CASE STUDY **3**

Uganda: Navigating Climate Challenges and Conflict

YOUTH PERSPECTIVES AND LOCAL REALITIES ON YOUTH, CLIMATE CHANGE AND CONFLICT NEXUS IN THE RWENZORI SUB-REGION

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ACRONYMS

ADF: Allied Democratic Forces
CBOs: Community-Based Organizations
CCFU: Cross-Cultural Foundation of Uganda
CSOs: Civil Society Organizations
DRC: Democratic Republic of Congo
ESA Hub: East and Southern Africa Hub
FGDs: Focus Group Discussions
FARDC: Armed Forces of the Democratic Republic of Congo
ICGLR: International Conference on the Great Lakes Region
KCCA: Kampala Capital City Authority
MISR: Makerere Institute of Social Research
MoGLSD: Ministry of Gender, Labour, and Social Development
MRV: Measurement, Reporting, and Verification
MWE: Ministry of Water and Environment
NDP III: Third National Development Plan
NGOs: Non-Governmental Organizations
NPA: National Planning Authority
NOSP: National Oil Seeds Project
NDC: Nationally Determined Contribution
NCCP: National Climate Change Policy
OHCHR: Office of the High Commissioner for Human Rights
OSSREA: Organisation for Social Science Research in Eastern and Southern Africa
REDROC: Regional Early Warning and Response Operations Centre
UIA: Uganda Investment Authority
UNDP: United Nations Development Programme
UNODC: United Nations Office on Drugs and Crime
UPDF: Uganda People's Defence Forces
URN: Uganda Radio Network
USAID: United States Agency for International Development
WB: World Bank

Executive Summary

Climate change in Uganda is not just a future concern, it is a pressing issue that is already deeply impacting socio-economic and political stability. Ranked 14th most vulnerable by the ND-GAIN index[1], Uganda faces severe climate impacts exacerbated by poverty and reliance on climate-sensitive sectors like agriculture. The Rwenzori sub-region, in particular, experiences significant vulnerability, with youth being the most affected. This study explores the complex relationship between youth, climate change, environmental degradation and conflict, highlighting the urgent need for innovative strategies to enhance resilience and reduce susceptibility to extremist recruitment.

Erratic rainfall, floods, and droughts disrupt traditional agriculture, leading to decreased incomes and food insecurity. Many young people migrate for better opportunities, weakening social safety nets and increasing vulnerability. Climate change exacerbates resource scarcity, heightening competition and tensions, especially among youth. The region's history of conflict further complicates these challenges. The interplay between climate change, environmental degradation and violent conflict is evident, with increased resource competition exacerbating ethnic tensions and conflicts. Poor governance and limited economic opportunities hinder adaptation efforts, amplifying the impacts of climate change and increasing the likelihood of conflict. The study reveals a strong correlation between climate change impacts and youth vulnerability. Education and economic opportunities are crucial for enhancing resilience. There is a significant gender dimension, with young women facing higher exploitation risks and barriers to participation in decision-making processes. The findings underscore the importance of youth in shaping inclusive policies and fostering community engagement to address these challenges.

The study highlights the urgent need for comprehensive, youth-centered strategies to address the interconnected challenges of climate change, conflict, and socioeconomic instability in Uganda. Implementing the recommended measures can enhance resilience, reduce vulnerability, and promote sustainable development in the Rwenzori sub-region.

1 The ND-GAIN Country Index summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. The index is composed of two key dimensions of adaptation: vulnerability and readiness.

1. Introduction

Climate change and its effects on socio-economic and political stability pose a complex challenge in Uganda, particularly in the Rwenzori sub-region. This issue is closely linked to youth vulnerability and the rise of violent extremism. According to the ND-GAIN index Uganda ranks as the 14th most vulnerable country to climate change with readiness score[2] of 163.[3] This vulnerability is worsened by the high poverty levels and a heavy reliance on climate-sensitive sectors such as agriculture, water, fisheries, tourism, and forestry.[4]

Uganda is already grappling with the harsh realities of climate change, including shifting weather patterns, declining water levels, and an increase in extreme events like flash floods and droughts. These occurrences have severe socio-economic consequences, particularly for vulnerable communities. Environmental degradation—caused by deforestation, overgrazing, and pollution—further contributes to poverty. It reduces crop yields, causes water shortages, and depletes

2 The high vulnerability score and low readiness score of Uganda places it in the upper-left quadrant of the ND-GAIN Matrix. It has both a great need for investment and innovations to improve readiness and a great urgency for action. Uganda is the 14th most vulnerable country and the 163rd readiest country. Uganda has worst scores in social readiness comprising social inequality, education, innovation and ICT infrastructure.
3 University of Notre Dame. (2021). *ND-GAIN Country Index 2021*. Notre Dame: University of Notre Dame.
4 World Bank Group. (2021). *Climate Risk Profile: Uganda*. Washington, DC: The World Bank Group

soil quality. This degradation not only lowers soil fertility but also increases sedimentation in waterways and raises the risk of flooding.

The primary aim of this study is to explore the lived experiences of young people at the intersection of peace, climate, and environmental challenges in Uganda. The research questions guiding this study include:

- → To explore the experiences of youth in the Rwenzori Sub-region in relation to climate change and environmental degradation.
- → To analyse the interconnectedness of climate change, environmental degradation, and conflict from the perspective of Ugandan youth.
- → To propose youth-centred policies and interventions that can mitigate the adverse effects of climate change and environmental degradation on peace and stability in Uganda.

1.2 THE NATIONAL SOCIOECONOMIC AND DEVELOPMENT CONTEXT OF THE YOUTH

Uganda is situated within a relatively humid equatorial climate zone, but its topography, prevailing winds, and water bodies create significant variations in rainfall patterns across the country. Average annual rainfall ranges from 800 mm to 1,500 mm, typically falling in two seasons in the south (March to May and September to November), and in one season in the north (April to October). The average daily temperature is around 28°C, but this varies with altitude, with temperatures reaching as low as 0°C in the highlands.)[5]

Over the past 30 years, there has been a statistically significant increase in temperature, rising by 0.52°C per decade, with serious implications for food security.[6] Agriculture, which accounts for about one-quarter of Uganda's gross domestic product and employs more than 70 percent of the labor force, is increasingly threatened by rising temperatures and changing rainfall patterns, leading to devastating impacts on livelihoods and food security.[7]

Deforestation, largely driven by the growing demand for agricultural land and fuelwood from the rapidly expanding population, is occurring at an estimated rate of 2.3 percent per year, contributing to soil erosion. Settlements and farming activities on steep slopes exacerbate the risk of landslides and further accelerate soil erosion.[8]

Ugandans are also grappling with the consequences of global warming and the increased frequency of extreme weather events, including both droughts and destructive floods.[9] Due to the country's high poverty rate (20.3%), low rural incomes, lack of income diversity, and dependence on rain-fed agriculture, Uganda and its people are particularly vulnerable to the impacts of climate change.

5 Climate Service Centre Germany (2015). Climate-fact-sheet. Uganda. Updated version 2015. http://www.climate-service-center.de/products_ and publications/fact_sheets/climate_fact_sheets/index.php.en
6 Ibid
7 World Bank (2021). Climate Risk Profile: Uganda. World Bank Group.
8 UNDP (2013): Climate Profiles and Climate Change Vulnerability of the Mbale Region of Uganda: Policy Brief. http://www.undp-alm.org/sites/default/ files/downloads/tacc_mbale_climate_profiles_policy_brief_final.pdf
9 Andrew, A. (2021). Explaining the Kaese floods. InfoNile. 19 May

More frequent and severe droughts are likely to negatively affect water supply, biodiversity, and hydropower generation.[10]

Rapid population growth and the youth bulge are significant factors in Uganda's climate change discourse. Uganda has the second youngest population in the world, with 78 percent of its citizens under the age of 30 and 49 percent below 15 as of 2022.[11] Between 2000 and 2022, the youth population in Uganda grew at an average annual rate of 3.8 percent. However, educational outcomes remain concerning: in 2020, the primary school completion rate was just 40.2 percent, well below the Sub-Saharan Africa average of 63.2 percent and the global average of 86.7 percent.[12] Alarmingly, there has been little improvement in educational attainment over the last decade, with the primary completion rate essentially stagnant at 40.3 percent since 2012.[13]

The Youth Development Index[14] ranks Uganda 153rd out of 183 countries, reflecting significant challenges in education, employment, health, and political participation for young people. Socio-economic issues like unemployment, drug abuse, violence, and climate change further diminish the potential of Uganda's youth to become productive members of society. Young people face numerous hurdles in securing decent work, with the share of youth not in employment, education, or training (NEET) increasing by 3.6 percent between 2017 and 2021, partly due to the COVID-19 pandemic.[15]

Climate change and environmental degradation have exacerbated these challenges by disrupting agriculture, spurring migration, and creating food insecurity. Inadequate governance further hampers adaptation efforts.[16] Together, these factors increase the risk of conflict. Despite some progress, Uganda continues to face significant governance and security issues.[17]

Uganda is increasingly experiencing extreme weather events, including erratic rainfall, mudslides, and landslides, which have resulted in fatalities and property destruction.[18] Climate change impacts various sectors, such as agriculture, water, health, and settlements. Rising temperatures lead to more scorching days and fewer cold nights, while glaciers in the Rwenzori Mountains are rapidly receding. Torrential rains have caused devastating floods, resulting in erosion along riverbanks. More frequent droughts and changing temperature patterns are causing livestock mortality, exacerbating poverty (which affects 55.2 percent of the population) and food insecurity.

In conflict-prone regions like Karamoja and the Rwenzori sub-regions, climate change has intensified competition for resources, fueling tensions. Scarcity of land, water, and pasture has become a common source of conflict. Climate-induced migration, especially among youth, from rural areas to urban centers in search of better opportunities is on the rise. Vulnerabilities such as unemployment, displacement, and poverty makes young people more susceptible to violent extremism. In Kasese,

10 World Bank (2021).
11 UNDP Uganda. (2023). *UNDP Youth Initiatives for Uganda.* Kampala: UNDP.
12 http://sdg4-data.uis.unesco.org/
13 See Uganda: ILO Youth Country Brief, June 2023.
14 Global Youth Development Index Update Report 2023. Available at: https://production-new-commonwealth-files.s3.eu-west-2.amazonaws.com/s3fs-public/2024-04/commonwealth-global-youth-development-index-update-report-2023_d19495_0.pdf?VersionId=IMu_XWyj0uzq_9dZdjtSY07mYCPUWAza
15 ILO (2023). ILO Youth Country Briefs.
16 Kristalina Georgieva, V. G. (2022, March 23). *Poor and Vulnerable Countries Need Support to Adapt to Climate Change.* Retrieved from https://www.imf.org/en/: https://www.imf.org/en/Blogs/Articles/2022/03/23/blog032322-poor-and-vulnerable-countris-need-support-to-adapt-to-climate-change
17 BTI. (2024). *Uganda Country Report 2024.* Gütersloh: Bertelsmann Stiftung.
18 World Bank Group. (2021). *Climate Risk Profile: Uganda.* Washington, DC: The World Bank Group

for example, vulnerable youth have been recruited by the Allied Democratic Forces (ADF), a violent extremist group. The ADF exploits socio-economic inequalities, human rights abuses by security forces, and both perceived and real discrimination against Muslims.[19]

In response to climate change, Uganda has established a strong legal and policy framework, including the National Climate Change Policy (2015) [20] and the Climate Change Act (2021)[21]. These policies align with international agreements and set targets for reducing greenhouse gas emissions. The government has also integrated climate considerations into various sectors through supportive policies. However, the implementation of these policies faces significant challenges due to resource and governance constraints at both national and sub-national levels. Additionally, some policies, such as the National Youth Policy and Action Plan, do not explicitly address climate change, despite its considerable impact on young people's lives.[22]

1.2.1 CHOICE OF RESEARCH AREA FOCUS AND METHODOLOGY

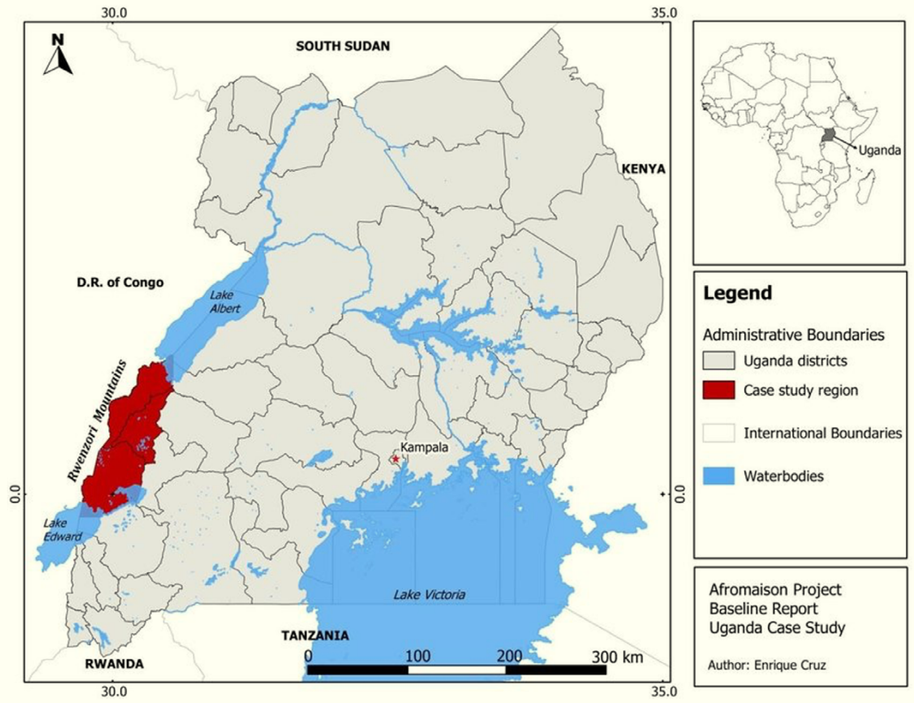


FIGURE 1 | Map of the Rwenzori sub-region[23]

19 Kofi Annan Foundation and Uganda Muslim Youth Development Forum (2024). Tackling Violent Extremism in Uganda: Lessons Learnt rom a Community Resilience Approach. https://www.kofiannanfoundation.org/publication/tackling-violent-extremism-in-uganda/

20 Ministry of Water and Environment (2015). Uganda National Climate Change Policy. MoWE, April 2015. Kampala.Available at: https://www.mwe.go.ug/sites/default/files/library/National%20Climate%20Change%20Policy%20April%202015%20final.pdf

21 https://ulii.org/akn/ug/act/2021/nn/eng@2021-12-31

22 MoGLSD (2016) Uganda National Youth Action Plan. Ministry of Gender, Labour and Social Development, Kampala. https://mglsd.go.ug/wp-content/uploads/2019/05/National-Youth-Action-Plans-2016.pdf

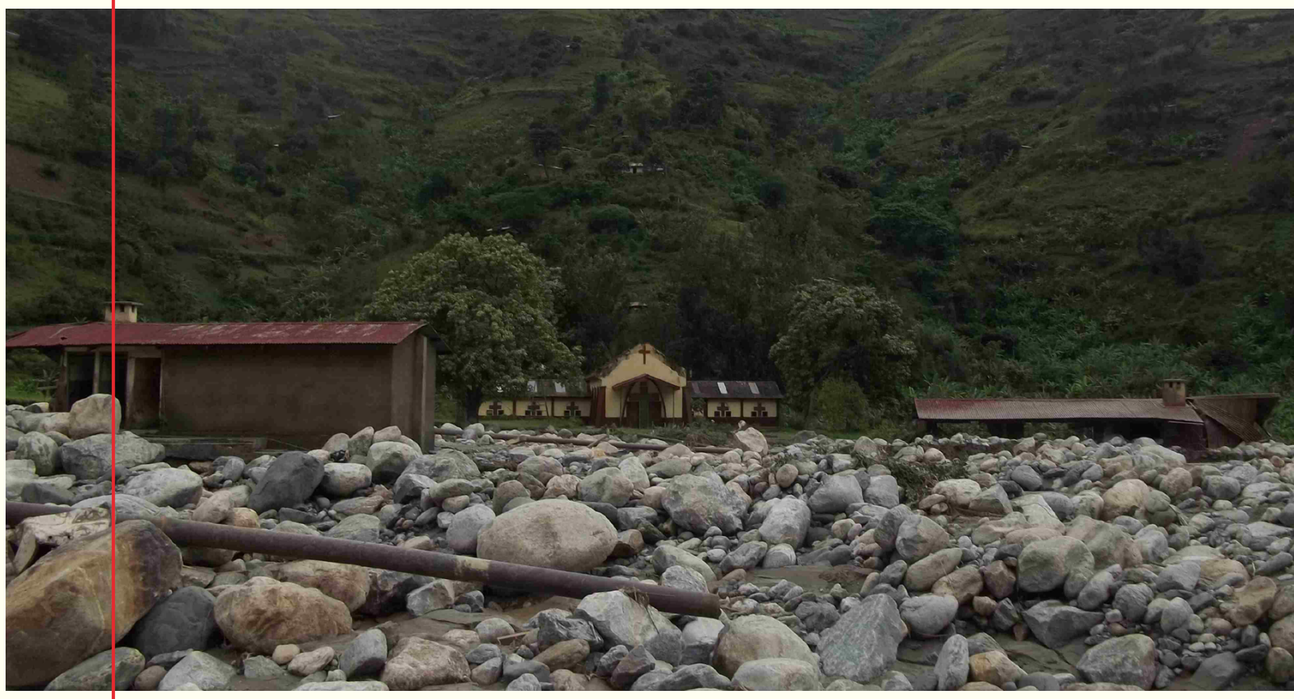
23 Source: Cruz, Enrique & Sutulov, Montserrat & Anderson, Ashley. (2013). Baseline Report Rwenzori Region Case Study, Afromaison Project.

→ PRESENTATION AND JUSTIFICATION OF THE RESEARCH AREA FOCUS: THE RWENZORI SUB-REGION

The Rwenzori sub-region has a long history of political insurrection, violence, and conflict, making it one of the most conflict-affected areas in Uganda's history.[24] The sub-region is composed of nine districts: Kabarole, Kasese, Bundibugyo, Ntoroko, Kyenjojo, Kyegegwa, Bunyangabu, Kamwenge, and Fort Portal City in mid-western Uganda, with a projected population of over 3.35 million in 2024.[25]

The region has been marked by historical, socio-economic, and political tensions, leading to deadly clashes between ethnic communities. These tensions have been exacerbated by patronage politics and the recognition of traditional kingdoms.[26] The Rwenzori sub-region remains fragile and conflict-prone, with frequent armed rebellions and an influx of refugees from the Democratic Republic of Congo (DRC). Between January and June 2022, the region received 10,686 refugees.

Long-standing ethnic tensions persist among the Batoro, Bakonzo, Bamba, and Basongora communities, driven by cultural differences, political competition, land disputes, and demands for autonomy. Violent clashes, particularly involving the Bakonzo, have resulted in the loss of life, especially among young people. These vulnerabilities are further exacerbated by climate change and environmental variability, which destroy livelihoods, damage property, and displace communities.



24 Titeca, A. R. (2016). Beyond ethnicity: the violence in Western Uganda and Rwenzori's 99 problems. *Review of African Political Economy, Vol. 44(151)*, 131-141.

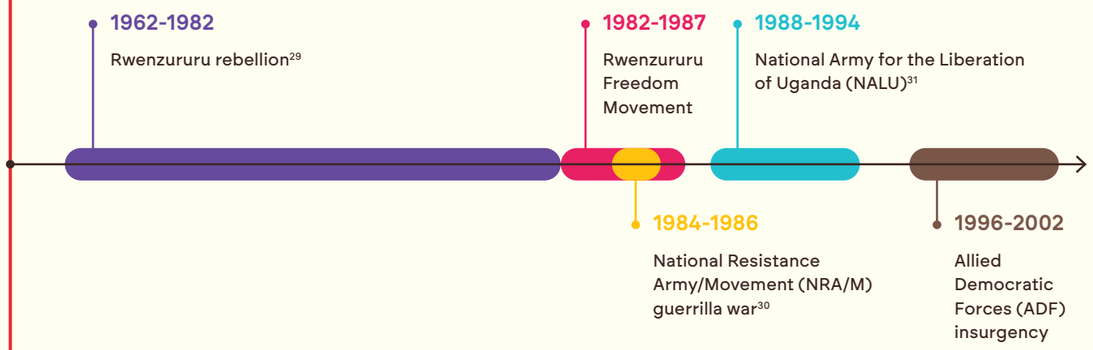
25 UBOS. (2019). *Statistical Abstract.* Kampala: Uganda Bureau of Statistics (UBOS)

26 In 1967, a new constitution proclaimed Uganda a republic and abolished the traditional kingdoms. This was after consistent demands were raised by the population in Buganda, to restore the traditional ruler and reinstate the Buganda kingdom's political power. In 1993, the incumbent National Resistance Movement (NRM) government recognised and restore traditional rulers.

→ VULNERABILITIES TO VIOLENT CONFLICT

The Rwenzori sub-region has a long history of brutal rebellion[27], and prevailing socio-economic vulnerabilities, such as youth unemployment (13.3%) and unresolved grievances, have created fertile ground for extremist groups to recruit young people. The government's past security operations in Kasese have been criticized for heavy-handed tactics, which have fueled resentment and pushed more people toward extremism.[28]

Since independence, the Rwenzori sub-region has been plagued by conflict. Key historical conflicts include the:



More recent violence includes the deadly Kirumila Mutima, a rag-tag ethnic militia incursions in the districts of Bundibugyo, Kasese, and Ntoroko[32] which left more than 100 people dead.[33] Additionally, the 2016 post-election violence in several sub-counties that left more than 50 people dead, hundreds of homes razed and thousands displaced.[34] In November 2016 violence between the Uganda's People's Defence Force and the Rwenzururu kingdom royal guards which claimed the life of more than 155 people.[35]

The instability in the Rwenzori sub-region, compounded by unrest in the Democratic Republic of Congo (DRC), has been fueled by the ADF, a rebel group that has posed a major threat to regional peace for the past two decades. Formed around 1995-96 by people dissatisfied with

27 Reuss, K. T. (2017, July 4). *Uganda: Why the unrest in Rwenzori is far from over.* Retrieved from https://africanarguments.org: https://africanarguments.org/2017/07/uganda-why-the-unrest-in-rwenzori-is-far-from-over/
28 Human Rights Watch. (2017, March 15). *Uganda: Ensure Independent Investigation into Kasese Killings.* Retrieved from https://www.hrw.org: https://www.hrw.org/news/2017/03/15/uganda-ensure-independent-investigation-kasese-killings
29 Titeca, A. S.-M. (2016). *The Rwenzururu Movement and the Struggle for the Rwenzururu Kingdom in Uganda.* Antwerpen: Institute of Development Policy and Management.
30 Kasfir, N. (2005, June). Guerrillas and Civilian Participation: The National Resistance Army in Uganda, 1981-86. *Journal of Modern African Studies*, Vol. 43(No. 2), 271-296.
31 Day, C. R. (2011, July). The Fates of Rebels: Insurgencies in Uganda. *Comparative Politics*, Vol. 43(No. 4), 439-458 .
32 Daily Monitor. (2016, December 5). Insecurity in Rwenzori: Who will defuse the standoff? Retrieved from https://www.monitor.co.ug: https://www.monitor.co.ug/uganda/magazines/people-power/insecurity-in-rwenzori-who-will-defuse-the-standoff--1678570
33 Human Rights Watch. (2014, November 5). Uganda: Violence, Reprisals in Western Region. Retrieved from https://www.hrw.org: https://www.hrw.org/news/2014/11/05/uganda-violence-reprisals-western-region
34 Human Rights Watch. (2016, July 15). Uganda: Lethal Response to Killings. Retrieved from https://www.hrw.org: https://www.hrw.org/news/2016/07/15/uganda-lethal-response-killings
35 Human Rights Watch. (1998, June 10). HRW Condemns Deadly Attack By Ugandan Rebels On School Children. Retrieved from https://www.hrw.org: https://www.hrw.org/news/1998/06/10/hrw-condemns-deadly-attack-ugandan-rebels-school-children

the government's treatment of Muslims, the ADF initially aimed to overthrow the Ugandan government. The group was a fusion of two ideologically distinct elements: the National Army for the Liberation of Uganda (NALU), which was mainly composed of Christian Bakonjo-Baamba people seeking autonomy, and the Islamic Salafi Foundation, which protested the government's attempts to control Islam.[36]

The ADF established bases in the Rwenzori Mountains, using the difficult terrain to their advantage before expanding into the DRC, where they capitalized on remnants of local armed groups. Between 1996 and 2001, the ADF wreaked havoc on Western Uganda, particularly in the districts of Kasese, Kyenjojo, Bundibugyo, and Kabarole, displacing large portions of the population.[37] One of the most horrific incidents occurred in 1998 when over 80 students were burned alive during an ADF attack at Kichwamba Technical Institute.[38] In total, more than 1,000 people were killed, and over 150,000 were displaced during this period.[39]

Although the ADF was eventually driven out by the Ugandan military, its remnants fled to the DRC, where they set up camps in the Ituri Province and continued to orchestrate deadly attacks. Some reports have linked the ADF to international terrorist groups, including the Islamic State.[40]

In November 2021, the UPDF and the Armed Forces of the Democratic Republic of Congo (FARDC) launched a joint offensive, codenamed "*Operation Shujaa*", aimed at neutralizing the ADF in Eastern DRC.[41] This operation was prompted by renewed ADF attacks in both Uganda and the DRC.[42] Despite these military efforts, the ADF remains a significant threat to regional peace and security.[43]

The ADF has been linked to several deadly attacks on civilians, particularly in 2023. In June, the group was responsible for the *Mpondwe Lhubiliha Secondary School* attack in Kasese, where 42 students were killed.[44] In October, they ambushed and killed two foreign tourists and their local tour guide in Queen Elizabeth National Park.[45] Additionally, the ADF raided a village in Kamwenge District, killing 13 people[46], and carried out another attack near Lake Edward in November of the same year.[47]

36 Hansen, S. J. (2023, December 7). *Terror in Uganda: what's driving the Islamic State-linked rebels.* Retrieved from https://theconversation.com: https://theconversation.com/terror-in-uganda-whats-driving-the-islamic-state-linked-rebels-218628
37 Vlassenroot, K. T. (2012). Rebels without borders in the Rwenzori borderland? A biography of the Allied Democratic Forces. *Journal of Eastern African Studies*, 154-176.
38 (Human Rights Watch, 1998)
39 Ibid
40 O'Farrell, C. W. (2024, March). Media Matters: How Operation Shujaa Degraded the Islamic State's Congolese Propaganda Output. *COMBATING TERRORISM CENTER*, pp. 19-21.
41 Daily Monitor. (2023, December 2). *Operation Shujaa: UPDF face infrastructure hurdles in Ituri, Eastern DR Congo.* Retrieved from https://www.monitor.co.ug: https://www.monitor.co.ug/uganda/news/national/operation-shujaa-updf-face-infrastructure-hurdles-in-ituri-eastern-dr-congo-4451716
42 Parliament of Uganda. (2023, January 26). *Defence Minister gives assurance on Operation Shujaa in DR Congo.* Retrieved from https://www.parliament.go.ug: https://www.parliament.go.ug/news/6422/defence-minister-gives-assurance-operation-shujaa-dr-congo
43 Congo Research Group and Ebuteli. (2022). Uganda's Operation Shujaa in the Democratic Republic of Congo: Fighting the ADF or Securing Economic Interests? New York: Center on International Cooperation.
44 Independent. (2023, June 26). *Kasese School Attack: UPDF yet to rescue abducted student.* Retrieved from https://www.independent.co.ug: https://www.independent.co.ug/kasese-school-attack-updf-yet-to-rescue-abducted-students/
45 Daily Monitor. (2023, October 17). *ADF rebels kill two foreign tourists, Ugandan in Queen Elizabeth park.* Retrieved from https://www.monitor.co.ug: https://www.monitor.co.ug/uganda/news/national/adf-rebels-kill-two-foreign-tourists-ugandan-in-queen-elizabeth-park-4404592
46 Daily Monitor. (2023, December 19). 10 killed in Kamwenge attack. *10 killed in Kamwenge attack.*
47 URN. (2023, November 1). *Suspected ADF Rebels Killed on Lake Edward.* Retrieved from https://ugandaradionetwork.net: https://ugandaradionetwork.net/story/suspected-adf-rebels-killed-on-lake-edward-

→ SOCIO-ECONOMIC VULNERABILITIES

The majority of households in Rwenzori sub-region rely on farming for both income and employment.[48] Of the region's total area of 241,038 km^2, 197,100km^2 is the total land area, while water covers 43,938km^2. Agricultural land takes up 71.2 percent of the total land cover.[49] However, with a high population growth rate of 3 percent, land scarcity has become an increasingly challenging.[50] This convergence of issues – limited arable land, a rapidly growing population, and a youth bulge – raises concerns about the overexploitation of resources and land degradation.

The agricultural sector faces significant threats from environmental degradation and climate change, particularly affecting the most vulnerable farmers. Extreme weather events have damaged infrastructure, increasing transportation costs for goods, and disrupting the food value chain. This, in turn, limits and limits access to markets, directly impacting regional food security.[51] Some studies have documented the prevalence of conflicts over land access and use in the Rwenzori region, with tensions expected to rise as the growing population and the demand for jobs among the youth exacerbate these issues.[52]

These conflicts over land are deeply rooted in the existing socio-economic and political grievances.[53] In Kasese, for instance, the *Bakonzo*, a dominant ethnic group, are primarily farmers, while the Basongora are pastoralists.[54] Limited arable land, with over half the district designated as a protected conservation area, worsens these tensions. These have tragically resulted in violence between the two ethnic groups, including killings, livestock attacks, and property destruction.[55]

→ CLIMATE CHANGE VULNERABILITY

The Rwenzori sub-region is rich in biodiversity and hosts a rich diversity of flora and fauna. It is home to a natural world heritage site, the Rwenzori Mountains, also known as the 'Mountains of the Moon'. However, the communities at the foot of the mountains suffer severe environmental challenges. Rapid population growth coupled with the over-extraction of copper and cobalt, degradation of the banks of river Nyamwamba, and deforestation on the slopes of Mount Rwenzori has exacerbated these issues.

48 UBOS. (2021). *Statistical Abstract 2021.* Kampala: Uganda Bureau of Statistics.
49 UIA. (2020). *Rwenzori Region Agriculture Sector Investment Profile.* Kampala: Uganda Investment Authority (UIA).
50 UBOS. (2023). Percentage Distribution of the Population by Special Interest Groups, for the censuses; 1969-2014 and projections. Kampala: UBOS.
51 Daily Monitor. (2021, January 20). *Food shortage looms in Rwenzori region.* Retrieved from https://www.monitor.co.ug/: https://www.monitor.co.ug/uganda/news/national/food-shortage-looms-in-rwenzori-region-1562326
52 Harris, K. (2008). Water and conflict: Making water delivery conflict-sensitive in Uganda. CECORE, REDROC, SAFERWORLD, YODEO.
53 Ibid
54 CDRN and KRC-Uganda. (2020). Networks for Peace: Preventing and resolving conflicts through early warning mechanisms in Africa. A case of the Basongora and Batuku Minority Communities in Rwenzori Sub-region in Uganda. Kampala: Community Development Resource Network (CDRN) and Kabarole Research & Resource Centre (KRC Uganda).
55 Independent Reporter. (2020, August 10). *Nine injured in fresh Bakonzo, Basongora clashes in Kasese.* Retrieved from https://www.independent.co.ug/: https://www.independent.co.ug/nine-injured-in-fresh-bakonzo-basongora-clashes-in-kasese/

In the last two decades, the sub-region has been experiencing changes in weather patterns and increasing climate-related challenges. The Rwenzori sub-region faces a stark reality due to climate change.[56] Unpredictable weather patterns in the Rwenzori region have been devastating.[57] [58] [59] Floods and torrential rains, once rare occurrences, are now recurring threats, with projections suggesting they will only become more frequent and intense.[60] In 2020, five rivers - Nyamwamba, Mubuku, Lhuburiba, Nyamughasani, and Sebwe - overflowed due to the heavy rainfall, resulting in devastating floods.[61] These floods displaced over 173,000 people, destroyed over 25,000 homes and caused widespread damage to infrastructure.

56 CCFU and INTO. (2021). *MELTING SNOW AND FLOODING RIVERS: Selected Cultural Heritage Sites at Risk from Climate Change in the Rwenzori region.* Kampala: Cross- Cultural Foundation of Uganda (CCFU) and International National Trusts Organisation (INTO).
57 Saabwe, C. (2021, March 20). *Kasese residents call for urgent action on flood risk.* Retrieved from https://can.ug: https://can.ug/2021/03/20/kasese-residents-call-for-urgent-action-on-flood-risk/
58 World Bank Group. (2021). *Climate Risk Profile: Uganda.* Washington, DC: The World Bank Group.
59 Ministry of Water and Environment. (2015). *Economic Assessment of the Impacts of Climate Change in Uganda.* Kampala: Ministry of Water and Environment.
60 World Bank Group. (2021). *Climate Risk Profile: Uganda.* Washington, DC: The World Bank Group.
World Bank Group. (2022, July 27). *What You Need to Know About the Measurement, Reporting, and Verification (MRV) of Carbon Credits.* Retrieved from https://www.worldbank.org/en: https://www.worldbank.org/en/news/feature/2022/07/27/what-you-need-to-know-about-the-measurement-reporting-and-verification-mrv-of-carbon-credits
61 See CCFU and INTO. (2021).

The Rwenzori sub-region, characterized by steep slopes and a high population density, is highly vulnerable to soil erosion. The region faces significant deforestation, largely driven by illegal charcoal burning, which targets protected areas such as Queen Elizabeth National Park, Rwenzori National Park in Kasese, and Kibale National Park. Additionally, forest reserves like Nyabirongo and Ihandiro in Kasese District, and Sempaya Forest Reserve in Bundibugyo District, are also severely affected by this deforestation.[62] The wetlands have been degraded through reclamation and farming. There are common cases of murram, sand and stone extraction in various sub-counties in Kasese District, including Bwesumbu, Kyabarungira, Maliba, Bugoye, Kilembe, Kyarumba, Kyondo, Kitholhu, Ihandiro, Kisinga, Karusandara, Katwe, and Kabatooro, among others.

The region also faces a constant threat of landslides, while reduced rainfall and rising temperatures are putting food security at risk. Human activities are disrupting fragile ecosystems, with deforestation and unsustainable farming practices accelerating climate change and environmental degradation, thereby threatening the region's rich biodiversity.[63] The melting glaciers of the Rwenzori Mountains serve as a stark reminder of this crisis[64], with some predictions suggesting they could disappear entirely within the next 30 years.[65] Rising temperatures have also contributed to wildfires that ravaged the Rwenzori Mountains National Park, stripping away large areas of natural vegetation and exposing bare rock, further destabilizing the fragile mountain ecosystem.[66]

62 https://rainforestjournalismfund.org/stories/extensive-deforestation-resulting-commercial-charcoal-firewood-production-across-rwenzori
63 G. Eilu, C. G. (2013). Impact of Climate Change on the Species of Restricted Range in Rwenzori Mountains National Park. Kampala: Makerere University.
64 Uchoa, P. (2021, March 30). *Uganda climate change: The people under threat from a melting glacier.* Retrieved from https://www.bbc.com: https://www.bbc.com/news/world-africa-56526631
65 R.G. Taylor, N. R. (2007). Climate Change and the Aquatic Ecosystems of the Rwenzori Mountains, Uganda. Expedition to the Rwenzori interim report summary. London: Dept. of Geography, University College, London.
66 Community Action for Humanity. (2021). *Greening Rewenzori for Climate Change.* Retrieved from https://cahuganda.org: https://cahuganda.org/our-projects/greening-rewenzori-for-climate-change/

2. Methodology

This study employed a mixed-methods approach, integrating both quantitative and qualitative data collection techniques. Quantitative data was gathered to profile respondents' demographics and related metrics, while qualitative methods provided deeper insights into the environments and factors contributing to youth involvement in violence, enabling the formulation of evidence-based recommendations. The study was conducted in Uganda's Rwenzori sub-region, specifically in Kasese District, Kabarole District, and Fort Portal City.

The primary focus was on youth aged 18-30, with additional input from district and municipal leaders, cultural institutions, security agencies, non-governmental organisations (NGOs), community-based organisations (CBOs), and other community leaders. A simple random sampling method was used to select youth participants considered vulnerable to the effects of climate change and at risk of radicalization by violent extremist groups, such as the ADF. The youth sample was randomly drawn from sub-counties and divisions in Kasese District and Municipality, resulting in a total of 204 individual youth interviews.

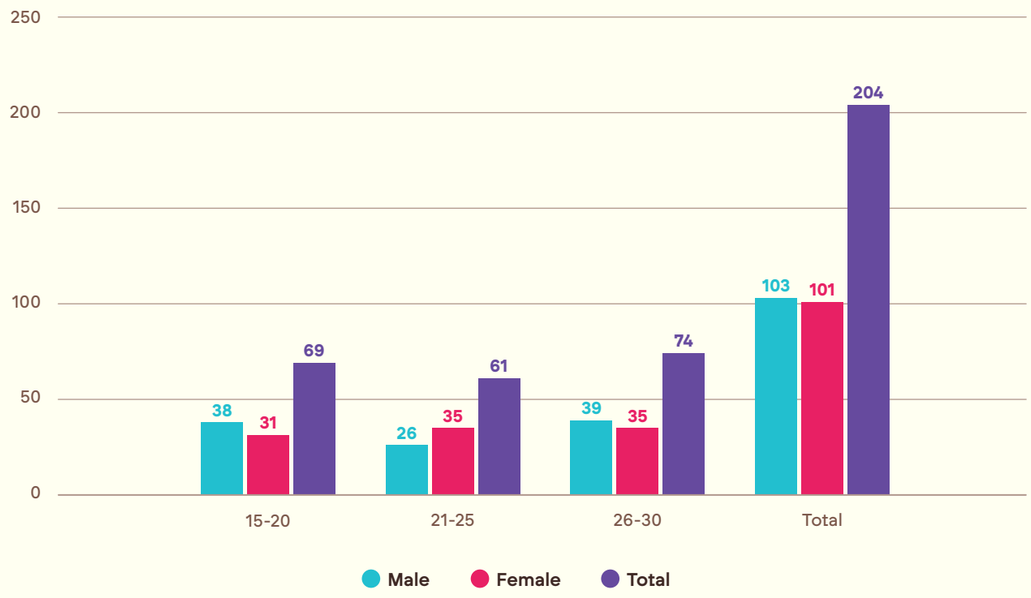


FIGURE 2 | Age and Gender Distribution of Respondents

Key informant interviews were conducted with district staff, elected leaders, local council representatives, religious and cultural leaders, and security agencies in Kasese and Kabarole Districts, as well as Fort Portal City.[67] Additionally, Focus Group Discussions (FGDs) were held with youth aged 18-30 in these same locations, with each FGD consisting of at least four male and four female participants.

The demographic profile of the youth from the Rwenzori sub-region who participated in the study included information on their age, gender, sources of livelihood, and education levels.

67 The interviews included two District Chairpersons, six District Council Members, two Resident District Commissioners, two Chief Administrative Officers, six District Officers (Commercial, Production, Environmental), two District Police Commanders, two District Internal Security Officers, two District Youth Councillors, two Sub-County Chiefs, two Religious Leaders, two Cultural Leaders, 12 Fort Portal Officials, and six National Level Representatives.

3. Findings

This section presents findings on youth perspectives on the impact of climate change on livelihoods, perpetrating factors of climate change, existing mitigating efforts, youth participation in climate change and peace efforts, responses to climate change, conflict and vulnerability, and discussion of findings.

3.1 YOUTH PERCEPTIONS OF CLIMATE CHANGE, ENVIRONMENTAL DEGRADATION AND CONFLICT

The study involved 204 respondents, consisting of 103 males and 101 females. The age distribution included 38 males and 31 females in the 15-20 age group, 26 males and 35 females in the 21-25 age group, and 39 males and 25 females in the 26-30 age group.

The primary sources of livelihood for youth in Kasese District reveal notable gender differences. As illustrated in Figure 2, petty trade is the most common activity, involving 55.9 percent of males and 70.7 percent of females, indicating a higher reliance on small-scale commerce among young women. Agriculture (crops) follows, with greater female participation (51.7%) compared to males (40.7 percent). In contrast, more males (15.3 %) are engaged in agriculture involving animals than

females (6.9 %). Other livelihood activities, such as beekeeping, fish farming, and artisanal mining, had minimal participation, underscoring the youth's reliance on more traditional income sources.

Regarding education, the majority of youth have completed primary education (50 percent of males and 54.8 percent of females), while secondary education completion rates are slightly lower (37.5% for males and 28.6% for females).

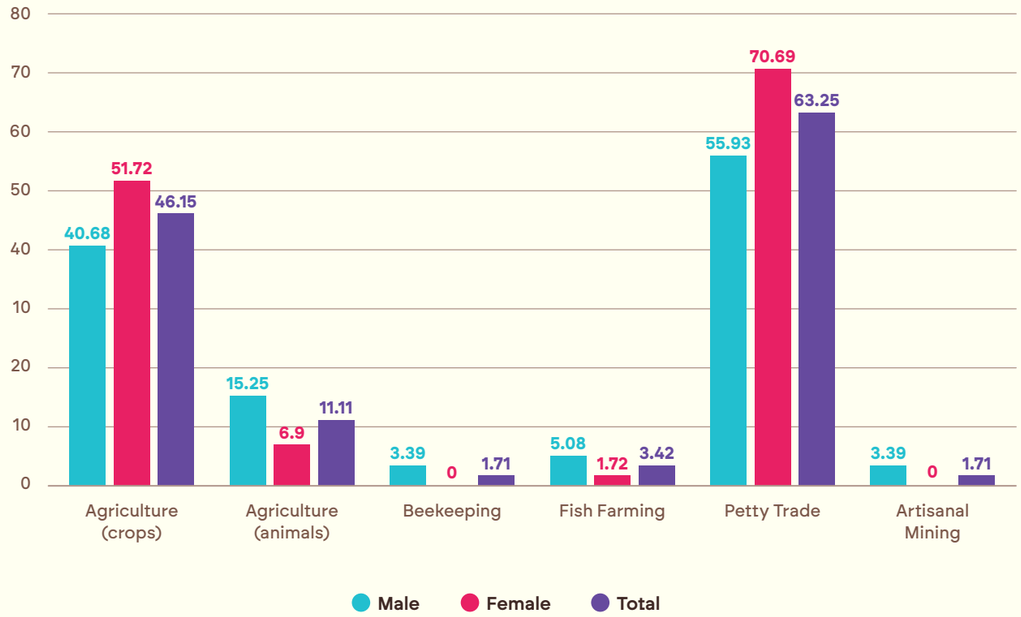


FIGURE 3 | Current Source of Livelihood or Income

The study found that a majority of respondents are aware of climate change, with 60.2 percent of males and 46.5 percent of females reporting being very aware, totaling 53.4 percent. Interestingly, a higher percentage of females (49.5%) are somewhat aware compared to males (35.9%), indicating differing levels of awareness between genders. The proportion of those not aware is nearly identical for both genders, at around 4 percent.

Further analysis revealed a statistically significant association between respondents' education level and climate change awareness (p-value = 0.0160). This suggests that higher education levels are correlated with greater awareness of climate change.

The study explored the personal experiences of young individuals in the Rwenzori region to understand the diverse ways climate change impacts their lives. The majority of respondents reported personally experiencing the effects of climate change, with 90.29 percent of males and 97.03 percent of females affirming this, for a total of 93.63 percent. The slightly higher percentage of females affected can be attributed to gender disparities in poverty and inequality. Women are more vulnerable to climate change due to structural inequalities across economic, political, environmental, and social systems. These inequalities result in limited access to education, work opportunities,

markets, finance, and technology. Women's reliance on small-scale commerce and farming—activities easily disrupted by climate-related disasters—further exacerbates their vulnerability. Climate-related disruptions, such as impediments to transportation and crop destruction, severely affect their livelihoods. The high percentage of respondents affected highlights the widespread impact of climate change in the region, with females reporting a slightly higher rate of experience.

As shown in Table 1, heavy rains are the most commonly reported manifestation of climate change, cited by 90.32 percent of males and 90.82 percent of females, totaling 90.58 percent. Prolonged droughts are also significant, affecting 72.04 percent of males and 68.37 percent of females (70.16% total). Other impacts, such as flash floods (48.17%) and the flooding of River Nyamwamba (29.32%), were also frequently reported.

Further analysis showed a statistically significant relationship between respondents' education level and the specific impacts of climate change they experienced (p-value = 0.009). Those with higher levels of education exhibited a greater adaptive capacity and experienced less vulnerability compared to respondents with lower education levels. This suggests that individuals with less education may struggle to transition to alternative livelihoods when their current enterprises are affected by floods or drought, primarily due to limited access to productive resources.

TABLE 1 | Specific Manifestations of Climate Change Experienced

MANIFESTATIONS OF CLIMATE CHANGE EXPERIENCED	MALE (%)	FEMALE (%)	TOTAL (%)
Prolonged Droughts	72.04	68.37	70.16
Flash Floods	46.24	50	48.17
Heavy Rains	90.32	90.82	90.58
Flooding of River Nyamwamba	29.03	29.59	29.32
Migration of Wild Animals in Queen Elizabeth NP	7.53	12.24	9.95
Physical Insecurity for Persons and Property	5.38	9.18	7.33
Food Insecurity	16.13	35.71	26.18
Frequent Crop Pests	1.08	7.14	4.19
Frequent Wild Fires	2.15	3.06	2.62
Erratic Rainfall	1.08	0	0.52
Landslides	11.83	12.24	12.04
Others (specify)	5.38	4.08	4.71

3.1.1 IMPACT OF CLIMATE CHANGE ON COMMUNITIES

Data from Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) revealed that climate change has significantly impacted various aspects of community life in the Rwenzori sub-region. In agriculture, crops have been washed away by floods, leading to reduced production and the destruction of gardens, resulting in widespread hunger.

The loss of livestock, including pigs, goats, and poultry, due to climate change-induced floods and excessive heat, has further exacerbated poverty levels. Infrastructure has been severely damaged, with roads, bridges, hospitals, electrical systems, and other structures destroyed by floods. Mining activities have also been disrupted by flooding, discouraging investors and leading to a loss of valuable minerals. The fishing industry has suffered due to the destruction of roads and the contamination of water bodies. Additionally, the tourism sector has declined as fear of floods and the loss of natural attractions have discouraged visitors.

Many people have been displaced and forced to live in camps after losing their homes and land. KIIs and FGDs highlighted that the destruction of roads and bridges has made transportation difficult, isolating communities from goods, food supplies, and other essential services. Hospitals have been severely damaged or destroyed, compromising healthcare delivery. Schools have been relocated due to flooding, resulting in the loss of educational facilities and disruptions to education. Flooded markets have disrupted local economies and limited access to goods.

3.1.2 EFFECT OF CLIMATE CHANGE ON YOUTH LIVELIHOODS

The study explored the diverse impacts of climate change and environmental degradation on the livelihoods of young people (aged 18-35) in the Rwenzori sub-region. The findings are summarized in Table 2 below.

TABLE 2 | Effect of Climate Change on Livelihoods

EFFECT ON LIVELIHOOD	MALE (%)	FEMALE (%)	TOTAL (%)
Decreased agricultural productivity	74.19	72.45	73.3
Loss of livestock	18.28	20.41	19.37
Disruption of fishing activities	9.68	14.29	12.04
Destruction of infrastructure	52.69	46.94	49.74
Destruction of property	77.42	76.53	76.96
Limited access to clean water	18.28	21.43	19.9
Other (please specify)	12.9	11.22	12.04

According to Table 3, the quantitative findings from the youth revealed that the most significant impact of climate change on livelihoods is the destruction of property, including buildings, crops, and livestock, affecting 77.42 percent of males and 76.53 percent of females (76.96% total). Decreased agricultural productivity was another major issue, reported by 74.19 percent of males and 72.45 percent of females (73.3% total). The destruction of infrastructure, such as roads, bridges, and electric poles, as well as limited access to clean water, also posed significant challenges, with 49.74 percent of respondents experiencing infrastructure damage.

Notable gender differences emerged in the specific impacts experienced. For example, food insecurity was significantly higher among females (35.71%) than males (16.13%), reflecting a gender disparity in food-related challenges. This difference can be attributed to the distinct gender roles in food production, with women primarily responsible for food security but lacking ownership of productive assets such as land.

In an all-women FGD held in Mbunga sub-county, a young woman reported that:

> *"...climate change has led to destruction of property, loss of lives, shops were washed away. Many school going youths have stopped schooling due to lack of school fees. Most parents have lost their income generating activities.... Kilembe mines' structures were washed away by the floods. Our electric poles were also washed away by the floods last year and up to now we haven't been connected to electricity".*

The study also examined how climate change has necessitated shifts in occupation and lifestyle among the youth in the Rwenzori sub-region. The results highlight a minority of respondents have had to voluntarily change their occupation or lifestyle due to climate change, with 25.81 percent of males and 16.33 percent of females, for a total of 20.94 percent. For instance, in an all-women FGD held in Bweera, it was revealed that:

> *"Due climate change young people have left their villages and come to town and started small businesses such as brewing alcohol, selling firewood, poultry farming, and selling food stuffs abandoning earlier livelihoods like brick laying, artisanal mining and crop farming".*

Data analysis further revealed a statistically significant relationship between education level and the likelihood of changing occupation or lifestyle due to climate change (P-Value =0.0003). Respondents pursuing vocational training and university education are more likely to have changed their occupations or lifestyles compared to those with only primary or secondary education.

3.1.3 FACTORS PERPETUATING YOUTH VULNERABILITY TO CLIMATE CHANGE AND EXISTING MITIGATION EFFORTS

This study aimed to deepen the understanding of the intersection between youth, climate change, environmental degradation, and livelihoods in the Rwenzori sub-region by identifying the factors that perpetuate the challenges youth face in adapting to climate change and examining existing mitigation efforts. **Both genders overwhelmingly identified the lack of economic opportunities for youth (88.24%) as the primary factor contributing to vulnerability.** Limited access to education

and vocational training was also significant, with slightly more females (29.7%) affected compared to males (25.24%).

Further analysis revealed a statistically significant relationship between education level and the factors perpetuating youth vulnerability to climate change and conflict (p-value = 0.018). **This suggests that education plays a critical role in shaping young people's resilience and adaptability to climate change and conflict.** Youth with lower education levels are more likely to be vulnerable to the adverse effects of climate change and conflict. This can be attributed to factors such as limited knowledge about climate change mitigation strategies, restricted access to resources, and fewer opportunities for stable employment, leaving them more susceptible to economic and social instability.

3.1.4 NATURAL RESOURCES, ECONOMIC INSTABILITY AND CONFLICT

The relationship between natural resource dependency and economic instability is critical to understanding the challenges faced by youth in the Rwenzori sub-region. A significant majority of respondents (70 percent) rely on natural resources, such as land, rivers, swamps, forests, and lakes, for their livelihoods—primarily through agriculture, fishing, and forestry. **This dependence makes them especially vulnerable to climate change-induced phenomena, such as altered rainfall patterns, prolonged droughts, extreme weather events, and environmental degradation, all of which directly affect the productivity and availability of these natural resources.**

Conflicts over resources are frequent, with more females (23.76%) reporting a higher frequency than males (18.45%). The higher frequency among females suggests that women are more involved in or affected by resource conflicts, highlighting the need for gender-responsive resource management policies. Environmental disasters were identified as the primary cause of displacement, affecting 93.62 percent of respondents, with more females (27.72%) impacted compared to males (18.45%). This trend was common in rural areas, where many men had migrated to urban centers or were engaged in non-nature-dependent livelihoods, underscoring the need for gender-responsive disaster management and relief efforts.

The study identified key challenges related to natural resources, with land degradation (66.67%) being the most frequently reported issue, with similar rates across genders. This underscores the critical need for sustainable land management practices. Additionally, a significant negative correlation ($r = -0.48$, $p < 0.01$) between economic stability and reliance on unsustainable practices (such as deforestation, over-cultivation, draining swamps, and degrading riverbanks) indicates how economic pressures drive these harmful environmental practices.

Regarding the impact of political violence on the environment, more females (48.51%) reported a moderate impact than males (36.89%). Both genders also reported increased reliance on natural resources (52.94%) and unsustainable agricultural practices (57.35%) as a result of economic instability. When evaluating the effectiveness of governance structures in addressing political violence and instability, 63.73 percent of respondents perceived them as somewhat effective, with similar responses across genders. However, only a small proportion of youth—37.86 percent of males and 36.63 percent of females—were aware of local government programs aimed at mitigating the impacts of conflict.

Respondents recommended additional measures, with 75 percent of males and 77.23 percent of females emphasizing the need for community education and awareness programs for conflict prevention and peacebuilding.

3.2 EFFECTS OF CLIMATE CHANGE AND ENVIRONMENTAL DEGRADATION ON CONFLICT

This study explores the perceived influence of climate change on various forms of conflict in the Rwenzori sub-region, with a particular focus on gender differences. As shown in Figure 4, displacement due to environmental factors emerged as the most significant issue, reported by 63.11 percent of males and 76.24 percent of females, totalling 69.61 percent. This reflects a strong consensus that displacement caused by extreme weather events, such as the flooding of the River Nyamwamba, is a major concern. **Young women, in particular, perceive this issue more acutely, as it disproportionately affects livelihoods and leads to the destruction of property.**

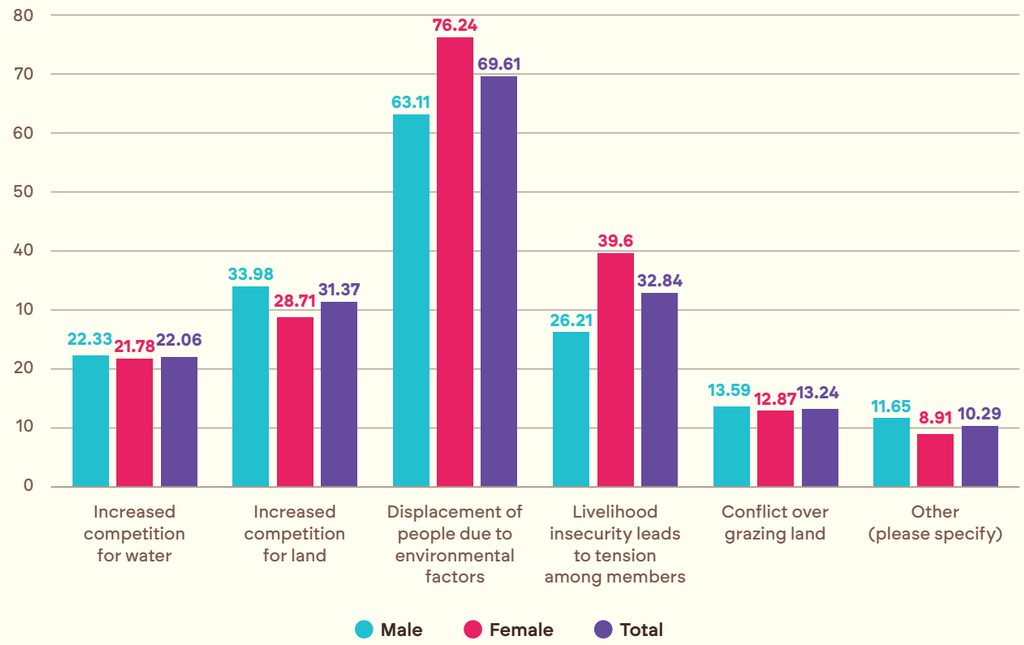


FIGURE 4 | Perceived Influence of Climate Change Vulnerability on Conflict

Increased competition for land among community members was reported by 33.98 percent of males and 28.71 percent of females, indicating that males are more involved in land-related issues, possibly because young men are more engaged in the search for alternative land. Livelihood insecurity, leading to tension among community members, was highlighted by 39.6 percent of females and 26.21 percent of males, suggesting that females are more attuned to or affected by livelihood insecurities than males. Other concerns, such as competition for water (22.06%) and grazing land (13.24%), were reported at lower but still significant levels.

Additionally, 65.35 percent of females reported witnessing conflicts related to climate change, compared to 47.57 percent of males, resulting in an overall figure of 56.37 percent. This disparity suggests that females either witness more natural resource-based conflicts, such as clashes over water sources and land for grazing and cultivation or are more sensitive to recognizing them. Land conflicts in Kasese District manifest in two main ways. The first involves inter-boundary disputes, rights of occupancy, and misrepresentation in land sales, especially between the Uganda Wildlife Authority and surrounding communities that encroach on Queen Elizabeth National Park. The second dimension involves conflicts between cultivators and herders, such as disputes between Basongora pastoralists and Bakonzo agriculturalists, which often revolve around grazing land and water resources.[68] Conversely, 52.43 percent of males and 34.65 percent of females reported not witnessing such conflicts, accounting for 43.63 percent of the total population, a significant portion of the community. This gender disparity is explained by cultural norms and social gender roles that position women in household production and reproduction, making them more vulnerable to the impacts of climate change.

The study also explored perceptions of increased youth vulnerability due to climate change. A majority of respondents, 56.31 percent of males and 59.41 percent of females, believe that climate change has exacerbated youth vulnerability to poverty and radicalization, with a total of 57.84 percent. This belief is slightly more prevalent among females. On the other hand, 33.98 percent of males and 27.72 percent of females do not share this view, resulting in a total of 30.88 percent.

Residents in Kasese hold negative attitudes towards people forced to migrate due to floods, landslides, and environmental degradation, primarily out of fear that the migrants will occupy and claim their land. This fear creates tensions and conflicts within host communities, linking displacement, climate change, and conflict. In one all-male focus group discussion (FGD) held in Bwera, residents expressed concerns:

> *"We also have the fear that our land will be taken by people who were displaced and were put in camps on our land after being displaced. Given the earlier experiences, they may want to claim ownership over our land, given that they have nowhere else to go. However, we shall not allow that to happen; we will fight them to leave our land".*

Such sentiments highlight the motivation for conflict driven by displacement and land competition. Further analysis of Key Informant Interviews (KIIs) and FGDs revealed that resource competition has intensified due to climate change, leading to conflicts over land and resources. The Deputy Resident District Commissioner (RDC) of Kasese Municipality shared:

> *"Disputes between residents and the government over Kilembe Mines Hospital and between the Basongora and Bakonzo ethnic groups over grazing land exemplify how limited resources can ignite tensions."*

68 Tinkasimire, C. B., Mwine, J. and Musinguzi, P. S. (2023). The Extent to Which Land Conflicts Affect Food Security: A case of Kasese District, Western Uganda. Journal of Research Innovation and Implications in Education, 7(1), 31 – 42.

The tensions arise from the Basongora's loss of grazing land to Bakonzo cultivators and wildlife conservation efforts, which have denied them access to water, dry-season pastures, and other pastoral resources. This situation has persisted for over 10 years.

These conflicts are often exacerbated by displacement and loss of livelihoods, making resource allocation and land use hotspots for disputes. Displaced and unemployed youth are particularly at risk, with extremist groups like the ADF exploiting their desperation by offering financial rewards and employment. These groups provide material benefits, such as money, clothes, and food, to attract recruits. The promise of employment and financial stability is a powerful lure for vulnerable young people who are not employed.

Additionally, climate change has intensified existing political violence and ethnic tensions, primarily due to competition for increasingly scarce resources. These conflicts become worse during prolonged droughts when the Basongora struggle to find pasture for their animals, leading them to graze on Bakonzo crops, sparking violence. The RDC of Kasese Municipality explained:

> *"The displacement of people due to flooding and landslides further exacerbates tensions. Communities like those in Kanyangeya, relocated to camps, face acute competition for resources and space, increasing resentment from host communities and the potential for violence."*

The study also revealed that political figures often exploit these tensions for personal gain, as evidenced by the conflict over the relocation of Kilembe Mines Hospital. The hospital, located in the River Nyamwamba catchment area, has been repeatedly damaged by flooding. A decision was made to relocate and construct a new facility, but delays have caused discomfort in the community due to a lack of access to health services. There are political tensions, with accusations against top district leadership for allegedly undermining efforts to relocate the hospital and provide supplies to displaced persons, possibly due to political rivalries. In an FGD in Kasese Municipality, participants noted:

> *"Political leaders use flooding as an opportunity to advance their interests, leading to disputes and unrest. They mishandle aid and resources intended for displaced populations, which can lead to political violence, as seen in the competition for relief supplies."*

3.3 RESPONSES TO CLIMATE CHANGE ADAPTATION AND MITIGATION

3.3.1 STATE AND CSO-LED RESPONSES CLIMATE CHANGE ADAPTATION AND MITIGATION

The study also examined the various initiatives and efforts undertaken by local governments and civil society organizations (CSOs) in the Rwenzori sub-region to mitigate the impacts of climate change. The most notable effort was awareness campaigns, with 36.76 percent of respondents acknowledging these initiatives. Females reported slightly higher involvement (38.61%) compared to males (34.95%). Additionally, more young women (14.85%) than young men (11.65%) participated

in vocational training programs. This difference can be attributed to targeted efforts aimed at increasing women's participation in awareness and training programs in the areas covered by the study. The detailed findings are presented in Table 3.

TABLE 3 | State and CSO-Led Responses to Climate Change Adaptation and Mitigation

EFFORTS BY LGS /CSOS	MALE (%)	FEMALE (%)	TOTAL (%)
Awareness campaigns on climate change adaptation and conflict resolution	34.95	38.61	36.76
Provision of vocational training and skills development programs	11.65	14.85	13.24
Implementation of community-based resource management initiatives	28.16	24.75	26.47
Youth economic empowerment and engagement programs	16.5	17.82	17.16
Youth participation in decision-making processes	4.85	2.97	3.92
Designing of youth-climate-sensitive policies	0.97	0	0.49
Localisation of climate change adaptation initiatives	2.91	1.98	2.45
Promotion of alternative livelihoods	3.88	6.93	5.39
Easy access to financing for youth	2.91	2.97	2.94
Other (please specify)	29.13	28.71	28.92

The data also reveals a statistically significant relationship between education level and the efforts undertaken by local governments or CSOs to address youth vulnerability to climate change and conflict (P-value = 0.000). Awareness campaigns and vocational training programs were the most prominent initiatives, particularly among those pursuing vocational training and university education.

The study also aimed to assess the effectiveness of these efforts in reducing youth vulnerability to climate change. Both genders rated these efforts as somewhat effective (50%), but a higher percentage of females (8.91%) than males (5.83%) found them to be very effective. Despite this, the overall perceived effectiveness of local government and CSO efforts remains low. Respondents with primary education were more likely to view these efforts as ineffective.

Additionally, the study gauged awareness of various climate change mitigation and adaptation projects in the Rwenzori sub-region, implemented by CSOs, local governments, and international partners, to enhance community resilience and promote sustainable development. The findings

revealed that more females (55.45%) reported awareness of these projects compared to males (49.51%). This higher awareness among women is attributed to their increased participation and targeted inclusion in climate mitigation and adaptation initiatives.

3.3.2 YOUTH-LED RESPONSES TO CLIMATE CHANGE ADAPTATION AND MITIGATION

This section presents the responses of youth in the Rwenzori sub-region regarding their involvement in climate change adaptation and mitigation. The findings show that most respondents are aware of climate change adaptation or mitigation programs, with 58.25 percent of males and 60.4 percent of females affirming their awareness, resulting in an overall awareness rate of 59.31 percent. The slight difference suggests that awareness is relatively evenly distributed across genders. However, participation rates in climate change activities are lower, with 33.98 percent of males and 31.68 percent of females participating, yielding a total participation rate of 32.84 percent. This indicates that while awareness is high, active involvement is less common, likely due to limited financial incentives.

FGDs and KIIs identified several measures that could effectively support youth in reducing their vulnerability. These include job creation programs to provide employment opportunities; scholarships and financial aid to enable education; income-generating projects such as animal keeping and bricklaying; counseling and mental health services to address the psychological impact of displacement; engaging youth in community activities to build a sense of purpose and belonging; and offering vocational training and skills development programs to enhance employability and income generation.

The results show that young people engage in a variety of climate change adaptation and mitigation activities, with tree planting being the most common (79.1%), followed by water conservation projects (29.85 percent) and riverbank restoration activities (25.37%). A majority of respondents found these youth-led activities somewhat effective (74.63%), with a higher percentage of females (21.88%) than males (14.29%) considering them very effective. Only males reported finding the activities ineffective (14.29%).

There is a strong willingness among youth to participate in future climate change activities, with 85.15 percent of females and 74.76 percent of males expressing interest, resulting in an overall willingness rate of 79.9 percent. Data from a female youth FGD in Kasese Municipality highlighted challenges such as the lack of financial and material resources:

> *"We (youth) lack the financial and material resources needed to implement our ideas. We are also not supported by the municipality with resources to implement our projects. This kills our morale."*

The primary motivations for participation include the desire to protect community resources (89.45 percent) and concern for the environment (66.33%), while the influence of peers or community leaders is minimal (3.52%), suggesting that intrinsic motivations are the strongest drivers of youth engagement.

Regarding training or education on climate change adaptation and mitigation, only 12.25 percent of respondents had received such training, with females (15.84%) more likely than males (8.74%) to have participated in these programs. This gap presents an opportunity for increased outreach and educational initiatives targeting young people. NGOs and CSOs (52%) and schools or educational institutions (60%) were identified as the main providers of training, with males more likely to receive training from community groups or leaders (55.56%). This reflects cultural biases and a lack of deliberate targeting of women in some interventions.

Youth overwhelmingly agreed on the positive impact of their involvement, with 65.35 percent of females and 54.37 percent of males strongly agreeing, for a total of 59.8 percent. Respondents also emphasized the need for more educational programs and training (58.82%) as well as increased funding and resources (57.84%) to further enhance youth participation.

3.4 COMBINED IMPACT OF CLIMATE CHANGE, ENVIRONMENTAL DEGRADATION AND CONFLICT ON YOUNG PEOPLE

The findings of this study reveal a complex interplay between demographic characteristics, educational attainment, gender roles, livelihood strategies, and climate change impacts that collectively shape the experiences and responses of youth in the Rwenzori Sub-region. This discussion highlights key themes from the study, comparing the results with existing research and exploring the implications for policy and practice.

The demographic profile of youth in the Rwenzori Sub-region—characterized by a young population, low educational attainment, and a high reliance on climate-sensitive livelihoods—significantly influences their vulnerability to climate change. The distribution of age and gender underscores the widespread nature of climate impacts. The youth's dependence on traditional livelihoods, such as petty trade, small-scale agriculture, and livestock rearing, makes them particularly vulnerable to climate shocks like droughts, floods, and landslides. Younger individuals (aged 15-20) are more likely to engage in informal activities, with limited adaptive capacity due to a lack of skills and resources. Consequently, they face higher levels of livelihood disruption and economic insecurity during climate-induced events.

Youth unemployment and underemployment further exacerbate their inability to adapt to climate change. Employment status significantly impacts the financial resources available for adaptation measures. Youth in precarious or informal employment, such as subsistence farming, are less likely to have the economic stability needed to invest in climate-resilient practices. This financial insecurity, combined with limited access to credit and financial services, restricts their adaptive capacity.

Economic pressures from climate impacts on agriculture have also driven youth migration from rural areas to urban centers, weakening traditional social safety nets and increasing vulnerability, particularly for those lacking stable employment opportunities in cities. These findings align with previous studies that emphasize the critical role of demographic factors—such as age, gender,

education, and employment status—in shaping climate vulnerability and resilience.[69] These factors influence how young individuals experience and respond to climate impacts.[70]

Despite these challenges, youth are recognized as critical agents of change in advancing climate resilience. Their involvement in advocacy, community-based adaptation projects, and innovative solutions demonstrates their potential to contribute to climate change mitigation and adaptation. However, to fully harness this potential, young people need greater access to resources, training, and decision-making platforms.[71]

A holistic understanding of youth demographics is essential for designing interventions tailored to different age groups and their unique challenges. The study highlights the importance of adopting a demographic-sensitive approach to climate adaptation and resilience-building. Policies that enhance youth education, create employment opportunities, and promote gender equality are crucial to reducing climate vulnerability. Moreover, integrating youth perspectives into climate governance can lead to more effective and inclusive adaptation strategies, leveraging the unique strengths of young people in addressing climate challenges.

3.4.1 THE ROLE OF EDUCATION IN SHAPING CLIMATE CHANGE AWARENESS AND ADAPTIVE CAPACITY

The study found a strong positive correlation between educational attainment and climate change awareness. Youth who have completed vocational training or university education are more likely to be aware of and able to adapt to the impacts of climate change. Education plays a crucial role in shaping youth awareness and adaptive capacity, enabling them to employ effective strategies to mitigate climate risks. In contrast, youth with lower educational levels (primary and secondary education) are less likely to be aware of climate change impacts and are more vulnerable to livelihood disruptions. This educational gap limits their ability to transition to alternative livelihoods when traditional occupations, such as farming, become unviable.

The study also revealed gender disparities in educational attainment, with young women facing greater barriers to accessing education and training. These barriers exacerbate their vulnerability to climate impacts and reduce their participation in community adaptation initiatives.

The findings align with existing research, which highlights education as a key factor in building resilience and adaptive capacity. Studies indicate that youth with higher educational levels are more likely to engage in climate adaptation activities, have greater access to information, and are better equipped to adopt new technologies and practices.[72] Education is instrumental in increasing awareness of climate change impacts and adaptation options. According to the Global Centre on Adaptation, climate education helps young people understand the effects of global warming, motivates them to take action, and enables them to make informed decisions. Educational institutions

69 Population Institute. (2024). *Population and climate change vulnerability: Understanding current trends to enhance rights and resilience.* Retrieved from https://www.populationinstitute.org/resource/population-and-climate-change-vulnerability-understanding-current-trends-to-enhance-rights-and-resilience/.
70 Zhai, L., & Lee, J.-E. (2024). Investigating vulnerability, adaptation, and resilience: A comprehensive review within the context of climate change. Atmosphere, 15(4), 474. MDPI. Retrieved from https://doi.org/10.3390/atmos15040474
71 Ibid
72 United Nations Development Programme. (2022). Three reasons climate change education is critical for adaptation and resilience.

provide a platform for peer learning, community awareness, and the implementation of practical solutions, which are crucial for local-level climate adaptation and resilience building. [73]

Youth in developing regions, with limited access to quality education, face heightened vulnerability due to reduced awareness of climate risks and limited ability to pursue alternative livelihoods. This correlation between education and adaptive capacity is evident in regions where climate adaptation efforts are integrated into educational programs, demonstrating the need for targeted educational interventions. The United Nations Development Programme (UNDP) emphasizes that countries with comprehensive climate education strategies tend to have higher adaptive capacities. For instance, investments in climate education in Namibia, Bhutan, and Zambia have transformed their education systems into key drivers of resilience, green growth, and transformational adaptation. These examples suggest that educational reforms targeting climate action can unlock significant long-term benefits in terms of economic resilience and sustainable development.[74]

Enhancing educational opportunities for youth, particularly in rural and marginalized areas, is critical for promoting sustainable adaptation and mitigation strategies.

3.4.2 GENDER AND CLIMATE CHANGE VULNERABILITY

Gender emerged as a crucial factor in determining vulnerability to climate change, with young women reporting higher levels of food insecurity, displacement, and livelihood disruptions compared to their male counterparts. These gender differences are shaped by traditional roles, limited access to resources, and exclusion from decision-making processes. The findings showed that young women are more likely to be engaged in climate-sensitive activities such as subsistence farming, which are directly impacted by extreme weather events. The high levels of food insecurity reported among females (35.71%) compared to males (16.13%) illustrate the gendered nature of climate impacts. Additionally, climate-induced resource scarcity exacerbates tensions and conflicts, disproportionately affecting young women due to their limited control over land and resources. The study found that women were more likely to report witnessing conflicts and experiencing displacement as a result of environmental factors.

These findings align with global research on gender and climate change, emphasising the need for gender-responsive policies that address the specific challenges faced by women in the context of climate change and conflict. For instance, the *Climate-Gender-Conflict Nexus* report by the Georgetown Institute for Women, Peace, and Security (GIWPS) highlights that women are often more vulnerable due to limited access to resources, exclusion from decision-making, and the traditional roles they are expected to fulfil, such as caregiving and managing household resources.[75] These roles become more challenging during climate-induced crises, leading to heightened food insecurity, displacement, and gender-based violence (GBV).

Women are not only more affected by climate change but also possess unique knowledge and skills for building climate resilience and promoting peace.[76] Enhancing women's participation in

73 See Global Center on Adaptation. (2022). Case Studies on Adaptation and Climate Resilience in Schools and Educational Settings.
74 United Nations Development Programme. (2022). Three reasons climate change education is critical for adaptation and resilience.
75 Georgetown Institute for Women, Peace, and Security (GIWPS). (2021). *The Climate-Gender-Conflict Nexus.* https://giwps.georgetown.edu/wp-content/uploads/2021/01/The-Climate-Gender-Conflict-Nexus.pdf
76 United Nations Framework Convention on Climate Change (UNFCCC). (2022). Implementation of Gender-Responsive Climate Action.

climate action is a key pathway to achieving inclusive peace and security. This requires supporting grassroots women's organisations, recognising women's contributions to climate resilience, and ensuring their voices are central in climate negotiations and policy development.[77]

3.4.3 LIVELIHOOD AND ECONOMIC INSTABILITY

Climate change has significantly impacted youth livelihoods in the Rwenzori Sub-region, with decreased agricultural productivity, property destruction, and limited access to clean water being the most frequently reported effects. The region's reliance on climate-sensitive livelihoods creates a cycle of vulnerability, where economic instability drives unsustainable practices, further worsening environmental degradation. The study shows that the destruction of property and infrastructure due to floods and landslides disrupts economic activities, leading to income loss and increased poverty. Young people, particularly those engaged in agriculture, reported high levels of livelihood disruption, with 73.3 percent indicating that decreased agricultural productivity was a major consequence.

This aligns with findings from the Food and Agriculture Organization (FAO), which reports that climate-related disasters account for over 26 percent of all economic losses in the global agriculture sector, disproportionately affecting small-scale farmers, pastoralists, and fisherfolk.[78] Youth's economic vulnerability is compounded by limited access to financial services, markets, and technologies, which restricts their ability to invest in adaptive strategies. Their heavy dependence on natural resources, coupled with a lack of alternative income sources, drives unsustainable practices such as deforestation and overgrazing. This further increases their vulnerability to climate impacts and weakens the resilience of local ecosystems.

Studies have shown that women face greater barriers in accessing resources, credit, and training opportunities, which makes it harder for them to adapt their livelihoods.[79] Gender inequality exacerbates economic vulnerability, as women are often excluded from decision-making processes and lack ownership of productive resources.[80] Consequently, young women experience heightened economic instability during climate-induced crises, further entrenching gender inequalities.

Diversifying income sources is crucial for reducing economic instability among youth. However, the findings indicate that youth in the Rwenzori Sub-region face significant barriers to livelihood diversification due to a lack of vocational skills, limited access to credit, and poor infrastructure. This lack of diversification leaves youth more susceptible to climate shocks, as they remain dependent on a single source of income.[81] This is consistent with research by Ellis (2000), who argues that diversification is a key strategy for managing risk and reducing vulnerability in rural economies. However, diversification options are often limited by structural barriers such as inadequate education and lack of institutional support, particularly in developing countries.[82]

The effectiveness of livelihood adaptation strategies is often undermined by policy and institutional gaps. In the Rwenzori Sub-region, there is a lack of targeted policies and programmes to support youth in building climate-resilient livelihoods. This finding is consistent with the United Nations

77 UN Women. (2023). Gender, Climate and Security: Sustaining Inclusive Peace on the Frontlines of Climate Change.
78 FAO. (2020). The impact of disasters and crises on agriculture and food security. FAO Report.
79 Nelson, V., et al. (2002). Uncertain predictions, invisible impacts, and the need to mainstream gender in climate change adaptations. Gender & Development, 10(2), 51-59.
80 UNDP. (2019). Gender and climate change: Overview of linkages and programmatic opportunities. UNDP Report.
81 Dercon, S. (2002). *Income risk, coping strategies, and safety nets.* The World Bank Research Observer, 17(2), 141-166.
82 Ellis, F. (2000). Rural Livelihoods and Diversity in Developing Countries. Oxford University Press.

Framework Convention on Climate Change (UNFCCC), which notes that many developing countries lack comprehensive climate adaptation plans that address the specific needs of youth and other vulnerable groups.[83]

The study's findings highlight the need for diversified livelihood strategies and economic empowerment programmes that reduce dependency on climate-sensitive sectors and promote sustainable resource management. Strengthening institutional support, improving access to climate information, and providing targeted financial services are critical for enhancing the economic resilience of youth.

3.4.4 CONFLICT AND RESOURCE COMPETITION

The intersection of climate change and conflict is a prominent theme in this study, with resource competition, displacement, and livelihood insecurity being major drivers of conflict in the Rwenzori Sub-region. Climate change exacerbates existing tensions over land and water resources, particularly between different ethnic and livelihood groups. The study found that climate change-induced resource scarcity has intensified ethnic tensions between the Bakonzo agriculturalists and Basongora pastoralists, often resulting in violent clashes. Disputes over grazing land and access to water are common, especially during prolonged droughts. Political actors have been known to exploit resource scarcity for personal or political gain, further inflaming tensions and undermining community resilience to climate impacts.

Climate change contributes to resource scarcity in several ways, including reduced water availability, soil degradation, and an increased frequency of extreme weather events, all of which disrupt agricultural production.[84] When these impacts coincide with weak governance structures and pre-existing social tensions, the risk of violent conflict rises.[85] Studies by Homer-Dixon (1999) and subsequent research highlight how competition over shrinking arable land and water resources in communities dependent on natural resources often escalates into violent conflict.[86] This is especially evident in the Rwenzori Sub-region, where climate-induced changes in rainfall patterns have reduced the availability of fertile land and pasture, fuelling tensions between agriculturalists and pastoralists.

The intersection of environmental change and social vulnerability creates a "perfect storm" for conflict, particularly in areas where land is already a contentious issue.[87] Raleigh and Urdal (2007) argue that ethnic polarisation and competition over scarce resources often drive local-level conflicts, especially in multi-ethnic regions. In the Rwenzori Sub-region, ethnic tensions between Bakonzo agriculturalists and Basongora pastoralists are exacerbated by climate-induced resource scarcity, leading to violent clashes over grazing land and water.[88]

83 UNFCCC. (2022). *Implementation of gender-responsive climate action.* https://unfccc.int/sites/default/files/resource/cp2022_06E.pdf
84 United Nations Environment Programme (UNEP). (2017). Preventing conflict through environmental management: A strategy for peacebuilding.
85 Buhaug, H., Gleditsch, N. P., & Theisen, O. M. (2014). *Implications of climate change for armed conflict.* In: Handbook on the Economics of Climate Change. Edward Elgar Publishing.
86 Homer-Dixon, T. (1999). *Environment, scarcity, and violence.* Princeton University Press.
87 Ibid
88 Raleigh, C., & Urdal, H. (2007). *Climate change, environmental degradation, and armed conflict.* Political Geography, 26(6), 674-694.

These dynamics align with the findings of Benjaminsen et al. (2012), who examined conflicts between pastoralists and agriculturalists in the Sahel region. Their research found that climate variability contributes to increased competition, often framed along ethnic lines. In such contexts, climate change does not directly cause conflict but acts as a catalyst, intensifying existing grievances and competition over dwindling resources.[89]

The findings emphasise the need for conflict-sensitive climate adaptation strategies that address resource competition and promote equitable resource management. Effective conflict mitigation and resource management strategies must be grounded in understanding the local socio-political context and include mechanisms for equitable resource distribution. Moreover, policies should prioritise inclusive governance and the participation of marginalised groups, including women and ethnic minorities, in resource management and conflict resolution.

3.4.5 YOUTH EFFORTS IN ADAPTATION AND MITIGATION

The engagement of youth in climate change adaptation and mitigation is increasingly recognised as a crucial element of sustainable climate action. The study findings show that youth in the Rwenzori Sub-region are actively involved in various adaptation and mitigation activities, such as tree planting, water conservation, and community awareness campaigns. However, the effectiveness and sustainability of these efforts are often hindered by a lack of resources, training, and institutional support. This section draws on existing research and literature to contextualise youth efforts in climate action, highlighting their roles, challenges, and potential.

Youth are uniquely positioned to contribute to climate adaptation due to their capacity for innovation, willingness to adopt new practices, and ability to mobilise communities. They bring fresh perspectives and energy to climate adaptation, often leading community-level initiatives focused on environmental restoration, sustainable agriculture, and disaster risk reduction.[90]

For example, youth-led organisations in Africa have been at the forefront of promoting climate-smart agricultural practices, such as agroforestry and the use of drought-resistant crops, to enhance food security and reduce vulnerability to climate shocks.[91] Research by Leavy and Smith (2010) supports these findings, noting that youth-led adaptation efforts can be transformative by shifting community perceptions of climate risks and promoting sustainable resource management. In Uganda, youth are increasingly involved in community-based adaptation projects, including rainwater harvesting and soil conservation, which have demonstrated positive outcomes in enhancing agricultural productivity and building local resilience.[92]

Similarly, research by Thew et al. (2020) shows that youth-led mitigation initiatives often emphasise the local context and provide co-benefits such as job creation and gender equality. For example, youth engagement in afforestation and forest management programmes in East Africa has

89 See Benjaminsen et al., (2012); and Raleigh & Urdal (2007).
90 United Nations Environment Programme (UNEP). (2019). Global Environment Outlook: Youth, Gender and the Environment.
91 Ibid
92 Leavy, J., & Smith, S. (2010). Future farmers: Youth aspirations, expectations and life choices. IDS Bulletin, 41(6), 44-51.

significantly improved biodiversity conservation and carbon sequestration while also creating employment opportunities for young people.[93]

The findings reveal a community highly aware of and affected by climate change, with significant gender differences in impacts and experiences. Addressing these challenges requires tailored interventions that enhance education, strengthen governance, and support sustainable practices. Empowering youth through education and economic opportunities can enhance their resilience and help mitigate the impacts of climate change and conflict.

The report underscores the importance of inclusive and holistic approaches to address the interconnected challenges of climate change, environmental degradation, and conflict in the Rwenzori Sub-region.

93 Thew, H., Middlemiss, L., & Paavola, J. (2020). Youth engagement in climate change action: Empowerment or tokenism?. Ecology and Society, 25(3), 1-10.

4. Conclusion

The Rwenzori sub-region faces a complex interplay of climate change, environmental degradation, and socio-economic challenges, making it one of the most vulnerable areas in Uganda. The sub-region is heavily dependent on climate-sensitive sectors like agriculture and livestock farming, which have been severely impacted by erratic rainfall, prolonged droughts, and frequent flooding. These adverse climatic conditions have resulted in reduced agricultural productivity, loss of livestock, displacement of communities, and the destruction of key infrastructure, including roads, bridges, and healthcare facilities. Nearly 93 percent of respondents in the study reported having personally experienced the effects of climate change, highlighting its widespread impact on livelihoods and socio-economic stability. Over 76 percent of respondents reported property destruction, while 73 percent cited decreased agricultural productivity.

The impacts are not uniform across all demographics, with significant gender disparities emerging. Young women face greater challenges than men due to their reliance on natural resources, lower economic resilience, and higher exposure to climate-related displacement and exploitation. Women also report higher levels of food insecurity and are more likely to experience climate-induced displacement, making them vulnerable to sexual exploitation and trafficking. These gendered impacts are largely attributed to structural inequalities that limit women's access to resources, economic opportunities, and decision-making processes.

Youth, who make up the majority of the region's population, are particularly vulnerable due to limited education, high unemployment, and a lack of alternative livelihood options. The study found a strong connection between climate change, resource scarcity, and conflict. Competition over limited resources, such as land and water, has heightened tensions between communities, often leading to violent confrontations. The interplay between climate change and conflict is further exacerbated by political manipulation and governance challenges, which make youth more susceptible to recruitment by extremist groups due to economic marginalization and social instability.

Despite these challenges, youth in the region are actively engaged in adaptation and mitigation activities, including climate-smart agriculture, community-based disaster risk management, and renewable energy initiatives. However, the effectiveness of these efforts is hampered by insufficient resources, inadequate policy support, and gendered social norms that restrict women's participation in decision-making processes.

To foster a more resilient and inclusive approach to climate adaptation and conflict prevention in the Rwenzori sub-region, several key areas of focus are recommended:

1. **Promoting Inclusive Education and Capacity Building:** Expanding educational and vocational training programs, particularly for young women and marginalized groups, will enhance climate change awareness and adaptive capacity.
2. **Developing Gender-Responsive Adaptation Strategies:** Gender-specific policies and programs can address the unique vulnerabilities of young women and promote their active participation in climate adaptation and mitigation efforts.
3. **Strengthening Livelihood Diversification and Economic Empowerment:** Promoting alternative livelihoods will reduce dependence on climate-sensitive sectors and increase resilience to climate shocks.
4. **Implementing Conflict-Sensitive Climate Adaptation Policies:** Addressing the root causes of resource-based conflicts through equitable resource management, community dialogue, and inclusive decision-making is crucial.
5. **Enhancing Youth Engagement in Climate Governance:** Supporting youth leadership and participation in policy development and implementation will ensure that young people have a voice in shaping climate action and governance structures.