.1 Validity

To ensure the questionnaires are clear, relevant, and comprehensive, the researcher collaborated with multiple research experts to identify and correct any errors in the content. Subsequently, the finalized questionnaires went through a pre-testing phase with selected respondents to validate the data collection tool. This process aimed to ensure that the questionnaire accurately captures and quantifies the intended measurements. The content validity of the study's questionnaires was evaluated using the Content Validity Index (CVI), following guidelines from Nunnally (1978). A CVI score exceeding 0.70 indicates that the questionnaires are appropriate and relevant for the research objectives. The same threshold was applied to this study. The Content Validity Index (CVI) results were presented in Table 3.2.

Table 3.1: Content Validity Index

Global variable	CVI	Number of items
Livelihood Capital Access	0.722	26
Sustainable livelihood outcomes	0.824	14

Source: primary data

3.8.2 Reliability

The reliability of the research instrument (questionnaire) was evaluated based on Cronbach's Alpha Coefficient test (Cronbach, 1951). This assessment was performed using Cronbach's Alpha Coefficient. As per Nunnally (1978), reliability coefficients of 0.70 or above are generally deemed acceptable. The researcher equally adopted the same threshold, and the reliability results are as shown in Table 3.3 below.

Table 3.3: Reliability Analysis

Variable	Cronbach alpha	Number of items
Livelihood Capital Access	0.704	26
Sustainable livelihood outcomes	0.740	14

Source: primary data

Results in the table 3.3 showed that all variables under the study had reliable items since the Cronbach's alpha statistic for all the variables were above the 0.70 threshold according to Nunnally and Nunnally (1978).

3.9 Data management and analysis.

The gathered quantitative data was organized, classified, and input into a computer system for systematic arrangement. Statistical analysis was then be performed using the Statistical Package for Social Sciences (SPSS) to consolidate the data. This analysis included calculating frequencies, percentages, means and standard deviations, offering a comprehensive overview of responses to Likert scale statements. Correlation and regression analysis was employed to examine relationships between background information and the research variables.

3.10 Ethical Considerations

To address ethical considerations during the study, the following measures were implemented:

I. To protect vulnerable participants, the researcher conducted preliminary meetings with Batwa community leaders to explain the purpose of the study and ensure participation would not put anyone at risk. questionnaires and interviews were also designed to avoid sensitive or stigmatizing questions that could distress participants.

II. For culturally sensitive engagement, the researcher used local translators fluent in the Batwa language and familiar with their cultural norms were engaged to facilitate communication. Community liaisons or respected elders accompanied the research team to build trust and ensure interactions were respectful.

III. Informed consent and voluntary participation were ensured by providing respondents with clear explanations of the study's purpose, procedures, and their rights in a language they understood. Consent was obtained either verbally or in writing, with an

emphasis that participation was voluntary and that respondents could withdraw from the study at any time without any penalty.

IV. Confidentiality and anonymity was adhered to by coding and storing data securely to prevent identification of individual participants. Any reporting or publication of findings ensured that no personal identifiers were revealed, protecting participants from potential social repercussions.

V. When reporting results, the researcher ensured that both the proposal and the final report strictly complied with Makerere University Business School's plagiarism and academic integrity guidelines.

CHAPTER FOUR

RESULTS PRESENTATION AND INTERPRETATION

4.0 Introduction

This chapter analyzes the findings of the investigation. This chapter outlines the study, the demographic attributes of the respondents, the descriptive statistics of the variables, and the outcomes of the regression and correlation analyses. The research objectives of the study were: to investigate the correlation between access to physical capital and the sustainable livelihood outcomes of the Batwa; to ascertain the relationship between access to social capital and the sustainable livelihood outcomes of the Batwa; to evaluate the connection between access to financial capital and the sustainable livelihood outcomes of the Batwa; to analyze the association between access to natural capital and the sustainable livelihood outcomes of the Batwa; and to explore the relationship between access to human capital and the sustainable livelihood outcomes of the Batwa.

4.1 Response rate

Of the 327 sent questionnaires, 271 were returned, yielding a response rate of 82.9%, which is sufficient for obtaining accurate and reliable results. Mugenda and Mugenda (2003) state that a response rate of 50% is considered acceptable, 60% is viewed as commendable, and above 70% is categorized as excellent. Kothari (2004) posits that a 50% response rate is acceptable, 60% is praiseworthy, and over 70% is exceptional. The stated claim indicates that a response rate of 82.9% in this study is praiseworthy.

Table 4.1: Response Rate

Targeted respondents	Attained respondents	Response rate
327	271	82.9%

Source: Primary data

4.2 Background information about respondents

This section provides information on the demographic characteristics of the survey participants. The examined demographic data encompass respondents' age, gender, educational attainment, income source, and monthly earnings.

Table 4.2: Showing Respondent Characteristics

Variable N=271	Description	Frequency	Percentage (%)
Age group	under 18 yrs	10	3.7
	18-24 yrs	58	21.4
	25-34 yrs	67	24.7
	35-44 yrs	61	22.5
	45-54 yrs	25	9.2
	55 yrs & above	50	18.5
	Total	**271**	**100.0**
Gender	Male	142	52.4
	Female	129	47.6
	Total	**271**	**100.0**
Education Background	No Structured Schooling	151	55.7
	Elementary Education	81	29.9
	High School Education	17	6.3
	Vocation Qualification	10	3.7
	Others	12	4.4
	Total	**271**	**100.0**
Income stream	Monthly Work Pay	8	3.0
	Daily Work Pay	75	27.7
	My Business Earnings	7	2.6
	Help From Family	24	8.9
	Support From People	157	57.9
	Total	**271**	**100.0**
Monthly Income	Less Than 200,000shs	243	89.7
	200,000shs to 400,000shs	28	10.3
	Total	271	100.0

Source: Primary data.

Table 4.2 indicates that the most prevalent age group among Batwa respondents in Kisoro was 25–34 years (24.7%), followed by the 35–44 years group (22.5%), and the 18–24 years group (21.4%). Individuals aged 55 years and above made 18.5%, those aged 45–54 years represented 9.2%, and the minority under 18 years were 3.7%. This suggests that the Batwa population involved in livelihood activities predominantly comprises young and middle-aged adults, with a minimal presence of elderly individuals. The substantial engagement of individuals aged 18

to 34 years (46.1%) clearly reflects their active role in sustainable livelihood initiatives, likely driven by the need to support families and improve their economic conditions.

Table 4.2 reveals that male respondents comprised 52.4% of the sample, while female respondents represented 47.6%. This virtually equal representation indicates that both men and women are actively involved in subsistence activities among the Batwa in Kisoro. The predominance of males in the sample can be attributed to men's superior access to income-generating opportunities outside traditional domestic roles, whereas women often manage household responsibilities, which may limit their participation in certain livelihood programs despite their significant representation in the sample.

Table 4.2 reveals that the majority of respondents (55.7%) possessed no formal education, followed by 29.9% with elementary education, 6.3% who completed high school, 3.7% with vocational qualifications, and 4.4% with other educational backgrounds. The high prevalence of limited formal education suggests that numerous Batwa rely on informal or community-based skills for their livelihood. The lack of higher education may restrict access to formal employment, necessitating respondents to participate in sustainable livelihood activities such as agriculture, crafts, or ecotourism to sustain their households. The Batwa's comprehension of the self-administered questionnaire was facilitated by using aid of local leaders who were engaged to introduce the study and encourage participation, fostering trust and ensuring representative inclusion.

Table 4.2 reveals that 57.9% of respondents relied on external support, followed by 27.7% who earned daily earnings, 8.9% who got familial aid, 3.0% who earned monthly wages, and 2.6% who generated revenue via entrepreneurial ventures. This considerable dependence on foreign aid highlights the economic vulnerability of the Batwa community, marked by limited access to stable income sources. The need on daily work and external support signifies that sustainable

livelihood efforts, such community-based enterprises, are crucial for reducing dependence and fostering economic self-sufficiency.

Table 4.2 indicates that 89.7% of respondents earned less than 200,000 UGX, while only 10.3% earned between 200,000 and 400,000 UGX. This low-income profile underscores the economic challenges faced by the Batwa, with the majority living outside a sustainable income threshold. Engaging in sustainable livelihood activities, such as ecotourism or small-scale agriculture, is a crucial method for increasing income and improving household living standards; nevertheless, the often-low earnings suggest limited access to high-value economic opportunities.

4.3 Descriptive Statistics

Table 4.3 presents a summary of descriptive statistics for the independent and dependent variables analyzed in the study of sustainable livelihood outcomes among the Batwa in Kisoro. The independent variable is access to livelihood capital, which includes natural, financial, social, physical, and human resources, whereas the dependent variable is sustainable livelihood outcomes. The elements were assessed to understand their influence on improving household livelihoods. Field (2009) and Saunders et al. (2007) assert that descriptive statistics, such as the mean, provide an accurate representation of the data when the estimation process suitably reflects the observed values. The table below displays the mean, standard deviation (SD), and the minimum and maximum values for each variable.

Table 4.3: Descriptive Statistics

Item N=271	Mini	Max	Mean	SD
Natural Capital Access	1.00	3.20	2.0480	.46911
Financial Capital Access	1.00	4.33	2.3020	.73307
Social Capital Access	1.00	4.25	2.7242	.62196
Physical Capital Access	1.57	3.43	2.4902	.40839
Human Capital Access	1.00	5.00	2.9834	.79010
Sustainable Livelihood Outcomes	1.79	4.36	2.4665	.47642
Valid N (listwise)				

Source: primary source

Table 4.3 displays the average values for access to natural capital (2.0480), financial capital (2.3020), social capital (2.7242), physical capital (2.4902), human capital (2.9834), and sustainable livelihood outcomes (2.4665). The standard deviations for these variables are 0.46911, 0.73307, 0.62196, 0.40839, 0.79010, and 0.47642, respectively. Field (2009) contends that a minimum standard deviation relative to the mean indicates that the calculated mean is a reliable representation of the observed data. The study's low standard deviations (all below 1) signify that responses are closely clustered around the mean, reflecting consistent perceptions among respondents.

The standard deviation (SD) measures the variability of respondents' attitudes in relation to the mean scores. A greater standard deviation indicates heightened heterogeneity in opinions, while a lower standard deviation (approaching 0) reflects consensus. This study indicates that the average values for all variables are below 3.00, demonstrating moderate agreement among respondents regarding the importance of capital availability for sustainable lifestyles. The standard deviations, ranging from 0.40839 to 0.79010, are rather small, suggesting that the Batwa respondents in Kisoro share similar views regarding the importance of natural, financial, social, physical, and human resources in achieving sustainable livelihood outcomes. These findings highlight the substantial influence of capital access on improving sustainable livelihood outcomes for households in the Batwa community.

4.4 Correlation Results

Table 4.4 presents the correlation analysis utilizing Pearson’s correlation coefficient to examine the relationships between the predictor variable, access to livelihood capital (natural, financial, social, physical, and human capital), and the outcome variable (sustainable livelihood outcomes) among the Batwa in Kisoro. The objective was to determine linear relationships among these variables. Pearson's correlation coefficient (r), a parametric statistic requiring

interval data for both variables, was employed (Garson, 2012). Bivariate correlation analyses were conducted to evaluate the strength and direction of these connections, with results represented as Pearson correlation coefficients (Field, 2009).

Table 4.4: Correlations

	1	2	3	4	5	6	7	8	9	10
Natural Capital Access (1)	1									
Financial Capital Access (2)	.222**	1								
Social Capital Access (3)	.311**	.383**	1							
Physical Capital Access (4)	.211**	.244**	.171**	1						
Human Capital Access (5)	.107	.100	.335**	.297**	1					
Access to livelihood capital (6)	.524**	.717**	.672**	.603**	.576**	1				
Reduced Vulnerability (7)	-.158**	.119*	-.048	.242**	.050	.092	1			
Employability (8)	-.207**	.089	-.159**	.181**	-.087	-.026	.377**	1		
Improved incomes (9)	.037	.050	.076	.330**	.326**	.257**	.478**	.238**	1	
Sustainable Livelihood Outcomes (10)	-.157**	.116	-.069	.323**	.106	.128*	.818**	.741**	.714**	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Source: primary data

4.4.1 The relationship between physical capital access and sustainable livelihood outcomes in Batwa

The results in Table 4.4 show a significant relationship between physical capital access and sustainable livelihood outcomes among the Batwa ($r = .323^{**}$, $p < .01$). This suggests that improved access to physical capital, such as roads and housing infrastructure or tools, is associated with enhanced sustainable livelihood outcomes, indicating that investments in physical resources may contribute to better living standards for the Batwa community.

4.4.2 The relationship between social capital access and sustainable livelihood outcomes in Batwa

Table 4.4 indicates a non-significant relationship between social capital access and sustainable livelihood outcomes ($r = -.069$, $p > .05$). This implies that changes in social capital access, such

as community networks or social support, do not significantly influence sustainable livelihood outcomes among the Batwa, suggesting that social capital may play a limited role in driving livelihood improvements in this context.

4.4.3 The relationship between financial capital access and sustainable livelihood outcomes in Batwa

The results in Table 4.4 reveal a non-significant relationship between financial capital access and sustainable livelihood outcomes ($r = .116$, $p > .05$). This indicates that while increased access to financial resources may slightly contribute to improved livelihoods, the effect is not statistically significant, possibly due to limited financial opportunities or barriers faced by the Batwa in leveraging such resources effectively.

4.4.4 The relationship between natural capital access and sustainable livelihood out comes in Batwa

Table 4.4 shows significant relationship between natural capital access and sustainable livelihood outcomes ($r = -.157^{**}$, $p < .01$). This suggests that greater access to natural resources, such as land or forests, is inversely related to sustainable livelihood outcomes, potentially indicating over-reliance on natural resources or challenges in sustainable resource management among the Batwa.

4.4.5 The relationship between human capital access and sustainable livelihood outcomes in Batwa

The results in Table 4.4 indicate a non-significant relationship between human capital access and sustainable livelihood outcomes ($r = .106$, $p > .05$). This implies that while improvements in human capital like education, skills, or health may contribute to better livelihoods, the relationship is not strong enough to be statistically significant, possibly due to limited access to quality education or training opportunities for the Batwa.

4.5 Regression Results

Regression analysis was performed to assess the predictive capacity of access to livelihood capital (natural, financial, social, physical, and human capital) on sustainable livelihood outcomes among the Batwa in Kisoro. Table 4.5 illustrates the degree to which these independent variables account for the variance in the dependent variable, sustainable livelihood outcomes.

The Adjusted R^2 value reflects the model's generalizability, with a value near R^2 indicating strong predictive ability. Table 4.5 encapsulates the regression findings, comprising unstandardized and standardized coefficients, t-values, and significance levels.

Table 4.5: Shows the regression results of the study variables

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.905	.200		9.538	.000
	Natural Capital Access	-.228	.061	-.224	-3.752	.000
	Financial Capital Access	.080	.040	.124	1.991	.048
	Social Capital Access	-.095	.050	-.124	-1.887	.060
	Physical Capital Access	.402	.071	.344	5.672	.000
	Human Capital Access	.034	.037	.057	.928	.354
	R=.419[a], R^2=.175, Adjusted R^2=.160, F=11.259, Sig=.000, e=.43674					

a. Dependent Variable: Sustainable Livelihood Outcomes

Source: Primary Data

The regression model in Table 4.5 indicates that the independent variables access to livelihood capital (natural, financial, social, physical, and human capital) account for 16% of the variance in sustainable livelihood outcomes (Adjusted R^2 = .160). This signifies that 84% of the diversity in sustainable livelihood outcomes is ascribed to characteristics excluded from this study. According to the sustainable livelihood framework, these include livelihood strategies, the vulnerability context, and policies, institutions, and processes. The vulnerability context comprises shocks, long-term trends, and seasonal fluctuations affecting resource access. Policies, institutions, and processes mediate asset access and shape feasible livelihood

strategies. Livelihood strategies, whether specialized or diversified, serve as the means through which individuals convert their available assets into tangible livelihood outcomes (Scoones, 2015).

Physical capital's positive and significant impact stems from its role in enhancing Batwa access to infrastructure, tools, and transport, enabling efficient resource use and market participation in Kisoro's rugged terrain. In contrast, natural capital's negative effect arises from restrictive conservation policies restricting Batwa from full utilisation; financial capital's marginal benefits are limited by exclusion from credit and limited financial literacy; social capital's weak networks fail to provide robust support; and human capital's insignificance reflects skill gaps mismatched to local opportunities.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a comprehensive examination of the outcomes in relation to the study's objectives. It comprises suggestions for further research, along with limitations and conclusions. The following items are presented in the list below.

5.1 Results Discussion

This study sought to investigate the correlations between access to physical capital and the sustainable livelihood outcomes of the Batwa, access to social capital and their sustainable livelihood outcomes, access to financial capital and their sustainable livelihood outcomes, access to natural capital and their sustainable livelihood outcomes, as well as the relationship between access to human capital and their sustainable livelihood outcomes. This discussion aligns the findings with the study's objectives and integrates relevant literature for a comprehensive overview.

5.1.1 Physical Capital Access and Sustainable Livelihood Outcomes

The findings study indicated that there is a significant correlation between physical capital access and sustainable livelihood outcomes ($r = .323^{**}$, $p < .01$), with regression results in Table 4.5 confirming physical capital as the strongest predictor ($\beta = .344$, $p < .001$). This signifies that access to physical capital, whether infrastructure, tools, or housing, substantially improves the livelihoods of the Batwa. Enhanced physical capital presumably promotes engagement in economic activities, such as tourism-related enterprises, by enhancing market access, transportation, and stable living conditions. The Batwa, having experienced historical relocation and marginalization, might achieve economic stability and resilience with access to physical infrastructure, such as roads or community centers, which facilitates participation in

income-generating activities like craft production or guiding services. Critically, this positive dominance contradicts Sustainable Livelihood Framework's balanced capital interplay by prioritizing physical assets amid Batwa evictions, originally contributing Batwa-specific regression evidence for infrastructure-led policy reforms in tourism enclaves.

These results align with prior research. Munanura et al. (2021) claimed that physical capital, including transportation and housing, is vital for improving living conditions and promoting economic activity in rural regions. Shi et al. (2024) assert that infrastructure, such as roads and irrigation systems, promotes economic diversification by reducing reliance on conventional agriculture, which is vital for the Batwa, who encounter limited access to cultivable land due to conservation policies. Aazami and Shanazi (2020) contend that well-managed physical capital, encompassing tourism facilities, enhances income potential while fostering environmental preservation, thus harmonizing economic and ecological sustainability. Furthermore, Ali (2022) underscores the importance of digital tools and intelligent systems in enhancing resource management and market access, suggesting that the integration of technology with physical infrastructure could further improve the Batwa's livelihoods. Access to digital platforms may connect Batwa artisans to additional markets, so augmenting their economic prospects. The Batwa's limited access to advanced infrastructure highlights a shortcoming that has to be addressed to enhance the benefits of physical capital for sustainable living.

5.1.2 Social Capital Access and Sustainable Livelihood Outcomes

The study findings revealed non-significant association between access to social capital and sustainable livelihood outcomes ($r = -.069$, $p > .05$), with regression analysis indicating no significant predictive effect ($\beta = -.124$, $p = .060$). This suggests that community networks, trust, and social interactions have a little impact on improving livelihoods among the Batwa.

The lack of significance may stem from the historical marginalization of the Batwa, which has limited their access to large institutional networks and obstructed the development of linking social capital. The Batwa's displacement from their ancestral lands has likely eroded community cohesion and trust, hence reducing the effectiveness of social networks in facilitating resource sharing or collective action in tourism-related initiatives. This insignificance challenges Sustainable Livelihood Framework's expectation of social capital as a resilience buffer, innovatively exposing Batwa isolation's erosion of networks and urging targeted NGO linkages for marginalized indigenous cohorts.

The findings contradict Kunjuraman (2024), who asserts that social capital is essential for community-based ecotourism, since it fosters collaboration, information distribution, and collective action, hence enhancing access to resources and markets. Zhang et al. (2024) emphasize the importance of social capital, which connects communities to institutional resources like government aid or NGOs, a dimension likely underdeveloped among the Batwa due to their marginalization from formal systems. Wei, Xu, and Wall (2024) contend that social capital mitigates economic and environmental challenges by enabling resource access and collaborative action, an advantage that the Batwa may not really grasp due to their social isolation. Mahato and Jha (2024) assert that social capital supports women entrepreneurs by enhancing access to financial and market resources; yet, the Batwa's limited social networks, particularly for women with domestic responsibilities, may impede these opportunities. Strengthening social capital through partnerships with NGOs or tourism boards could improve the Batwa's resource access and enhance their livelihood results.

5.1.3 Financial Capital Access and Sustainable Livelihood Outcomes

The study's findings revealed a non-significant connection between access to financial capital and sustainable livelihood outcomes ($r = .116$, $p > .05$), while regression analysis suggests

marginal significance ($\beta = .124$, $p = .048$). This suggests that while access to financial resources, such as credit or income, marginally contributes to improving lives, its impact is limited among the Batwa. Factors such as insufficient financial literacy, limited access to credit, and exclusion from official financial systems, as noted by Kesande (2023), certainly hinder significant effects. The Batwa, who rely heavily on external support (57.9% of respondents, Table 4.2), encounter constraints in dependable financial resources, impeding their ability to invest in income-generating enterprises such as tourism businesses or skill development. Marginal effects defy Sustainable Livelihood Framework's financial enabler role amid exclusion, originally quantifying Batwa literacy gaps to advocate microfinance models calibrated for evictee poverty traps.

These findings correlate with previous studies. Kiconco et al. (2025) emphasize the imperative for equitable financial access in communities next to parks to leverage tourism opportunities, noting that the marginalization of the Batwa limits their financial inclusion. Kyeyune and Ntayi (2025) underscore the importance of financial literacy in empowering rural communities to manage resources effectively, a shortcoming observed among the Batwa, whose 55.7% lack formal schooling (Table 4.2). Gunashekhar et al. (2024) assert that financial capital enables investments in education and entrepreneurship, which are crucial for young in tourism-dependent areas. For the Batwa, targeted financial initiatives, such as microcredit programs or savings cooperatives, could enhance their ability to establish small businesses or participate in tourism; however, systemic barriers such as discrimination and inadequate collateral must be addressed to ensure improved sustainable livelihood outcomes.

5.1.4 Natural Capital Access and Sustainable Livelihood Outcomes

The study findings indicated a significant relationship between access to natural capital and sustainable livelihood outcomes ($r = -.157^{**}$, $p < .01$), with regression analysis corroborating a negative predictive effect ($\beta = -.224$, $p < .001$).

This suggests that heightened reliance on natural resources, such as forests or land, may threaten the sustainable livelihoods of the Batwa, either due to unsustainable practices or restricted access following their displacement from protected areas. Conservation restrictions limiting land use and resource extraction have likely exacerbated vulnerabilities, as 89.7% of respondents earn less than 200,000 UGX monthly (Table 4.2), indicating restricted alternative income sources. This negative link subverts Sustainable Livelihood Framework's natural capital as foundational asset, pioneering Batwa eviction data to critique conservation's unintended poverty reinforcement and propose rights-restoration hybrids.

These findings are linked to previous studies. Asante et al. (2025) assert that equitable and sustainable management of natural resources, such as land and water, is essential for reducing vulnerability and improving resilience. However, for the Batwa, restricted access to ancestral lands due to conservation efforts, as noted by Ma and Wang (2023), limits their ability to capitalize on natural resources. Astaman et al. (2024) assert that access to forests and cultivable land promotes revenue generation; yet, unsustainable practices may exhaust resources, hence threatening livelihoods. Asghar et al. (2024) assert that innovative approaches, such as agroforestry and sustainable tourism, might enhance natural capital advantages; nevertheless, the Batwa's lack of training and land rights hinders such execution. Tailored community-oriented resource management initiatives for the Batwa's context could mitigate these challenges and promote sustainable lifestyles.

5.1.5 Human Capital Access and Sustainable Livelihood Outcomes

The study results revealed a non-significant correlation between access to human capital and sustainable livelihood outcomes ($r = .106$, $p > .05$), while regression analysis suggested no significant predictive effect ($\beta = .057$, $p = .354$). This suggests that access to education, skills, and healthcare significantly limits Batwa livelihoods, likely due to systemic barriers such as low educational attainment (55.7% lacking formal schooling, Table 4.2) and limited access to training opportunities. The Batwa's historical exclusion from formal education and healthcare impedes their ability to develop skills relevant to tourism-related opportunities, such as guiding and hospitality. Insignificance belies Sustainable Livelihood Framework's human capital multiplier effect via exclusion, originally mapping Batwa skill deficits to blueprint culturally attuned vocational pathways for indigenous tourism equity.

These findings are associated with prior investigations. Kitole and Sesabo (2024) contend that human capital is crucial for optimizing tourism potential, as education and training enable income diversification. Huang et al. (2024) note that human capital promotes sustainable development in ethnic tourist zones by enhancing resilience and preserving cultural legacy, benefits that the Batwa may lose due to educational disparities. Rusoke (2024) asserts that human capital empowers communities to adopt resilient practices, whereas Wei et al. (2024) highlight its relationship with other capital types for comprehensive livelihood systems. Sethy and Sha (2024) advocated for initiatives that ensure equitable access to education, thereby enabling the Batwa to engage in diverse economic activities. Targeted training programs in tourism and entrepreneurship could mitigate this discrepancy, enhancing the Batwa's capacity to attain sustainable livelihoods.

5.2 Conclusion

The primary objective of this study was to examine the relationships between access to livelihood capital comprising (physical, social, financial, natural, and human capital) and sustainable livelihood outcomes among the Batwa, an Indigenous community in Kisoro, Uganda, located in a tourism-dependent region. A survey was administered to 271 individuals from three Batwa community settlements in Kisoro: Mgahinga, Rushaga, and Nkuringo, achieving a response rate of 82.9% concerning access to livelihood capital (physical, social, financial, natural, and human) and sustainable livelihood outcomes among the Batwa.

The regression analysis indicates that access to livelihood capital (physical, social, financial, natural, and human capital) explains 16% of the variance in sustainable livelihood outcomes (Adjusted $R^2 = .160$). This suggests that, while access to livelihood capital is significant, a considerable 84% of the variance is attributable to unmeasured factors, such as livelihood strategies, the vulnerability context, policies, and institutions.

Access to physical capital appeared as the most significant predictor, underscoring its vital role in enhancing Batwa livelihoods. Conversely, access to natural capital had a significant negative connection with sustainable livelihood outcomes, indicating that reliance on natural resources, such as forests or land, may threaten long-term sustainability. This is likely due to conservation policies restricting the Batwa's access to ancestral lands, coupled with unsustainable resource exploitation practices.

The availability of financial capital had a marginally significant benefit, suggesting that while financial resources improve livelihoods, challenges such as limited loan access and insufficient financial literacy remain. Social capital and human capital were inconsequential predictors, reflecting the Batwa's historical marginalization, which has restricted their access to social networks, education, and skill development.

The data unequivocally demonstrate that access to livelihood capital, including physical, social, financial, environmental, and human capital, significantly influences sustainable livelihood outcomes among the Batwa.

Originally, this research pioneers a Batwa-specific quantification of capital-outcome linkages in Kisoro's tourism enclave, offering empirical baselines absent in prior generalized studies (e.g., Kiconco et al., 2025), and highlights counterintuitive negatives like natural capital's detriment as a novel critique of conservation-driven displacements. Theoretically, these insights extend Sustainable Livelihood Framework by advocating vulnerability mediation models tailored to indigenous evictees; future inquiries could explore mixed-methods integrations of livelihood diversification pathways or longitudinal policy impacts to foster resilient, culturally attuned interventions for the Batwa.

5.3 Recommendations

To address the Batwa community's limited access to physical capital, coordinated interventions are required across key sectors, including transport, housing, ICT, and energy.

The Kisoro District Local Government, in partnership with the Forest Peoples Programme (FPP) and the African Wildlife Foundation (AWF), should prioritize the construction of all-weather feeder roads linking Batwa settlements in Mgahinga, Rushaga, and Nkuringo to major trading centers. The District Engineer's Department should oversee road design and maintenance, while FPP and AWF mobilize resources and provide technical support. Improved road infrastructure will reduce physical isolation and enhance access to markets, education, and health services.

In terms of housing, the Ministry of Lands, Housing and Urban Development, working with Kisoro District and relevant NGOs, should implement community-based housing schemes that

promote affordable, culturally appropriate shelter. Training local artisans in construction skills and providing subsidized materials would improve housing quality while creating employment opportunities.

To promote digital inclusion, the Uganda Communications Commission (UCC) and the Ministry of ICT and National Guidance, in collaboration with private telecommunications providers such as MTN and Airtel, should extend network coverage and establish solar-powered community ICT hubs in Batwa settlements. These centers should provide digital literacy training and facilitate access to information on tourism, education, and agricultural markets.

Lastly, the Rural Electrification Agency (REA), in conjunction with renewable energy partners, should implement off-grid solar energy projects to ensure reliable access to lighting, communication, and small-scale enterprise development. Such initiatives would enhance productivity, improve living standards, and foster participation in sustainable tourism and agriculture.

Collectively, these interventions would strengthen the Batwa's physical capital base, reduce spatial marginalization, and create an enabling environment for inclusive and sustainable economic participation

5.4 Study Limitations

I. Exclusive use of a quantitative approach, restricted the ability to capture the nuanced and open-ended perspectives of participants. Incorporating qualitative methods could have provided deeper insights into personal experiences and contextual factors influencing sustainable livelihood outcomes.

II. Additionally, the study focused solely on access to livelihood capitals as predictors of livelihood outcomes. However, the findings suggest that other important factors such

as vulnerability context, livelihood strategies and policies and institutions which were not included in this study collectively account for approximately 84% of the variation in how sustainable livelihood outcomes can be achieved.

5.5 Areas for further research

I. Future research should adopt a mixed-methods approach that combines quantitative analysis with qualitative data collection to capture the lived experiences and perspectives of community members more comprehensively. This would provide richer contextual understanding of factors influencing sustainable livelihood outcomes.

II. Additionally, further studies should explore a broader range of predictors beyond livelihood capitals, including the vulnerability context, policies, institutional frameworks, and livelihood strategies. Investigating how these factors interact will offer a more holistic and nuanced understanding of the drivers behind sustainable livelihoods in indigenous communities.

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Questionnaire

Makerere University Business School

Dear respondent,

My name is Diana Persis Kisakye, a Master's student in Hospitality and Tourism Management at Makerere University Business School. I am conducting research on ***"Access to livelihood capital and Sustainable Livelihood out comes of the Batwa in Kisoro"*** as part of my academic requirements. I cordially invite your participation in this study by responding to the questionnaire. Your input will provide valuable insights to this research, and all information provided will be kept private and utlilised exclusively for scholarly purposes. I appreciate your time and support.

Section A: Demographics

Question	**Response Options (Tick the most appropriate)**
1. Age	☐ Under 18 ☐18-24 ☐25-34 ☐35-44 ☐ 45-54 ☐ 55 and above
2. Gender	☐ Male ☐ Female
3.Educational background	☐ No structured schooling ☐Elementary education ☐ High school education ☐Vocation qualification ☐ University Degree ☐ Other _____
4. Income stream	☐Monthly work pay ☐Daily work pay ☐ My business earnings ☐ Retirement pay ☐ Help from family ☐ Support from people ☐ Others
5. Monthly income.	☐ less than 200,000shs ☐ 200, 000shs to 400,000shs ☐ 400, 000shs and above

Section B: Access to livelihood Capital.

Use 1- Strongly disagree, 2-Disagree, 3-Neutral 4-Agree 5-Strongly agree

Statement	**Likert Scale**
NATURAL CAPITAL ACCESS	**Tick the most appropriate**
1.I can access land for farming without any restrictions from others.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
2. The land available to me is fertile and suitable for farming.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

3.There are no restrictions on my access to water sources near my community.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4.The water I access is clean and safe for drinking and cooking.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
5. I can collect firewood and other materials from nearby forests without restrictions.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
FINANCIAL CAPITAL ACCESS	**Tick the most appropriate**
1. I feel the village savings and loans schemes are a safe place to keep my savings.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
2. I feel the process of borrowing money is fair and does not cause me difficulties.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
3. I can borrow money as needed from a savings group.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4. I believe am compensated fairly at work.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
5.I receive my wages on time without delay	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
6. I believe I can now take part in community savings groups (e.g., SACCOs or village saving programs) because of my income.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
SOCIAL CAPITAL ACCESS	**Tick the most appropriate**
1. My community is well- represented in local policy making bodies.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
2.I feel that the interests of my community are considered when development programs are planned.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
3. I feel People in my community trust one another.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4. There are social support groups I can join in my community.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
PHYSICAL CAPITAL ACCESS	**Tick the most appropriate**
1. The road network in my area is reliable for accessing markets and social services.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
2. The quality of my shelter is sufficient to protect my family from bad weather conditions.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
3. The shelter I live in provides adequate privacy and space for my household.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4. Support programs (e.g., NGOs, government initiatives) have helped improve housing conditions in my community.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
5. My household has access to a reliable energy source.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
6. I feel that having access to affordable and clean energy sources would better my family's living conditions.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
7.My household has access to a mobile phone or similar devices for communication and information.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
HUMAN CAPITAL ACCESS	**Tick the most appropriate**
1.I have gained useful knowledge from programs or workshops organized in my locality.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

2. The information I receive about farming, crafts helps me improve my work.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
3. There are equal opportunities to education or training programs in my society.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4.I feel there are enough opportunities to learn and improve skills in my community.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Section C: Impact on Lives (Sustainable Livelihood Outcomes)

Question	**Response Options**
Reduced Vulnerability	**Tick the most appropriate**
1. I feel supported by my community during times of crisis	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
2. The relationships I have with others in my community reduce my household's risks.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
3. I feel the health facilities near my home adequately meet my household's medical needs.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4. I have multiple income-generating activities to reduce dependency on one source of livelihood.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
5. I feel financially secure enough to handle future uncertainties.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
6. I feel financially secure enough to handle future uncertainties	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Employability	**Tick the most appropriate**
1. There are sufficient employment opportunities in my community for me	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
2. I trust my ability to find a job if I actively seek one.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
3. I believe I possess skills required to find a job in my locality	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4.I feel the programs promoting employment in my community are inclusive and support Vulnerable populations	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Improved incomes	**Tick the most appropriate**
1.My household's income has risen relative to last year.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
2. My income is stable and reliable throughout the year	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
3. My savings have significantly grown over the year before.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
4. I possess sufficient disposable income after my expenses	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

DIANA PERSIS KISAKYE

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Annex

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