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Grassroots Solutions for Global Challenges: The Role of Self-Help Groups in Building Sustainable Livelihoods and Resilience to Climate Change in Nyakach, Kenya

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ABSTRACT

The impact of climate change in developing countries such as prolonged droughts, flooding and erratic rainfall, among other effects are increasingly driving agricultural-dependent households into deeper poverty each year. Addressing these challenges requires comprehensive adaptation and mitigation strategies involving both local and global efforts. Self-help groups (SHGs) are recognized as powerful instruments for empowering vulnerable groups, particularly women, by providing access to credit and health information. They also play a crucial role in climate change adaptation and mitigation, enhancing sustainable livelihoods for their members. However, this aspect has received limited attention in academic research. This study explores the nexus between SHGs, climate change mitigation, and sustainable livelihoods in Nyakach Sub County, a region where recurrent climate shocks exacerbate persistent poverty. A descriptive research design was employed, involving a sample of 384 respondents selected from members of 630 self-help groups (SHGs) in Nyakach Sub County, Kenya. The study's findings show that SHG members benefit from SHGs facilitated capital assets some of which that have not only led to reduced reliance on firewood, thus mitigating deforestation, but also facilitated a transition to alternative energy sources. This shift has enhanced their adaptive capacity to challenges posed by climate change. Furthermore, a significant correlation ($r_s=0.659$, $p=0.014$) was observed between SHG-associated resources and competencies in climate change mitigation and household sustainability. Additionally, collective action, such as participation in tree planting and trenching/water channelling to combat flood effects, strongly correlated with SHG-associated resources. Overall, the study concludes that SHG-linked assets and competencies play a vital role in enhancing climate change adaptation and the sustainable livelihoods of members. The study recommends increased emphasis on strengthening social capital within SHGs.

INTRODUCTION

Climate change is a global phenomenon that has a far-reaching impact on the environment and human societies. It is characterized by prolonged droughts, severe floods, and other extreme weather events that disproportionately affect populations based on their vulnerability and geographical location, intensifying poverty (Charles *et al.*, 2019). This phenomenon poses significant challenges to agricultural production and rural livelihoods, impacting approximately 2.5 billion people dependent on agriculture (Ali & Erenstein, 2017). According to Roy *et al.* (2018) a 1.5 °C increase in global temperatures would particularly harm disadvantaged and vulnerable groups, leading to food insecurity, increased food prices, income losses, health issues, and displacement. This impact is anticipated to be most severe among populations dependent on agriculture and coastal resources, including indigenous peoples, children, the elderly, laborers, and urban poor in African cities (Michaelsen *et al.*, 2020; p. 3). Recent studies (e.g., Christian *et al.*, 2019; Desai *et al.*, 2023; Walcott *et al.*, 2023) demonstrate that Self-Help Groups (SHGs) have empowered members, especially women, in various challenging contexts, including climate change mitigation. However, the specific contributions of SHG participation to climate change mitigation and sustainable livelihoods remain underexplored.

In developing countries, the SHG model is increasingly employed to assist communities in coping with livelihood shocks, enhancing food security, and building social capital (Tol *et al.*, 2020). SHGs typically consist of 15-20 members, often including the poorest community members, engaging in collective social and economic activities for empowerment (Walcott *et al.*, 2023). These groups vary in objectives, functions, size, governance, and formal institutional linkages (Desai *et al.*, 2023). Economic groups like SHGs, village savings and loan associations (VSLAs), and rotating credit and savings associations (ROSCAs) aim to promote financial inclusion by encouraging savings and providing lending opportunities (Desai *et al.*, 2023). SHGs often partake in a range of activities, including health, agriculture, advocacy, or community resource management, tailored to the unique socio-environmental contexts and developmental challenges of their members (Orchard *et al.*, 2020). Despite this, the impact of SHG participation on climate change mitigation and the improvement of rural household livelihoods warrant further investigation. Self-Help Groups (SHGs) are recognized for promoting development in rural and under privileged populations, particularly in developing countries. Through collective efforts and financial pooling, SHGs have helped in building resilience to shocks, including those from

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climate change, by providing access to credit for recovery from disaster-related losses. Yet, in Nyakach Sub County, Kenya, despite a high prevalence of SHGs, many still face challenges like food poverty, inadequate sanitation, limited access to clean water and reduced agricultural output due to climate variability. Previous research has established a link between SHG participation and livelihood diversification and empowerment, but the extent to which this contributes to enhancing sustainable livelihoods in the context of climate change impact is not well understood. It is therefore necessary to explore the specific assets and competencies developed through SHG participation that may facilitate climate change mitigation in member households. This study aims to investigate how SHG participation facilitates climate change mitigation and, in turn, enhances the sustainable livelihood of households in Nyakach Sub County, a community reliant on smallholder agriculture for food supply in Kenya.

This study therefore focuses on three key objectives. Firstly, it seeks to determine how assets and competencies developed through SHG participation contribute to building resilience to the impact of climate change on households. Secondly, the study aims to establish the specific ways in which these SHG-based assets and competencies facilitate climate change mitigation at the household level. Lastly, it intends to examine the relationships between SHG-derived assets and competencies in climate change mitigation and the sustainable livelihood of these households.

Generally, Documents begin with an introduction. It contains a brief idea of the work, the requirement for this research work, the problem statement, and the Author's contribution to their research. Adequate latest reference citations should be included for showing the prevailing challenges and importance of recent work. This section should be concise, with no subheadings unless unavoidable. State the objectives of the work and provide an adequate background related to your work, avoiding a detailed literature survey or a summary of the results.

LITERATURE REVIEW

In literature, the role of Self-Help Groups (SHGs) in enhancing sustainable livelihoods, particularly in the face of climate change, is an area of growing interest. A number of studies have highlighted the multifaceted impact of SHG-based assets and competencies, revealing a complex interaction between these community-led initiatives and wider socio-economic and environmental impacts. Research has consistently highlighted the critical role SHGs play in providing resources and skills that underpin the livelihoods of underprivileged families. For instance, Islam *et al.* (2022) emphasize that SHGs offer essential capital in the form of water harvesting tools, agricultural inputs, and credit facilities, which are vital for building resilience to climate-induced financial losses.

The empowerment of women through SHGs has been linked to increased agricultural diversity and food security.

Connors *et al.* (2023) observed that women's participation in SHGs is associated with a greater variety of food crops and nutrient-dense crops, suggesting that SHG-related empowerment can enhance resilience in food systems. Additionally, studies like that of Abdu, Marquis, Colecraft, Dodoo, and Grimard (2022) in Ghana have shown that women's involvement in farmer groups not only fosters empowerment and household gender parity but also positively influences household food security.

SHGs have also been recognized as a platform for capacity building in agriculture, especially for women. Ingutia and Sumelius (2022) found that women's decision to join farmer groups is often influenced by the prospect of accessing credit, which positively impact their agricultural productivity. Furthermore, Atieno (2016) demonstrated that participation in SHGs leads to improvements in household income, physical assets, and food production in Nyakach Sub County, Kenya.

Recent studies (such as (Michaelsen *et al.* 2020; Demont, 2022, Kwadwo & Moka 2024) highlight the impact of climate change on rural livelihoods. Michaelsen *et al.* (2020) have drawn attention to the increased vulnerability of agricultural communities to climatic variability, particularly in light of changed weather patterns. Within this context, Self-Help Groups (SHGs) have assumed a critical role in strengthening resilience against the shocks induced by these climatic variations. For instance, Demont (2022) demonstrated that SHGs empower households to more effectively cope with rainfall shocks, with access to credit serving as a key factor in this resilience. Other studies, such as Ali and Erenstein (2017) argue that farmers involved in SHGs are more likely to adopt climate change adaptation practices, leading to enhanced food security and reduced poverty levels. This suggests that SHGs can be instrumental in equipping farmers with the necessary strategies to cope with the changing climate.

The sustainable livelihood framework offers a lens through which the impact of SHGs can be further scrutinized. Studies by Guo, Xie, and Xu (2023) provide valuable insights into the factors influencing the sustainability of rural livelihoods, underscoring the importance of community-level interventions like SHGs. Moreover, the role of agroforestry, as highlighted by Islam *et al.* (2022), in enhancing various forms of capital, from physical to human, through SHG participation, illustrates the multifaceted benefits of such community initiatives (Olobia, 2023).

Theoretical Framework

This study was guided by Collective Action (CA) Theory and the Sustainable Livelihood Framework.

Collective Action (CA) Theory

Collective Action (CA) theory, developed by Mancur Olson in 1965, is a framework for understanding how groups, especially marginalized populations, can organize to achieve common goals and address public goods misnomers (Ostrom, 2015, Badejo, Majekodunmi,

Kingsley, Smith & Welburn, 2017). The main tenets of the theory include proactive actions aimed at solving public-goods misnomer facing marginalised populations in society such as women with regard to acquisition of assets and other competencies; actions capable of empowering the less privileged members of the community; and actions explicitly challenging social norms and constructions which limit the opportunities of the less privileged people including their household (Dhal, Lane, Srivastava 2020).

In this study, Collective Action (CA) theory is applied to examine the role of Self-Help Groups (SHGs) in addressing their members' challenges, such as adapting to climate change and enhancing the sustainability of their livelihoods, aligning with the arguments presented by Funnis (2017). The focus is on understanding how SHG members' collective behavior, through initiatives like local savings and credit schemes and diversifying income sources, contribute to improving their living conditions. As Atieno (2022) suggests, the core aim of CA theory in this context is to analyse how individuals within these groups collaborate to tackle socioeconomic challenges, highlighting the theory's applicability in exploring group dynamics in overcoming environmental and economic hardships.

The Sustainable Livelihood Framework (SLF)

The SLF is a comprehensive approach to understanding and addressing the challenges faced by communities, the complexities of poverty and vulnerability and informs strategies for sustainable development. It was developed by the Department for International Development (DFID) of the UK in the 1990s, drawing on earlier work by Chambers and Conway (Chambers and Conway, 1992). Its focus is on the multiple types of capital assets (human, social, natural, physical, and financial), the influence of external shocks and stresses such as climate change, the pivotal role of institutions and policies, the necessity for adaptive strategies, and a participatory, people-centered approach. In this study, the SLF is applied to examine how Self-Help Groups (SHGs) harness various forms of capital to facilitate resilience and sustainability. For example, how SHGs use their collective social and financial capital to adapt and diversify livelihood strategies, mitigate risks, and advocate for supportive policies and institutional arrangements that facilitate sustainable livelihoods. Therefore, the SLF provides a useful framework for identifying and understanding the diverse ways in which SHGs can empower individuals and communities to build resilience to climate change

MATERIALS AND METHODS

This study employed a cross-sectional descriptive research design, integrating both qualitative and quantitative methods to investigate the impact of self-help groups (SHGs) on building resilience to climate change. A stratified proportional sampling technique was used to select respondents from the three divisions of Nyakach

sub-county, ensuring representation proportional to the SHG population in each division. Quantitative data was collected through a survey administered to 384 members of the 630 SHGs, representing a total membership of over 9,450 individuals. The survey focused on understanding the assets and competencies gained from SHG participation and how these contribute to climate resilience. Additionally, qualitative data was gathered through key informant interviews and focus group discussions with purposively selected SHG members, government officials, and representatives from supporting organizations (both for-profit and non-profit).

Data Collection and Analysis

This research employed a multi-pronged approach to data collection, utilizing both qualitative and quantitative methods. The two primary instruments, developed by the researchers, were utilized: checklists and a semi-structured questionnaire. Content validity of the questionnaire was established through review by a panel of experts from Kisii University and experts from the departments of social services and agriculture. Qualitative data collection involved key informant interviews with SHGs officials, NGOs supporting SHGs, financial institutions, and local and national government representatives. These interviews were conducted using a semi-structured interview schedule (SSI) and audio-recorded with informed consent. Thematic analysis was employed to identify recurring themes and patterns within the qualitative data. Quantitative data collection used a survey questionnaire tool that was administered to participants. Data entry and analysis were conducted using SPSS version 25.0. Both descriptive and inferential statistics were employed, including frequencies, percentages, and means. The relationships between SHG-based assets and competencies in climate change mitigation and sustainable livelihood was determined using Spearman's Rank Correlations.

RESULTS AND DISCUSSION

SHG -Based Assets and Competencies

This section presents the analysis of assets and competencies acquired by members through their involvement in SHGs. The Sustainable Livelihoods Framework (SLF) is used as a lens, with the analysis highlighting the diverse range of assets gained through participation. These assets, categorized within the SLF framework, are able to enhance members' resilience against the challenges posed by climate change. From the data, members (24.7%) reported that they had acquired physical assets as a result of SHG participation including assets like water tanks, cooking gas, and solar panels for domestic use. These acquisitions suggest improved access to essential resources, potentially reduce vulnerability to climate impact. Social capital was reported by over twenty three percent (23.4%) who indicated that they had participated in collective action for environmental management, such as tree planting, trench building,

and water channeling as a result of SHG participation. This collaborative approach underscores the power of building resilience through improved natural resource management.

Over Eighteen percent (18.2%) reported having gone through SHG-organized training sessions, equipping members with life and business skills and some form of human capital development. This enhanced knowledge and abilities can empower individuals to navigate challenges and pursue income-generating opportunities.

Respondents (17.5%) reported having accessed financial capital benefits including the savings schemes, group insurance schemes and access to microloans. Over sixteen percent indicated having been involved in trainings that exposed them to soil conservation practices, rainwater harvesting systems, improved farm inputs and livestock breeds that contribute to the natural capital. These assets directly contribute to enhanced agricultural productivity and potentially improved livelihoods, particularly in the context of climate-related uncertainties.

Assets and Competencies categorized using SLF acquired through SHG Participation n=384

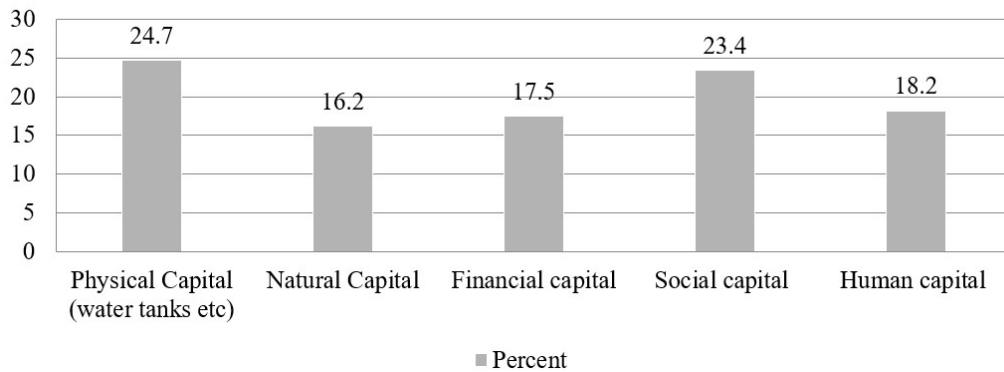


Figure 1: Assets and Competencies categorized using SLF acquired through SHG Participation

SHG -Based Assets and Competencies in Climate Change Mitigation

The study also sought to assess how the SHG-based assets and competencies have helped the respondents in building resilience to climate change impacts in the area. The researchers first sought to establish the manifestations of climate change in the study area. As

presented in Table 3 below the respondents noted that livestock and crop diseases (M=4.16; SD=.82), floods (M=3.86; SD=.85), and drought (M=3.82; SD=.77) have affected their farming activities over the years, resulting in low yields. For example, floods (M=4.21; SD=.83) had crops resulted in low yields among a number of respondents.

Table 1: Climate Change Manifestations

Climate Change Manifestations	N	M	SD
Floods			
Floods normally destroyed our homes leaving us with low-quality shelter	384	3.79	.91
Each year, our crops are destroyed by floods leaving us with very low yields	384	4.21	.83
Our sanitations are destroyed by floods each year causing water-borne diseases	384	3.59	.81
Mean		3.86	.85
Drought			
Prolonged drought has often affected our livestock hence low animal products	384	4.15	.73
Prolonged drought has often affected our crops hence poor yields	384	3.49	.81
Mean		3.82	.77
Livestock & Crop Diseases			
Appearance of strange diseases normally affect our livestock production	384	4.18	.81
Crop production on our farms has always been affected by strange diseases	384	4.14	.82
Mean		4.16	.82

The researchers proceeded to further analyse how SHG-based assets and competencies gained help in building resilience to climate change impact in the study area.

The SHG-based assets and competencies assessed included domestic equipment, improved livestock breeds, improved farm inputs, participation in collective and

skills acquired through SHG trainings. Table 2 presents the distribution of SHG-based assets and competencies in climate change mitigation.

Table 2 illustrates that in overall, SHG-based assets and competencies (M=3.72; SD=.83) are agreed upon by the sampled respondents to help them in building resilience to climate change impact in the study area. Of

importance are the skills acquired through participation in SHG training sessions (M=4.0; SD=.83), improved farm inputs (M=3.98; SD=.88) such as improved seed varieties and fertilizers received through SHG participation, and participation in group collectives (M=3.85; SD=.79) that have been noted as having helped the respondents very much in building resilience to climate change impacts.

Table 2: Distribution of SHG-based Assets and Competencies in Climate Change Mitigation

SHG-Based Assets & Competencies in Climate Change Mitigation	N	M	SD
Domestic Equipment			
SHG acquired water tanks has enabled me to have clean water for home use	384	3.59	.93
SHG acquired cooking gas has enabled me to have clean & efficient energy	384	3.21	.89
SHG acquired solar has enabled me to have clean & efficient lighting system	384	2.59	.85
Mean		3.13	.91
Improved Livestock Varieties (Chicken, goats, Sheep)			
Improved livestock varieties acquired from SHG has enabled me to expand my stock	384	3.75	.79
Improved livestock varieties acquired from SHG has enabled me to enhance my livestock products	384	3.49	.81
Mean		3.62	.80
Improved Farm Inputs			
Improved seed varieties acquired through SHG has enhanced my farm yields	384	3.98	.84
Fertilizers & Manure acquired through SHG has enhanced my farm yields	384	3.97	.92
Mean		3.98	.88
Participation in Collectives			
Tree planting through group collectives has enabled me to have enough trees on my compound	384	3.49	.82
Trench/water channeling through SHG collectives has reduced flooding on my compound	384	4.21	.76
Mean		3.85	.79
Skills Acquisition through SHG Participation			
Business skills acquired through SHG has enabled me diversify my income	384	4.12	.72
Health skills from SHG has enabled me improve family healthcare	384	3.86	.81
Farming skills acquired through SHGs has enabled me to improve my yields	384	3.98	.79
Mean		4.0	.77
Overall Mean		3.72	.83

Relationships between SHG -Based Assets and Competencies in Climate Change Mitigation and Sustainable Livelihood

To gain deeper insight with regard to the relationship between SHG-based assets and competencies in climate change mitigation and sustainable livelihood among group members’ households, Spearman’s Correlation analysis was conducted. In this regard, the researcher first sought to determine the level of sustainable livelihoods existing among the sampled SHG members. Sustainable livelihood in this study was determined based on capital assets including human capital, social capital, natural capital, physical capital and financial capital. Table 3 presents the level of sustainable livelihood.

According to results presented in Table 3, the respondents moderately agreed (M=3.20; SD=.80) that their livelihood was sustainable. Social capital (M=4.59; SD=.65) came

Table 3: Level of Sustainable Livelihood

Capital Assets	N	M	SD
Human Capital	384	3.23	.78
Social Capital	384	4.59	.65
Natural Capital	384	3.21	.78
Physical Capital	384	2.38	.94
Financial Capital	384	2.59	.85
Mean		3.20	.80

out as an outstanding livelihood which is considered as sustainable among SHG members who participated in this study.

The researchers thereafter proceeded to analyse how SHG-based assets and competencies in climate change mitigation relate with sustainable livelihood of the group

members. To attain this, Spearman's Rank Correlation analysis was utilised with the significance level of the relationship pegged at 0.05. Table 6 presents the

relationship between SHG-based assets and competencies in climate change mitigation and sustainable livelihoods of group members' households.

Table 4: SHG-based Assets and Competencies in Climate Change Mitigation and Sustainable Livelihood

		SHG-based Assets & Competencies in Climate Change Mitigation	Sustainable Household Livelihoods
SHG-based Assets & competencies in Climate Change Mitigation	Correlation Coefficient	1	.659**
	Sig. (2-tailed)		0.001
	N	384	384
Sustainable household livelihoods	Correlation Coefficient	.659**	1
	Sig. (2-tailed)	0.001	
	N	384	384

** Indicates spearman correlation significant at $p \leq 0.01$. (2 tailed)

As illustrated in Table 6, there is a strong and positive correlation between SHG-based assets and competencies in climate change mitigation and sustainable livelihood, which was statistically significant ($r_s = .659$, $p = .001$) for 384 samples. This implies that improvement in SHG-based assets and competencies can result into approximately .659 unit improvement in sustainable livelihoods of the members' families.

DISCUSSION

The study findings show that by participating in Self-Help Groups (SHGs) members are able to access various capital assets that significantly impact on their livelihoods (see Figure 1). These assets have wider implications on their resilience to the impacts of climate change. For instance, the physical capital assets (including to water tanks, cooking gas, and solar panels) not only improves water security but also reduces reliance on firewood, thereby mitigating deforestation. This shift towards alternative energy sources enhancing their adaptive capacity. These findings are consistent with studies such as Swain & Varghese, (2009); Atieno, (2017) and Wekesa, Nzioka and Mutune, (2021). For example, Swain & Varghese argue that longer membership in SHGs positively impact on asset creation. Similar findings have been reported by Atieno, (2017) who observe that participation in SHGs gives members opportunities to expand asset acquisition. The social capital facilitated by SHGs evidenced by collective action, such as tree planting and water channeling for environmental management. This collective action is part of community-level resilience against climate impacts like droughts and floods.

From the findings a significant proportion of respondents, specifically 18.2%, reported undergoing training sessions organized by Self-Help Groups (SHGs). The training sessions aimed to impart life and business skills, which built members' human capital thus empowering members to adapt to changing circumstances and pursue income-generating opportunities. This capacity building not only enhances livelihoods but also reduces vulnerability to the

challenges posed by climate change. These findings are consistent with Kapoor (2019), whose work highlights the significant contribution of SHGs to the economic development and livelihood improvement of members. Kapoor argues that SHGs empower members specifically women by promoting entrepreneurship, promoting awareness on diverse issues, and cultivating self-confidence and self-identity.

From the findings, the evidence shows that participation in SHGs has enabled members to diversify their opportunities amidst climate change impacts, particularly in areas of environmental conservation and watershed management. This is consistent with Islam *et al.* (2022), in a study in Bangladesh showed that agroforestry presents a sustainable alternative livelihood option for farmers. However, a research by Laxmi (2017), in Karnataka, found that only a minority of SHG members engaged in advanced environmental conservation practices in villages of despite their expressed interest in tree preservation. This implies that individually, SHG members may lack the capacity for conservation efforts, but collectively, within their groups, they demonstrate active engagement in conservation practices. Indeed, Khatibi and Yamakanamardi (2009) found that with the assistance of NGOs, women's SHGs play a significant role in water resource management in India.

The results highlight a strong correlation between participation in Self-Help Groups (SHGs) and the acquisition of various competencies among respondents. Specifically, participants reported gaining skills in entrepreneurship, farming, and general life skills, with a mean score of 4.0 and a standard deviation of 0.77. These findings underscore the role of SHGs as platforms for capacity building and empowerment within communities. These competencies, particularly in entrepreneurship and farming, are essential for building resilience and adapting to changing socio-economic and environmental conditions, such as those posed by climate change. The results of this study are consistent with previous research conducted by Were and Kimaru-Muchai (2021)

in Kenya, which demonstrated that leadership skills gained through SHG participation empower women to make investment decisions, thereby diversifying their sources of income. Additionally, findings from Atieno's (2016) study in Nyakach Sub County, Kenya, showed that SHG participation led to significant improvements in household income, physical assets, crop yields, and daily meals for 73.5% of members. These results support the conclusion that SHG participation enables members to acquire various domestic assets and competencies, ultimately facilitating income source diversification in response to the impacts of climate change.

Assets and Competencies of Self-Help Groups in Addressing Climate Change Challenges

The study findings showed that the study area is among the regions impacted severely by climate change, with livestock and crop diseases, floods, and droughts adversely affecting farming activities and resulting in low yields. These sentiments appear to resonate with similar challenges highlighted in Ali and Erenstein (2017). Participation in SHG training sessions, led to increased use of improved technologies such as more adapted seed varieties and fertilizers and other strategies for building resilience to climate change impact. Other studies such as Gikunda & Lawyer (2019), Masthani & VijayaBharathi (2018), and Quandt & Kimathi (2017) further show that farm-based support and contribute to overcoming negative impacts of climatic changes. Furthermore, research by Ingutia and Sumelius (2022) have reported significant improvement in crop yields despite climate constraints for SHGs participants, while Kyalo and Matayo (2020) demonstrates how farming skills acquired through SHGs have enabled women to engage in self-employment, thus enhancing resilience to climate variability. Therefore, strengthening strategies that enhance SHG-based assets for resilience to climate change impacts is essential for improving the sustainable livelihoods of households in the study area.

CONCLUSION

The study has demonstrated how members participating in Self-Help Groups (SHGs) have acquired various types of capital assets. Physical assets such as water tanks and solar panels have not only reduced reliance on firewood, thus mitigating deforestation, but also facilitated a transition to alternative energy sources. This shift has enhanced their adaptive capacity to challenges posed by climate change. Furthermore, SHG training sessions have facilitated the acquisition of life and business skills, thereby enhancing members' human capital and empowering them to adapt to changing circumstances and pursue income-generating opportunities. This capacity building improves livelihoods and reduces vulnerability to the challenges posed by climate change.

Additionally, participation in SHGs has enabled members to diversify their opportunities amidst climate change impacts, particularly in areas of environmental

conservation and watershed management. Through collective action, such as tree planting and water channeling, SHG members have actively contributed to environmental sustainability and resilience building in their communities.

Moreover, the study identifies livestock and crop diseases, floods, and drought as significant manifestations of climate change in the study area, adversely affecting farming activities and leading to decreased yields. However, participation in collective actions facilitated by SHGs has helped households build resilience to these climate change impacts. Skills gained through SHG training sessions, along with access to improved farm inputs like seed varieties and fertilizers, have further bolstered their ability to mitigate and adapt to these challenges. Furthermore, while the sustainability of livelihoods varies among SHG members, enhancing SHG-based assets and competencies can significantly improve sustainable livelihoods for member families. Notably, social capital, represented by networks and connections, emerges as a prominent asset aiding livelihood sustainability across SHG membership in the study area.

Recommendations for improving sustainability of livelihoods through SHG participation include scaling up efforts to enhance SHG-based assets and competencies. Additionally, measures to strengthen factors fostering social capital among SHG members are essential, given its robust influence on participation and associated benefits. Future research should further explore the contribution of social capital to mitigating climate change and fostering sustainable livelihoods among SHG members in Nyakach Sub County, Kenya.

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