The political economy of landslides and international aid relief: a qualitative investigation in rural Uganda

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Abstract

This is a qualitative study of perspectives from community members on landslides in Bududa, Uganda. Interviews with community members reveal their perceptions of the causes, effects, and aid response to landslides. We employ a 'structural fieldwork' approach to explain community member's thoughts and experiences using critical macro-comparative perspectives relating to political ecology. This research brings attention to how large-scale unequal relationships in trade and international aid increase landslide vulnerability and there are ineffective relief efforts in a particular locale. Linking environmental degradation in Bududa to political, economic, and social factors provides a broader context in which to view risk from landslides in this community, as a critical case in demonstrating how economic globalization benefits some at the expense of others.

Keywords: Landslides, unequal exchange, disaster, NGOs, political economy

Résumé

Il s'agit d'une étude qualitative des perspectives des membres de la communauté sur les glissements de terrain à Bududa, en Ouganda. Les entretiens avec les membres de la communauté révèlent leurs perceptions des causes, des effets et de la réponse de l'aide aux glissements de terrain. Nous utilisons une approche de «travail de terrain structurel» pour expliquer les pensées et les expériences des membres de la communauté à l'aide de perspectives macro-comparatives critiques relatives à l'écologie politique. Cette recherche attire l'attention sur la manière dont les relations inégales à grande échelle dans le commerce et l'aide internationale augmentent la vulnérabilité aux glissements de terrain et que les efforts de secours sont inefficaces dans une région donnée. Relier la dégradation de l'environnement à Bududa à des facteurs politiques, économiques et sociaux fournit un contexte plus large dans lequel considérer les risques de glissements de terrain dans cette communauté est un exemple essentiel pour démontrer que la mondialisation économique profite aux uns aux dépens des autres.

Mots-clés: glissements de terrain, échange inégal, catastrophe, ONG, économie politique

Resumen

Este estudio sobre deslaves, tiene carácter cualitativo y está realizado con perspectivas de miembros de la comunidad de Bududa, Uganda. Las entrevistas con gente de la comunidad revelan sus percepciones acerca de las causas y efectos de los deslaves, así como las posteriores respuestas de ayuda. Nuestra aproximación para explicar lo que piensan y experimentan los miembros de la comunidad se basa en "trabajo de campo estructural", utilizando perspectivas macro comparativas en ecología política. El estudio se centra en cómo las relaciones desiguales de comercio a gran escala y ayuda internacional, incrementan tanto la vulnerabilidad ante los deslaves, como la ineficiencia en esfuerzos de ayuda en la localidad. Vincular la degradación ambiental en Bududa a factores políticos, económicos y sociales, amplía el contexto del riesgo en la comunidad. Así, se

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puede plantear un caso crítico para demostrar cómo la globalización económica beneficia a unos, a expensas de otros.

Keywords: Deslaves, intercambio desigual, desastre, ONGs, economía política

1. Introduction

Communities throughout the world are facing disasters on an unprecedented scale. In the past decade, natural hazards such as landslides, floods, severe weather events, earthquakes, droughts, tropical cyclones, volcanic eruptions, and wildfires have caused significant losses in human lives and livelihoods and the devastation of economic and social infrastructure (UNISDR 2014; UNEP 2014). We emphasize that disasters are not natural events; poverty and other factors cause certain people to be at risk to such hazards. With the increased frequency and intensity of hazards witnessed recently, it is projected that damages from disasters will swell to US$400 billion per year, with climate change likely to worsen these situations in many locales (UNEP 2014; IPCC 2018).

All nations suffer from hazards; however, a robust literature supports the view that disasters in less-developed areas tend to be disproportionately and acutely devastating due to the vulnerability of poor populations (e.g. Austin and McKinney 2016; Roberts and Parks 2007; Tierney 2007; UNEP 2014). Natural hazards include events like storms and landslides, and social, economic, and political factors create vulnerabilities that turn these events into disasters (e.g. Wisner *et al*. 2004; O'Keefe, Westgate and Wisner 1976; Oliver-Smith 2002; Wisner 2016). Environmental factors also play a leading role in our current understanding of disaster risk, as ecosystem alterations, such as deforestation, deplete natural barriers to hazards, including landslides (e.g., Blaikie 1985; Roberts and Parks 2007; UNEP 2014). Landslides, which represent the most widespread geological event globally (WHO 2015), displace entire communities, endanger the integrity of ecosystems, erode infrastructure and citizens' livelihoods, and damage lives (Kitutu *et al*. 2011; Mafabi and Butagira 2013; Misanya 2011; NEMA 2010; UNDP 2014; UNEP 2014; UNISDR 2014; Wanzusi 2013).

Perspectives rooted in political ecology and world-systems theory provide a theoretical lens through which to view global patterns in disasters such as landslides (e.g. Roberts and Parks 2007; Wisner *et al*. 2004). The aim of this article is to link local outcomes to the larger causes and consequences of landslides, including trade, international aid, and other political and economic factors. Specifically, concepts such as 'ecologically unequal exchange' may be especially relevant in considering the root causes of landslides, as patterns in global trade and production stimulate agriculture and resource extraction in less-developed nations like Uganda, creating conditions favorable to landslides including forest loss and soil erosion (e.g. Blaikie 1985; Rice 2007; Roberts and Parks 2007). In addition to the relevance of explaining less-developed nations' disproportionate risk to hazards, political-economic factors also inform patterns in international aid response. Critiques of the efficacy of international aid highlight that relief provided from international NGOs, governments, and other institutions in the Global North often fail to make significant, lasting, or sustainable changes on the ground in poor nations.

In this article, we integrate ideas from political ecology and world-systems traditions to examine the upstream causes of hazards and their consequences for vulnerable populations in Bududa, Uganda. Although studies in political ecology often employ interviews and field-based research methodologies, world-systems research drawing on aspects like ecologically unequal exchange typically employ quantitative, cross-national analyses (e.g. Austin 2012; Jorgenson *et al*. 2010; Lawrence 2009; Noble 2017; Shandra *et al*. 2009). Thus we expand on world-systems thinking by incorporating techniques from political ecology to undertake our qualitative 'structural fieldwork' approach (e.g. Gellert and Shefner 2009) in exploring how community members in a rural Ugandan community view the causes of and international response to landslides. We draw on macro-level dynamics to investigate how people in a specific location are affected by landslides, illuminating key mechanisms and processes that can only be elucidated through an in-depth analysis. Our work therefore contributes to the advancement of unequal exchange scholarship and seeks to foster a better understanding of how the political economy manifests in a particular locale.

In the Mt. Elgon region of eastern Uganda, landslides represent a key threat to development and well-being. News and research reports highlight the increasing regularity of landslides around the Mount Elgon region (e.g. Atuyambe *et al*. 2011; Mafabi and Butagira 2013; Osuret *et al*. 2016; Wambi 2012; Wanzusi 2013). The most devastating event occurred in the Bududa District in March 2010 when the Nametsi area suffered from a major landslide which killed over 500 people and forced thousands to abandon their homes (Atuyambe *et al*. 2011; Mafabi and Butagira 2013). Although populations in the Global North are often far from such devastation, or are able to recover more quickly when hazards do strike, perspectives like ecologically unequal exchange help to demonstrate how local vulnerabilities are connected to global processes, including demand for agricultural products like coffee.

2. Hazards and vulnerability in less-developed nations from a comparative perspective

As previously emphasized, global patterns in risk to hazards such as landslides often follow broader lines of international inequality. While environmental hazards were once termed 'natural' disasters, such calamities do not occur spontaneously and are thus rooted in larger social, economic, and political processes that can be explored through political ecology and world-system frameworks (e.g. Blaikie 1985,1994; Gould, Garcia, and Remes 2016; O'Keefe *et al*. 1976; Roberts and Parks 2007; Wisner *et al*. 2004). A disaster marks the interface between an extreme geological or weather event and vulnerable populations. Vulnerability to hazards is determined by social conditions, systems of power, and inequality and poverty; thus, vulnerabilities turn hazards into disasters (O'Keefe *et al*. 1976; Wisner *et al*. 2004; Wisner 2016).

We draw on Wisner *et al*. (2004) in defining vulnerability as the characteristics or conditions faced by people that impact their ability to prepare for, avoid, cope with, or recover from hazards. The elevated vulnerability of people in less-developed nations to hazards like landslides is intimately connected to colonial histories and process of underdevelopment (e.g. O'Keefe *et al*. 1976; Blaikie 1985; Roberts and Parks 2007). Vulnerabilities are closely tied to socio-economic position and risks from hazards typically have underlying causes that are often quite remote from the hazard itself. Scholars highlight the importance of 'chain of causation' models that link disasters to their root causes, anchored in the global political economy and spatially and temporally distant from disaster events (e.g. Blaikie 1985; Oliver-Smith 2002; Wisner *et al*. 2004). In the case of landslides, these include factors like neoliberal development schemes, land seizures, structural adjustment policies, expansion of cash-crops or agricultural export enterprises, and corruption (e.g. Blaikie 1985; Wisner *et al*. 2004).

These more distal factors or root causes affect poor people living in adverse economic situations and in areas that are prone to hazards, or to engage in behaviors that elevate hazard risk, including settling or growing crops on steep hillsides, deforesting, or building homes with inadequate materials (e.g. Blaikie 1985; Roberts and Parks 2007; Wisner 2004). Blaikie (1985) pioneered chain of causation models for soil erosion, which have clear relevance to landslides, arguing that integration in the world economy is often associated with displacement and confinement of populations to smaller and more dangerous portions of land on mountainous terrain. Wisner *et al*. (2004) developed a similar schema of 'pressure and release models', arguing that root causes such as limited access to power and resources, and unfair political and economic systems, create dynamic pressures which put particular groups in unsafe conditions that elevate their levels of risk, and that reductions in vulnerabilities can mitigate or release such risks. Thus, "marginal people are pushed to marginal places" (Blaikie 1994: 125). Many steep-sloped areas prone to soil erosion and landslides suffer from a common set of conditions, such as environmental degradation and political and economic subordination. Population pressures also facilitate fragmentation of holdings, settlement on dangerous slopes, and deforestation for agricultural production and fuel (Blaikie 1985; Roberts and Parks 2007; Wisner 2004). Many emphasize that population growth, and the resulting strain on the environment, increases due to poverty; thus, vulnerability to hazards is ultimately a result of poverty, not population growth (Blaikie 1985; Oliver-Smith 2002; Roberts and Parks 2007; Wisner *et al*. 2004; Wisner 2016).

Indeed, political ecology and world-systems frameworks highlight unequal power relations between rich and poor populations which distributes a disproportionate burden of environmental risk on the poor globally, as the highest levels of environmental degradation, are concentrated in poor, peripheral nations

located at the bottom of the world system (e.g. McMichael 2012; Rice 2007, 2009). A number of disasters studies scholars emphasize the role of cash-cropping and export crops in facilitating soil erosion and deforestation on steep slopes, and even point specifically to the role of coffee production in Africa in creating risky conditions (e.g. Blaikie 1985; Roberts and Parks 2007; Wisner *et al*. 2004).

Within comparative theorizations, world-systems analysis focuses explicitly on the role of unequal trade and production structures in explaining the persistence of poverty and the concentration of environmental degradation and hazards in poor nations (e.g. Austin 2012, 2017; Bunker 1985; Mahutga 2014; Roberts and Parks 2007; Noble 2017). The world-economy is stratified into a global division of labor where the highest skill and profit-making industries are concentrated in nations positioned at the top of the international hierarchy, while the lowest-paying, most labor-intense, and environmentally-damaging industries largely represent those located in less-developed nations (e.g. Mahutga 2014; Wallerstein 1974; McMichael 2012). The concept of 'ecologically unequal exchange' specifically explains that rich nations are able to off-shore the environmental costs of production through unequal trade relationships (Bunker 1985; Rice 2007, 2009). The international division of labor, where poorer nations specialize in primary sector production and more developed nations specialize in manufacturing capital goods or providing services, allow core nations to preserve their natural resources and instead degrade environments abroad.

Thus, despite that the consumption of natural resources principally takes place in affluent nations, populations in poor nations that export raw material and agricultural products face disproportionate levels of ecological degradation and therefore increased disaster risk (e.g. Rice 2007, 2009; Roberts and Parks 2007). As environmental hazards have severe impacts on human well-being, we extend unequal exchange frameworks to argue that they can be used to explain costs to health and human life. There is stark global inequality in harm from disasters, as over 95% of disaster deaths occur in less-developed nations. Applying unequal exchange frameworks illuminates that despite the responsibility of rich nations for degradation and environmental risks in poor nations, it is people in less-developed nations that face heightened hazard vulnerability and therefore declines in their well-being (Roberts and Parks 2007). This central thinking is also in line with the disasters studies and political ecology literature which highlights that the devastation from disaster events are often located far from the social conditions and economic processes from which they originate (e.g. Blaikie 1985; Tierney 2007; Wisner *et al*. 2004).

As mentioned briefly previously, in addition to inequalities in trade and production, factors such as debt and structural adjustment policies also contribute to the disproportionate destruction that less-developed nations face from disasters like landslides (Wisner *et al*. 2004; Roberts and Parks 2007). Increased privatization and reductions in government spending required by austerity measures mean inadequate public health resources in less-developed countries (e.g. McMichael 2012; Shandra *et al*. 2011; Wisner *et al*. 2004). Limited health systems in poor nations cannot respond adequately to disaster events, and the basic infrastructure challenges that characterize many peripheral nations, including a lack of paved roads and proper sanitation facilities, exacerbate suffering from disasters and pose challenges to disaster response (Roberts and Parks 2007; UNEP 2014; Wisner *et al*. 2004). With weak and unstable public programs, aid relief in many less-developed nations has fallen largely to international non-governmental organizations (INGOs) (Namwamba and Lyles 2007; Roberts and Parks 2007).

However, some question the efficacy of INGOs and international aid in promoting human and environmental well-being in less-developed nations, or even argue that such agencies are used to exercise control and generate profits in disaster-prone areas (e.g. Moyo 2010). Patterns in international aid reflect global inequalities, as one major critique points out that control and decision-making in these organizations is often based in core nations where the stakeholders and donors reside. Thus, the activities of INGOs may ignore or lack understanding of local cultural needs and conditions on the ground in poor nations (Moyo 2010; Namwamba and Lyles 2007: Seckinelgin 2005, 2006; Shircliff and Shandra 2011). Furthermore, while aid by INGOs based in core nations may be provided in times of crises, it often comes too late; many of the deaths and injury from disasters occurs immediately or before aid is able to arrive (Namwamba and Lyles 2007; Ndikaru Wa Teresia 2007; Roberts and Parks 2007). Additionally, emergency aid is more likely to be given to easy-to-reach segments of the population, and likely not those affected most by the disaster. Other studies show

that some aid provided through INGOs ends up being sold on the open market rather than provided to the populations in need (e.g. Misanya 2011).

The Bududa District in the Mount Elgon region of Uganda is an appropriate place to focus investigation of such phenomena as this mountainous area has been a site of increased landslide activity, and also has key features that relate to the theorization of inequalities. Uganda's economy is centered on exporting primary sector goods, and coffee represents the main commodity produced in the region. In fact, coffee is the largest agricultural export product of Uganda, and represents a key source of foreign exchange earnings. Located directly on the equator, poor populations in Bududa are pressured to deforest and utilize unsustainable agricultural practices to grow coffee (Misanya 2011; Kitutu *et al*. 2011; NEMA 2010; Watira 2011). There is a lack of adequate public health services and limited protection for local citizens, especially in the wake of natural hazards. Thus, international aid agencies often play a major role in providing relief in the wake of landslides. These characteristics make the Bududa District an appropriate case to investigate and apply political and economic thinking to the larger, root causes of disaster risk tied to exploitation and underdevelopment.

3. Community-based perspectives on landslides in Bududa

A handful of studies conducted in the Mt. Elgon region focus on examining community members' perceptions of landslides. Community members identify poverty, construction of weak housing, limited land for growing crops, population pressures, and a lack of access to critical infrastructure and services as factors that increase landslide vulnerability in the region (e.g. Gorokhovich *et al*. 2013; Misanya 2011; Misanya and Olav Øyhus 2014; Mugagga *et al*. 2010; Osuret *et al*. 2016). Certainly, the impoverished status of community members in Bududa greatly contributes to landslide vulnerability. Deforestation due to population pressures and dependence on agriculture, including export coffee production, are also themes emphasized in a number of studies (e.g. Gorokhovich *et al*. 2013; Mugagga *et al*. 2010; Osuret *et al*. 2016).

Community members hold a wide variety of explanations for landslides, expressed in accounts based on technical and religious knowledge (e.g. Misanya 2011; Misanya and Olav Øyhus 2015; Kitutu *et al*. 2011; Osuret *et al*. 2016). Misanya and Olav Øyhus (2014) find that technical explanations for the 2010 Nametsi Landslide were mainly used by more educated and affluent community members. Technical explanations for landslides concern geo-physical or meteorological risk factors, identifying that landslides tend to occur in areas with steep slopes, water flowing underground, sandy and stony soils and after prolonged periods of rainfall (Kitutu *et al*. 2011). In addition, many interviewed in these studies identify that deforestation and undercutting slopes to make terraces and flatlands for housing or crop growth create conditions for landslides (Kitutu *et al*. 2009, 2011; Misanya and Olav Øyhus 2014).

These findings suggest that community members recognize that anthropogenic factors contribute to landslides. However, the existing research also shows that a number of community members explained the causes of landslides from an indigenous or religious perspective, underpinned by a belief that God and other divinities played a part in the phenomenon (e.g. Misanya and Olav Øyhus 2014). For example, prior research on this topic conducted in Bududa notes that some community members believe in the Womaniala concept, that the 2010 landslide was caused by a self-professed rainmaker in Nametsi Parish named Womaniala (Misanya and Olav Øyhus 2014). Other studies more generally find that people in Bududa might explain landslides as an act of God, arguing that God is ultimately and solely responsible for landslides as a way of punishing people for their sins (Mercer *et al*. 2010; Misanya 2011; Misanya and Olav Øyhus 2014). Some respondents suggested that God has a plan in place and an explanation for why He causes landslides to occur. Some spiritual perspectives also involved predicting landslides by the position of the sun or moon (e.g. Osuret *et al*. 2016).

Responses to disasters by community members are deeply rooted in their causal beliefs. Some people with religious or spiritual beliefs about the causes of landslides responded to the landslide by praying, while those with more technical explanations advocated for changes to local farming methods to reduce incidence of landslides in Bududa (Misanya and Olav Øyhus 2014). However, Osuret *et al*. (2016), among others, find that community members overall had limited knowledge about disaster preparedness and mitigation in the region.

A number of the studies carried out in Bududa, Uganda indicate the role of expanding agriculture for subsistence production, as well as export commodities like coffee, in increasing deforestation and soil erosion, leading to landslides (Gorokhovich *et al*. 2013; Mugagga *et al*. 2010; Osuret *et al*. 2016). Many community members recognize that landslides are therefore caused by human actions. Additionally, poverty and a lack of basic services are identified as key drivers of landslide vulnerability. Despite the relevance of these themes for theories of globalization, inequality, and the environment, the root causes of landslides in Bududa as they relate to larger political, economic, and social factors such as international trade and aid relief have not been explicitly considered. In this way, we hope to connect community-based perspectives in Bududa to larger processes explored in political ecology and political economy frameworks to demonstrate how neoliberal and exploitative activities impact conditions on the ground in local communities.

4. The research area: the Bududa district

The Bududa District is located in the eastern region of Uganda, in eastern Africa. This district lies at the foot of the south-western slopes of the Mount Elgon volcano and includes some Mount Elgon National Park land. The Bududa district is bordered by Siroko District to the North, Mbale District to the West, Manafwa District to the South, and the Kenyan boarder to the East (see Figure 1 below). Bududa consists of 7 counties, 15 sub-counties, and one town council, with 90 parishes and 899 villages (Uganda Bureau of Statistics 2014; UNDP 2013). The Bududa District has a population of approximately 211,683 people (Uganda Bureau of Statistics 2014), with relatively high population density, and over 56% of the population is under the age of 18. While the average GDP per capita of Uganda is around US$1,700, but the average household in Bududa earns around US$100-150 per year.

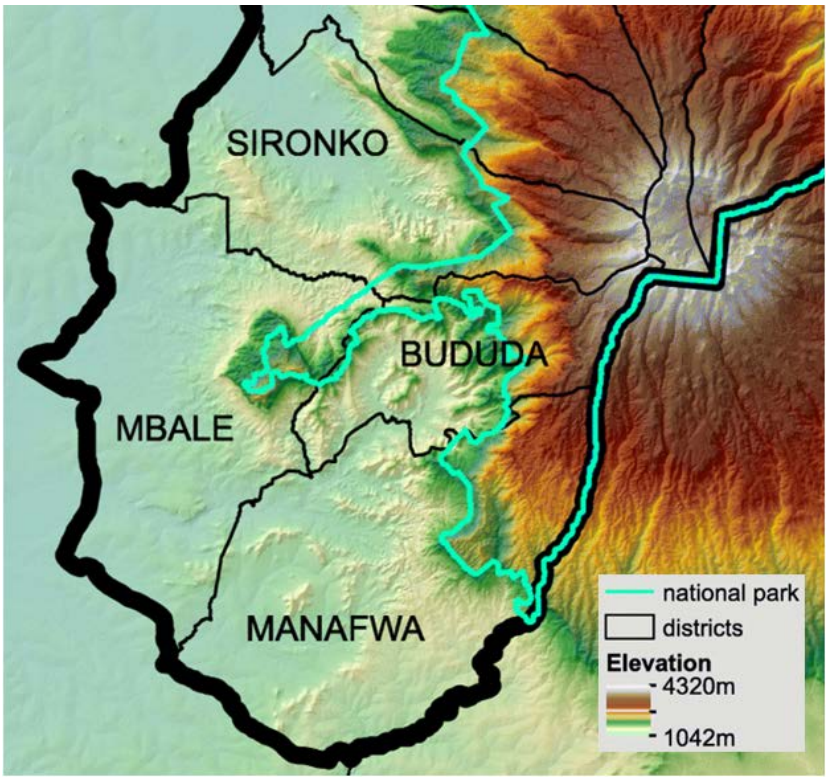

Figure 1: Bududa and Mbale Area Surrounding Districts and Mt. Elgon Topographic Map. Source: Edited from Broeckx *et al*. (2019).

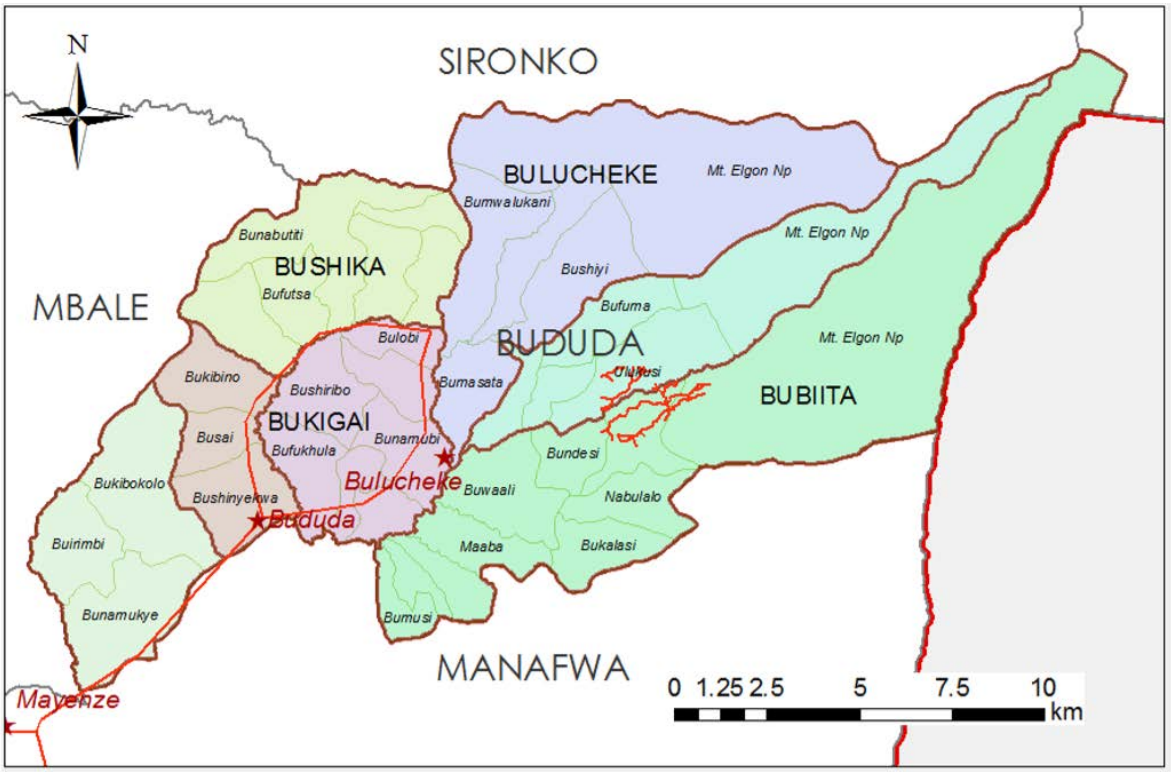

Figure 2: Counties and sub-Counties of Bududa District. Source: UNDP (2013).

Bududa has an average precipitation of over 1,500 millimeters of rainfall per year and much of the district is located at high altitudes and on mountain slopes, as seen in Figure 1. The area is rich in natural resources, including ample rainfall and fertile volcanic soils, and this facilities intense subsistence farming and the cultivation of Arabica coffee (Kitutu *et al*. 2011; Watira 2011). There are few jobs in the formal sector in Bududa, and some of the other economic activities include livestock rearing, honey production, retail trading, sand mining, timber decking, transportation services, and limited tourism in Mt. Elgon National Park (Misanya 2011; Uganda Bureau of Statistics 2014; Watira 2011.

The Mt. Elgon region where Bududa is located is reported to have the highest occurrence of landslides and floods in the country (Osuret *et al*. 2016). Conservation managers in Bududa report that the area has suffered from major landslide events since the early 1900s (Wambi 2012), however they have become more frequent and devastating over time. Over the last several decades, there have been fatal landslides reported each year, also displacing households (e.g. Nakileza *et al*. 2017), with recent notable occurrences in October 2018 and June 2019. In the June 2019 incident, 5 people were reported dead, 50 were missing, and 400 displaced due to a landslide in Buwaali sub-county in Bubiita. The October 2018 landslide in Bukalasi, located again in Bubiita was even more damaging, directly hitting a primary school and taking a reported 50 lives with around 500 counted as missing. "Missing" people are rarely recovered from beneath the debris, making the real death toll for any landslide event in the district much higher than the official recorded estimate (Nakileza *et al*. 2017). In addition, the devastation that occurs to households goes far beyond lost lives. As Wisner *et al*. (2004) emphasize, disasters are rarely single events; they create long-term impacts to peoples' livelihoods and erode possibilities to accumulate resources, future income, and savings. Even in a more "minor" landslide event in Bududa, hundreds of people are typically displaced and lose their homes, as well as all of their land, crops, livestock, and other possessions.

The most devastating and well-known landslide to occur in Bududa took place in 2010 in Nametsi parish, located again in Buwaali sub-county. While landslides occur across all areas of the district, landslides

in the Bubiita region tend to be especially acute given the proximity to Mt. Elgon's steep slopes. The Nametsi landslide garnered much international attention and foreign aid response, as there was a reported death toll of 500 people, with hundreds more missing, and around 8,000 people displaced (e.g. Atuyambe *et al*. 2011; Gorokhovich *et al*. 2013; Wambi 2012). In 2010, aid relief efforts were coordinated by the lead agency, the Ugandan Red Cross, and also included UNICEF, the Ugandan Ministry of Health, Oxfam, and the World Health Organization (WHO), among others (Atuyambe *et al*. 2011). Displaced populations were initially evacuated to a camp near the trading center of Buluckeke, then many were permanently relocated to the mid-western district of Kiryandongo.

5. Research methods

Based on the political ecology literature outlined above, as well as existing research on landslides in Bududa, Uganda, this study is exploratory and qualitative in nature, and focuses on understanding community members' perceptions of landslides, including their causes, consequences, and the efficacy of aid response. We interviewed 32 respondents (13 women and 19 men).[2] Respondents include community members such as farmers, elders, healthcare providers, NGO officials, and government staff who all live in the Bududa District of Uganda and were directly or indirectly affected by landslides. The interviews and fieldwork were conducted over several weeks across two periods in July 2014 and June-July 2016 across Bududa District. All interviews were audio-recorded and typically lasted around one hour.

By employing interviews, we were able to gain detailed information about respondents' thoughts and behaviors, which broadened understanding of the structures and factors that contribute to vulnerabilities of community members to landslides (Weiss 2004). Through interviews, we gained insight into the context of disaster management and aid, thus obtaining a more complete picture of how community members perceive disasters and relief efforts. By maintaining an ongoing relationship with the community over a period of several years, we were able to collect rich information.

The interview instrument was designed to facilitate wide-ranging discussions about community members' understanding of landslides and aid relief, including questions about causes and effects of landslides, trends in their frequency, community infrastructure in responding to disasters, coping with the effects of the hazards, perceived needs, and challenges to recovery. Although the national language is English and many community members speak English, we used a local male translator for interview sessions so that we could conduct interviews in the local language, Ligisu. This encouraged informants to provide fuller answers and feel more comfortable talking about their perceptions and experiences. The local interpreter/translator also helped design and refine the interview guide to phrase questions in ways that local community members could understand best. We employed snowball sampling in order to connect with community members who had been affected by landslides in the District. The initial interview subjects were identified with the help of the translator, whose family has lived in Bududa District for several generations. Our initial contacts allowed us to network with others in the community who had also experienced landslides.

All interviews were transcribed using the transcription software Express Scribe. The transcriptions were imported into an electronic database, and coded systematically using the qualitative software ATLAS.ti. We wrote memos during fieldwork in Bududa and when transcribing the audio files to identify and keep track of evolving themes and ideas that influenced the first round of coding (Saldana 2009; Strauss and Corbin 1990). Although many of the initial codes produced were based on themes and ideas from memos, the majority of the final ones emerged from the data and were refined over multiple rounds of coding (Saldana 2009). Our memos

[2] For this study institutional review board (IRB) approval was obtained from the researchers' university. Additionally, the aims of the research, protocols to be undertaken, and instruments (interview guide) were reviewed in Uganda by the Bududa District administration, including the District Health Officer (DHO) before data collection began. Permission to conduct the research from the Bududa District administration was granted. Before each interview, the purpose of the research was explained to each subject, and verbal and written consent was obtained. Study participants were informed that there was minimal to no risk to their participation in the study, that participation was voluntary, that all responses were confidential and anonymous, and that they could stop the interview at any time. Interviews were conducted in private, no identifying information was sought or transcribed, and the audio files were delinked from the transcripts and destroyed following transcription.

and coding processes highlighted themes and quotes necessary in providing community members' perceptions of landslides, and the aid relief received in the wake of this disaster. Quotes were organized according to the sets of codes and themes with which they were associated. This list of quotes was investigated and specific ones were chosen based on how they are able to elucidate the research objectives.

6. Findings

The semi-structured interviews conducted in the District reveal that community members generally define landslides as an event where soil slips off or is cut off from the hill and moves downward. A number of respondents specified that landslides also cause deaths and destruction of property, land, and animal lives. As one respondent explains,

> …a landslide is disaster…it mainly happens to destroy property and take away people's lives…a landslide is when the soil is cut from uphill and destroys people's property, destroys people's lives and then spoils everything. Even animals.

Effects of landslides

Community members are very well aware of the devastating effects of landslides, and many respondents shared their experiences of how their lives changed when landslides wiped out their homes, livelihoods, and family members. Given the timing of the interviews and number of people impacted by the Nametsi landslide in 2010, many respondents when making reference to 'the landslide' referred to this event.

> …it destroyed the people's lives, people's properties, and most like lands, animals, houses, they fall, people some of them, they are now homeless. As I talk right now, some people are just staying in their relatives' home because everything is taken by the landslide…People are not having their own properties, properties like coffee, coffee plantations, they are taken…We are seeing the …soil, where you cannot even grow the crops again there.

Despite escaping death when land slips off the mountain, community members articulate that survivors face many challenges. Landslides affect people economically as they lose their gardens, and hence subsistence crops and income. If commercial crops like coffee were lost, they described this as as a "big blow to them as a family" since households predominantly rely on their coffee gardens as their only source of revenue. In fact, the economic losses based on the destruction of homes, properties, livestock, and gardens were mentioned in almost all of the interviews conducted, thus highlighting the pervasiveness and continued impact of such losses for community members.

Community members also face many challenges that affect their mental and physical well-being, and their ability to utilize community infrastructure such as health centers and schools. A male participant who had recently lost his wife and two children in a landslide explains that he has been experiencing a "mental disturb[ance]" for he has not been able to "…believe that that had happened." A participant explains how "…she would not eat…" after losing many family members in the Nametsi landslide. Another respondent describes how people "…are not having hope because they are, their plantations and their houses just washed, was washed away, so people are just drinking a lot because they want to forget all that."

Other health issues also arise during the aftermath of landslides. Several respondents explained that malaria, diarrhea, and cholera are the most frequently experienced illnesses after landslides. One respondent summarizes the diseases the community suffers from:

> Because…even when it has not, you know, killed very many people, just the soil moving…there is a lot of water…which keeps coming, and…the mosquitoes breed a lot… very many of them end up getting malaria. Another common one is diarrhea because very many people use the river, mostly the main streams to collect water. So, the fact that most of the landslide come and pour

> everything in the river and after…you find out that, getting very many diseases like diarrhea… Another common one is cholera because …very many people were packed in this same place and their hygiene wasn't the best, so eating bad food, poor sanitation, lack of enough water brought a lot of diseases.

Community members are very familiar with these effects of landslides. People are also well-acquainted with how landslides occur and how the movement of water, soil, and everything in its path destroys livelihoods and leads to increased susceptibility to infectious diseases, hunger, and mental illness. An overall lack of adequate health care was a key point discussed by several community members. In fact, the lack of proper sanitation facilities or health clinics was pointed out in more than half of the interviews.

Causes of landslides

The interviews with community members shed light on the diverse explanations given for landslides. Overall, these can be classified into three proximate categories: rainfall and weather patterns, anthropogenic activities, and religious- and spiritually-based beliefs. Additionally, an underlying theme emerging from the interviews and prior research is poverty. Prior research emphasizes a lack of formal employment opportunities, poor public infrastructure like roads, limited health services, population growth, and inadequate housing as contributing to landslide vulnerabilities in Bududa. These themes emerged here as well, as many respondents noted that "dwellings made only from mud", "poor roads", and "population growth" increased landslide risks and devastation. Poverty appeared in our discussions of anthropogenic activities and relief efforts.

Several respondents depicted their understanding of the causes of landslides as being religious- and/or spiritually-based. However, such explanations were always paired with discussions of rainfall or anthropogenic activities. Thus, community members demonstrated an acceptance of scientific, religious, and spiritually-based beliefs about the causes of landslides. Several prior studies have examined spiritually-based beliefs (e.g. Mercer *et al*. 2010; Misanya 2011; Misanya and Olav Øyhus 2014). For parsimony, we focus on respondents' portrayals of the causes of landslides involving weather patterns and anthropogenic activities.

Rainfall and weather patterns

When asked about the causes of landslides, the vast majority of interviewees explained that weather and climatic variations such as precipitation and seasonal changes in rainy and dry seasons contribute to the occurrence of landslides. More specifically, respondents expressed how continuous and heavy rainfall events can lead to landslides. In fact, many explained how intense rainfall brings about fear that at any moment, a landslide will ensue. A male community member who has witnessed "plenty" of landslides during his young adult life describes how "during the dry season it's ok, but when it starts raining, it causes a lot of threat."

Several respondents mentioned that changes in weather and increasing rainfall over time contributed to the manifestation of landslides. For example, one respondent said, "there is much rain now. The dry season is short. Too short. Used to be many months. Now, few weeks." Many mentioned factors linked by scientists to climate change. Despite having minimal or no formal education, many community members were able to discern how increases in rainfall over time are tied to landslide occurrences. Though local people did not use the phrase 'climate change' when characterizing the intensification of rainfall and variations in temperature, their acute observations demonstrate their deep understanding of their local environment.

Community members also interpret the effects of constant rain as leading to the soil "softening up" and creating cracks along the mountainside. As one male respondent details:

> …the landslide issues, the cracks, you see, it began, it began as if it's just something like soil erosion and when it comes down, it widens and when it reaches time to find out that it will even carry some soil at a distance from there to here then it stops there. But when the rain comes again, the heavy rain comes, it grows again then it will again…carry all the soil and push people, and animals, and their properties.

Environmental degradation and coffee production

Other causes of landslides identified by community members were anthropogenic activities such as over-cultivation of the land, deforestation, and the use of fertilizers. Agricultural activities are the most important component of the economy in Bududa District, as over 90% of the population engages in subsistence farming and a majority of these households also cultivate coffee for the international market. The volcanic soil and heavy rainfall are ideal for cultivating a wide variety of crops including coffee, beans, bananas, cabbage, tomatoes, and various other fruits and vegetables. Deforestation and excavation of slopes for cultivation trigger landslide occurrences. As two farmers comment:

> …the landslides have been caused because they have cut many trees down, deforestation. Many trees have been cut down. We're not having more trees as wished, and the most that we're just now …are eucalyptus, but I don't think they're good for the landslides…Bigger trees. Bigger roots. That would be a good prevention of the landslides…

> Planting up there, in the hills. It is causing soil erosion. Intensive soil erosion. Of course, they create landslides. They are very dangerous. So much pressure on the land.

In fact, the issue of deforestation was discussed in all but two of the interviews. The topic of overpopulation leading to expansion of agricultural plots and dwellings was commonly identified as the underlying cause of deforestation and settlement on mountain slopes. In Bududa, all land is formally privately owned or protected by the Mt. Elgon reserve. Due to very high rates of population growth, when land is handed down by inheritance, as is the customary practice, adult children are being given smaller holdings or land on previously uncultivated steep slopes, as this is the only unsettled land remaining.

While many talked about subsistence farming or using timber for fuelwood or construction in their discussions of hillside deforestation, a majority of community members also identified pressures to cultivate cash crops, namely coffee, as a specific cause of land use change leading to landslides. Coffee is the main revenue generator in the region, and essentially all of the coffee grown in the region is destined for international markets that connect Bududa to consumers in Europe and the United States (e.g. Austin 2017). Farmers know that coffee is highly desired on the international market, and they are willing to degrade forests and plant on steep hillsides in order to expand cultivation. Indeed, many of the respondents communicated that coffee production benefits farmers and is "worth the risk" of landslides, given the income that is generated. While coffee can often be shade-grown, many farmers said that they remove the large trees to ensure that they don't compete with coffee. As one village elder explained:

> …people plant a lot of recently…a lot of coffee for market. When they plant [coffee] they cut the trees, even up on the mountains. The trees compete with nutrients in the ground.

In fact, many respondents commented that coffee is one of the few crops that can be grown on the hillsides, so much of the deforestation on steep slopes where landslides are more prone to occur occurs because of expanding coffee plantations. The increasing use of fertilizers in the region, which are mainly applied to coffee gardens to increase yields, also allows for new cultivation patterns, and many community members believe that fertilizers lead to a "softening of the soil" that causes landslides. One female respondent says:

> …people plant of recently…and when they apply the fertilizers in the soil, the soil softens up and then…because the fertilizers softens up the soil it is easy for the landslides to occur…even in coffee…like after maybe cultivate, harvesting the plant again you apply more…the soil is used up a lot because you apply a lot of fertilizer…you put more plants which make the soil more softer…

The community has strong and distinct beliefs about the connection between environmental degradation and factors that bring about landslides. Though the 'soft soil' idea may be unfamiliar in the technical literature on fertilizer use, it is likely that community members are noticing soil erosion and changes in sediment that result from overcultivation, degradation, and deforestation. Pressures to cultivate coffee for international markets represent a key underlying cause of deforestation and planting on steep hillsides, thus it appears that unequal exchange is relevant in explaining some of the key underlying causes of landslides in Bududa.

Perspectives on relief efforts

According to respondents, survivors of landslide disasters are generally provided aid by the national and local government agencies, such as the Ugandan Ministry of Health, the Bududa District Health Department, and the Ministry of Water and Environment, and in some cases, international relief agencies like the Red Cross, the United Nations (UN), the WHO, OXFAM, and UNICEF. These agencies were said to provide food, blankets, household utensils like pots and pans, medicines, and coffins in order to allow people to set up campsites for displaced individuals and carry out traditional burials. However, respondents reported that international actors are only involved when the landslide has had severe effects on the community in terms of number of deaths.

When asked about the varying supply and support received in the wake of a landslide, a female survivor revealed that,

> …when the Nametsi incidence happened, they, the UN was the one which came in to help the people…because the one at Nametsi was a very big landslide and it killed very many people, but…this one it didn't kill anybody so they feel because it didn't kill anybody, that's why they never got any help…the NGOs want to help people who have died and then they don't want to help the people who have survived…

Many community members articulated that aid often came too late, and that helping people "many days after" the landslide has already swept away their homes, gardens, livestock, and family members is absurd. Although the lack of help is a prevalent issue amongst those in this study, it is also important to point out that some survivors did receive help in the wake of landslides, though the amount of aid was not enough. One male respondent comments:

> Now, now, if we talk about the government, government cannot provide enough resources to these people, because…the last time, they sent some maize flour and some beans, so the people fighted because there were few. And the people were suffering. So they cannot help with all of them. They help some and some not.

For many community members, the reality is that only some people will receive support. Community members often expressed feeling forgotten. Moreover, around one-third of those interviewed explained that they were not helped at all after a landslide event, and over half mentioned they did not receive enough assistance.

The narratives collected in this study show that many households were unsuccessful in receiving aid from relief agencies due to how it was disseminated. As one respondent puts it, "…the help only came to the camps and then the old people were not able to get anything because they didn't get to the camp." Another elderly female community member explains, victims "…were still mourning and they were still in shock…" and therefore unable to access aid services that had been set up in the trading center several miles away. A strong and common sentiment held by the respondents is that the victims of landslides are not given enough assistance because they are expected to trek to town centers or camps in order to receive it, while still in the midst of experiencing physical, mental, and emotional trauma. Numerous interview sessions referred to the need to relocate aid relief sites to more accessible locations.

In addition to poor accessibility or a lack of sensitivity to mourning practices, the protocol which guides the aid response process proves ineffective as it attracts people from nearby villages who are not the actual victims of the disaster. One elderly respondent described:

> …They inform them to go and collect [at] the trading center, down there… if the organizations would come to the particular place to find out who the real people are affected, it's better than them being taken by other people who come.

The majority of respondents mentioned aid relief as ineffective, since it failed to adequately help the actual victims of landslides. Sadly, not one participant expressed feeling satisfied with the help that they received, and none said that their needs were met through aid relief. The redirection of resources to those who are not the real victims and the inaccessibility of relief sites are significant obstacles to people receiving support and services. Although the government and organizations like the Red Cross were mentioned in some interviews as actors who respond to landslides, people more often cited neighbors and family members key sources of support after a landslide. Respondents identified that people who lose their homes and livelihoods to landslides are most often taken in by their neighbors and relatives.

Nonetheless, a major government response has been the relocation of victims:

> Government comes in…this happened in 2010…that's when they came in and moved…some people. Even when they moved them there, they have not been at quickly what, settled. And I am told where they settled them, life is not all that good. The place is so dry, water is not there, so some people have resorted to coming back...They find these people in this new place desperate…They give them some little relief fund, leave them there on their own. What happens next, we don't know…

So, even when displaced populations are resettled, they generally face hardships due to the poor conditions in the new location. The relocation efforts described after the 2010 Nametsi landslide involved moving families to land outside of Kampala, the national capital, in the Kiryandongo area, which is several hours away by car. Rather than moving to a distant place, where the language, land, and people are foreign, many choose to return to their landslide-stricken homes.

The narratives collected by this study provide evidence that many community members would like to be relocated by the government, but to land within or near Bududa. For example, several respondents communicated that they did not want to be relocated to any foreign place where people "do not understand the culture or terrain." Rather, they desire to be provided land in the district where they are familiar with the culture, language, climate, and agricultural practices. People often talked about their family networks, ancestral ties, and language barriers in discussions of relocation, explaining why they continue living in or return to areas vulnerable to, or that have been ravaged by, landslides. Government resettlement efforts are severely constrained by the lack of available land in Bududa and other areas of the Mt. Elgon region, also given constrictions imposed by conservation areas (Himmelfarb 2012). Some respondents also said that official relocation takes too long, when needs are immediate. Some were frustrated that although they registered after the Nametsi landslide to be relocated to safer land, since then nothing has happened.

This study elucidates the idea that aid relief for the people in Bududa is not meeting the needs of landslide survivors, and perhaps should instead be refocused on eliminating the cause of their suffering. It is clear that international aid is really only provided after landslide events that lead to a significant number of deaths, and not enough goes to those that survive and struggle to meet their basic needs when their livelihoods are destroyed. Aid relief needs to be redeployed to areas more accessible to victims of landslides, and restructured to better establish accountability for who receives support. In fact, several respondents commented that the aid coming from international agencies like the UN or Red Cross would be much more effective if

local leaders, such as those in local government, were relied on to help facilitate and manage aid distribution of items like food or medicines.

7. Conclusion

Globally, disasters continue to erode communities, their resources, and economic and social infrastructure (Roberts and Parks 2007; UNISDR 2014). As threats to communities and ecosystems continue to escalate, it is critical that attention is paid to the larger social, economic, and political conditions and deeply-rooted inequalities that create vulnerabilities to catastrophic events like landslides in less-developed nations, as well as how real people on the ground perceive the causes and effects. Fully understanding community perspectives on landslides could lead to better policies and practices that reduce deaths and suffering.

A major contribution involves adopting a 'structural fieldwork' approach to combine macro-level perspectives with the lived experiences of community members. By utilizing political ecology and world-systems perspectives as a backdrop for understanding the causes of environmental degradation in Bududa, we are able to situate local perspectives in the political ecology of landslides, for example to 'ecologically unequal exchange.' Doing so provides a larger context in which to view the causes of landslides in this community and demonstrates how economic globalization benefits some at the expense of others. While community members themselves don't refer to the global political economy as linked to deforestation and settlement on steep slopes, probably because their limited knowledge, it is clear that pressures to produce cash crops such as coffee are benefiting Western consumers while creating risks for people in Bududa.

The expansion of coffee gardens came up as being as indirectly linked to landslides in a number of interviews, through forest loss, soil erosion, and fertilizer use on hillsides that precipitate landslide activity. Although Arabica coffee from Bududa is enjoyed by consumers in the Global North, the environmental and human costs of production are concentrated locally. Considering the effects of coffee production on the community is complicated, as the interviews clearly suggest it provides a needed source of income. People talked about how losing coffee plantations in landslides devastates household incomes. However, expanding coffee cultivation into the hills also intensifies the risk of deadly and devastating landslides. Furthermore, other research in the world-systems tradition demonstrates that the real economic gains to coffee growers in the Global South are minimal – just a few cents on every coffee dollar spent in the United States, for example (e.g. Talbot 2004). While some revenues are certainly generated, it is the coffee TNCs that benefit most from the coffee produced in Bududa, and the relatively scant profits made by local growers often comes at the extreme risk of facilitating disastrous landslide events.

Deforestation and land transformation for coffee and other crop cultivation was a common theme in the interviews. However, it is important to emphasize that an underlying cause of suffering from landslides in Bududa is poverty. A lack of formal employment opportunities, inadequate public infrastructure, limited health services, and gender inequalities all contribute to population pressures, settlement on dangerous hillsides, and other basic vulnerabilities to landslide disaster events. Trade inequalities, structural adjustment policies, political dynamics and corruption, and legacies of colonialism all contribute to Uganda's persistent poverty, heightened levels of environmental degradation, and its relegated status in the world economy.

Critical perspectives on development and inequality are also relevant in framing community members' frustrations with aid relief provided by international and national agencies. The criticisms of aid to landslide victims, mentioned above, emerged from many of the interviews. Structural economic reforms have made the Ugandan government too weak and poor to respond adequately, and NGOs from the Global North are often not well-aligned with local needs and conditions, or only offer support when the landslide event has killed enough people to garner significant international attention.

In addition to exposing these challenges, the interviews produced a number of recommendations regarding landslide prevention and response. The diversion of supplies and services from those affected by landslides could be lessened through decentralization of power and authority from INGOs and state governments and to the local leaders. Allowing community leaders (such as local council members) to survey landslide sites in communities in which they are well integrated would streamline the allocation of aid to those most in need of assistance.

Providing aid in the form of goods, services, and shelters are only temporary solutions for families that have lost their livelihoods. Rather, community members expressed that the relocation of households from highlands to lower-level lands within the Mt. Elgon region should be a central feature of disaster risk management and mitigation. As community members rely on their agricultural skills, relocation policies should also focus on providing land that is fertile and located in a region with a similar climate. Relocation within the nearby Eastern districts to flatter areas, improved education and policies for land management, semi-shade coffee cultivation, strengthened local infrastructure, and formal job creation are all needed to prevent landslides and reduce vulnerabilities. Because the barriers to such policies are manifest in the structural relationships that the region is embedded in, employing these type of prevention tactics will remain a challenge.

Rather than focusing on the number of lives lost or of displaced peoples as statistics, this study has brought to light firsthand accounts from those who have experienced catastrophic landslides firsthand. Their grievances and observations speak volumes about the pressures to develop land in vulnerable areas, and the ineffectiveness of aid responses. Households in Bududa are desperate for any income, and coffee represents the most lucrative commodity that will grow in the region. Thus, expansion on hillsides in Bududa is likely to continue despite the recognized risks and seeming ongoing occurrence of landslides. A recent formal report on weather and environmental conditions in the Mbale area, which includes Bududa, also suggests that landslide risk will continue to intensify in the coming decades, noting increases in predicted rainfall intensity and longer wet seasons, leading to heightened soil erosion and flooding (UNDP 2013).

Disasters do not occur by accident, but rather, result from a combination of macro as well as local-level forces. Political-economic inequalities place poor communities at disproportionate risk of hazard events due to specialization in agricultural activities that degrade the environment (e.g. Roberts and Parks 2007; Wisner *et al*. 2004). This study makes a unique contribution by investigating a specific locale where issues of landslide vulnerability can be traced to political-economic patterns on the global scale.

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