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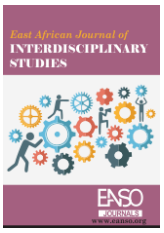

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Original Article

Rural Poverty and Disaster Vulnerability of Remote Communities in Uganda

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ABSTRACT

Disasters have a significant negative impact on rural families and the macroeconomy. In recent years, disasters have been occurring more frequently, causing significant losses. The increase in the scope and frequency of disasters has been attributed to factors such as the various vulnerabilities, limited Disaster Risk Reduction (DRR) activities at the community level, as well as faulty and inadequate monitoring and documenting systems, among others. Since impoverished households' absolute financial losses are frequently negligible in comparison to wealthier households', most analyses tend to ignore the effects on the poorest communities. The study aimed at examining the drivers of disaster vulnerability in Uganda's remote communities, assessing the relationship between poverty and disaster vulnerability; and suggesting strategies for poverty reduction to minimise the remote communities' vulnerability to disasters. We adopted a desk-based research approach, relying on secondary data sources to explore rural poverty and disaster resilience in remote communities in Uganda. We also drew on our own experience and expertise in the field to provide contextual insights. Our findings reveal that the remote communities are disproportionately affected by disasters with poverty contributing significantly to their vulnerability, which suggests a strong relationship between rural poverty and disaster vulnerability of the remote communities in Uganda. It is therefore essential to increase the resilience of low-income households by incorporating disaster risk reduction strategies into development initiatives.

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INTRODUCTION

More people around the world have become more and more vulnerable to numerous types of hazards and disasters (Haque, 2019). Disasters are a global phenomenon troubling both developing and developed countries, and there is, clearly a need for collective action in order to build the resilience of people and communities. To this end, the international community has taken decisive steps, through global arrangements such as the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) to set up ambitious goals in reducing disaster risks at all levels, from local to global (UNISDR, 2015). Yet, despite such efforts, disasters continue to increase in frequency and intensity and exposure to natural hazards is growing at a faster rate than vulnerability is decreasing. There is one climate-related disaster (e.g. flood, drought) happening every week (UNISDR, 2015).

Uganda experiences multi-hazard events that include drought, floods, landslides/mudslides, and heavy storms/hailstorms (Cullis, & Arasio, 2022). In September (2022), the Ministry of Health declared the outbreak of the Ebola Virus Disease in Uganda. There were also anthropogenic hazards like transport-related accidents, land conflicts, and fires. A total of 171,148 individuals were affected, representing 33,476 households of which 22,456 individuals from 5,935 households were internally displaced by the disasters in 2022. The Adults (19-64) were the most affected population group (47%), followed by children under 18 (43%) and the elderly above 64 (10%) in 2022. Natural hazards mostly floods, heavy storms/hailstorms, and landslides combined with mudslides ravaged the nation in disaster-prone districts of Kisoro, Bulambuli, Kasese, Kween, Ntoroko, and Mbale, among others. Statistics also indicate that Uganda registers an average economic loss amounting to UGX. 563,239,697,910 every year over the last three years (World Bank, 2022) due to different disasters.

Poverty has been defined as the inability to meet the basic necessities and social services Ssewaya A, 2003). It means not having enough money to afford basic necessities like food, housing, healthcare, and education, as well as lacking access to social services like clean water and sanitation. According to Uganda's Ministry of Finance, Planning and Economic Development (MoFPED, 2021), this inability is caused by a dearth of options for earning money and/or subpar services The essential needs for survival are food, salt, paraffin, sugar, clothing, healthcare, and education. Severe, multifaceted poverty that affects rural households or communities for an extended period of time is referred to as rural poverty.

According to the International Federation of the Red Cross Red Crescent (IFRC), vulnerability is the incapacity of a person or community to foresee, reduce, manage, and recover from the effects of shocks. Due to a number of social, economic, and physical factors that increase their susceptibility to the effects of shocks and limit their ability to cope and adapt, the poor are generally seen to be disproportionately affected by vulnerability to disasters (Peter *et al*., 2018). The degree of risk exposure a society experiences is referred to as its vulnerability. Disaster vulnerability is related to possible effects on specific social groupings as well as, for instance, the extent to which infrastructure is impacted.

The term vulnerability is severally used to denote the impossibility of human reaction and adaptability to changes in the social, political, and economic spheres (Ayyub, 2019). However, the ability and

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degree to which a system can be harmed due to exposure to danger is the common usage of the term "vulnerability". Three essential components of vulnerability are exposure, sensitivity, and adaptive capability, as noted by Abbas (2019). The idea of vulnerability has garnered significant interest from policymakers, practitioners, and the general public. It offers a potent analytical tool for characterizing human susceptibility to harm, hazard fragility, and adaptability in various contexts (Hallegatte, 2020).

The capacity of people to cope with a hazard determines its likelihood of turning into a disaster. The most vulnerable people are frequently the elderly, persons with disabilities, women, and children. An individual's or a group's resilience is determined by the availability of services and other coping mechanisms (Markhvida, 2020). The poor have few options, and they are frequently compelled to live in dangerous, peripheral areas. Hazard susceptibility is significantly higher in areas with chronic poverty because this increases the likelihood of disasters.

Vulnerable groups are referred to as "social" aspects, and the poor's physical locations are referred to as "spatial" aspects. But the two cannot exist apart. Since vulnerable groups face diverse kinds of disadvantages, breaking down the many categories of "vulnerable groups" can be a good place to start when trying to comprehend the diversity of poverty (Adger, 2018). The different ways that people, households, communities, and the macroeconomy are susceptible to outside shocks, stressors, and trends significantly influence the dynamics of poverty in Uganda (Daily Monitor, 2019). The dangers of falling into or staying in poverty are multifaceted, operate on multiple levels, and differ significantly across the nation. These are the sources of vulnerability and usually come together in a desperation-fueled synergy through their diverse interactions.

Everyone can be said to be vulnerable to natural disasters and the associated risks, however, there are differences in exposure levels and disaster-coping capacities. Due to the poor people's increased susceptibility to disasters and diminished ability to recover from them, poverty is a significant contributor to the risk of exposure to disasters. Disaster and poverty combine to create a vicious cycle. In the event of a tragedy, the community's poverty level rises, raising the probability of another disaster (Peek, & Fothergill, 2019). Communities that are impoverished are significantly more susceptible to disasters, and disasters exacerbate poverty. Thus, by incorporating disaster risk reduction (DRR) into poverty reduction initiatives, impoverished communities can be better protected, the poverty cycle can be broken, and poverty reduction initiatives can be made more sustainable.

METHODOLOGY

This study aimed at examining the drivers of disaster vulnerability in Uganda's remote communities, assessing the relationship between poverty and disaster vulnerability; and suggesting strategies for poverty reduction to minimize the remote communities' vulnerability to disasters. Our qualitative study adopted a desk-based research approach, relying on secondary data sources to explore rural poverty and disaster resilience of remote communities in Uganda. We utilized existing literature, reports, and datasets from reputable sources, including Academic journals and publications; Government reports and statistics; International organization reports; and non-governmental organization (NGO) reports and studies. We conducted a thematic analysis of the secondary data sources, identifying key themes and patterns related to rural poverty and disaster resilience.

We also drew on our own experience and expertise in the field to provide context and insights. The fact that our study relied solely on secondary data sources, we acknowledge the limitations of our approach, such as limited generalizability of findings to specific contexts; potential biases in the existing literature and data; and the lack of primary data to validate or refute existing research.

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However, since we consulted credible sources for our literature, we believe that most of these limitations were taken care of.

This approach was chosen for this study for several reasons such as the fact that remote communities could have been challenging to reach, making primary data collection difficult. Apart from that, desk-based research was considered to be cost-effective, saving time and resources compared to primary data collection, which can be labour-intensive and expensive, in addition to the researcher's desire to leverage the existing knowledge bases to synthesize findings from multiple studies for a comprehensive understanding of the topic. Desk-based research was also considered advantageous as it involved no risk of direct harm or discomfort to individuals or communities and there was no direct interaction with participants. Lastly, the approach was considered the most flexible, enabling the researcher to explore a wide range of issues under this topic.

However, like all other methods, the desk-based approach came with some limitations such as those around the quality of data, due to its reliability on secondary data, which comes with issues regarding data accuracy, completeness, or relevance. Without primary data collection, the study might have lacked nuanced insights into specific community contexts. With this approach, it was difficult to rule out potential biases, since existing research might have reflected the biases or perspectives of the original researchers.

To ensure the quality and validity of the findings of this research, the researcher paid attention to the limitations ensuring that they didn't become a stumbling block for the study. Attention was paid to the sources, which were critically evaluated to ascertain their credibility, reliability, and relevance. The findings were synthesized by integrating insights from multiple studies to identify patterns, themes, and relationships.

Ethical Considerations

The study paid respect to minimum research ethics, giving key considerations to data accuracy and representation, with the researcher ensuring accurate representation of existing research and data; respect for original research and proper citation, where all the sources were appropriately cited to avoid plagiarism and to acknowledge the work of original researchers and participants; as well as ensuring that there was no direct harm, since the study didn't involve primary data collection.

RESULTS AND DISCUSSION

Poverty and Vulnerability to Disasters

In Uganda, poverty is mostly a rural issue that is particularly noticeable among farmers. In fact, the rural areas' disproportionate share of the country's poverty—roughly 96%—has not changed. According to Adger (2018), the percentage of people living in rural poverty decreased from 60% in 1992 to 37% in 2000 and then increased to 42%. In Uganda, flooding is a major disaster that affects every region, with over 40% of the districts and over 25% of the people at risk. Floods in Uganda are thought to cause approximately US$ 62 million in damage annually and directly impact 50,000 people (Haque, 2019). The World Bank Report (2020) states that eight regions and 51 districts nationwide were impacted by the natural disasters, including but not limited to Kasese, Kisoro, Mbale, Bududa, Karamoja, Bundibugyo, Isingiro, Ntoroko, and Butaleja. Poverty and inequality are mentioned as the primary causes of disaster risks as well as the lack of disaster risk-informed policy, poor living circumstances and climate change. The same report highlights issues such as; unplanned urbanization processes; environmental degradation; lack of regulations and weak enforcement; unsustainable resource use; declining ecosystems; pandemics and epidemics; and lack of incentives for private disaster risk reduction investment.

Understanding the structure of vulnerability and the required change can be gained through analysis of

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vulnerability in rural households. Given that disasters primarily impact agriculture, which is the primary means of livelihood for rural households, there is evidence of a substantial association between poverty rates and disasters in Uganda (Bui *et al*., 2018). Poor communities suffer a disproportionate amount of damage from catastrophes, which are becoming more frequent and severe. Uganda's remote communities are most severely impacted by disasters, and the poor in these communities suffer greatly. For example, in Kasese, poverty has driven people to live in hazardous shelters and dangerous areas in the Kilembe Valley, with little control over the decisions that impact their lives. They are now at risk of floods from the Rwenzori mountains, which have historically damaged local agriculture and human life. Across the country, low-income families are primarily forced to reside on steep slopes, low-lying areas, and other high-risk places that are prone to flooding. (Author's own, 2022).

Remote communities are disproportionately more susceptible to disasters because they experience a higher relative loss of assets and have a lower ability to recover and cope. Disasters typically poor people poorer and more susceptible to future disasters, leading to a vicious spiral effect. For example, as the communities in northern Uganda were recovering from the effects of the 20 years of LRA displacement, they were severely hit by the 2007 floods, rendering them more vulnerable and unable to withstand even minor shocks, which led to their further impoverishment.

Numerous shocks, both exogenous (covariant) and endogenous (idiosyncratic), have struck remote communities in Uganda with them experiencing drought, landslides, floods, diseases, violence, and other environmental, social, political, or economic shocks to differing degrees (MoFPED, 2021). Recent disasters in Kabarole, Bundibugyo, and Kasese's remote communities have impacted thousands of people and damaged property worth billions of shillings. In Kisoro district, landslides have always washed away crops into the valley swamp. The resultant floodplains serve as mosquito breeding grounds, which leads to endemic malaria, expensive medical care, and decreased agricultural output. Drought and hailstorms have occasionally been cited as significant contributors to food shortages (Herrera *et al*., 2018). During seasons of heavy rainfall, floods along Lake Kyoga, wash away buildings, crops, and animals while also causing virus illnesses, malaria, and diarrhoea outbreaks. The same area is usually hit by severe drought leading to loss of crop yields and cattle.

The Northern region has been hit by several shocks, including drought, a civil war that lasted for more than two decades, and cattle losses due to Karamojong raids. Official figures show that the Northern region is lagging behind the Central, Western, and Eastern regions in terms of poverty reduction (UBOS, 2023). Cattle rustling has had extremely negative effects, pushing people in the districts of Katakwi, Soroti, Kumi, Pallisa, Kitgum, and Lira into absolute poverty (Bui *et al*., 2018). In Katakwi district, food insecurity, disruption of education services, increase in the frequency of water-borne illnesses, as well as disruption of the family system have made poverty worse (Economic Policy Research Center, 2017).

Numerous communities in eastern and western regions have experienced landslides, floods, mudslides, hailstorms, and lightning, among other calamities due to the terrain and threat of climate change. However, the competing development priorities have hindered the ability to respond to these events and to develop the necessary resilience and preparedness to their causes and effects. The floods in Mbale City, eastern Uganda claimed 29 lives in July 2021, while the landslides in the Rwenzori region killed 16 people in September 2022. In July 2022, 2,465 people died of hunger or hunger-related diseases, following a food security crisis in the Karamoja sub-region. The Teso sub-region, Bundibugyo, Kapchorwa, Bulambuli, Ntoroko, Buliisa, Rubanda, Bududa, and the entire

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L. Kyoga Basin has been severely affected by landslides in the past years (Haque, 2019). In Uganda, many rural people continue to live in poverty even in the new millennium. Hunger is said to be on the rise amid falling per capita earnings, however, environmental degradation, natural catastrophes and other calamities make the situation worse (IFRC, 2019).

Disasters cause losses of lives, the economy, and society and the cumulative effect of modest, frequent, and unspectacular events, especially for the poor since they are not very resilient in terms of resources or health. According to Peter *et al*. (2018), poor people rarely recover from accumulated losses and do not bounce back quickly from even minor setbacks. Disasters can cause death, injury, disease outbreaks, disruption of social services, and malnourishment, among other social repercussions. Economic losses include the loss of a source of income, capital and infrastructure which impede development initiatives.

Communities that cannot cope with threats are more vulnerable to disasters. Hazards in these situations can result in widespread harm or death, significant property damage, and environmental degradation. According to Songwathana (2018), hazards can be man-made, hydrometeorological, geophysical, or biological. Major geological and hydrometeorological risks include storms, earthquakes, landslides, floods, droughts, and wildfires. Man-made risks can be classified as conflict-based or technological (explosions, chemical and radioactive contamination, infrastructure failure). The frequency, scope, and intensity of hydrometeorological hazards are rising as a result of human activity. The poorer groups that rely on cash crops and subsistence farming for their livelihoods would be most affected by this.

In addition to being less equipped to recover from disasters and the lack of access to early warning information, the impoverished are typically the most vulnerable to disasters. They are impacted by emergency response costs more subtly because money meant for development and poverty alleviation projects is transferred to disaster response programs, (Bui *et al*., 2018). Therefore, policies aimed at reducing poverty should also lower the likelihood of disasters occurring in a community through DRR interventions.

The provision of aid following a disaster has historically been the main objective of disaster management plans. Disaster assistance is a vital issue, but the strategy fails to address the need to lessen the effects of future disasters on people and the environment. A growing number of nations are realizing that in order to effectively reduce the social, economic, and environmental costs of disasters, they must prioritize a holistic approach to disaster risk reduction, which includes risk assessment, risk reduction, early warning, and disaster preparedness. Therefore, poverty reduction measures ought to lower a community's risk of disaster as well as its level of poverty (IFRC, 2019)

A reduction in agricultural resources is a component of environmental degradation that goes beyond the deterioration of the natural environment. Rural subsistence farmers who overgraze and overfarm the land may become vulnerable as a result of poor agricultural methods. Poor soil quality, erosion, and decreased productivity follow, which worsen poverty and put more strain on the land. Even when macroeconomic stability has persisted, which is reportedly one of Uganda's greatest accomplishments (Groeschl, 2020), a number of unfavourable economic shocks have led to somewhat less impressive economic growth and transformation. Additionally, private investment is not happening as quickly as the government had anticipated, mainly because of the persistent difficulty in modernizing public utilities as well as the failure to enhance the physical infrastructure (Padli *et al*., 2018).

The Main Drivers of Remote Communities' Vulnerability to Disasters

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Disaster susceptibility in a community is influenced by a confluence of environmental, social, economic, and physical elements. Because poverty has a substantial impact on each of these variables, it makes populations more susceptible to natural disasters. According to the World Bank's Uganda Poverty Assessment (2020), factors such as climate change; poor gender relations and other barriers that prevent citizens from effectively participating in governance processes; geographic isolation; household, community, and regional insecurity; corruption, a lack of strong leadership; and low participation in service delivery remain significant drivers to vulnerability.

The drier northern and eastern regions are particularly affected by climate change, unpredictable weather patterns, seasonality, and pests and diseases that affect crops and cattle, such as the cassava mosaic virus (Herrera *et al*., 2018). Hallegatte (2020) opines that the political instability in many of Uganda's neighbouring countries, the growing prices and cattle raids contribute to vulnerability. The remoteness of some regions of the nation with expensive transportation and limited market access; corruption and rent-seeking practices; theft; violence; and the breakdown of social cohesiveness all contribute to the worsening of the situation.

Furthermore, disasters exacerbate HIV transmissions and amplify epidemics and pandemics, resulting in premature death, a large number of orphans, and households headed by children and women; migration with its potential risks. Such factors lead to a high dependency ratio with negative effects, worsen the poverty situation, and render the community more vulnerable. In addition, men own and control home assets, including land (a worry for women in particular), spousal abandonment, and domestic abuse, which affects about 40% of women weekly in different sections of the nation (Shabnam, 2014).

A community's geographic position affects how vulnerable it is to catastrophes; for instance, if people reside close to a volcano or in a floodplain. The most impoverished members of society are frequently physically excluded and choose to live on unstable property or near dangerous areas, which makes them more susceptible to natural disasters. Physical factors of vulnerability include the weak structures' given the poor building materials, poor design of the infrastructure, as well as the poor construction techniques, (Amin, 2019).

Furthermore, even in the face of serious disasters and clear early warnings, the poor rural populations frequently have no choice but to continue living in high-risk areas, such as wetlands, along riverbeds, on extremely steep slopes, or next to uncontrolled waste sites and industrial regions (Tayebwa, P. 2021). These communities are susceptible to health concerns and collapsing dwellings due to inadequate building materials and unstable ground conditions, especially during the rainy season. The issue is further worsened by the inaccuracies in the forecast technologies and the effects of climate change leading to disasters (Haque, 2019). Inadequate waste disposal and poor sanitation practices contribute to river pollution, which exacerbates the community's susceptibility and causes a couple of health issues for both the locals and people living in settlements downstream.

The poor welfare system of the remote communities exposes them to social vulnerability. A good welfare system covers aspects such as human rights, social security, health, education, infrastructure as well as peace and security. Social well-being is said to decline with poverty (Stiglitz, 2012). Generally speaking, disadvantaged communities have a harder time coordinating their limited resources and realizing a single goal. This lack of collective resilience makes people more vulnerable to calamities or exacerbates their effects (Adeagbo, 2016), and hinders the community's recovery from disaster events.

A short time horizon and a lack of education could impede the shift to a culture of protection and prevention. Poor planning makes the community

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more vulnerable since it fosters resistance to change as well as a denial that their situation can get any better (despair) (Fang, 2018). Additionally, less educated people tend to have low levels of risk knowledge and at times believe they lose nothing in case of a disaster. For instance, following the Ebola outbreak in northern Uganda in 2002, the majority of the rural Acholi considered the rather scientific spread of the Ebola outbreak as *gemo* - a bad spirit that comes suddenly and causes a mysterious illness and death in many people within a very short period of time (Amory *et al*., 2020), and resorted to spiritual means of containing its spread.

The disease is said to be caused by inadequate sanitation, a lack of access to health services, and a poor water supply which makes poor people more susceptible to it, and raises the chance of a disaster by creating triggers (in the form of epidemics). People in remote communities walk great distances to access healthcare due to the lack of or nearly nonexistent health centres, which raises their risk of tragedy (Abbas, 2019). Additionally, some groups such as the elderly, women, and ethnic minorities—are disadvantaged and isolated due to inequality and a lack of social security, raising their susceptibility to risks. Remote communities are more susceptible to disasters as a result of chronic illnesses and pandemics which worsens poverty, food insecurity, and low living standards. These communities also lack strong social safety nets that would promote coordinated disaster prevention using scientific and indigenous knowledge.

Furthermore, the economic standing of people and communities has a significant impact on vulnerability levels; the most vulnerable segment of society is the impoverished. When a crisis strikes, the impoverished who reside primarily in isolated villages suffer disproportionately greater losses and are less able to recover. (Peter *et al*., 2018). Community assets need to be protected since they cannot defend themselves against dangers. To make matters worse, the impoverished in remote communities never undertake any projects aimed at strengthening their precarious livelihoods, which makes them even more susceptible to disasters.

Inadequate socioeconomic infrastructure, such as transportation, healthcare, and communication networks, raises people's susceptibility to risks and disasters on a local level. People who have insufficient access to credit go from temporary poverty, especially after a disaster to chronic poor (Amory *et al*., 2020). Due to their lack of access to economic opportunities, they have no choice but to suffer the consequences of impending disasters even if they are warned in advance. The high rates of unemployment in remote communities, coupled with low income levels resulting from limited opportunities, create a dependency syndrome that keeps them in a chronic state of vulnerability.

Natural ecosystems shield populations from danger. For example, wetlands and woodlands both provide protection from landslides and flooding acting as water storage systems that guard against floods and erosion. However, given the population's need for land for settlement and farming, the pursuit of their energy needs such as charcoal, and firewood, the majority of rural areas have seen a severe loss in their forest cover, leaving them vulnerable to flooding and other natural disasters that could risk people's lives (Tseliosa, & Tompkins, 2018). Degradation of the environment reduces ecosystems' innate ability to withstand hazards, raising the possibility that naturally occurring hazards will turn into disasters, affecting the surrounding community. Due to inadequate and poor land use plans brought about by poverty, there is a greater chance of disaster and a higher susceptibility to environmental deterioration.

Relationship between Poverty and Disaster Risk Vulnerability

Poverty in terms of substandard living circumstances, healthcare inaccessibility, and insufficient infrastructure leave individuals or communities more susceptible to suffering than others. Rural poverty combines with other variables

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to make communities more susceptible to natural disasters (Abbas, 2019). These consist of marginalization, voicelessness, inequity, incompetent leadership, and unwise political choices resulting in fragile infrastructure unable to withstand natural shocks. Short-term crises might turn into long-term ones when humanitarian remedies are unfair or badly thought out.

The unbreakable connection between economic growth, human welfare, and disasters has caused debate about vulnerability and capacity assessment (Peter *et al*., 2018). In order to determine potential risks and coping mechanisms for rural households, it is helpful to analyze their vulnerability (Surminski *et al*., 2016) against their capacities. Vulnerability to natural hazards which is mostly influenced by the interplay of elements in disaster-formative environments and characteristics of those affected by the hazards also plays a role in determining how vulnerable rural households are to disaster (Haque, 2019). The vulnerability of a household to changes in the external environment and its capacity to recover from natural disasters determine its vulnerability (Peter *et al*., 2018).

Additionally, the correlation between poverty and rural households' vulnerability is increasing. Specifically, households become vulnerable when their well-being falls below a predetermined threshold. It is generally acknowledged that low-income families are more vulnerable to risk because they have fewer resources for just subsistence use and are less equipped to handle it. Increasing livelihood and capital, particularly social capital, could be a way to help households adapt to climate change (Shabnam, 2014; Stiglitz, 2012).

Effects of Disaster on the Rural Poor People

Disasters like natural catastrophes cause environmental harm and eventually income inequality due to the rise in economic disparity in the impacted areas (Amin, 2019). Less stable and prosperous economies leave emerging regions exposed to the effects of climate change, which, if not properly foreseen, could ultimately result in a disaster. He argues that the majority of developing nations frequently struggle to put effective adaptation plans into practice in order to lessen the adverse effects of climate change. Because underdeveloped nations lack access to modern technologies, they are particularly vulnerable to the food crisis that is brought on by climate-related disasters. Disasters affect the impoverished more than they do developed or urban places.

Decreases in productivity following disasters lead to a downturn in economic growth. According to Shabnam (2014), the GDP growth rate per capita is lowered by 0.005% for every thousand out of every million individuals affected by disasters like floods. For example, disasters severely affected Japan's major sectors which resulted in large economic losses and ultimately raised the country's income disparity (Okiyama, 2017). Natural, social, human, physical, and financial capital are all damaged by the calamities (Fang *et al*., 2018).

Rural people's assets and income are severely impacted by disasters, which increases their likelihood of descending into extreme poverty. Cullis, & Arasio (2022) noted that after significant landslides that occurred in 2019 and 2022, the poorest villages in the Rwenzori and Mount Elgon mountains lost the majority of their assets and eventually fell into the severe poverty category. A flood in Bundibugyo in 2019 caused three times as much damage to impoverished homes as it did to the rest of the population and even led to greater losses for low-income households (Daily Monitor, 2019). Furthermore, since there is no safety net to protect their incomes and means of subsistence, the repeated losses of assets and sources of income have a long-term, irreversible effect on the poverty levels of these households.

According to Bui *et al*. (2018), disasters have an effect on the rising levels of poverty and inequality. Not only do disasters result in financial losses, but they also alter the socioeconomic makeup of the afflicted community. The resultant effect is poverty

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and expenditure disparity, translating to increased income and welfare inequality. In order to reduce poverty and achieve income equality, plans for economic development must take disaster management into account.

A disaster may result in a reduction in the capacity of resources and a loss in productivity. Economic losses from disasters include losses of assets and revenue for the community. The socioeconomic circumstances of the impacted community typically influence how severe the disaster is, with the poorest people typically suffering greater income losses (Abbas, 2019). This is mostly due to the fact that impoverished households are less prepared for disasters, reside in places that are vulnerable to them, and rely heavily on the weather-dependent traditional agricultural sector for their income. As a result, they naturally suffer greater financial losses during catastrophes and could hinder economic growth, leading to joblessness, poverty, and unequal income distribution (Peek, & Fothergill, 2019). Adeagbo *et al*. (2016) posited that natural disasters had an impact on the household well-being and economic circumstances of people in Nigeria.

The degree of economic losses resulting from disasters is correlated with the social and economic conditions of the community; the better the socioeconomic conditions of the community, the lower the level of economic losses that occur (Padli *et al*., 2018). Additionally, Haque (2019) stated that due to floods in Nigeria, half of the population suffered losses of up to 79% of their primary source of income. The flood tragedy resulted in a very notable slowdown in the rate of economic growth, which ultimately caused income disparity. Padli *et al*. (2018) assert that if the community's economic situation is worse, the disaster's severity is comparatively lesser, but if the community's economic situation is better, the disaster's damage would be considerably greater.

Stiglitz (2013) also confirms the link between income inequality and environmental impact and concludes that disasters cause loss of economic capacity and jobs, which makes the community's income inequality worse (Hallegatte, 2020). Environmental damage causes inequality, though inequality can also lead to environmental damage. The poor have a tendency to consume without considering the effects on the environment since they are more concerned with obtaining their basic requirements.

Policy Challenges

Unfair policies continue to be a problem, which exacerbates inequality and puts a lot of people at risk. Issues of regional imbalances, chronic unemployment and massive corruption, among others continue to be a major threat to social economic transformation (Okiyama, 2017). Most of Uganda's population is still impoverished, with the bulk of the rural poor staying mostly outside the monetary economy and producing mostly for subsistence use. The country's north and east are typically poorer than other regions (Padli, 2019). At least 65% of agricultural GDP is still derived from the production of food crops, yet agriculture is still characterized by low productivity. The government has implemented Poverty Eradication initiatives like *Emyooga,* Youths Livelihood Program, SAGE, and currently, the Parish Development Model in response to these difficulties, but all with poor results mainly because such initiatives are usually designed without the poor people’s input.

The government's capacity to maintain Uganda's political and socioeconomic gains is being adversely affected by the notable rise in disaster consequences. The calamities are slowing down the anticipated rate of development (Rozenberg, & Hallegatte, 2015). The government desperately needs funding to invest in technology for disaster response and preparedness. Many resources are needed for the process, such as investment in forecasting technologies, dissemination of the forecasts, implementation of anticipatory actions, as well as investment in effective disaster response tools such as earth-moving machinery, satellite phones, GPS units, high-frequency radios, night

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vision equipment, among others, to better handle the disasters (Amory *et al.*, 2020).

The Office of the Prime Minister (OPM), created a new disaster risk management plan and standard operating procedures guide, but information management is still lacking, making it difficult to know the number of people affected by disasters, their top needs, and the gaps in support still needed to meet their basic needs (OPM website). The core causes of disasters are not addressed by humanitarian solutions, and an over-reliance on external assistance exacerbates pre-existing vulnerabilities and creates a vicious cycle of disaster vulnerability. Therefore, efforts be made to address the long-term issues related to risk reduction in addition to providing prompt and appropriate humanitarian assistance. Moreover, a lot of natural and technological disasters happening on a small scale, frequently go unreported, and leave the impacted populations to deal with the effects on their own without assistance (IFRC, 2019).

Disaster management and risk reduction continue to represent a national challenge, despite a rising understanding and acceptance of the significance of disaster risk reduction and increasing disaster response capacities. For example, disaster preparedness and response are frequently characterized by a lack of speed (Groeschl, 2020). The coordination mechanisms for disaster risk management, have been fragmented and available funding for disaster management, is mostly used for response, with less allocated to preparedness activities (Adeagbo, 2016). Additionally, there exist gaps in the planning & coordination of emergency preparedness and response for disaster risk management at the district and sub-district levels. Also, analyses of risk, hazard, and susceptibility have been restricted to the macro level, with a limited grasp of the micro level.

Strategies to Reduce Rural Poverty and Minimize Remote Communities' Vulnerability to Disasters

The above discussion has highlighted the critical link between poverty and vulnerability to disaster losses. Ban Ki-Moon, the eighth Secretary General of the United Nations could not emphasise the fact that poverty exacerbates disaster risk when he concluded that the poor and vulnerable are disproportionately affected by disasters and that their lack of resources and infrastructure makes them more susceptible to disaster-related losses. He in fact termed disaster morality as a damning indictment of inequality noting that as people in high-income countries (communities) suffer huge economic losses in disasters, the people in low-income countries (communities) pay with their lives, calling for the need to eradicate poverty as a means to reducing disaster risk noting that achieving the first Sustainable Development Goal (SDG 1) of eradicating extreme poverty was crucial to reducing disaster risk and building resilience. He called for a shift in national planning from managing disasters to managing risks, emphasising the importance of prevention and building resilience to reduce disaster loss of life (Ban, 2016). To contribute to this discussion, our paper suggests the following measures for poverty reduction, which might contribute to the remote rural communities' resilience and reduce their vulnerability to disaster loss.

Mitigation is one of the most effective strategies in reducing the shock's magnitude. It examines laws and plans that aim to lessen people's susceptibility to shocks brought on by disasters by providing communities and individuals with pertinent information, such as the severity and timing of impending hazards (Haque, 2019). This is intended to help with planning how and when to respond in order to have the least negative possible impact on the lives, property, and means of subsistence of the communities who may be impacted. In other words, mitigation aims to significantly reduce the susceptibility of the poor's livelihoods to shocks connected to climate change by lowering their exposure to risk and protecting their assets. Uganda is currently implementing early warning systems

Article DOI: https://doi.org/10.37284/eajis.8.1.2907

and climate-smart agriculture as mitigation measures (Goeschl, 2020).

Early warning systems ought to be configured to give vulnerable populations access to timely information in order to lessen the impact of impending risks on their property and way of life. Most areas have access to meteorological information including impending climate-related threats from weather centres (Herrera *et al*., 2018). Yet, their lives and the property of populations in such areas remain in jeopardy. In this sense, an effective early warning system should incorporate excellent planning and implementation of actions targeted at averting the greatest impact of such disasters. However, the utilisation of early warning messages depends on a number of factors such as available alternatives (Tayebwa, P. 2021) which are limited among the rural poor.

Community participation is another strategy because of the wealth of information and resources with which communities may make a significant contribution to the reduction of poverty and the danger of disaster. Because they were not owned and directed by the community and were not appropriate for the circumstances of the intended beneficiaries, many development initiatives have failed, at least in part. Community leaders should spearhead initiatives to reduce poverty, utilizing funding and technical assistance obtained from foreign and local non-governmental organizations (Hallegatte, 2020). People must be willing to adapt and take the mantle to initiate change. A significant portion of this transformation will include breaking taboos and changing customs.

Given that investment offers skills, jobs, and technology, establishing a stable political climate, battling corruption, generating employment, and defending property rights are all ways to promote investment & trade. Amin (2019) asserts that communities can work with foreign investors to transform their communities through extracting resources, agriculture value addition, mining, logging, and oil drilling. If extended to remote communities, this will help to minimise poverty levels and increase the capacity of the residents to cope with and recover from the different disasters. However, countries should grace themselves for environmental deterioration results from these operations, otherwise, the results could be worse for the already struggling poor people in the remote areas of the developing countries.

According to Markhvida (2020), effective governance which consists of characteristics such as equity, rule of law, accountability, responsiveness, democratic pluralism that encourages public engagement, conflict prevention and resolution, and strategic planning and vision, would be a good bottom-up strategy that promotes project ownership, which in turn empowers people and communities. Therefore, efficient administration and functioning organizations at all levels of governance could help ensure programs aimed at reducing poverty are implemented effectively. DRR necessitates the implementation of safety regulations such as building codes and land-use planning, this would promote sensible land use, reducing the susceptibility of rural residents to natural disasters (Okiyama, 2017).

Fostering and promoting climate-smart agriculture is another strategy that could minimise poor people's vulnerability to shocks from climate change. Because it incorporates elements of both mitigation and adaptation to climate change, it maintains value in both contexts. The impoverished gain more from unlocking irrigation potential and controlling flood occurrences because it lessens their susceptibility to seasonal variations, which is exacerbated by their excessive reliance on rain-fed agriculture (Padli, 2018). Additionally, providing other sources of revenue and livelihood options, and investing in irrigation schemes will lessen the vulnerability of the impoverished. The government should provide irrigation equipment and free access to water, ensuring the most vulnerable and impoverished households participate in irrigation farming.

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Getting disaster risk insurance, which shifts the risk of loss to the insurer is another great strategy. This mechanism ensures efficient and quick post-disaster aid on an individual, community, national, and regional level, protecting against the loss of assets, livelihoods, and lives as a result of disasters (Peek, & Fothergill, 2019). Costs, however, prevent the poor and most vulnerable populations from participating since they lack the resources to pay for the insurance. To lessen the impact of weather-related shocks, indirect measures such as insurance plans where the government is the policyholder are primarily used in this respect. However, there is still limited awareness among the rural people about the existence of such schemes, and many countries including Uganda do not yet have enabling policies to promote such a scheme.

A systematic approach to risk identification and monitoring by analyzing possible hazards and assessing current exposure and vulnerability conditions that potentially harm people, property, services, livelihoods, and the environment on which they depend is required. Effective poverty and disaster risk reduction requires early warning systems, capacity building, and disaster risk assessment. Systems for tracking poverty are also crucial for assessing how well measures for reducing it are working. Consequently, a comprehensive list of all the natural and man-made risks that may have a negative effect on people's susceptibility to disasters must be in place (Peter *et al.,* 2018).

Another strategy would be to integrate disaster risk reduction with land-use planning and execution (Rozenberg, & Hallegatte, 2015). The increase in the population of Africa has meant that natural resources (water, forests, and arable land) are becoming increasingly scarce. When planning how to use land, one must consider not only the physical environment but also the socioeconomic status, knowledge, skills, customs, role of women, cultural values, and external forces in addition to the current problems facing the community to minimize the occurrence of disasters. Ecotourism is one land-use approach that transforms natural wealth into economic capital at the community level, by giving community members alternate sources of income and work opportunities that directly increase their financial capital such that they don't interfere with the ecosystem.

Capacity enhancement strengthens community social cohesion. Communities get more social and economic capital when they practice sustainable agriculture development. Through higher labour demand and higher rural spending, it raise the financial capital of people as well as their economic capital. Significant social well-being is another outcome of food security (Herrera *et al*., 2018). A community's financial capital should be preserved and increased by avoiding debt and the ensuing poverty traps as well as establishing community banks.

CONCLUSION

Millions of people continue to be displaced annually by disasters which impact their economic and well-being. These events are challenging to analyze since data collection is hampered by displacement and because impoverished rural residents frequently relocate to high-risk areas. Welfare is usually impacted for households that are uprooted by floods and landslides, and it is much worse for those who move back to their original community (Hallegatte, 2020). The fact that household coping mechanisms differ greatly complicates the measurement of vulnerability. No wonder, advocacy groups have called upon the government to focus on mitigating and lowering disaster risk as opposed to the current focus on managing and responding to disasters.

To address these difficulties, it would be important to combine complete administrative lists of all the households living in the impacted villages at the time of the disaster event with information on disaster trajectories that result in quasi-random variance in destruction within affected areas. This would enable us to calculate the average causal

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effect of disasters on the population that is impacted.

Although the focus of this paper has been on the micro-economic effects of disasters, economic systems are not isolated entities. We note that despite the far-reaching effects of catastrophic shocks, disaster studies have, until recently, occupied a somewhat peripheral position in development theory and practice. Consequently, development planning has not taken disaster vulnerability into account. Our goal in giving this evaluation of Rural Poverty and Disaster Vulnerability of Remote Communities in Uganda is to help shift the debate about disasters and demonstrate how deeply long-term development is impacted by disaster losses. It is ineffective and unethical to relegate disasters to the periphery of development theory and practice.

Recommendations

Effective preparedness for disasters has the power to save lives and money. Disaster risk reduction strategies that are included in development initiatives could save lives and costs, strengthen the resilience of vulnerable populations, and safeguard development achievements. Socio-economic Infrastructure should be strengthened and both state and non-state actors should incorporate disaster risk reduction and climate change adaptation strategies into their development programs.

Increased dissemination of disaster risks can play a significant role in reducing the likelihood of disasters by highlighting instances in which preparedness has saved lives. This can be done through the media to disseminate early warning messages, possible early actions and coping strategies, hence helping to salvage people and assets. Continued risk communication also will increase risk knowledge, promoting a safety mindset that would help communities to prepare accordingly.

The government and its partners should focus more resources on supporting the implementation of early actions in the face of disasters, especially for remote communities, given their high levels of vulnerability, amidst low capacities and low levels of resilience. This would cover aspects of; training, technological proficiency, soft skills, early evacuation, reinforcing homes, distributing health protection kits, setting up mobile clinics and distributing cash, among others, helping the disaster-prone communities become better equipped to handle the effects of these calamities.

The government should take bold steps to map the country's danger zones, enforce the environmental laws already in place, and implement restoration projects along lake shores, wetlands, slopes, and riverbanks. This will reduce settlements in high-risk areas, and reduce damages in case of disasters. The government should disseminate how such measures contribute to the dividends of resilience, and the wider economy.

Natural disasters have a profound effect on people's lives and the economy. The government must therefore carefully plan how to handle the effects of disaster losses and create a program that is both explicit and quantifiable. For instance, to guarantee that all societal groups recover quickly from the effects of disasters, the government should introduce and promote disaster insurance in its efforts to manage the risks and effects of disasters. There is also a great need for increased forecast-based financing to support disaster risk management strategies.

Since disasters start and end with the people, community engagement at all stages of the disaster management cycle is important as communities are empowered to take charge of activities at each stage of the cycle. The affected communities should be considered as key partners and co-producers in all disaster risk management efforts instead of perceiving them as passive recipients of development and humanitarian programs.

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