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Culture and Risk

The role of culture and indigenous knowledge in the interpretation and adaptation to disasters. A case study of landslides in Bududa district, Eastern Uganda.

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University of Agder, 2017
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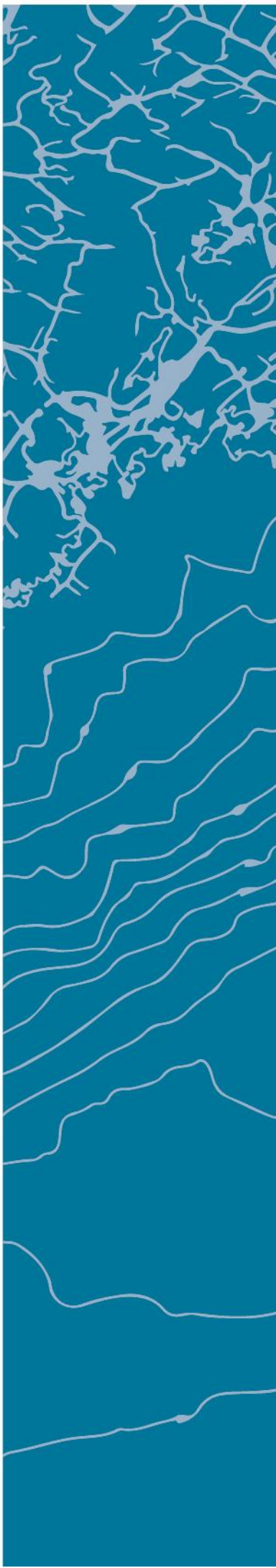

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Culture and risk: The role of culture and indigenous knowledge in the interpretation and adaptation to disasters. A case study of landslides in Bududa district, Eastern Uganda.

By

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This master's thesis is carried out as a part of the education at the University of Agder and is therefore approved as a part of this education. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.

University of Agder, 2016

Faculty of Social Sciences

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Abstract

This study explores the role culture and indigenous knowledge play in people's 'interpretation' and 'adaption' to landslides in Uganda. This study is important because globally, natural hazards are becoming more dangerous and destructive than ever before, causing an increasing number of disasters that interfere with a community's livelihood and set back development efforts. Decades of Disaster Risk Reduction (DRR) strategies notwithstanding, many people are still vulnerable to disasters. It can be argued however, that people are still vulnerable because aspects of their culture and indigenous knowledge have been missing in these strategies. Organisations involved in DRR often assume that with essential information, people would not 'live' in 'risky' areas, which is not always the case. Culture and indigenous knowledge are important sources of social capital that can be utilised for disaster preparedness, response, recovery and adaptation. Thus, they should be at the centre of the strategies intending to address the problem. From the study, culture and indigenous knowledge influenced the way people interpreted the cause of landslides and ultimately, how responded and adapted to them. Survivors made decisions concerning relocation based on their cultural beliefs and past experiences. Nonetheless, the government and NGOs involved in landslide risk reduction have ignored the important role of people's culture and indigenous knowledge. The study identified the missing piece of the jigsaw from the activities of these organisations, which is to endeavour, understand and incorporate culture and indigenous knowledge of local people who live in disaster prone areas. This is because, through their exposure to past landslides, people have developed a body of knowledge and beliefs that they use to interpret and 'live' with the risks from landslides. This knowledge can be tapped and integrated for sustainable disaster risk reduction. External organisations do not necessarily need to 'believe' in what local people 'believe in', but they should understand, accept and 'work with' the fact that those affected by disasters have considerations and priorities based on their culture and experiences that are likely to impact on disaster management strategies and development.

Declaration

I, ***Nuluyati Nalwadda*** hereby declare that this thesis: ***The role of culture and indigenous knowledge in the interpretation and adaptation to disasters. A case study of landslides in Bududa district of Eastern Uganda*** is my original work and has not been previously submitted either as a whole or in part to any institution of higher learning for any kind of award, neither has the material contained in it been previously published by any other person. Due acknowledgement has been given to the material used from other sources.

Nuluyati Nalwadda ……. .....

(Student) Signature Date

Approved by:

Arne Olav Øyhus …….. ……..

(Supervisor) Signature Date

Dedication

I dedicate this thesis to my lovely son Ashim, even though you are too little, you did great and were so patient with me throughout my Master's studies.

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My deepest appreciation goes to Allah for the love and protection, the strength, wisdom and ability He gave me during the two years of my study. Sincere gratitude to my parents, fiancé and family for your endless support, I could not have done this without you all.

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Abbreviations and Acronyms

DFID: Department for International Development

DRR: Disaster Risk Reduction strategies

IDRL: International Disaster Response Law

IFRC: International Federation of Red Cross and Red Crescent Societies

IPCC: Intergovernmental Panel on Climate Change

ISDR: International Strategy for Disaster Reduction

NEMA: National Environment Management Authority

OPM: Office of the Prime Minister

RDC: Residential District Commissioner

TPO: Trans Psycho Social Organisation

UBOS: Uganda Bureau of Statistics

UNDP: United Nations Development Programme

UNEP: United Nations Environmental Programme

UNICEF: United Nations Children's Education Fund

UNISDR: United Nations International Strategy for Disaster Reduction

UPDF: Uganda People's Defence Forces

URCS: Uganda Red Cross Society

WDR: World Disaster Report

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CHAPTER ONE: BACKGROUND TO THE STUDY

1. Introduction

Over the past two to three decades, the economic losses and the number of people who have been affected by disasters have increased rapidly (UNEP, 2007). Disasters are becoming more complex and destructive than ever before, and will most probably increase in intensity and frequency (Mak & Singleton, 2017; Øvland & Øyhus, 2009). Since the turn of the millennium, more than 2.3 billion people have been affected by natural disasters globally (Guha-Sapir, Santos & Borde, 2013). Besides, the international alarm created during the last decade by disaster events like the 2004 Tsunami across Asia, the 2008 Suchuan earthquake in China and the 2011 tsunami in Japan has increased (Guha-Sapir et al., 2013).

In addition to a projected estimation of 100,000 lives lost each year due to disasters, the global cost of disasters is anticipated to top $300 billion annually by the year 2050, if the probable impact of climate change is not countered with effective disaster risk reduction measures (UNISDR, 2012:2). Economic losses from disasters seem to be out of control (Hillier & Nightingale, 2013). Climate change is expected to alter the timing, magnitude, frequency and location of natural disasters across the world (Kousky, 2016; IPCC, 2013). For instance, hurricanes are likely to become extremely dangerous, heat waves will more likely become recurrent, rising sea levels will lead to more flooding along coastal areas and more frequent intense droughts will mean more wild fires world-wide (Kousky, 2016). The world population, especially the poor and those living in developing countries will be more at risk (Phalkey & Louis, 2016; Kousky, 2016).

A disaster is an event that suspends normal activities and threatens or causes severe, community wide damage (Aldrich, 2012:3). Natural disasters are a complex mix of natural trigger mechanisms but often made worse by human actions (Blaikie, Cannon, Davis, & Wisner, 2014:5). Human interventions may turn hazards into disasters. In many areas, wars are indistinguishably linked with diseases, drought and famine which make people in war stricken areas fail to deal with especially post-wars situations unaided (Blaikie et al, 2014) Natural disasters include landslides, droughts, cyclones, floods, pests and pestilences, earthquakes, and hurricanes, epidemics, and wildfires (UNISDR, 2012:1-2). This study explores the role of culture and indigenous knowledge in the interpretation and adaptation to landslides in the sub-counties of Bukalasi, Bulucheke and Bushika of Bududa district in Eastern Uganda. Three

parishes of Namesti, Bumwalukani, and Bunabutiti each from the respective sub-counties were selected for this particular study.

Landslides are among the most widespread disasters that threaten lives and property globally, especially in the mountainous regions of the world (Jamali & Abdolkhani, 2009:25). Moore and McInnes (2016) report that between the year 2004 and 2010, over 80,000 people lost their lives due to landslides world-wide and landslides have been especially frequent in south and east Asia, Central America and the Caribbean. According to Lepore, Kamal, Shanaham & Bras (2012), economic losses due to landslide disasters in the United States of America alone account for 2 billion dollars annually. In East Africa, landslide occurrences have increased over the past decades with immense public health implications and massive alterations in the lives of the affected people and communities (Osuret et al., 2016). Since the twentieth century, East Africa particularly Kenya and Uganda have suffered from the tragic of landslides (Nelson et al., 2015). For instance, in Kenya, a severe landslide occurred at Gatara village in Murang's district of the central region in 1997 (Ngecu, Nyamai & Erima, 2004). In the same year, another landslide occurred along the Thika-Murang'a highway destroying more than 1 km segment of the highway (Ngecu & Mathu, 1999).

Since the 1900s, landslides have become a common phenomenon in Uganda especially in the mountainous areas of the Southwest and East of Mt Elgon where they have caused extensive damage to property, environment and lives (Juventine, 2012; Kitutu, Muwanga, Poesen & Deckers, 2009:611). Some landslides have been reported and others have not since people and the media mostly report landslides where there is loss of life, thus many are never reported (National Environment Authority (NEMA), 2010). As a result of the growing population and climate change, it is anticipated that landslide incidents will be on the increase within exposed communities in Mt Elgon region of Eastern Uganda where Bududa is located (Osuret et al., 2016; Juventine, 2012). In 1997, landslides occurred across Bududa district leaving 48 people dead and over 15,000 displaced (Kitutu et al., 2009). In 2010, a landslide happened in Nametsi Parish killing over 385 people (Uganda Red Cross Society (URCS), 2010). In 2012, another landslide occurred in Bumwalukani parish leaving 18 people dead and many displaced (URCS, 2012). A landslide is a major geological phenomenon that comprises a wide range of ground movements such as rock falls; deep-seated failures of slope and shallow debris flows, and they can bury a settled community in just a few seconds (Nelson, Kassim, Yunusa &Talib, 2015). Nelson et al. (2015) explain that debris flow occurs when masses of rocks and poorly sorted sediment and saturated with too much water, move down the slopes.

Most people who live in places that are exposed to grave hazards are conscious of the risks they face, be it earthquakes, tropical cyclones, tsunami, volcanic eruptions, floods, landslides and droughts. Hitherto, they still live in risky areas because, to earn their living, they have few or no alternative(s) (IFRC, 2014:8). Why, for instance, did the people of the Zambesi Delta, affected by severe flooding, return to their homes so fast or even choose not to vacate the area at all? And what impacts do, for instance, the forced relocation of small-scale farmers living along the foothills of an active volcano on the Philippines have on their day-to-day livelihood routines? Making sense of such questions and explanations is only possible by understanding how the decision-making processes of societies at risk is embedded in local culture, and how disaster risk reduction intervention measures acknowledge, or neglect, cultural backgrounds (Eriksen, 2016).

Cultural beliefs, worldviews, traditions, norms and interpretations make up what can be termed as cultural, traditional or local knowledge that is passed on from one generation to another. Cultural knowledge is closely linked, or even integrated into what we often call indigenous knowledge - knowledge that is unique to a given culture (Mawere, 2014). It is problematic to describe and classify indigenous knowledge since it is more like a way of life rather than a set of explicit initiatives (Shaw, Takeuchi, Uy & Sharma, 2009). According to Shaw, Uy, & Baumwoll (2008), indigenous knowledge refers to the systems and practices established by a group of people who have considerable understanding of the local context and environment, developed over many generations of occupancy in a particular location. Shaw et al. (2008) continue to explain that this knowledge is developed over various generations, is owned by a specific community, transferred from one generation to another through non-formal ways which explains why indigenous knowledge continues to thrive.

Shaw et al. (2009) argue that indigenous knowledge has demonstrated sustainability and effectiveness in both reducing disasters and dealing with inevitable hazards. Indigenous knowledge forms the foundation for most communities' coping strategies that have been helpful in making such communities survive amidst calamities for many years (Shaw et al., 2009). According to Kelman, Mercer & Gaillard (2012), indigenous knowledge has proved to have the potential for contributing far more than is often permitted by DRR interventionists. Shaw et al. (2008) highlight that even before those involved in DRR efforts come up with high technology grounded standard operating procedures for early warning or response to disasters, the local communities have already prepared, operated, acted, and responded to disasters using indigenous means. However, most the indigenous knowledge these communities have is not

utilized while designing disaster risk reduction strategies. This partly explains why there are still many victims of disasters worldwide.

The social construction of risk has also gained increased priority in understanding how people experience and prioritize hazards in their own lives, and how vulnerability can be reduced, and resilience increased, at a local level (Eriksen, 2016). Culture and beliefs, for example, in spirits or gods, or simple fatalism, enable people to 'live' with risks and make sense of their lives in dangerous places (IFRC, 2014:8). Cultural beliefs can consist of beliefs about the cause of a disaster, about risk, and attitudes, but also values about what risk reduction priorities should be, and what actions people should take in case of a disaster. Understanding these issues is significant in the creation of resilient communities (IFRC, 2014). This study examines the role that culture and indigenous knowledge play in the interpretation and adaptation to landslides in Uganda.

1.1 Problem statement

Landslides are a downward movement of rock material and soils due to gravity (NEMA, 2010). Globally, landslides account for thousands of sudden deaths every year (Nelson et al., 2015:36). On average, since the year 2002, landslide events have accounted for 10,000 fatalities annually world-wide and thus represent one of the worst kind of disasters to impacts humans and the environment (Moore & McInnes, 2016; Petley 2012). The most common landslides fatalities include Yungay, Peru in 1970 with about 22,000 deaths, Gashu, China in 2010 with an average of 1,700 deaths, and Oso, Washishington, USA and Abi Barik in North-East Afghanistan in 2014 with massive property damage and deaths (Moore & McInnes, 2016). With human activities continually expanding to the mountainous regions and the changes in the global climate, the frequency of landslide occurrences will apparently increase (Lin, Wang, Liu Zhu and Sui, 2017). Several tropical countries like Singapore (Chatterjea, 2011), Venezuela, Nicaragua, Colombia and China (Alexander, 2005:188) experiencing periods of intense and prolonged rainfall events are vulnerable to rainfall-induced landslides. In Uganda, the International Disaster Response Law (IDRL) (2011) reported that more than 31% of the total population lives in mountainous areas, and are therefore potentially vulnerable to landslides. Landslides are more frequent in the mountainous regions of Mbale, Kabale, Bududa, Kisoro, Sironko, Kapchorwa and the districts in the Rwenzori region (Nelson et al., 2015). Located on the densely-populated slopes of Mount Elgon, Bududa district has experienced increased occurrence of landslides since the beginning of the twentieth century and continuously result

in human suffering, environmental degradation, property damage and destruction of infrastructure (Juventine, 2012; NEMA, 2010; Ole, 2001).

Even after decades of Disaster Risk Reduction (DRR) efforts, many people globally are still vulnerable to disasters (IFRC, 2014). Partially, the reason is that some vital aspects have been missing from these DRR strategies, one crucial aspect of DRR interventions is people's culture (Krüger, Bankoff, Cannon, Orlowski & Schipper, 2015). Cultural groups are often attached to natural environments in ways that are repeatedly not addressed by risk assessment and interventions (Glade, Anderson & Crozier, 2006). Traditional beliefs, values religion, historical and modern experiences, land tenure systems, dependency on the natural environment for survival and the social structure in a given place are vital factors to appreciate and recognise within landslide risk perception for sustainable landslide management (Glade et al., 2006).

Figure 1: A landslide scar in Bunabutiti parish with a young girl grazing cattle showing that people still live and are attached to landslide prone areas.

Source: Author (fieldwork, December 2016)

Just recently, DRR explanations and interventions have gained more from an approach that sees disasters, vulnerability and resilience as social constructions. Therefore, there is a shift towards giving greater importance to social, and as such cultural embeddedness of disasters and risk (Krüger et al., 2015). This has led to a prevalent acceptance of the need to emphasize more on people's interpretations, explanations, experiences and creative adaptations when it comes to analysing or intervening in catastrophes (Krüger et al., 2015). Omission of culture in disaster risk reduction gravely affects the related issues of interpretation, adaptation, coping,

intervention, knowledge and power relations (Krüger et al, 2015:1). Just like culture, people's indigenous knowledge has often been ignored yet it has the capacity of providing indispensable solutions in disaster situations.

There are several studies on landslides in Uganda, but, most of them focus on and vulnerability mapping and coping (Juventine, 2012); resilience building (Kervyn al., 2015; Jenkins et al., 2013); community-based structures for landslide management (Misanya & Øyhus, 2015; Kansime, 2012). However, there is still limited qualitative information on the role and functions of cultural interpretations, traditions, perceptions and indigenous knowledge in understanding how people interpret and adapt to landslides. More especially, there is lack of knowledge about how decision making among people who live in risky areas is influenced by their culture and beliefs. This qualitative case study explores the role culture and indigenous knowledge play in the interpretation and adaption to landslides in Uganda. The data gathered in this study may provide policy makers and actors involved in landslide management with information relating to the role culture and indigenous knowledge play in the interpretation and adaptation to landslides, and why these should be considered vital aspects in landslide risk reduction interventions.

1.2 Objective of the study

The main objective of this study has been to explore the role and function that culture and indigenous knowledge play in people's interpretation of the factors causing landslides and how people apply cultural beliefs and knowledge to 'adapt' to landslides.

1.3 Research questions

1. What are the perceived causes of landslides in this area?
2. How do cultural and indigenous interpretations differ from or harmonise with scholastic (academic) explanations regarding the causes of landslides?
3. How do cultural beliefs, perceptions, worldviews, traditions, norms and indigenous interpretations influence people's response to landslides and decision-making?
4. To what extent have cultural beliefs and indigenous knowledge been used by local communities to adapt to landslides?
5. To what extent have different actors involved in landslide risk reduction incorporated people's cultural beliefs and indigenous knowledge to reduce landslide risks?

1.4 Description of the study area

Bududa district

The study was conducted in Nametsi, Bumwalukani and Bunabutiti parishes located in Bududa district, on the slopes of Mt. Elgon, one of the highest mountains in Uganda. I purposely selected Bududa district because it has had a long history of landslide activity. The District lies at the foot of the South-Western slopes of Mount Elgon volcano, situated in Eastern Uganda (Juventine, 2012). Uganda Bureau of Statistics (UBOS) (2014) reports that Bududa district had a population of 210, 173 people according to the National Population and Housing Census 2014. The district is geographically bound by latitude 2° 49' N and 2° 55' N, longitude 34° 15' E and 34° 34' Et. It stretches from an altitude of 1643 meters above sea level (masl) down to an elevation of 1532 (masl), and is characterized by cliffs, ridges, steep slopes with V-shaped valleys indicating river incisions (Juventine, 2012). All these make the area susceptible to landslide occurrences. The average precipitation in the area is above 1500mm of rainfall per year (Juventine, 2012). A map of Bududa showing landslide susceptible areas is added as an appendix.

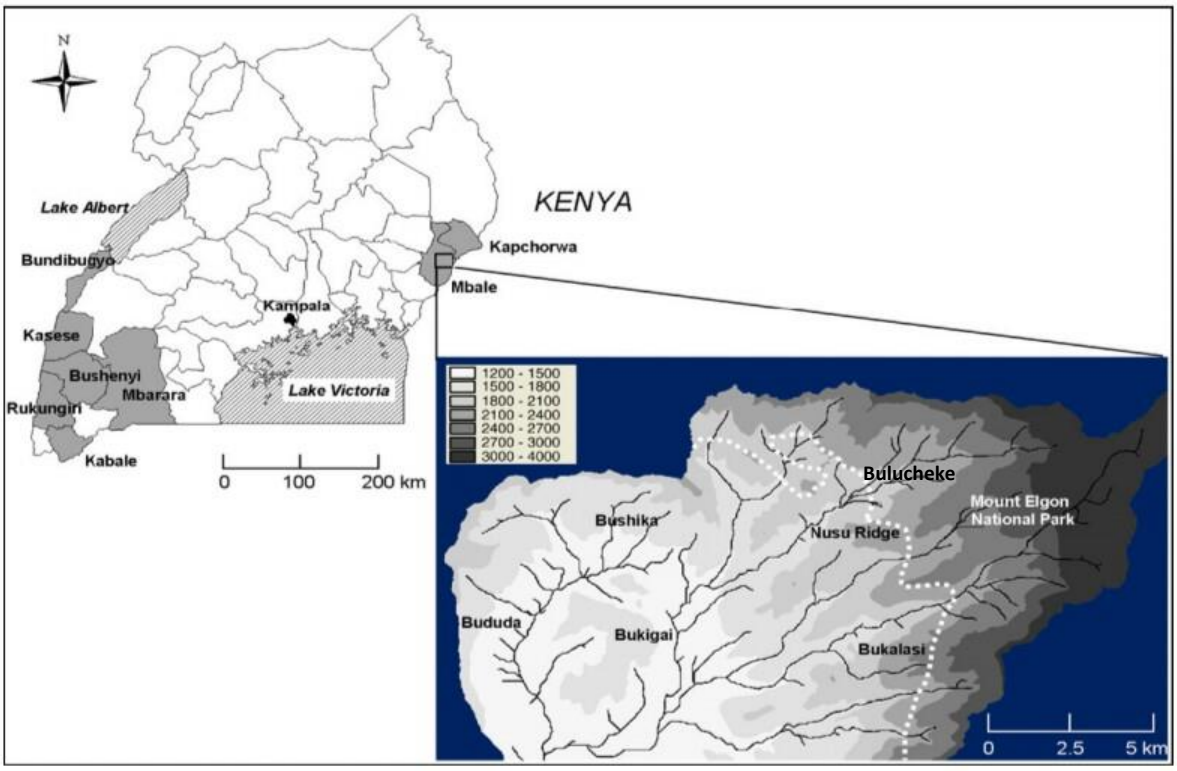

Figure 2: A map of Uganda showing the location Bududa district and the study area sub-counties

Source: NEMA (2010)

Nametsi parish, Bukalasi sub county

The choice of Bukalasi sub-county is because it falls under the hazard prone area where populations have been mostly affected by landslides. Moreover, Nametsi Parish was the most affected area during the 2010 landslide with approximately 400 deaths, 5,000 displacements and immense destruction of property (Atuyambe, Ediau, Orach, Musenero & Bazeyo, 2011). This kind of destruction both to human lives, property and the environment had never occurred on Mt. Elgon before (Atuyambe et al, 2011). The sub-county is characterised by massive poverty and an evident lack of livelihood opportunities (Misanya, 2011).

Bumwalukani parish, Bulucheke sub county

Bulucheke sub-county experienced a catastrophic landslide that occurred on the 26th, June 2012 and killed more than 18 people (URCS, 2012). The soils of Bulucheke and areas around Mt Elgon were discovered to be under high risk of soil slips in the major soil examinations conducted in the Uganda (NEMA, 2010).

Bunabutiti, Bushika sub county started experiencing landslides in 1997 which left cracks in the land. Since then, the parish has been experiencing gradual soil slips. These three sites provide the necessary information to answer my research questions.

An overview of landslides in the area

In 1933, 25 people were killed while celebrating a harvest; in 1964, 18 people died due to landslides; in 1970, about 60 people were killed celebrating a circumcision ritual (Juventine, 2012). During the El Niño rains of 1997, landslides killed 48 people and displaced thousands in this area, in 2004 over 15,000 people were displaced and made homeless by landslides in the area (Kitutu, et al. 2009:611). According to a report by Uganda Red Cross Society (URCS) (2010), a severe landslide buried more than 385 people Bukalasi Sub County, Nametsi parish in the year 2010. The landslide was triggered by heavy rain falling continuously for six days. Correspondingly, URCS (2012), reported another landslide in Bumwalukani Parish. This landslide, occurred in 2012, burying two villages and leaving 18 people dead (Nelson et al, 2015). Besides displacement of people, landslides in the area cause loss of income for farmers, damage to roads and bridges that further constrains the delivery of service and development initiatives in the district (NEMA, 2010). Despite the fact these landslides have occurred in Bududa since the 1900s, it is now becoming evident that these tragedies are on the increase as the population in the area increases (NEMA, 2010).

1.5 Justification of the study

Landslides are one of the predominant disasters today causing loss of lives, property and displacement of people worldwide. This has prompted research and publication in the area of disasters and development exploring the impact of disasters on development in general. Studies related to disasters explore a variety of aspects, for instance; the causes, effects, coping mechanisms, community based adaptation, vulnerability and resilience to disasters among others. Despite the fact that there has been a wide range of studies on landslides globally and Uganda in particular, studies on landslides in Uganda have not comprehensively exhausted the role of culture and indigenous knowledge in the prediction, interpretation and adaptation to landslides in the country. Studies have not adequately explored how the decisions of people living in landslide prone areas are embedded in their culture. This social construction of risk has often been missing from landslide research and intervention in Uganda. This therefore, provides a valid justification to explore the role culture and indigenous knowledge play in the interpretation and adaptation to landslides in Uganda.

1.6 Significance of the study

The results of this study are meant to contribute to the debate on landslides and development giving specific insights into the role and functions of culture and indigenous knowledge in the interpretation and adaptation to landslides in Uganda. The study is meant to inform and inspire practitioners and policy makers engaged in landslide risk reduction work to consider and shed light on the role of people's culture and indigenous knowledge, and act to integrate this wealth of knowledge into landslide management interventions.

Finally, the cultural relevance of disasters has quite often been missing from disaster risk reduction strategies both globally (IFRC), 2014) and in Uganda. It is not until recent that it has gained considerable recognition after the World Disaster Report (WDR) of 2014 that focused on culture and risk (IFRC, 2014). It is crucial to understand how the decisions of communities living in areas prone to disasters are often influenced by their culture. Cultural perceptions make people live in risky environment and make sense out of such places. Therefore, this study provides fellow researchers and relevant policy makers pertinent and new insights into the role culture plays in the interpretation and adaptation to landslides in Uganda.

1.7 Scope of the study

Geographically, the study is limited to Bududa district located in Eastern Uganda focussing on Nametsi, Bumwalukani, and Bunabutiti parishes. These places have experienced landslide events that have been horrendous to lives and property. This study explored the role culture and indigenous knowledge play in the interpretation and adaptation to landslides in Uganda. The underlying reason is to gain an in-depth understanding of the issues raised in the study objectives and to answer the research questions.

1.8 Definition of concepts

A disaster: This study adopted the definition of a disaster by the Department for International Development (DFID) (2005) as a severe disruption to a community's survival and livelihood systems involving loss of life and/or property on a scale which overwhelms the capacity of the community to handle without external assistance (DFID, 2005). Disasters usually occur when natural hazards interface with vulnerable people.

A natural hazard: Is an extreme event that occurs naturally and causes harm to humans and property

A landslide: This study used the definition by Reed who uses the term landslide to describe a wide range of land forms and processes involving the movement of soil and rock down slopes under the influence of gravity (Reed,1992:39).

Landslide risk: In this study, landslide risk is the degree of loss due to a landslide.

Disaster risk reduction: This study adopts the definition of disaster risk reduction by Kelman, Mercer & Gaillard (2012) who denote that it refers to reducing the threats, occurrences or effects of disasters.

Culture: Culture is a complex term encompassing beliefs, attitudes, values and behaviours (International Federation of Red Cross and Red Crescent Societies (IFRC), 2014). Culture includes people's beliefs, behaviours, traditions and social structures in a given society. In this study, a definition by the IFRC (2014:14) which states that culture in relation to risk refer to the ways that people interpret and live with risk, and how their perceptions, attitudes and behaviour influence their vulnerability to hazards and disasters is borrowed and used.

Scholastic knowledge: For this study, scholastic knowledge is referred to as knowledge acquired through education or through academic investigations.

Cultural knowledge: For this study, cultural knowledge means that kind of local knowledge, beliefs, symbolic goods, values, practices that are embedded in a cultural group or community and transferred from one generation to another.

Indigenous knowledge: This study uses the definition of indigenous knowledge by Kelman et al. (2012) who define indigenous knowledge as various bodies of social practices, norms, beliefs, interpretations, traditions and perspectives that relate to a self-recognised cultural group (s) who are members of a respective nation, society or tribe.

Adaptation: Adaptation in this study means how local people use their knowledge and experiences to live with landslide disasters through practices that reduce the risks associated with landslides.

1.9 Methodology in Brief

This study used a qualitative research strategy as the methodological approach to find answers to the research questions raised using a case study design. Both primary and secondary data sources were collected over a three-month period, December 2016 to March 2017, from three landslide sites of Nametsi, Bumwaluksni and Bunabutiti parishes in Bududa district of Eastern Uganda. Semi-structured interviews, Focus Group Discussions (FGDs), participant observations and text and document analysis have been the main methods of data collection.

1.10 Thesis outline

Chapter 1 presents the background to the study giving a brief history of landslides and their impact globally and in Uganda, the statement of the problem, research questions, justification of the study, significance of the study, scope of the study and description of the study area.

Chapter 2 provides a review of existing literature on disasters and landslides on a global, regional and national scale. The literature is presented based on the specific objectives indicated earlier in this section. From the literature, a gap to be filled by the findings by this study is presented. A detailed presentation of the theoretical underpinnings and framework adopted in this study is also explained.

Chapter 3 presents a discussion of the methodology used in this thesis, explaining the research design (case study design and why it is the best suited for this study), the qualitative approach giving a rationale for the choice. Sampling techniques are explained, and the data collection and analysis techniques are also expounded. Additionally, research challenges are highlighted and how they were addressed.

Chapter 4 presents concrete research findings and analysis based on the data presented. **Chapter 5** presents a summary of the study findings highlighting the relevance of understanding culture and indigenous knowledge in disaster management **Chapter 6** presents the conclusion of the study.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2. Introduction

Understanding how culture influences the decision-making process of people faced with disasters is significant for ensuring holistic disaster risk reduction strategies and for creation of resilient communities. Specifically, this chapter reviews related literature regarding cultural interpretations of the causes and responses to disasters, landslides in particular and the use of cultural and indigenous knowledge in the interpretation and adaptation to landslides. Furthermore, literature relevant to the incorporation of cultural and indigenous knowledge by the different actors involved in landslide risk reduction strategies is reviewed.

This chapter further provides a discussion of the theoretical framework guiding this study particularly explaining the social capital theory and its basic concepts of cultural capital, agency, bonds and bridging ties. The link between culture, indigenous knowledge and disasters is also presented and explained. Additionally, the Theory of Reasoned action is presented and explained. Finally, the theoretical application is presented showing the concepts that guided data analysis.

2.1 Review of empirical Literature

This section presents a review of empirical literature relevant to the study objectives and questions. The literature focuses on people's perception of the causes of disasters, landslides in particular and their response. Literature related to the use of culture and indigenous knowledge in adaptation to disasters is also highlighted. The section further presents studies on the ways in which the different actors involved in DRR work have incorporated people's cultural and indigenous knowledge to create sustainable solutions to disasters. The focus is on existing literature on this topic at global, regional, national and local levels. The literature presented is meant to broaden the scope in data collection, analysis and discussion of the findings obtained from the field as well, as to identify the gap to be filled by the results of the study.

2.1.1 Cultural and indigenous interpretation of the cause and response to disasters

Around the world, the majority of people are likely to perceive and respond to risk partially based on their culture (IFRC, 2014:11). Our culture influences the way we think and act when we are face with disaster events (Blaikie et al, 2014:16). Indirectly or directly, disasters mediate philosophical inquiry and shape our creative imagination with regard to cause and response.

Thus, people who are constantly faced with disasters overtime develop their cultural and indigenous explanations of such events based on their experiences.

Cultural perceptions on disasters have a big impact on how people prepare for them, how people respond to them and even how they could try to prevent them. The individual, the household, the kinship network and larger collectivities may develop implicit or explicit strategies to deal with risk (Blaikie et al, 2014). These strategies thus constitute a significant element in well-being and provide the foundation for action when vulnerability is made a reality by the disaster event itself (Blaikie et al, 2014:15). The individual, the household, the kinship network and the macro level networks represent the social capital or the bonding and bridging ties that come up with these strategies and actions to deal with risk.

From the beginning of the use of the word "disaster" in modern European languages, it was associated with the cosmic origin of disastrous events with the responsibility borne by humans for their own misfortunes (Huet, 2012:6). The history of disasters is the also the history of humans wresting from the heavens the source and reason of their misfortunes (Huet, 2012:7). "Nature" is bound up with "culture", nature is socially and culturally constructed (Anderson, 2013:5). This is why when people are faced with disasters, they socially and culturally attach meanings to them, their source and consequently this determines how they respond to such situations.

Local communities thus rely on their experiences with past disasters to predict possible future occurrences and to respond when affected by a disaster. For instance, as a positive coping strategy, local communities along Mt Elgon relied on their indigenous knowledge systems for the recognition of potential landslides, especially in assessment of risks, weather forecasting and early warning (Osuret et al, 2016). Local people use signs to tell whether it is going to rain heavily and they experience a landslide or flood which then determines their response (Osuret et al, 2016). Osuret et al. (2016) report that such signs include the appearance of cracks on the lands and water level in the rivers among others. Some studies from both the Mt. Elgon region and elsewhere have indicated that the understanding of landslides and other disasters in the community stemmed from a religious, local and cultural perspective (Misanya & Oyhus, 2015:396), with assertions that the disasters could be predicted using indicators like the position of the sun, movement of the moon, height of bird nests near rivers among others (Rengalakshmi, 2008:11).

UNEP (2008) observed that the cultural and belief system of a community greatly influences its response to disasters. This also means that community responses to disasters are in part dependent upon the community's culture. For example, the people of Mfangano Island in Kenya and in some local communities of South Africa 'know' that disasters only occur when people are not at peace with God or the spirits (IFRC, 2014). Also, after the Indian Ocean tsunami in 2004, several people living in Aceh (Indonesia) believed that Allah had punished them for allowing tourism and oil drilling in the area (IFRC, 2014:8), similar beliefs were extensive in the United States after Hurricane Katrina, showing God's anger with aspects of the sinful behaviour of the people who live in or visit New Orleans (Stephens, Fryberg, Markus & Hamedani, 2013).

Likewise, in West Africa, Mount Cameroon is a volcano that erupts every few years. One village chief reflected many people's beliefs in saying: "When the Mountain God gets angry it causes eruptions. "We do not prepare for these eruptions because we can calm the God's anger by making a sacrifice... When the lava flows towards the sea, it is the Mountain God communicating with the Sea God" (IFRC: 11). In Miami, three senior politicians refused to act to protect the city from storms and sea-level rise because their culture leads them to deny that climate change is real and is happening (McKie, 2014). There is a growing knowledge of how people are in denial of climate change in relation to risk perception, psychology and culture (Norgaard, 2011). Some of this shows the paradox that more scientific information is unlikely to change people's minds and that it can reinforce their denial because their viewpoint is related to culture and an emotional attachment to a peer group that for them is more important than scientific information (IFRC, 2014:19). In such circumstances, those involved in DRR may face challenges as people may resist warnings and evacuation which can further increase their vulnerability to disasters.

Cultural norms and expectations play a significant role in the chaos wreaked by disasters, and they must be addressed to ensure creation more resilient communities. Culture is important in shaping how knowledge and understanding of risk is (or is not) applied and interpreted (IFRC, 2014). The World Disaster Report (2014) found that culture can be an important factor to upsurge people's vulnerability to hazards, including when people view risk through their culture and not based on information from external sources. For instance, the 2014 spread of Ebola in West Africa was partially based on the culture clash on how to handle the dead. Some local people became suspicious and mistrusted how external people were handling the whole Ebola situation. As a tradition, indigenous peoples in Guinea and Sierra Leone wash the dead,

but medical requirements for stopping the spread of Ebola included the isolation of those infected, not only those who were alive but also those who had dead since they remained infectious (IFRC, 2014).

Likewise, Epstein (2014) notes that families of Ebola affected people in Liberia continued to behave as they usually did when others became ill or died. Entire families perished because they insisted on nursing sick relatives themselves. When a Muslim dies in this part of the world, his/her relatives traditionally wash, dress, and bury the body. Groups of related families were wiped out because of this behaviour. In Sierra Leone, the Red Cross formed a specialist burial team that aided bridge the cultural gap by respecting local beliefs while providing quarantine safety (International Federation of Red Cross and Red Crescent Societies (IFRC), (2014). This shows how cultural beliefs in risk reduction can be a hindrance in implementation of risk reduction measures but if respected and handled well, these measures can yield positive results.

2.1.2 The use of culture and indigenous knowledge in adaptation to disasters

People live in disaster prone areas even when they are aware of the risks. This might be because they have no choice or because they just choose to stay in such risky environments. According to the IFRC (2014:24-25), organisations involved in DRR work recognize that people knowingly live in areas that will experience serious disasters and, although poverty may force many to do so, many others exercise a considerable choice in doing so. People have emotional attachments to certain places that influence them to make difficult choices in the face of disasters. People enable themselves to live with risk through the evolution of cultures or explanations that either make them feel safe or remove the causes of disasters to a different realm (frequently religious) that is acceptable because it needs no other explanation. For instance, people can say God has caused a landslide and that way, it becomes as acceptable to them and thus there is no other explanation since they believe God has the power to do anything He so wishes. This may explain why people choose to go back to their homes immediately after a disaster, and why they resist relocation to places considered safer.

People prefer known to unknown (IFRC, 2014:25), they would rather face disasters where they are than risk the possibility of loss of reciprocity from neighbours and community, lack of the employment or livelihood options, physical violence or crime in a new ‘safe’ place. People who return quickly to the affected area feel that they can be more in control since the variables they have to deal with are known to them, and that they can make responses within an existing

framework of 'lived' experiences. This, questions the underlying logic of DRR interventions which assume that, given necessary information and awareness, people would not 'live' in 'risky' areas (IFRR, 2014:25). This poses a challenge to DRR interventionists as it means that for them to ensure people's safety, they must persuade them to act against their interest's or to deny their cultural preferences, which may not be easy to achieve.

Indigenous knowledge and or cultural knowledge has evolved over time and is based on observations and experiences passed on through many generations (Rengalakshmi, 2008:9-11). According to Ellen & Harris (2000), indigenous knowledge comprises of cultural, symbolic knowledge, technological, environmental management practices, beliefs, traditions and worldviews which are embedded in a community's language and signs, specific to a particular society and can be adapted by the following generations. On the other hand, Cultural knowledge consists of conceptions, implicit and explicit, of "what is, . . . what can be, . . . how one feels about it, . . . what to do about it, . . . and how to go about doing it" (Goodenough, 1961:522). Cultural knowledge also consists of the theories about the world and the way it is viewed and acted in by members of a particular community (Keesing, 1979). Cultural knowledge is part of indigenous knowledge and thus it must be learnable and transferred from one generation to another (Keesing, 1979).

Such traditional inclinations coupled with the increasing variability in climate make it difficult to predict where and when a disaster event might or is likely to occur making community level disaster management and planning difficult (Braman et al., 2013:145). Thus, the need to identify local knowledge and practices about landslides that can be integrated with scholastic explanations from modern science. This combination of traditional and modern knowledge systems could be of great importance in decision making for communities, practitioners, policy makers and other stakeholders (Osuret et al, 2016).

The international community in recent years has recognised the importance of indigenous knowledge and practices in relation to disasters (Shaw et al., 2009; Mercer et al, 2009; Mercer et al, 2010; Shaw et al., 2008). This recognition has especially been evident after the 2004 Indian Ocean Tsunami which was credited for successfully blending indigenous knowledge with science in DRR (Hiwasaki, Luna, & Shaw, 2014). Most of the indigenous knowledge remains in theory but practical application of such knowledge especially in developing countries generally occurs on a small scale with a gap between policy and action (Hiwasaki et al., 2014; 2011; Mercer et al, 2010). Indigenous knowledge is culture specific and socially

constructed representing people's lifestyle. Through community socialization and interactions, this knowledge is transferred from one generation to another.

Over time, local communities have predicted, acted and recovered from disastrous events using indigenous knowledge. For instance, indigenous inhabitants of Tikopia Island in the Solomon Islands who were hit by Cyclone Zoe in December 2002 managed to survive using ancient indigenous practices of traditional housing and seeking refugee under overhanging rocks on higher elevation during the cyclone (Mercer et al, 2010:214). By the time the National Disaster Management Agency and relief organisations came in to respond to the disaster, people had already secured their safety (Yates and Anderson-Berry, 2004). According to the United Nations International Strategy for Disaster Reduction (ISDR) (2008), after the 2004 Indian Ocean Tsunami, there were two stories that stand out, bringing new interest to the concept and significance of Indigenous Knowledge in DRR. The ISDR (2008) emphasized that the Simeulueans living off the coast of Sumatra, Indonesia, and the Moken living in the Surin Islands off the coast of Thailand and Myanmar both used knowledge passed on orally from their ancestors to survive the devastating tsunami.

2.1.3 Incorporation of cultural and indigenous knowledge in DRR strategies

There is certainty that those involved in DRR will have less sustainable strategies if they do not adequately take account of people's cultures, beliefs and attitudes in relation to risk (IFRC, 2014). It is often believed that people who have experienced a disaster are more likely to act if that disaster happens again and thus providing information can help reduce the risk (Stephens et al., 2013). However, this is not always the case due to different reasons and their beliefs. Many people continue to be adversely affected by disasters on a recurring basis after the have received information that outsiders deem relevant. This shows that these people already have belief systems and explanations that they consider true, relevant and ideal to follow. These beliefs make them live and make sense of the risky environments they live in and ignore information from external people. So, if these belief systems are ignored by those involved in DRR work, the good aspects from local experiences that can be utilised in DRR will be missed. Additionally, such local communities might remain vulnerable to future disasters.

According to Mwaura (2008:4), the global scientific community has already acknowledged and endorsed the relevance of indigenous knowledge at the World Conference of Science in Budapest, Hungary in 1999. The United Nations Environment Programme (UNEP) recognizes the role of indigenous knowledge in the conservation of natural resources and management of

natural disasters (Mwaura, 2008:4). The conference recognised that scholastic, scientific and traditional knowledge should be integrated, mainly in the field of environment. In 1999, the World Conference on Science assembled under the patronages of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Council on Science (ICSU) urged governments to promote the understanding and use of Indigenous Knowledge Systems (Battiste, 2002:8). The conference participants requested scholars to respect, sustain, and enhance indigenous knowledge systems and they recommended that scientific and traditional knowledge should be integrated into any interdisciplinary projects dealing with links between culture, environment, and development (Battiste, 2002:8).

The International Workshop on Indigenous Knowledge and Disaster Risk Reduction: From Practice to Policy, held at Kyoto University in 2008, highlighted among others the cultural context as one of the areas of influence for current issues related to Indigenous Knowledge and Disaster Risk Reduction (Shaw et al., 2009). These further stress the relationship between culture and indigenous knowledge in disaster risk reduction and the need for actors to respect local people's knowledge in their interventions. The next section discussed the theoretical application to be adopted in this study.

2.2 The theoretical framework

Like earlier stated, this section discusses the most important theoretical underpinnings in relation to the assumptions, research questions and issues raised in this study. The theoretical discoveries are meant to guide the analysis of the study findings and to contextualise the study.

2.2.1 The Social Capital theory

Concepts of social capital, agency, bonds and bridges, economic capital, cultural capital

Social capital consists of a combination of bonding and bridging ties found in a network of actors, or "the glue that holds groups and societies together" (Newman & Dale, 2005:478; Narayan, 1991). According to Newman & Dale (2005), bonds represent personal ties at the micro-level while bridges represent cross-community ties at the macro level. Bonding and bridging ties are explained later in this chapter. According to Onyx and Bullen (2000); Pretty (2003) and Mathbor (2007), the social networks, reciprocity, trust, social norms, the commons, social contacts, social cohesion, social interaction, solidarity and social agency represent the social capital at either the micro or macro levels (bonding and bridging social capital).

Similarly, Grootaert (1998) argues that social capital includes a set of norms, networks, and organisations through which people gain access to power and resources, and through which decision making and policy formulation is done. According to Murphy (2007), such networks, actors and organisations are embedded within the civil society or less formal institutions rather than formal institutions of society. And in emergency or disaster situations, is important to unravel the nature of relationships within and between communities and between communities and the social environment in which they are embedded.

To Bordieu (1986), social capital is a person's aggregate of resources connected to his/her network of relatively less institutionalized relationships (Bordieu, 1986). These connections or relationships can be to for example a person's family members, neighbours, friends (bonds) and local, national or international institutions (bridges). These ties can include kinship, religious, ethnic, and client patron relationships (Bernier & Meinzen-Dick, 2014:172). These concepts have for long dominated development and sustainable development discourses, theories and activities trying to explain how sustainable development can be achieved if local communities are actively engaged **(**Collier, 1998**)**.

The similarities and variations in the definitions of social capital

As I have highlighted above, many authors have come up with various definitions and meaning of social capital. Central to these definitions is the notion that social capital comprises of a person's resources, solidarity and social networks of relatively less institutionalised or less formal relationships that are a person is connected to (Mathbor, 2007; Murphy, 2007; Newman & Dale, 2005; Pretty, 2003; Onyx and Bullen, 2000; Grootaert, 1998; Bordieu, 1986). These authors highlight that a combination of social norms, values, social cohesion, social resources, beliefs, social contacts, social contacts, social networks, reciprocity and togetherness represent a communities' social capital. The concept of agency of social capital is also explained by Bordieu (1986) and Newman & Dale (2005) as the opportunity and ability people have (in relation to access to resources and time) to actively participate in developing their communities or to respond during an emergency. Their explanations are similar but Newman and Dale provide a more comprehensive explanation of agency especially relating to emergency situations.

Bonding and bridging ties are other two aspects of social capital presented by the authors. In the explanation of these concepts, there is an agreement among the authors that bonds present the ties at the micro level (family, friends and neighbours) while bridging represent the ties at

the macro level (local, national and international). The fact that both bonds and bridges are crucial in disaster management and development is also emphasised by the authors. Generally, in explaining the concept of social capital, agency, bonds and bridges, Newman & Dale and other authors mentioned above build on the work by Bordieu to further expand and explain these concepts.

According to Øyhus (2016), the difference between social capital and other forms of capital is that social capital is relational. With relational, it means that social capital can only exist and grow among humans or groups sharing a common structure and acting in a network of relationships or connections.

Social capital and disasters

In relation to disasters management, family members, friends, neighbours, community members, relief agencies, government agencies and other stakeholders involved and their relationships represent the social capital and agency. According to Bordieu (1986), agency relates to the possibility for individuals or groups to actively engage in development activities by increasing their access to critical resources (economic, cultural or symbolic). This concept is expounded on later in this chapter.

Bernier & Meinzen-Dick (2014:169) highlight that world over, people have always faced shocks and have devised various institutional responses to cope with, recover from, and prevent future impacts from such shocks. Social capital has been central to these shocks and coping capacity of people and communities yet it is often unrecognised or under looked by those involved in responding to such shocks (Bernier & Meinzen-Dick, 2014).

Social capital at the bonding and bridging levels can have both hindering and facilitating effects as the ties that bind some people together exclude others (Portes, 1998; Newman & Dale, 2005:477). People might be more vulnerable to disasters due to their social status or position. Bernier & Meinzen-Dick (2014) argue that social norms and patterns of behaviour can dictate who is included in social networks thus leading to unequal opportunities between those involved like between men and women, or along socio-economic lines. Quite often, some people experience the negative impacts of a disaster more than others due to their disadvantaged position in society. A study by Clason (1983) concluded that individuals actively involved in caring relationships are more likely to survive a disaster than those with less caring relationships.

Newman & Dale (2005) argue that social capital consisting of strong network ties as a hindrance in excess quantity as it can lead to enforcement of social norms that have the capacity to work against change and innovation. They further argue that bonding and 'bridging' social capital comprising of weak network ties can allow actors to bring about significant social changes (Newman & Dale, 2005:477). People's cultural beliefs, like their beliefs in spirits, subordination and fatalism may hinder DRR strategies, for example when people refuse relocation due to ancestral ties to the place of disaster. For example, the 2011 earthquake and tsunami in Japan was blamed on gods and some of the Japanese people consider that their traditional culture of deference and subordination to authority as the major contributing factor to the disaster of the damaged Fakushima reactors (IFRC, 2014:11).

Indigenous knowledge and experiences in previous disasters can be utilised to determine the possibility of a disaster, act when a disaster happens, in adaptation and in preparing disaster preparedness strategies. Local people's knowledge for instance in detecting the signs that a disaster might happen can be used by actors in DRR to facilitate evacuation and reduce the risk (Murphy, 2007).

Furthermore, social networks are vital in disaster management because whenever a disaster strikes, the affected people constantly rely on their networks for support. For instance, Dynes (2006) reports that when the World Trade Towers in New York collapsed, 3,000 deaths were recorded. What is overlooked however during this disaster is that at the time it occurred, approximately 17,400 occupants were inside those buildings. With that recorded number of deaths, it means 87% of the occupants were successfully evacuated. Dynes (2006) explains that this evacuation was not accomplished by conventional search and rescue teams but was the result of people on site helping others and themselves to take protective action to get out of the towers and to safer places.

There is an emphasis on community members and network systems as active agents rather than passive victims who need to be assisted by external people as this has proved to be incapable of creating resilient and sustainable solutions in disaster situations (Murphy, 2007). This represents a shift in disaster management work from top down approaches to focus on local level management and integrated system perspectives. Social capital provides a new lens to assess these local level disaster management perspectives and possibilities. According to Mathbor (2007), communities that are well trained culturally, socially and psychologically are better equipped and are more effective in responding during disasters and to the aftermath of

disasters. For example, a study by Buckland & Rahman (1999) about the Red River flood in Canada found that communities with higher levels of physical, human and social capital were better prepared and more effective in responding to natural disasters. These communities are also well prepared to adapt to risky environments together in their social networks. This theory of social capital was used to help the me answer the research questions raised earlier and to analyse the data.

Agency

Like I explained earlier in this section, agency represents people's likelihood and opportunity to actively participate in development actions through their ability to access the necessary resources. Agency is dependent on the size of networks a person or groups of people are able effectively mobilize (Newman & Dale, 2005: 481). Social capital is closely related to agency because social capital depends on agency to be able to function effectively. The rate to and ability of which a community reacts to any development problem represents its agency. According to Coleman (1990), social capital consists of vertical and horizontal associations and relationships constituted within social structures that facilitate human agency.

In disaster situations, social groups and individuals rely on agency to effectively deal with the especially immediate challenges presented by the disaster. Additionally, in the long run a community's agency represents and determines its ability to bridge ties between micro and macro levels. Shaw & Goda (2004) denote that communities with social capital are more proactive in collective decision making, thus contributing to a speedy recovery. The amount of social capital existing in a community or group of actors represents their agency to make strong and fast decisions especially during emergency situations and the reconstruction process.

Bonds and bridges

The use of social capital starts with bonding within the community before utilisation of social capital based on linkages from outside the community (Murphy, 2007). Like stated earlier, bonding ties are the personal ties at the micro level where as bridging ties represent the networks and ties at the macro level (Newman & Dale, 2005). Bridges link people and groups at the micro level to those at the macro level. According to Tompkins & Adger (2004), both bonding and bridging networks produce greater resilience and ability to adapt to risky environments. In relation to disaster management, social networks based on bonds are vital because whenever a disaster strikes, the affected people constantly rely on their networks at

the micro lever for support. Bonds are critical especially a few hours after a disastrous event and during violent conflicts as people depend on their close bonds for help.

In emergency or disaster situations, social integration, cohesion, solidarity, networking, two-way communication, sustained interaction between and among the members, effective coordination of activities, collaboration on and support of members' activities, the fostering of leadership qualities and helping one another are useful prerequisites for successful bonding (Murphy, 2007). Bonding based on these attributes has the potential to yield sustainable outcomes and to create resilient communities in the long run. Murphy (2007) argues that people with strong networks and relationships fare better within all phases of the hazard or disaster cycle right from planning to reconstruction stages.

Bridging involves reaching out to other communities in the society or outsiders commonly referred to as external people, institutions or organisations (Murphy, 2007). Bridging ties are significant in response, relief, and recovery processes but the success of bonding depends on trust between those involved at the micro and macro levels. In support of this, Evans (1996:1034) argues that the actions of public agencies facilitate forging norms of trust and networks of civic engagement among ordinary citizens and using these norms and networks for developmental ends. Bridges are essential in accessing information, resources and power from outside the personal ties (Nayaran, 1999). Social networks are supposed to facilitate the process of informal exchange of information, materials and resources at the micro and macro levels (Bernier & Meinzen-Dick, 2014). Aldrich & Meyer (2015) argue that, bridging social capital might contribute towards providing support through institutional channels for example charitable action from religious associations or relief agencies.

For sustainable disaster management, synergy between the affected community members, relief agencies and state agencies involved is critical. Macias (2016) highlights that trust in government, local and national level institutions as the principal predictor of support for implementing new policies. However, people at the local levels usually have distrust in the governing institutions and this presents challenges especially during disaster situations as people tend to resist certain interventions even if they are for their own benefit. This can happen because of people's bad past experiences dealing with these institutions particularly government institutions. Ruiu, Seddaiu & Roggero (2017) emphasize that promotion of a greater participation in local decision-making can facilitate reinforcement of trust between the

government and local people. Communities that have experienced disasters in the past device means of reducing the risks and dealing with the reconstruction processes with its challenges.

Cultural capital

Social capital can take three forms including; cultural, social and economic capital (Bordieu, 1986). For the case of this study, the concept of cultural capital is expounded a bit. Cultural capital comprises all of the material and symbolic goods, without distinction, that society considers rare and worth seeking or preserving. Cultural capital includes the accumulated cultural knowledge that deliberate social status and power with in a community. Cultural capital refers to the collection of symbolic elements such as skills, practices, beliefs, tastes, posture, clothing, mannerisms, material belongings, credentials, among others that one acquires through being part of a particular social class or group (Bordieu, 1986). Cultural capital for the case of this study includes those networks, cultural practices, cultural beliefs, values, world views norms, attachments to the cultural area and trust between a particular group or community.

Economic capital

According to (Bordieu, 1986), economic capital contains those capital that can be immediately and directly convertible to money. Economic capital for the case of this study includes mainly land, property like houses, cattle, goat among others.

Theoretical illustration

Social capital can include economic, social and cultural capital available within a community and beyond. Social capital represents the social networks, bonds and bridges, social agency, trust, reciprocity, social norms, beliefs and values, social interactions, social cohesion, the commons and social contacts at both the micro and macro levels. A person's social capital depends on how much connected he/she is with other networks or how much social capital he/she is able to mobilise. In times of disasters, individuals and communities depend on this social capital to predict, respond, recover and adapt to disasters. The more social capital can be organised, mobilised and exploited in a community determines its resilience to future shocks. Additionally, social capital if recognised and utilised by disaster risk reduction interventionists, has the potential to lead to sustainable DRR strategies.

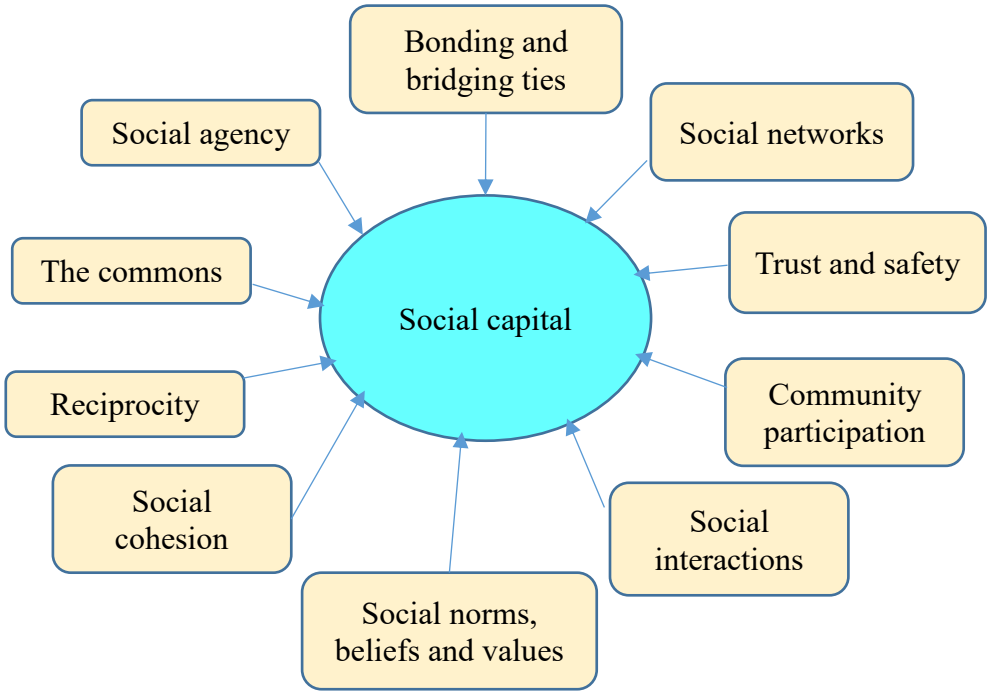

Figure 3: The 'social glue'

Source: Author (2017)

2.2.2 The nexus between culture, indigenous knowledge and development

Having discussed the role of culture and indigenous knowledge in people's perception and response to disasters in the previous section. In this section, a diagrammatic representation of the interconnectedness between culture, indigenous knowledge in development is presented. The purpose of this illustration is to show the need to recognise the importance of interconnections and relationships that have always existed between culture indigenous knowledge and development especially in developing countries (Mawere, 2014). Why sustainable development? It is because, disaster management that recognises and fosters the importance of local cultural based knowledge systems (culture and indigenous knowledge) in addressing environment problems has the capacity to lead to sustainable development (Mawere, 2014).

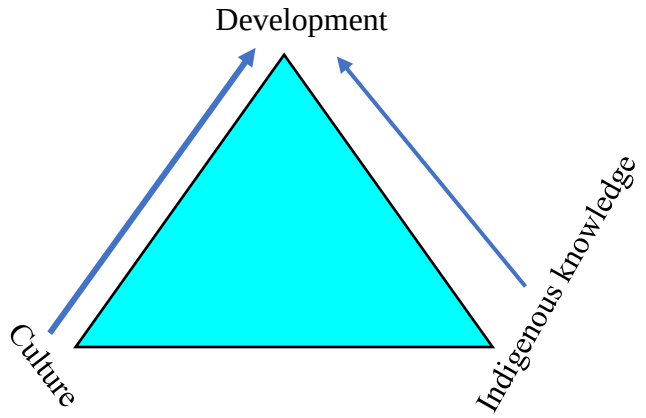

Figure 4: The interconnectedness between culture, indigenous knowledge and development

Source: Author (2017)

When people are faced with challenges from the environment which requires responses and solutions, then it becomes a function of culture to provide criteria which would enable the selection to be made between alternatives (Mawere, 2014). Therefore, therefore is a need to consider cultural knowledge in issues related to development (Mawere, 2014) because development actors have more often underestimated this relationship. According to Mawere, (2014:18), "all communities have ways of knowing and ways of doing, that all communities in all their diversity have had science and technologies in which distinct and diverse development is based". These ways, represent the body of knowledge that people have relied on to liv in their natural environments. Disasters are a development issue because they have the capacity to destroy a country's development efforts to more than a decade back (UNSDR, 2002). Thus, the need to integrate culture and indigenous knowledge is development efforts.

2.2.3 The Theory of Reasoned Action

The theory of Reasoned Action describes and explains the connection between values and behaviour (Ajzen & Fishbein, 1980). According to this theory, behaviour is influenced by people's values (Ajzen & Fishbein, 1980). The Theory of Reasoned Action emphasizes that our attitudes influence our decisions; that people make decisions based on their attitudes towards those specific decision (Eagly, & Chaiken, 1993). People are rational beings and thus have a reason for their actions. The main assumption of this theory is that intentions are the drivers of behaviour (Eagly, & Chaiken. That intentions result from subjective norms and

attitudes toward the behaviour (Feather, Norman, & Worsley, 1998). The argument of this theory is that values influence subjective norms and attitudes, thus, values influence intentions and behaviour. The theory of Reasoned Action was later extended into the theory of Planned Behaviour (Ajzen, 1991:181). The central tenant of the Theory of Planned Behaviour is the individual's intention to perform a given behaviour. In other words, the motivational factors that influence behaviour (Ajzen, 1991:181).

In relation to risks and disasters, a person's behaviour is influenced by objective risk, but also their subjective perceptions of risk events (Douglas & Wildavsky, 1983). Therefore, people make calculated risks of their actions in facing hazardous situations and their actions in relation to risk reflect their society's social and cultural values (Douglas & Wildavsky, 1983). For instance, if in a man in specific society is expected to be with strong character in facing life, they might fear to make a decision to relocate just because society will consider them weak.

2.3 Illustration of the theoretical application

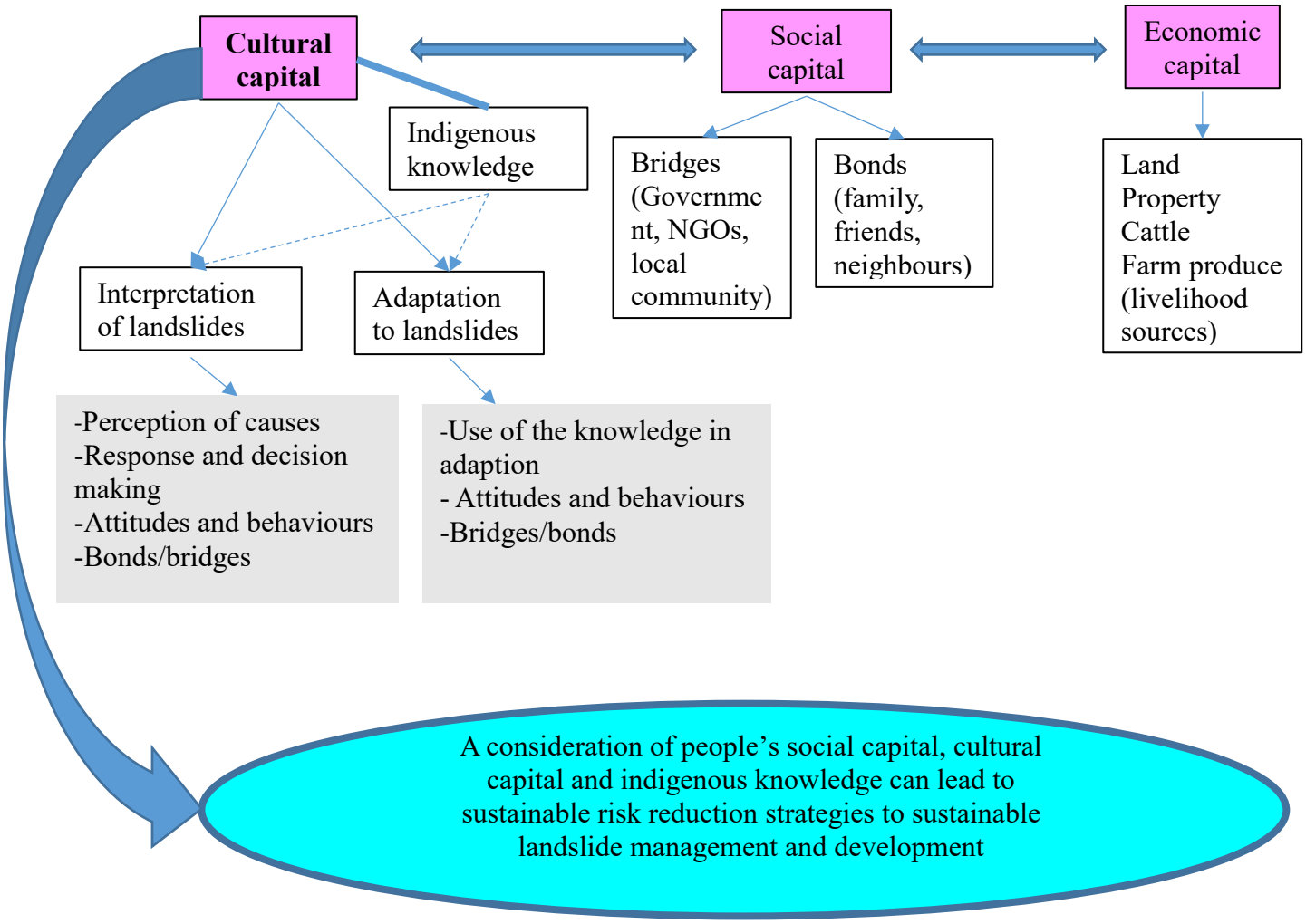

Figure 5:Theoretical application
Source: Author (2017)

The drawing above shows an illustration of how the data is organised and analysed based on the concepts and theories used in the study. Cultural capital, social capital, economic capital and indigenous knowledge influence the interpretation of the causes and adaptation to landslides. Interpretation of the causes of landslides influences response and decision making among the affected communities. Cultural and indigenous knowledge also influence how communities adapt to landslides in the long run. The bonds and bridges play a crucial role influencing how people or cultural groups respond and make decisions when faced with threats from the environment. Cultural knowledge and indigenous knowledge play a very important role in how communities adapt to landslides and if tapped into, sustainable landslide management and overall development can be achieved.

CHAPTER THREE: METHODOLOGY

3. Introduction

This chapter presents the methodology that was employed in the study. The methodology is adapted to the earlier stated theoretical framework and the research questions raised at the beginning of the study. It presents a brief argument on the study of social reality which is engrained in epistemological and ontological considerations. Specifically, the chapter summarises the research design, research strategy, sources of data, how data was collected, sampling techniques and sample size, study population, methods of data collection, methods of data analysis and validity and reliability issues. Similarly, ethical considerations, limitations and challenges experienced during the study are highlighted. Also, Plausible solutions to the problems encountered during the data collection process are emphasised.

3.1 Epistemological and Ontological Considerations

In the social world, knowledge is rooted in two major paradigms; epistemology and ontology orientations. Epistemological orientation relates to the question of what is (or should be) regarded as acceptable knowledge in a discipline while ontological considerations are concerned with the nature of social entities; questions of whether social entities can and should be objective entities that have a reality external to social actors, or whether they can and should be considered social constructions of reality (Bryman, 2012:27/32). Central to epistemological considerations is the question of whether the social world can and should be based on the same principles, procedures and ethos as the natural sciences (Bryman, 2012:27).

Positivism is an epistemological position that advocates for the application of the methods of the natural sciences to the study of social reality and beyond. Knowledge is arrived at through the gathering of facts that provide the basis for laws (Bryman, 2012). There is emphasis on objectivity which is an ontological consideration based on the principle that the study of social entities should be external to social actors including the researcher (Bryman, 2012). Positivism informs quantitative studies or research and the researcher treats the study participants as objects.

On the contrary, interpretivism is an epistemological position based upon the view that a strategy is required that respects the differences between people and the objects of the natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action (Bryman, 2012:30). In social sciences, human beings are the objects of study and since

they are thinking beings, they have their own ideas, beliefs and behaviours which need to be respected. In interpretivism, the researcher views human behaviour as a product of how people interpret the world and in order to understand the meanings of such behaviour, the researcher attempts to see things from those people's point of view. Therefore, he/she interprets their actions and their social world from their point of view. Since my study focused on the role of culture in people's interpretation and adaptation to landslides, I was interested in how people interpret their actions and their social world from their point of view. Therefore, my study adopted an interpretivist epistemological orientation.

The ontological position of interpretivism is Constructionism (constructivism) which asserts that social phenomena and their meanings are continually being accomplished by social actors (Bryman, 2012:33). The implication is that social phenomena and categories are not only produced through social interaction but that they are in a constant state of revision (Bryman, 2012:33). With this ontology, researchers' own accounts of the social world are constructions; the researcher always presents his/her own version of social reality in addition to respondents' interpretation of social phenomenon (Bryman, 2012). This makes the constructivist ontology best suited for my study. The discussion of findings, explanations and conclusions of this study are based on reality as constructed by the people.

3.2 Research design

The aim of this study has been to explore the role of culture and indigenous knowledge in the interpretation and adaptation to landslides in Uganda. During the study, I looked at the role of culture and indigenous knowledge in the perception and interpretation of the causes and effects of landslides, how cultural and indigenous explanations differed from the academic explanations, how do cultural beliefs, perceptions, worldviews, traditions, norms and indigenous knowledge influence people's response and decision making in relation to landslides in this area, how cultural and indigenous knowledge is used in adaptation to landslides and ways in which landslide management interventionists have incorporated people's cultural and indigenous knowledge in their landslide risk reduction strategies in the area.

This study used a case study design because of its appropriateness in answering the raised research questions. A case study is particularly good for examining the "why" "how" and "what" questions which are particularly typical of this type of study (Yin, 2003). Case studies offer an opportunity to understand the attitudes, perceptions, behaviour and experiences of the

people within their local setting. According to Bryman (2012:70), cases are often chosen not because they are extreme/unusual in some way, but because they either epitomize a broader category of cases or they provide a suitable context for certain research questions to be answered. The use of a case study design was appropriate as it enabled me to obtain detailed and intensive analysis of a single case with a focus on landslides. A case comprising the three concerned sub-counties (Bukalasi, Bulucheke and Bushika) and the respective parishes (Nametsi, Bumwalukani and Bunabutiti) was investigated to understand the role culture and indigenous knowledge play in understanding how people interpret the factors causing landslides and how they "live" with landslides.

3.3 Research strategy

A research strategy simply means the general orientation to the conduct of social research (Bryman, 2012:35). Like the quantitative strategy is used in natural sciences studies, social sciences studies adopt the qualitative strategy to study social behaviour. In quantitative studies, the social entities are external to the actors and the researcher is as objective as possible but in qualitative studies, the research interprets reality basing on how that reality or problem is perceived by the social beings it affects (Bryman, 2012). Based on how the researcher wants to approach the research problem, he/she chooses the appropriate strategy to use. Thus, the researcher chooses to either be objective or subjective while conducting a study. If the researcher wants to be objective, a quantitative strategy is adopted and if the researcher wants to be subjective, a qualitative strategy is used.

This study adopted a qualitative strategy since my interest was to explore people's perceptions, feelings, ideas and views on the role of culture and indigenous knowledge in the interpretation and adaptation to landslides subjectively. I believe this strategy is the most suitable to gather data needed for answering my research questions. The qualitative approach is specifically desirable because it provides an in-depth understanding of the ways people interpret and make sense of their own experiences and the world in which they live. Because I was interested in finding out the role of culture and indigenous knowledge in people's interpretation and adaptation to landslides, a qualitative strategy seemed appropriate to enable me gain detailed understanding of people's interpretations and perceptions of what was being investigated.

This choice was influenced by the researcher's quest to "see through the eyes of the people being studied" and assess their perception on the role and functions of culture and indigenous knowledge in understanding how people interpret the underlying factors causing landslides and

how they "live" with them. Since perception is highly subjective, the study was premised on the qualitative methodological approach to allow for gathering individual and group opinions.

A qualitative approach is appealing to social science research because of the opportunity it offers researchers in going beyond the numbers to dig deep into the perspectives or views of people about a problem or social phenomena being studied. Therefore, qualitative approach was helpful in understanding from the local people's perspective, the role culture and indigenous knowledge play in the interpretation of the factors causing landslides in the area and their perception of the effects. Additionally, this strategy enabled me to understand from the people's perspective, the ways in which they use their cultural and indigenous knowledge to adapt to landslides and to "live" in the seemingly risky area.

Like Bryman (2012) puts it, the naturalistic approach of the qualitative strategy to research offers the investigator an opportunity to study the social construction of reality or the "how and why" of a social action in its natural setting which enables him/her to arrive at results/findings that are revealing and stimulating as compared to statistical research. By a naturalistic approach or naturalism, I mean that qualitative studies recognize that people attribute meaning to behaviour and are authors of their social world rather than passive objects (Bryman, 2012:49). Since reality is socially constructed, the qualitative approach enables me to answer questions related to the causes and responses to landslides, how local people adapt to landslides, why local people have continued to inhabit landslide risky areas, and how their decisions are embedded in their culture.

The qualitative strategy to research involves an interpretive, naturalistic approach to the world where the research is pre-occupied with the interpretation of phenomena based on people's explanation of reality in a natural setting (Creswell & Poth, 2017). Qualitative researchers study phenomena in their natural and social setting with the aim of making sense of, or interpreting things in terms of the meanings study participants bring to them (Denzil & Lincoln, 2011). In other words, interpretation of phenomena is based on people's explanation and perspective of it. Since my interest was in people's interpretation of the role culture and indigenous knowledge play in the interpretation and adaptation to landslides in Bududa district, qualitative approach was therefore more appealing.

According to Creswell (2013), in most qualitative studies the researcher starts with assumptions and theoretical frameworks to guide the study and then addresses meanings individuals or groups assign to a social or study problem in the analysis and discussion of findings. Therefore,

qualitative researchers adopt the qualitative approach to inquiry, collection of data in a natural setting, sensitive to the people and place being investigated and data that is both inductive and deductive coming up with common themes. The final presentation of the findings/the report includes voices of the study participants, the reflexivity of the researcher, an elaborate description and interpretation of the problem and the contribution of the findings to the literature around the topic under study or the call for change based on the study findings (Crewell, 2013). This briefly is how a qualitative study looks like and this is exactly how this particular study is.

In this study, I made assumptions presented in form of research questions; identified social capital theory to provide the analytical framework, selected qualitative data collection methods like FGDs and semi-structured qualitative interviews, conducted the study in a natural setting. From the data, common patterns were generated, data was presented based people's views on the topic. I interpreted and discussed the data highlighting a call for change in policy and especially actions by those actors/organisations involved in landslides risk reduction work to incorporate people's cultural and indigenous knowledge based on the evidence provided of its potential to lead to sustainable risk reduction interventions.

3.4 Study population

Study population denotes a larger group of study units that are targeted for a particular study or investigation (Bryman, 2012). The study population involves what or who is to be sampled Ritchie, Lewis, & Elam (2013). The study represents the study constituency from which the sample is to be drawn (Ritchie et al., 2013). In social research, the study population may involve people, observable events, processes or settings, documents, visual images, dwellings, journeys or environments from which a desirable sample is to be selected (Ritchie et al., 2013). The population targeted for this particular study was those people who have been directly or indirectly affected by landslides. These included landslide victims, neighbours to the landslide scars, family members of victims, friends, local leaders, opinion leaders, district officials whose work was related to landslides, religious leaders, elders in the community and relief organisations or agencies involved in landslide management.

The focus was places where landslides has ever happened before and affected the community. For instance, in areas where they caused destruction of property, deaths and injuries to people, and destabilisation of communities. Special focus is on people/victims who were still staying in areas near the previous landslide scars. Those people who still inhabited high risk areas for

settlement. Therefore, three sub-counties of Bukalasi, Bulucheke and Bushika were selected and from these sub-counties, three parishes of Nametsi, Bumwalukani and Bunabutiti were chosen respectively. Observations, interviews and FGDs were conducted to explore people's perception of the role culture and indigenous knowledge play in the interpretation and adaptation to landslides in the area. Key informants who included local leaders, religious leaders, cultural leaders, district officials, and actors involved in landslide related work were also were also interviewed.

3.5 Sources of Data

Built on the objectives and guided by the theoretical background of this study, data was collected from both primary and secondary sources. Primary data was collected from landslide victims in Nametsi, Bumwalukani and Bunabutiti parishes and key informants using semi-structured qualitative interviews, participant observations and Focus Group Discussions. Secondary data was collected from publications and reports from the Uganda Bureau of Statistics, the Department of Relief, Disaster preparedness and Management (Office of the Prime minister), government agencies and institutions, relevant NGOs, other online sources, Internet sources and district reports on landslides in the area.

3.6 Data collection process

I obtained a letter from the University of Agder which I presented to the Chief Administrative Officer (CAO) of Budada district requesting for permission to carry out research in this district. He then gave me a stamp with a go ahead to start with data collection. This acceptance from the CAO was presented to the sub-county chiefs of the respective sub-counties who also permitted me to interact with the community members in the study area. I also presented the introduction letter from the University of Agder and the acceptance letter from the CAO to the Bududa District Police Commander (DPC) to make them aware of my activities and for security reasons.

The study was conducted with full knowledge and consent of the study participants. Before conducting the major study, I conducted a reconnaissance in December 2016 with the aim of pre-testing the tools, gaining familiarity to the study area, getting information gate keepers and contact persons to enable the researcher to enter into the community. Contact persons are useful because they help the researcher enter into the study area and get people to inquire from which would otherwise prove very hard for the researcher to enter into a new area and get the right persons or study respondents.

For the study participants, I interviewed them in the afternoon and evenings after they had attended to their gardens. In the mornings, it is hard to find anyone in their homes for an interview. This is why I would go to interact with them in the afternoon and evening time when they have come back from their farms and after they have had their lunch. I used the contact persons I had identified while conducting the reconnaissance to get to the first participant. That participant would then guide me to another person they know who has knowledge about the topic I was investigating.

For participants in the FGDs, I went to the trading centres in the evenings because people usually converge in these centres to socialize and to drink local beer after their daily activities. This enabled me to get people in groups or in slightly large numbers. I would then introduce myself and the purpose for my visit. Afterwards, I would request those people who have been affected directly or indirectly by the landslides to give me a few minutes of their time to interact with them. I would then sit with those who have accepted to participate and conduct the FGD together with the research assistant(s).

For key informants like relief workers and district officials, I would fix appointments with them and whenever they were ready, they would inform me to go and do the interviews. I used to meet with them in the morning hours to conduct the interviews because this is the time when they are available in their offices. Whenever I had no appointments, FGDs or interviews to conduct, I would move around the affected communities to observe, have informal interactions with the local people or review the documents I have accessed. An individual interview took approximately 1 hour to 1 hour and 30 minutes and a FGD took 1 hour 30 minutes to 2 hours depending on the number of participants and the time they took explaining the different aspects in the discussion.

3.7 Sampling techniques and sample size

Out of Bududa district, three sub-counties as mentioned above were selected using purposive sampling. One parish was carefully chosen from each sub-county using the purposive sampling technique. Three parishes were selected for this particular study. The selection of these sub-counties and the respective parishes was because of their location (high risk area) and the fact that they have experienced severe landslides in the past with Nametsi parish recording the most devastating landslide in Uganda's history in 2010.

These sub counties and the particular parishes provide the desired kind of study participants because of the relationship they had with the research questions and the study objectives. Their features presented the best for providing a detailed exploration of the role culture and indigenous knowledge played in the interpretation and adaptation to landslides in the area. The selected parishes each had a site or scar of a previous landslide all having happened since the year 2010 making them current. Purposive sampling was used to select the participants to be interviewed. Purposive sampling was used to select the sub-counties and respective parishes that were investigated and the study population.

According to Bryman (2012), purposive sampling is the most commonly used technique in which study participants are selected based on their relationship with the research question. Purposive sampling technique is the deliberate choice by the researcher of an informant/respondent due to the qualities the informant possesses (Tongco, 2007). According to Creswell & Clark (2011), purposive sampling encompasses identifying and selecting individuals or groups of people that are especially knowledgeable about or experienced with a phenomenon of interest or topic that is being studied. Selecting sub-counties and parishes which had experienced landslides in the past was because the researcher wanted study participants with knowledge and experience on the topic that was being investigated.

Bryman (2012) explains that with purposive sampling, the sample units are selected because they have particular characteristics which will enable a detailed exploration and understanding of the central themes and questions which the researcher wants to answer. The researcher therefore decides what needs to be known and sets out to find people who can and are willing to provide the information by the asset of knowledge and experience in relation to what is being studied (Lewis & Sheppard, 2006).

The initial contact with some landslide victims, local leaders and relief workers led the researcher into contact with other individuals whose views and opinions were of interest to the study. This led to snow ball sampling where contact with one key informant leads you into other informants. Snow ball sampling is particularly a convenient sampling method when “no one knows the nature of the universe from which the sample would be drawn” (Becker,1963: 46). This was the case because the research did not know the nature of the universe from which those affected by the landslides would be drawn and interacted with except knowledge that Bududa district was among the district along Mt Elgon that was affected by recurrent landslides in the past.

While conducting qualitative interviews and FGDs, I aimed at reaching saturation. That is, the level where no new data emerged from the interaction with the study respondents. Saturation is the point at which no new information or themes are observed in the data being collected (Guest, Bunce & Johnson, 2006). Walker (2012) reports that saturation is a tool used to ensure that adequate and quality data are collected to support the study. It is often regarded as the gold standard by which purposive sample sizes are determined (Walker, 2012; Guest et al., 2006). At this level, the researcher has collected enough quality data for the study and even if the data collection process is continued, no new data will be collected. Therefore, the researcher stops collecting data when the saturation point is reached.

By the time the point of saturation was reached, a total of twenty-five (35) semi-structured qualitative interviews had been conducted using an interview guide. Five (5) FGDs with 27 participants in total were also conducted. Semi-structured interviews included ten (10) key informant interviews with 2 district officials, 2 NGO workers, 2 local leaders, 2 religious leaders and 2 cultural leaders. Three (3) more semi-structured interviews were conducted to ensure no new information or patterns that would emerge from the data collected were missed. FGDs were conducted on the basis of gender with 2 FGDs for men, 2 FGDs for women and 1 mixed FGD (with men and women together). The total numbers of qualitative interviews were twenty-eight (38). That put the overall number of participants for this particular study at fifty-five (65).

The largest age group were men and women between the ages of 27-60 years with two (2) participants between 70-89 years of age. The purpose for choosing an older age group was because of my interest in respondents who have lived in the area for at least 10 years and more, experienced landslides, been affected by landslides or have been involved in landslide management work. The participants included landslide victims, local leaders, district officials, opinion leaders, religious leaders, relief workers, men and women.

The sample size for this study was not so big since sample sizes for qualitative studies are generally much smaller compared to quantitative studies (Mason, 2010). This is because as the study is being conducted, more data does not certainly lead to more information as there is usually a point of diminishing returns in qualitative samples where no new information is being generated out of the data being collected (Ritchie et at., 2003). Additionally, one occurrence of a pattern or theme is all that is essential to ensure that it becomes part of the analysis framework (Ritchie et at., 2013). Besides, qualitative studies are more concerned with meaning and not

pre-occupied with generalisations like quantitative studies (Ritchie et al., 2013). Lastly, due to the fact that qualitative studies are very labour intensive, analysing a very large sample can be time consuming and unrealistic (Atran, Medin & Ross, 2005). The sample size was determined following the concept of saturation which was explained earlier in this section, saturation was used as a guiding principle during the data collection process.

3.8 Methods of Data collection

Like earlier stated, primary data was collected from landslide victims and key informants who included local leaders, religious leaders, relief workers, opinion leaders and district officials in charge of disaster related work. Informal discussions, observations and qualitative interviews with open ended questions were used to gain in-depth understanding of the role culture and indigenous knowledge play in the interpretation and adaptation to landslide. Also, FGDs were conducted with the landslide victims to capture group views of the topic under investigation and to gain insights into a wide variety of different views and identify joint construction of meaning and reality.

I conducted a reconnaissance in December 2016 to establish rapport with the study participants, identify information gate keepers and contact persons that later helped me enter into the area to conduct the main data collection process. I also wanted to gain familiarity to the area since I had never been there before. I managed to fix some anointments for the main study as well, the reconnaissance proved very important for me when I went back to do the main study as I also had some background information about the area.

Furthermore, I did a pre-test of the research tools with my research assistants on the 3 respondents who I did not include in the main study. The aim was to establish whether the participant understood the question and whether the questions covered all the aspects in the research questions. After the pre-test, I discovered that some questions seemed vague after being translated from English to the local language and some were irrelevant. Together with the research assistants, the researcher modified the questions accordingly and went ahead to conduct the major study. Secondary data was collected from published reports, district reports, official websites of government institutions and ministries and other internet sources.

3.8.1 Semi-structured interviews

The interview is probably the most widely used method in qualitative research", its flexibility makes it more attractive and suitable to help the researcher answer the research questions.

Semi-structured interviews give the interviewee a great deal of scope in how to reply, 'rambling' or going off at tangents is often encouraged, it gives insight into what the interviewee sees as relevant and important (Bryman, 2012:470). Semi-structured interviews thus facilitate responding to the direction in which interviewees take the interview and perhaps adjusting the emphases in the research as a result of significant issues that emerge in the course of interviews (Bryman, 2012:470). The use of the semi- structured interviews in this study was guided by an interview guide that covered fairly all the topics related to the study. The interview guide acted as a reference for the researcher during the process of interviewing. According to Bryman (2012:469), even though, interviewing, the transcription of interviews, and the analysis of transcripts are all very time-consuming, but they can be more readily accommodated into researchers' personal lives. Interviews with open-ended questions allow the researcher to probe for further information, observe and evaluate respondent's non-verbal behaviours and habits which are always a good source of information.

The purpose of the study was explained and participants' full consent to participate in the study was sought. Participants were also granted the freedom to withdraw from the study if they wished so, at the beginning o in the middle of the interview. During the interviews, the information was recorded upon acceptance by the interviewee and later, the verbal responses were transcribed while identifying common themes that formed the basis for data analysis

In this study, interviews were the main method of data collection and were supplemented with data from FGDs, observation and document reviews. Semi-structured interviews were used on landslide victims and key informants who included religious leaders, local leaders, relief workers, opinion leaders and the district officials (district planner and Assistant CAO).

3.8.2 Focus Group Discussion (FGDs)

Based on the social capital theory, Focus Group Discussions were conducted with the landslide victims with the intention of understanding their perceptions on the topic. My interest was in the ways in which individuals discuss certain issues as members of a group, rather than simply as individuals. According to Bryman (2012:501), joint/social construction of meaning is very important in qualitative research. A total of five (5) FGDs were conducted with five-eight (5-8) participants in each group discussion, totalling (27) twenty-seven participants. Gender-based FGDs were conducted with two FGDs for women, two for men and one FGD with both men and women. The rationale is, there is a tendency of male domination in these discussions if joined together. Besides, because of culture especially in Africa, women tend to be passive in

the presence of men. In this case, women's views might not be well captured as they may fear to fully express themselves in front of men if mixed.

There was use of contact persons who helped me to identify other landslide victims to participate in FGDs. There was recording of information as the discussions were on-going as it was hard to capture and understand what everyone was discussing at the moment. From FGDs, I managed to get wide views especially about the social construction of risk, group interpretation landslides and their cause, prediction, why people were resisting relocation, adaptation to landslides and ways in which culture and indigenous knowledge were being incorporated in DRR interventions in the area.

At certain points during the discussion, some members tended to be more vocal and dominant in the discussions. With the help of the research assistants, I made concerted efforts to moderate the discussions and ensure each participant contributed his/her ideas to the discussion. The focus group discussions provided valuable information to complement the data collected through interviews, document analysis and observation. Since participants were able to stimulate each other's responses through answers and ideas contributed towards the discussion, a variety of issues and ideas emerged out of the FGDs.

3.8.3 Text and document analysis

Text and document analysis was conducted as secondary sources of data. The rationale was for this data to be used as a supplement to primary data gathered from semi-structured interviews, observation and FGDs. Secondary data also served as a basis for comparative analysis as well as enrichment of findings from the data collected from the field. Secondary data for the study were obtained from published statistical data and literature related to the topic. Secondary data was collected from published reports from the Office of the Prime Minister (Department of Relief, Disaster Preparedness and Management, district reports from the district planning department, official websites of government institutions and ministries like Uganda Bureau of Statistics (UBOS) and other internet sources related to the subject under study. published books, journals on disasters and development, on landslide and specifically of the role of culture and indigenous knowledge in the interpretation and adaptation to landslides were explored to strengthen the findings from the study.

3.8.4 Participant observation

Furthermore, participant observation was used to observe people's actions, listen to what was said in conversations during the interviews and FGDs, observe the settlement patterns, vegetation and forest cover in the area, housing styles, cultural practices and the topography. Observation was also used on other observable phenomenon like the visible impacts of landslides, the situation around the previous landslide sites or scars from the selected parishes, human activities undertaken in the area, strategies used to reduce the risks to landslides among others. Participant observation was also used to collect data on the damage to property and people in the area. Observation was also done on the adaption measures being undertaken at the local or community level to reduce the risks and impacts of future landslides in the area. The interest was in finding out the different ways in which people used their local knowledge to "live" with landslides or to adapt to the seemingly risky area. Besides, evidence from the participant observations provides supplementary to the information collected from the in-depth qualitative interviews and FGDs and to ensure that the researcher's bias associated with observations is lessened (Bryman (2012:501). Allows the research to capture expressions and gestures that might have been missed in verbal expressions (Crewell, 2013).

3.9 Methods of Data Analysis

Non-statistical techniques of data analysis like interpretivist discussion and analysis typical of qualitative research was employed. Data that was collected from FGDs and interviews was recorded and later transcribed into text to identify common themes for easy analysis. The recorded information from the field was stored in audio media for safe keeping, analysis and future reference. Data out of document reviews was compared with data from interviews, observations and FGDs to establish a relationship. Thematic data analysis approach was adopted for this study, the main themes that emerged from interviews, FGDs, observation and document reviews were identified and discussed in detail. I manually sorted the transcribed data and coded it onto themes and common patterns for interpretation and analysis.

The collected data was interpreted and analysed based on the research objectives, questions and theoretical framework. The social capital theory and its concepts of social capital, bonds and bridges guided me in the collection of data, analysis and interpretation of the study findings. By considering what was revealed in the data, a plausible set of explanations and meanings were made from the data. The research strategy was a qualitative approach but I

compiled some of the findings in tables (showing the demographic characteristics of study participants) using the Statistical Package for Social Sciences (SPSS).

3.10 Validity and reliability

In this study, I took various measures to ensure that the findings from the study are valid and reliable. Reliability is basically concerned with the question of whether the results of a particular study can be repeated. Validity is concerned with the integrity of the conclusions that are generated from a study. First and foremost, in order to make sure the results were reliable and valid, I used various data collection methods which included qualitative semi-structured interviews, participant observation, focus group discussions and text and document analysis to ensure that data collected using one method is supplemented with data from other methods.

Additionally, before the actual data collection process, the data collection instruments/tools were pre-tested to ensure that the questions were understood as intended by the researcher and that they covered all the aspects of the study. I pretested the tools with 3 respondents who were not included in the main study. I also went through the tools with one of my colleagues, a PhD student at Makerere University who has carried out research in different subjects. The gaps identified in the tools were worked upon before I went ahead to conduct the main study.

Last but not least, the study participants were carefully and purposely selected to ensure that the sample covered all the intended respondents depending on their characteristics and relationship with the topic under investigation.

3.11 Ethical considerations

In research where human beings are the study participants, the researcher has to be careful so as not to cause any damage to the participants or their lives. While collecting data, I upheld the moral principles in research. During the study, I always introduced myself and was open about the topic and reason for the study. Since the study was probing into sensitive issues related to people's culture, I made a great effort to explain the main objective of the visit to the respondents before interacting with them. I would do this before the interview or FGD and I would request for their participation in the study.

The study also involved asking sensitive questions like "How have landslides affected your family in particular". In response, participants would become emotional and some of them broke into tears upon recalling how their loved ones died due to the disastrous landslides.

Whenever the conversation got so emotional, I would comfort these victims or discontinue the interview or FGD for some time until they calmed down.

Other measures included fully informed consent and avoiding deception. Respondents' participation in the study was voluntary, after I provided information regarding the purpose of the study, it was upon them to either accept to participate or decline. I drafted a form of informed consent explaining the objectives of the study and participants' freedom to withdraw from the study any time whenever they wished or withdraw the data given. This form was to be read by the participants before signing and most the times, it was translated to them into the local language. All the participants however agreed verbally without signing it. Additionally, their consent was sought before recording the interviews, FGDs or taking pictures with them and where they refused, I never did. I also requested beforehand that I write down the main points from the discussions or interviews for use in the report writing process. In one particular moment, a respondent refused to take a picture with me even after explaining that it was only to be put in my report. She expressed that she is Muslim and the religion does not allow them to take pictures. She told me to first seek permission from her sons before taking a picture with her who were not around at the time of the interview. I respected her decision and did not take any pictures with her.

Close attention was particularly paid in order not to raise false expectations among community members as to why they were selected for the study. Since people who were living in risky areas wanted to be helped with either relocation, buying for them land in a safer area and basic necessities among others, not explaining to them why they were selected could have otherwise deceived people to believe that they would gain some benefit from their participation.

Also, identities of the study participants remained secret and were not disclosed to any third party. An assurance was made to the participant about the use of the data that was to be collected. I clearly put to them that all the information would be used for only academic purposes and will not be given out to any other person other than the examining body at the university of Agder. I as well made sure the research reports and findings were accurate and a true representation of people's voices.

Lastly, to protect the informants, I ensured that the responses were anonymous and I never asked for the participants' names. I used name codes instead of real names to refer to some of the respondents. All data obtained during the study were treated with utmost confidentiality and anonymity.

3.12 Limitations and challenges

During the research process, I encountered a number of challenges just like in other studies. First, the district being located in the country side, mountainous and one of the newly created districts (curved out of Mbale district), it has not developed much in terms of infrastructure like hotels and roads. Moving to the sites (study area) was also hard for me because of the rugged terrain that is not conducive for any other means of transportation except walking. It was also hard for me to find accommodation during data collection yet I had to stay in Bududa for more than a month. In the first five days of field work, I was prompted to commute from Mbale district daily which is approximately 27 Km from the study area. This was because the only place in Bududa that has accommodation for outsiders was fully booked. This was time consuming, inconveniencing and expensive as well. In order to minimize his challenge, I kept on checking with the place for accommodation until there was a vacant room I secured for the remaining days of field work.

Secondly, the study participants persistently asked me if I could give them some 'soda' (something to drink) in form of money after they have participated in the interviews and FGDs. This was because there is a common trend in Uganda by corrupt government officials to give people money whenever they meet community members or call them for workshops/seminars. Therefore, in this part of the world, if you interview someone or call them for an FGD, they expect you to give them some money so that they can go and have a drink in the bars afterwards. I kept on explaining to them that I was a student on research in my introduction but they would still insist on asking for money at the end. This was expensive and challenging because I did not have enough financial resources. To solve this problem, I would break my money into small notes and give them as a group so that I do not end up spending a lot. It is worth noting that the study was carried out with limited time and resources.

Thirdly, since this study was not focusing on one particular gender, I intended to interview both men and women and to have both sexes for FGDs separately. However, while I was collecting data especially for the interviews, whenever I could go to a home, I would realise that the women will disappear and make herself busy in the kitchen leaving the man to be interviewed. In fact, I had more men than women for the qualitative interviews. Even for FGDs, it was hard to get female participants. This is because in the African setting/culture, women are more passive compared to men and subordinates to men, she might not talk to an outsider in front of her husband unless he grants her the opportunity. To reduce the effects of this male dominance

and female subordination, I would interview husbands and sometimes afterwards, I would request the husband to allow me talk to the wife as well.

Intricately, the fact that I was doing research in the Eastern region yet I come from the South-Western part of the country, the local language spoken in the Eastern part was a big challenge to me. I only understood a few words and sentences like how to greet and how to say thank you which I learnt towards the time of data collection. I used research assistants to translate for me during the FGDs and interviews with the landslide slide victims, the same applied to some of the key informant interviews. I felt I was missing out some detailed information especially when the respondent would talk so many words and the research assistant would record it in a few sentences. To overcome this problem, I get permission from the participants to record them while the interviews and the FGDs were going on. After data collection, I gave the recorded interviews to another person (research assistant) who had good command of the local language and we transcribed the recordings together. I indeed realised that some information was not recorded by the research assistant while in the field, this helped me get all the information I needed on the topic.

Furthermore, disinterest of some community members in the study was a big challenge. Some people never wanted to talk to me because they said they have talked to so many people since these landslides happened but none of them came back to the community to help or report back. Many researchers have done studies in the area on different topics related to landslides but they do not always go back to report their finding to the study population. Community members were wondering what these researchers did with the information they gave them. The local people got fed up and frustrated with talking to external people yet they witnessed no change or help coming in after the interviews have been conducted. It was the same case with relief workers and government agencies who do assessments when a landslide has happened but never go back to support the local population. To deal with this challenge, I made sure that I explain the purpose of my visit and the study as well. I informed them that I am not promising any support but I am a student doing research. I explained to them that the results of the study will be published and reports sent to their respective sub-counties and the Office of the Prime Minister with hope that these findings will inform policy and action in relation to landslide risk reduction strategies in the area.

CHAPTER FOUR: FINDINGS AND ANALYSIS

4. Introduction

This chapter presents data collected from the field using qualitative interviews, participant observation, FGDs and document reviews. The data is presented and analysed based on the research questions. The findings are based on the information collected from sixty-five (65) study participants who included fifty-five (55) landslide victims and ten (10) key informants (relief workers, local leaders, district officials, religious leaders and cultural leaders).

Demographic characteristics of landslide victims are presented in the first section of this chapter to give a background for the reader to understand the nature of the participants from which data was collected. Even though the study was qualitative in nature, SPSS was used to generate tables showing the socio-demographic characteristics of respondents that were relevant to the analysis and discussion of research findings. The data is presented and discussed based on the research questions presented in Chapter two and analysed in based on the literature presented on culture, indigenous knowledge in disasters and development and based on the theoretical framework presented in chapter two. In the analysis, different subsections of the research questions are presented for better organisation. The research questions are presented here for remembrance.

1. What are the perceived causes of landslides in this area?
2. How do cultural and indigenous interpretations differ from or harmonise with scholastic (academic) explanations regarding the causes for landslides?
3. How do cultural beliefs, perceptions, worldviews, traditions, norms and indigenous interpretations influence people's response to landslides and decision-making?
4. To what extent has cultural beliefs and indigenous knowledge been used by local communities to adapt to landslides?
5. To what extent have different actors involved in landslide risk reduction incorporated people's cultural beliefs and indigenous knowledge to reduce landslide risks?

4.1 Demographic characteristics of respondents

Like earlier mentioned, demographic characteristics are presented to give a background of the nature of the study participants in this study. All participants were from the same ethnic group and spoke the same language. They were all permanent citizens and had no immigrants in the area.

Table 1: Age of respondents

Response Categories	Frequency	Percent
20-30 years	5	9.1
31-40 years	10	18.2
41-50 years	31	56.3
51 and above	9	16.
Total	55	100

Source: Author (2017)

From the findings, majority of the study findings were 41 years and above and the smallest age group was between 20-30 years. This indicates that most of the respondents had stayed in the area for more than 10 years and had witnessed at least one or more landslides events. This majority age group is believed to have considerable experience regarding landslides and thus able to provide the necessary information needed to answer my research questions.

Table 2: Gender of landslide victims

Gender	Frequency	Percent
Male	32	58.1
Female	23	41.9
Total	55	100

Source: Author (2017)

From the findings, males were more than females. This disparity in gender was because, as indicated in chapter three (in the challenges and limitations of the study section), the study area is a male dominated society. Most males would participate in the interviews whenever I went to their homes while females were busy doing house work. Even when women were not busy with housework, they would just sit and listen to the interview, rarely would they accept to participate in the interviews unless their husbands were not at home. To get a good number of female respondents, I had to sometimes request their husbands for permission to talk to them. Also, more men participated in FGDs than women because I could easily find them in the area trading centres in the evenings socializing with one another. At this time, women would be taking care of the children and doing other chores at home. Gender is important to understand because it influences decision making, resource allocation and power relations at both the family and community levels.

Table 3: Respondents' religion

Religion	Frequency	Percent
Christian	31	56.4
Muslim	15	27.3
African Traditional	7	12.7
Others	2	3.6
Total	55	100

Source: Author (2017)

Religion is an important variable for this study, because in most cases, people explain phenomena based on their religious backgrounds and act in accordance with their religious beliefs. Religion influences how people perceive and interpret the world around them. Additionally, since the study was about the role of culture in people's interpretation and adaptation to landslides, it was vital to look at religion because religion is one of the components of culture.

Table 4: Respondents' main economic activity

Economic activity	Frequency	Percent
Agriculture	45	81.8
small-scale businesses	10	18.2
Total	55	100

Source: Author (2017)

The major economic activity in the area is agriculture. The rationale for discussing the main economic activity is to determine the source of livelihood for landslide victims in the area. The main economic activity is also important to explore for determining the likely impact of landslides on people's livelihood. The main economic activity might have an influence on how the affected people make priorities and decisions. Findings indicate that men were majorly engaged in agriculture and small scale businesses like running retail shops in the trading centres while women were mostly engaged in subsistence farming. Thus, more women are likely to be affected by a landslide than men.

Table 5: Respondents' level of education

Level of education	Frequency	Percent
No education	22	40
Primary education	30	54.5
Tertiary education	3	5.5
Total	55	100

Source: Author (2017)

The level of education is important to study because, in most cases it influences the way people perceive, interpret and explain social phenomenon.

Table 6: Respondents' household composition

Number of people	Frequency	Percent
1- 5 people	6	10.9
6- 10 people	40	72.7
11-15	8	14.6
16 and more people	1	1.8
Total	55	100

Source: Author (2017)

Understanding respondent's household composition is important to determine the effect of landslides on people's families. Depending on the household composition, more light is shed on population growth rate in the area. As indicated in the table, most households had many members (between 6-10). The number of household members can have an impact on the level of impact in case of a landslide and the decisions the heads of households make after a landslide occurrence.

Table 7: Respondents marital status

Marital Status	Frequency	Percent
Married	47	85.5
Single	2	3.6
window(er)	4	7.3
others	2	3.6
Total	55	100.0

Source: Author (2017)

Most landslide victims were married and lived together with their spouses. The rationale for presenting this is because marital status influences decision making and sometimes lessens the impact of a disaster through providing support to the family and the community by the heads of households. Marital status also determines someone's social status, responsibility, power, respect and position in the community. This consequently determines resource allocation and distribution of help to families during disaster situations.

PART 1: Perception of landslides

In this part, people's perception of the causes of landslides are presented, discussed and analysed. The effects of landslides are also explained in this part. Furthermore, a dichotomy between the scholastic and cultural or indigenous explanations of the causes of landslides by the study participants is presented and discussed.

4.2 Perceived causes of landslides

From the qualitative interviews and FGDs, varied perceptions of the cause of landslides emerged. This section discusses the causes of landslides as perceived by the study participants. My interest is to examine how scholastic explanations of the cause of landslides differ or harmonise with cultural and indigenous explanations.

4.2.1 Scholastic explanations

Heavy and continuous rainfall

From the findings, almost all participants indicated heavy rains as one of the causes of landslides. They explained that usually when it rains from November throughout December, January, February and March the following year, landslides are more likely to occur. This is what happened in 2010 in Nametsi, it rained from September 2009 till March 2010 when the landslide happened. Heavy rains led to heavy water run-off which carried soils and big stones down slope leading to a landslide. Even in Bumwalukani where a landslide happened on a hot/dry day, study participants reported that it had rained for five (5) consecutive days which made the ground and soils so vulnerable contributing to the occurrence of the landslide. One participant explained:

"Even though it did not rain the day the landslide occurred here unlike in other places, it had rained the previous days, which contributed to the disastrous landside." (Personal conversaion:11.03.17).

FGD participants from Nametsi explained that due to heavy rains, too much water collected in the soils underground until no more water could soak into the ground yet it continued to rain. Therefore, the ground could no longer hold the too much water leading to floods. Running water from the slopes washed away whatever it found in its way including big rocks thus causing a landslide.

More than half of landside victims who participated in the interviews expressed similar perceptions. Study participants from Bunabutiti had the same explanations citing heavy rains as the main cause of landslides in the area. All FGD participants from all parishes recognised heavy and continuous rainfall as one of the causes of landslides in the area. In agreement with this finding, Bozzano, Cipriani, Mazzanti, and Prestininzi (2011) explain that, extreme rainfall

is the main trigger of landslides. When it rains continually, soils are weakened and left exposed to landslides.

High population growth rates

Most study participants reported that the population in the area has increased quite a lot in the recent past. This has exerted pressure on land and forced many people to settle in high risk areas like mountain slopes, wetlands and valleys. They are aware of the risks they face but because they have few or no alternative settlement areas, they have continued doing so. Participants argued that their grandparents used to construct houses on hill tops and use the valleys only for cultivation. But, because of increasing population, people construct anywhere. One key informant expressed that:

> *"The population has greatly increased; each household can have up to 10 members. People build anywhere they can find. For example, Nametsi was a wetland and a swamp before, people never used to settle there. The word, 'Nametsi' itself means 'water'. Due to heavy and continuous rains, water became too much and had nowhere to pass. The ground became muddy, all this contributed to the landslide*." (Personal conversation: 02.03.17).

During the two FGDS in Bumwalukani, participants expressed that due to the high population growth rates, many houses have been constructed. When it rains heavily, a lot of water flows from the roofs of the houses causing heavy flooding and landslides. People construct houses close to each with no proper drainage system. Participants stressed that people's footpaths create channels for water run-off increasing the likelihood of a landslide. Respondents explained that the pressure exerted on small pieces of land for agriculture and animal husbandry has increased leaving the land vulnerable to landslides occurrences.

As participants reported, the population of Bududa has increased in the recent past. According to statistics from the National Population and Housing Census 2014, Bududa had a population of 123,103 people in 2002 and 210, 173 people in 2014 (UBOS, 2014). This shows that the population in a period of 10 years, has almost doubled as it is approximately three years now since this census was conducted. It is important to note that although the population in the area multiplied, the land size did not. Part of the district land is a forest reserve and people are not allowed to encroach upon it.

Respondents further stated that such activities like cutting down trees have contributed to landslide occurrences in this area. Because of limited sources of livelihoods, trees are cut to get timber for sale to generate income.

Figure 6: A populated slope in Bumwalukani parish

Source: Author (2017).

The white spots in the picture are iron sheets/roofs of houses showing that many people construct on slopes which makes them vulnerable to landslides.

Another participant in an FGD noted that;

"Many people in this area are poor, they cannot buy enough kerosene for their lamps to stay awake for some time. Thus, they go to bed early in the evening and 'make more children' (laughter's from other participants)". (FGD:15.03.17).

While in the field, I observed that most households had at least more than seven (7) children, most of whom were under the age of 10.

Over cultivation and deforestation

Participants in a FGD in Bumwalukani explained that continuous cultivation weakens the land and soils. Thus, when it rains, water washes away the weak soils and with high rainfall intensity, a landslide can easily occur. One participant explained that:

"There is over cultivation along the slopes because we have limited land. Land is not given time to rest because people can starve if they do so." (Personal conversation: 06.03.17).

While conducting the study, I observed that almost all the slopes were under cultivation leaving them unadorned, making soils weak and susceptible to erosion and landslides. There is hardly any vegetation cover to hold the heavy running water. Participants indicated that their great grandparents/grandparents used to practice shifting cultivation leaving the lands to rest for some seasons. This kept the soils intact, with a vegetation cover, helping to reduce the possibility of a landslide occurrence. However, due to the current growth in population and limited alternative income generating activities, people are forced to over cultivate the available small pieces of land to ensure continuous supply of food and income.

Since the area experiences heavy rains with strong winds, there needs to be some vegetation cover and trees to provide catchment areas and act as wind breakers. However, this is not the case since people are engaged in deforestation activities that leave land bare, with almost no trees to withstand strong winds. Seasonal crops like cabbage, carrots, onions are the commonly grown yet they have weak roots too.

Study participants also postulated that farming methods have changed from the past as people currently use fertilizers to increase crop yields. According to one participant: *"continuous application of fertilizers makes the soils loose, during heavy rains water can easily wash away this soil causing a landslide.*" (Personal conversation: 02.03.17).

It is indeed a common practice for people to cut trees mainly for timber, construction of houses and firewood. The roots of trees, especially the indigenous species, are strong and have the capacity to hold the soils together. This prevents soils from being easily washed away by heavy water runoff during strong rains. Therefore, when these trees are all cut, these purposes are lost. One key informant laments:

> *"The rate at which people cut down trees is alarming in the area. Forest rangers from Uganda Wildlife Authority (UWA) conspire with timber dealers to cut the trees. They claim that as they do not get their salaries from the government yet they have to take care of their families, therefore they cut down trees"* (FGD:14.03.17).

Before these officials from UWA came to the area, participants claimed that all slopes were full of trees. One participant indicated, "*we have nothing to do because these same forest rangers were put in charge of protecting the trees and the forest by our government but they are now the ones destroying nature*." (Persona conversation: 28.02.17). A cleared slope is more susceptible to landslides than a slope with vegetation and tree cover.

Figure 7: A cleared or deforested slope versus an afforested slope

Source: Author (2017).

Even though a few study participants denied their contribution to the cause of landslides by over cultivating and cutting down trees, it was evident that these human activities contributed and increased the possibility of landslide occurrences in the area. Almost all participants acknowledged that they engaged in over-cultivation along the slopes but they claimed to not see any relationship between overcultivation and an increase in landslide occurrences in the area. With regard to deforestation, even though participants agreed to have participated in this practice, some of them refused to acknowledge that this practice contributed to landslides events. One participant in the male FGD in Bumwalukani explained:

> *"Yes, we cut trees for timber and construction of houses but these are our trees. We plant them and when they grow to maturity we cut them. They are our own trees, we have the right to cut them. Besides, that does not cause landslides."* (FGD:25.03.17).

Quite often, as highlighted by Bozzano, Cipriani, Mazzanti, & Prestininzi (2011), human activities increase the likelihood of disasters like landslides, but human beings who engage in these activities always deny their responsibility and extend it to nature or other causes. Most respondents conceded that deforestation is practiced, but it is not a big contribution to landslides because landslides also happen in forests. This, as one participant contends: *"the 1997 landslides uprooted big trees, landslides occur in the national park and forests. Some of the deaths in the Bumwalukani landslide were due to big trees that fell and blocked people from evacuating."* (Personal conversation: 03.03.17).

The type of rocks and soils

According to the respondents, the area has underlying rocks (bedrock) which support the mass movement of soil down the slope. Also, when it rains and the water reaches the rocks, it cannot penetrate through them and thus, it concentrates on top. This is because the parent rock is near the surface. As a result, when it continues to rain, the area floods and water moves down the slopes under heavy pressure, sweeping objects in its way, thus, causing a landslide. The sandy soils cannot retain too much water leading to floods and landslides.

Additionally, study participants indicated that the rocks are carried down slopes by heavy running water during heavy rains causing a landslide. This is what exactly happened in Nametsi in 2010 as participants narrated:

> *"When it rained continuously, big stones and rocks started rolling from up the hill with the soil and within a few minutes, the whole trading centre and health centre had been buried. These rocks buried many households and people, for some houses, not even iron sheets were recovered."* (FGD:14.03.17).

Figure 8: Remnants of rocks rolled down the slope during the 2010 landslide in Nametsi

Source: Author (2017).

The topography of the area and ground levelling for construction of houses

More than half of the study participants mentioned the hilly nature of the area is one of the contributing factors to the landslides. Landslides have been frequent in this area because of the presence of hills, steep slopes and sharp valleys. The area is mountainous and thus, when it rains, the heavy water run-off from the slopes supported by the topography leads to

landslides. Additionally, people expressed that due to the mountainous nature of the area, people who want to construct houses have to cut deep into a slope to level the ground for construction. This leaves a hanging cliff which can possibly trigger a landslide.

Figure 9: Houses constructed after levelling the ground leaving a hanging cliff

Source: Author (2017).

The land tenure system practices in the area and poor drainage

In this part of the country, land tenure system is freehold; meaning that everyone owns their individual pieces of land(s). Study participants expressed that small fragmented plots are over cultivated. Majority of the people do not practice terracing because they feel it is a waste of the land that they could hitherto have used for cultivation. Small individual plots hinder people from digging terraces to hold running water and obstinate people who own land up slope totally refuse to dig terraces. This as one participant attested:

> *"people who stay down slope can dig terraces but if those who stay up slopes do not, then the running water will destroy even the terraces dug down slope due to the pressure*." (Personal conversation: 11.03.17). People do not mind about drainage, water from uphill has no proper path ways to the lower slopes.

4.2.2 Cultural and indigenous explanations

Witchcraft[1] and dark magic

Most participants believed that witches who they referred to as 'bad hearted' human beings who derive happiness in seeing misfortunes and people suffering, caused the landslide. According to participants, these witches have the powers to cause heavy rains, death, drought,

[1] Witchcraft means the practice of, and belief in, magical skills and abilities that are able to be exercised by individuals and certain social groups usually to cause harm to others.

landslides or anything else that they wish. A community member can go to consult them when he/she wants to cause harm to another person and after paying some money to them, they make it happen. One participant in stressed;

"There are many witches that live in this area and they are constantly interested in seeing calamities like landslides befall on other and the community." (FGD: 01.03.17).

Participants in all FGDs conducted, believed that witches in their area have the power to cause a landslide if they want a certain group of people to suffer or even die. From the parishes, different stories were expressed about witchcraft as the cause of landslides, these are presented here under.

Cases showing perceptions and stories about witchcraft and landslides

CASE 1: A grudge over land between two brothers

In Bumwalukani, participants indicated that two brothers were fighting over the same piece of land which prompted village leaders, family members and clan leaders to intervene and settle the conflict. One of the brothers believed to be the rightful owner of the land gained control over it, which angered the other brother and he wanted to revenge.

> *"There were two brothers were quarrelling over a piece of land located up slope where the landslide started. When one of them lost, he consulted a 'witch doctor' who gave give him certain 'herbs' that he put in the land to cause a landslide so that they both lose out. Indeed, this plot of land was carried in the landslide, no agriculture can be done on that land again*."

To participants, this explains why the landslide occurred on a dry day when it had not rained. (FGD: 22.03.17).

CASE 2: Revenge for a young boy who committed suicide

In Bunabutiti parish, the landslide is believed to have been triggered by a family who went to a witch seeking revenge for the death of their son and grandson who had committed suicide. A young boy of 11 years old swallowed poison and killed himself because of being mistreated by his stepmother after his parents divorced.

"after the death of the boy, his real mother and her family went to a witch and got some 'herbs' which they came and mixed in the land triggering the landslide. They wanted boy's the father and step mother to die in the landslide." (Personal conversation: 27.03.17). However, the whole community ended up being affected; the targeted family are still alive though part of their farm land was destroyed. People believe that landslides will continue to occur in the area because the family of the boy's real mother has not fully gotten their revenge. (Personal conversation: 27.03.17).

CASE 3: Wamaniala and his group of witches

Study participants from Nametsi believed 'Wamaniala' who they said works with a group of other known witches have powers and practice dark magic which they use to cause misery to the community.

"there is a group of witches, some bad group of wizards who caused the landslide but it will never happen again because now we know these witches' plans and movements. They should be careful because we are monitoring them". (FGD: 01.03.17).

I realised that participants in FGDs who believed that Wamanaila caused the landslide avoided mentioning his name while in the discussions, they were saying "there is a witch and his group and we know them" but could not mention his name. Only those I interviewed individually mentioned his name. This could have been because of fear that if they say his name, he might get to know about it and do harm to them.

I made efforts to meet Wamaniala with the help of one of the local leaders. Through an interview with him, he denied having any involvement in the landslide saying; *"no, it is not me. Yes, I have powers and practice dark magic but I did not cause the landslide. Landslides happen everywhere in the world, am I the one who causes landslides in other places too?*" (Personal conversation: 17.03.17).

Through more interaction with landside victims, I found out that in the first days after the landslide, Wamaniala said he caused it. As indicated by some key informants, he may have claimed responsibility because he wanted people to fear him, as this demonstrated that since he had power to cause landslide, he can cause harm of any magnitude to them.

One key informant explained that after he claimed to have caused the tragedy, community members threatened to lynch him, consequently, he got scared and immediately denied it.

This shows how social capital represented by the social power and the influence communities or groups have when they decide on a social action. When community members threatened to kill the man, they referred to as the 'witch' by mob justice, he was quick to deny his responsibility yet he had hitherto admitted. This can be because he knew that together, people can decide and to act accordingly.

Bitterness and anger of the ancestors, 'gods' or 'spirits'

Bududa district in general and the study area in particular, is inhabited by the 'Bagishu' ethnic group (culturally known as the Bamasaba). Culturally, when a person dies, they make a sacrifice by slaughtering an animal like a sheep or a goat among others. Members of the family/clan who are still alive must continue making sacrifices for the deceased whenever they can. While slaughtering, blood is poured on the ground because people believe their ancestors feel thirsty and need to drink something once in a while.

According to most of the elders I interviewed, this was a common cultural practice in the past but now people have almost abandoned this tradition because of the economic hardships. These participants felt that their ancestors were angry at them for not sacrificing, and thus, they cause landslides so that people can die. This way, it is believed that ancestors are sacrifice for themselves. This as one of the elders said;

"People these days are so greedy for money, they never want to save any animal for a sacrifice. Our ancestors are not happy and that explains why landslides are on the increase." (Personal conversation: 17:03.17).

Furthermore, elders said that Nametsi, was a swamp and a cultural site but after some time, people started settling in it. The inhabitants started engaging in all sort of sinful activities like over drinking, defilement, adultery among others. Since this was a cultural site initially, and thus, considered a sacred place, the ancestors were not happy with what people were doing in the area, hence, caused a landslide to kill them as a punishment.

These findings could be true because as indicated by (Schipper, Merli, and Nunn, 2014:45/46), knowledge grounded in people's cultures about environmental risks has for many years been nurtured by the people affected by threats from the environment. This is because it gave them a rational/reason for their continued danger and suffering. Consequently, people start seeing fault in themselves or evil intent from outside when disaster struck as the reason why they have continued to be affected by disasters. To some participants, landslides are simply the way in which gods, spirits or other important beings manifest their power over humans.

Landslides as acts of God

Some participants expressed that landslides occur because God wants them to. Participants who expressed this belief blamed those who they referred to as 'non-believers for their sinful behaviours which have annoyed God, thereby, bringing landslides upon them as punishments.

For Bumwalukani where the landslide happened on a dry day, participants said it was God's manifestation of his power. This as one participant emphasized;
"The landslide was God's plan because people here no longer go to church to pray to Him and engage in sinful behaviour. God is annoyed that is why these landslides happen, He wants to punish us." (Personal conversation: 04.03.17).

This finding is supported by Stephens et al., (2013) who argue that, people blame disasters as acts of God because, they want a reason for their suffering, some kind of explanation for their misfortunes. Interpreting a disaster as an act of God provides the affected with some comfort, purpose and meaning to suffering (Abbott, 2013).

This belief was predominant among the victims who already had faith in God and those who were poor and could not even afford to buy land for themselves somewhere safe to relocate. This finding *could* be true because, for instance, according to Stephens et al. (2013), studies after the 2010 Chilean earthquake highlighted that people who experience greatest hardships are more likely to explain their experience as an act of God than those who are better-off. Stephens eta l. (2013) explain that this is due to the fact poor people tend to be both more vulnerable to disasters and more religious in their lives.

In agreement, Gunn (2007) explains that people usually turn to divine explanations when confronted by events that for them have no identifiable source. In this case, when dangerous landslides occur, people think God has caused them. Religion and other beliefs play an important role because they help explain and sometimes justify why disasters occur (Joakim & White, 2015).

Periodic occurrence

Some participants believed a landslide happens in a place twice and after that, it will never happen again. Some of them said there are dark powers that cause a landslide and they cause it twice in one area. Respondents associated this to what they called a 'mysterious sheep that appears and if they are able to see it, they can run a way. Participants explained that the sheep appears usually where the landslide starts, moves down slope and then disappears. The path it takes is the same path the landslide takes according to them.

Respondents claimed that their great grandparents used to see this sheep and they also believe it is there. Participants who held this belief indicated that if a landslide occurs in a place the first time, it has to happen again at least one more time even if the community adopts good

practices like tree planting. After the second time, it is unlikely that a landslide will ever happen again in the same place. This as participants posited:

> "*The area is no longer risky. Since a landslide has ever happened in this area in the 1990s and it happened again in 2010. It is not possible for it to happen again in the near future, it can take 100 years or never."* (FGD: 17.03.17).

4.2.3 Scholastic Versus cultural and indigenous perceptions of the causes

From the study, participants had explanations of the causes of landslides based on their experiences. One might assume that local people did not know the scholastic explanations regarding the cause of landslides, but on the contrary, most of them did. More than half of the participants used one or more scholastic explanation(s) of the cause of landslides.

Scholastic explanations of the cause of landslides were dominant among the key informants. However, many local people were also able to explain scholastic causes of landslides. Some participants, both key informants and landslide victims, however had other perceived causes that are not scholastic but are based on their beliefs, knowledge and previous experiences with landslides.

From the data, participant's explanations that were in harmony with scholastic explanations included heavy rainfall, high population growth rates, over cultivation and deforestation, the type of soils, topography and the land tenure system practiced in the area.

These explanations are in harmony with scholastic explanations because scholars have reported the same as contributors to landslide occurrences in other areas worldwide. For example, according to Ren, Fu, Leslie, & Dickinson (2011), the place and time landslides occur depends on area topography, geological composition, forest cover, soil water content, high population, precipitation, and seismic activity. In many studies, it is agreed upon that rainfall is the main trigger of landslides (Fan, Lehmann, McArdell, & Or, 2017; Gariano, Rianna, Petrucci, Guzzetti, 2017; Restrepo et al., 2008; Dai, & Lee, 2001). From the data, participants also indicated that the population has increased that they have extended settlement to high risky steep slopes.

A study by Lin, Wang, Liu Zhu and Sui (2017) agrees with this indicating that, with human activities continuing to shift into mountainous high risky areas, the intensity and frequency of landslides is likely to increase drastically. According to Ren et al. (2009), after the 2008 Wenchuan earthquake, the many fatalities from landslides that followed the earthquake

demonstrated how high populations inhabiting high risk areas have increased the threat and cost of natural hazards. Gardner & Saczuk (2004) also argues that increased population and economic pressures in mountainous areas have forced human activities to shift to practices such as deforestation, settlement and agriculture into high risk areas. This exposes these settlements to more disaster shocks.

On the other hand, participants had other explanations of the causes that differed from scholastic explanations. These perceptions were based on their cultural beliefs and were completely indigenous. They included; witchcraft and dark magic, bitterness of the 'ancestors/spirits', periodic occurrence and, landslides as acts of God. In most cases, when people are faced with disasters, they turn to God as an explanation because to them, he has power over nature. In the study area, some participants believed that God caused the landslide as a punishment for their sins of theft, not going to church, rape, defilement witchcraft and over drinking alcohol. One respondent argued that: "*landslides are God's plan, there is no other cause. It is God who brings rainfall that most people say causes landslide. He can use rainfall as a mechanism to deliver his will and punishment upon us*." (Personal conversation: 18.03.17).

Sometimes the magnitude of the effects make people think and believe that is only God who can have the power to cause it as a punishment to people for their sinful behaviour or if he wishes. This as indicated in chapter 2, was also the case in Aceh (Indonesia) after the Indian Ocean Tsunami of 2004 as they believed that Allah (God) had punished them for allowing tourism and oil drilling in the area (IFRC, 2014). The belief in God or spirits as the cause of landslides can also be because humans are trying to shift their responsibility in contributing to landslides through human activities like deforestation to God because they feel this He is the only explanation. Like Schipper et al. (2014) explain, people may rely on their culture and beliefs to explain the cause of disasters because they feel there is no other acceptable explanation. Religion and other beliefs play a significant role in the wreck caused by disasters as they help the affected people to explain and sometimes justify why disasters occur. They therefore turn to their beliefs for comfort after the disastrous event (Schipper et al., 2014).

4.3 Effects of landslides in the area

It was almost impossible for the study participants to talk about causes of landslides without discussing their impacts. This is because, during the study, after I introduced myself and the purpose of the study, some of the participants would start narrating how landslides have

affected them before mentioning the causes. Furthermore, in most cases, impacts influence perception and response to a disastrous event. Therefore, in this section, I present some of the effects pointed out in the study.

Loss of lives

All study participants were in one way or the other affected by landslides; they had either lost a family member, neighbour, friend or relative to the catastrophe. One female respondent lamented: *"I lost my mother and life has never been easy after that, many years have passed but I still feel the pain of her death".* (FGD:14.03.17).

However, the number of deaths from reports did not match what the participants and local leaders indicated, participants mentioned that less people died compared to what was reported by relief agencies and the government. For example, for the most recent landslides in the area like the Nametsi of 2010, government, Red Cross and other relief agencies reported between 385-400 deaths. Study participants and local leaders reported only 102 deaths. The same situation was in Buwalukani where the government and Red Cross reported 18 deaths. Respondents on the contrary reported that only 8 people died. This can be because relief agencies inflate the victims' figures out of proportion as a gimmick to create a sense of urgency and get more money for relief items which they sell to other people besides the affected.

Destruction of property and infrastructure

All study participants had lost property due to subsequent landslides in the area. The properties mentioned included houses, land, crop gardens and animals. Crops were destroyed subsequently leading to hunger and poverty as victims had nothing to eat or sell to get income. Destruction in infrastructure was also evident, for instance, in Nametsi, a health centre was completely razed down.

Psychological shock

According to the participants, when a landslide occurs, tremors are produced because the land moves under pressure which creates shock and chaos in the community. Generally, women and children were more affected as they seemed to take long to recover from the shock and trauma of the landslides. Loss of loved ones, property and the shock psychologically affects the victims and the community at large. One of the participants in 'tears' said he lost his wife and two (2) children and he lives with this ordeal (*the interview had to be stopped for a few minutes*).

Respondents lamented that they constantly live in fear because another landslide might happen unexpectedly. The question is, '*why don't they move to a safer area? Do they have alternatives'?* This will be discussed later on in this chapter.

Displacement of people

Landslides displace many people after their homes have been destroyed. Also, due to fear of risks from future landslides, some of them decide to relocate to relatively safer areas on their own or with external assistance from the government. Some of the affected people by themselves relocated to places with in the district while others were relocated by the government to Kiryandongo refuge settlement centre in Western Uganda. Six hundred (600) families of those who were affected by the 2010 landslide in Nametsi were relocated (according to the chairperson of Bukalasi sub-county). For those affected by the Bumwalukani and Bunabutiti landslides, relocation plans were on-going. Relatives of the displaced families especially the old people who are left behind, for instance by their older sons, suffer because they can no longer receive the same care and support like they used to before the landslide. For example, a 79-year-old respondent bemoans: *"my children's land and houses were destroyed by landslides which made them relocate leaving me alone here with no one to support me. I feel so alone".* (Personal conversation: 28.03.17).

Outbreak of diseases

Disease outbreak due to flooding and chaos after the landslides was highlighted as one of the effects. Participants cited that diarrhoea and cholera cases are rampant due to flooding from heavy rains. The impact of recurrent landslides, coupled with the poverty situation of the people of Bududa has increased their vulnerability to more future landslide shocks.

PART 2: Response and decision making

In this part, the influence of cultural and indigenous interpretations on people's response to landslide risks is presented and analysed. Two relocation project by the government of Uganda are presented and discussed highlighting how culture and indigenous knowledge influence the way people make decisions to either relocate or stay in the risky area.

4.4 Influence of cultural and indigenous interpretations on response and decision-making

Having discussed the causes and effects and how the cultural and indigenous explanations harmonise or differ from scholastic explanations, it is important to discuss why people still live

in the area despite the risks they are facing every day. Do they even consider the area risky or not? In this section, the influence of cultural and indigenous interpretations on how community members respond to landslides are presented and discussed. Further in this section, a case of the relocation projects by the government of Uganda is discussed singling out how cultural and indigenous interpretations influence people's decision to either relocate or not.

4.4.1 Immediate responses

From the study we learn that, all participants indicated that they run away to safer places during the time of the landslide. They use their knowledge of the area to know which direction to run to. They explained that, before running or while running to safety, they alert their family members, friends and neighbours. Respondents in a FGD reported that: "*when a landslide starts, we run shouting and telling our family members, friends and neighbours to run away too*". (FGD:27.03.17). This represents the crucial role close ties play in facilitating evacuation which can help reduce the number of deaths.

When the situation calms down, people come back to the area to check on their property, look for survivors and the dead. Local people make calls informing local leaders and relevant authorities about the tragedy. The injured are immediately taken to near-by health centres as survivors wait for external help. Funerals are organised for the dead with the help of community churches and other community institutions. According to the study, victims whose homes have been destroyed are given shelter and food by their neighbours, friends or relatives. This is done until they get external help from relief agencies, NGOs, and the government organisations.

When asked about the resources they use and where they get them from, respondents indicated that they mobilise resources form within the community. The resources that a community has at this moment in time determine their agency or ability to help those affected within a few hours until they get external help. Social agency is crucial at the micro- level especially in the immediate hours after the disaster as it determines how quick the community is able to help survivors (Mathbor (2007). Strong social ties help poor affected families by allowing them to borrow money and food items from relatives, friends, and other community members. This further strengthens the significance of social networks especially the bonds during the days following a disaster.

As Grootaert (1998) argues, social networks and contacts provide avenues through which people gain access to resources, and through which decisions are formulated. Local people

through their networks are able to mobilise resources needed to help those affected by landslides. In the study area, people with many friends and those who have a close connection with their families, relatives and neighbours received more and quick assistance than those with connections. According to (Newman & Dale, 2005: 481), agency is dependent on the size of networks a person or groups of people are able successfully mobilize. Agency in a community affected by disasters is significant as it determines how first people respond, cope and recover from disaster effects (Shaw & Goda, 2004). Besides, social capital depends on agency to be able to function efficiently (Newman & Dale, 2005).

Additionally, some respondents explained that community members do not experience the impacts of landslides in the same way. A few who are better off manage to recover quickly and to re-build their lives somewhere safer. One participant stressed: *"those who can afford buy land in safer places and relocate themselves. Land located in safer areas is now expensive, the owners have raised its price due to increased demand, most of us cannot afford it."* (FGD: 25.03.17). As argued by Bernier & Meinzen-Dick (2014), quite often, some people experience the negative impacts of a disaster more than others due to their socio-economic or disadvantaged position in society.

After the landslides, local leaders are informed about the tragedy, who in turn also report to relevant authorities like the central government and external NGOs. In this case, local leaders act as a bridge (bridging social capital) between the local community and external organisations or institutions. These bridges are also crucial especially in the post-disaster situation and recovery. The agency of external actors together with the local community also determines how fast a society that has been affected recovers from a landslide (Newman & Dale, 2005).

In Bumwalukani and Bunabutiti, survivors still depend on family members, friends and relatives for support. One respondent laments that: "*the landslide was very dangerous; a good Samaritan helped and gave me this piece of land we are residing at the moment. I have not been able to secure land for myself in a safe area because it is expensive"*. (Personal conversation: 19:03.17). After the Nametsi landslide, not everyone was relocated or accepted to be relocated. Some survivors are still depending on their networks for support which further stresses the role of social capital in disaster prone areas.

Immediately after the landslides, people indicated that churches were readily available to pray for the souls of the deceased. Churches also prayed and provided counselling services to the survivors to strengthen them during the trying moments of losing loved ones and property. Like

Schipper et al. (2014) explain, religious faith provides social networks with a vital source of hope for people dealing with the consequences of disasters immediately after the disaster, and in the long run. This also indicates the importance of bridging social capital after landslides manifested in how churches come to support the victims and community at large. As emphasized by (Aten, Bennett, Hill, Davis & Hook., 2012; Exline, Park, Smyth & Carey, 2011; Chesteret, 2008), religious activities like prayers and rituals help those affected by a disaster to cope with the trauma, suffering and stress brought by a disaster. In an argument presented by Gray and Wegner (2010), in the post-disaster situation, even non-religious or non-spiritual people who have been affected by a disaster may turn to religion for comfort.

Elsewhere, the districts of Mansehra and Battagram in the North-West Frontier Province (NWFP) of Pakistan are highly vulnerable to hazards like especially landslides, in some villages, performance of rituals like "khatam," or the recitation of the Holy Quran, and offering of prayers take place after big disasters for people to keep strong amidst jeopardy (ISDR, 2008). This shows how prayer especially amongst those that believe God has caused the disaster is crucial in making they feel strong as they put their situation in God's.

4.4.2 Response and decision making on the relocation projects

Like mentioned above, the aspect of how decision making is explained in this section using a case of the two relocation projects by the government of Uganda.

CASE: Relocation to Kiryandongo refugee settlement camp and to Bulambuli district After the Nametsi disaster of 2010, the government of Uganda, through the Office of the Prime Minister (OPM) intervened to help. A committee of ministers went to the district and conducted assessments. According to study participants, community members through their council were called on board to give their views. Safer areas within the district were identified. A resolution was reached to urbanise these areas and make them like municipal councils with basic facilities for instance schools, houses, and health centres so that those staying in high risk areas can reside in these designated places but with access to their lands for agriculture.

However, as reported sub-county chief: "*this project did not go through as it was considered expensive for the country yet it would only benefit a small section of the country population.*" (Personal conversation: 04.03.17). The government decided on an alternative project to relocate the affected people to Kiryandongo refugee settlement camp in North-Western Uganda. Under this project, 600 households were relocated. Government recently bought land in Bunambutia located Bulambuli district (Eastern Uganda) and meetings by officials in charge are on-going to relocate the all those at risk. According to one key informant, there is no official communication from the OPM to the victims yet. However, the beneficiaries (affected people) have never been officially consulted or informed about this new project. This project has not yet been commissioned. (Personal conversation: 04.03.17).

However, the question is, why are people still living in the risky areas even with alternatives for relocation? Is it that there are some aspects (like culture) that are not paid attention to while planning and designing these projects? Why did those who were relocated come back to the affected area? And, why were (are) some of the affected people hesitant to relocate? I will try to provide answers to these reflective questions in this section.

4.4.3 Reasons against relocation

Participants who were hesitant to relocate and those who resisted relocation indicated attachment to the ancestral lands, conditions in the place of relocation, connection to clan ties, cultural practices and beliefs, male domination as their concerns. These are discussed in detail here under.

***Attachment to ancestral lands*:** According the study participants, people's attachment to their ancestral lands plays a significant role in the decisions they make about whether or not to relocate. Landslide victims think the government wants to grab their land. This as one of the participants claimed:

> *"The government is silent about who owns the land that remains behind when we are relocated. Like for my case, the army has come with guns but I have refused to go because I know the government wants to steal my land."* (Personal conversation: 26.02.03). In the same vein, another respondent affirmed to this arguing that: "*we are unaware of who legally remains the owner of the land here, that is why even those who were relocated often come back to check on their land to make sure it not seized."* (Personal conversation: 11.03.17).

Respondents argued that land belongs to their forefathers and thus parents have to protect it until they pass it on to their children. This as one respondent stated: "*land that belonged to my great grandfathers was taken over by my grandfather like that until now I am owning it. So, you say you want to take it away from me and take me to another place. I cannot leave it".* (Personal conversation: 04.03.17). One of the key informants noted:

"*Our People don't want to go away from their ancestral grave yards. Like me here, you cannot take me away from my land where my ancestral grave yards are located. Where I feel, my ancestors move day and night to watch over me (*said with laughers*)." (*Personal conversation: 04.03.17).

Participants also reported that the staple food of the Bamasaba ethnic group is '*Matooke'* (green bananas). The reactions from almost all respondents show that access to their staple food which

is very much supported by the fertility of the land plays a major role in their decisions concerning relocation. As explained, this is the food they are accustomed to. The situation became hard for those who had been relocated to deal with corn flour (maize) as the only food.

Like earlier indicated in the demographic characteristics of the study participants, the major economic activity is agriculture. Thus, agriculture is the source of livelihood providing people with employment, food and income. People do not want to lose their only source of livelihood. These findings could be true because according to the IFRC (2014), the fear of lack employment and livelihood options in other places makes people want to stay in one location despite the risks they face due to disasters.

This finding is in agreement with the argument by Cannon (2008) that People trade-off the risks they face living in a risky area with the benefits of their livelihood. They additionally make trade-offs between the risks and often their desire to live in a place they are accustomed to. Therefore, such people's culture is a powerful factor that can make them willing to live in peril (Cannon, 2008).

As discussed in chapter 2, some aspects of cultural capital can present an obstacle to disaster risk reduction especially when people resist relocation or any change likely to be made on their livelihoods. In the case of the study area, connection to ancestral lands, ancestral graves and beliefs that their dead ancestors 'watch over' people a night are some of the hindering components of cultural capital specifically because these beliefs can make people resist any plans to be relocated to other places. Additionally, People's values influence their behaviour (Ajzen & Fishbein, 1980), that people's attitudes influence their decisions (Eagly, & Chaiken, 1993). Thus, if people attach so much value to their ancestral homes and attachments, they might decide not to relocate even though they are faced with risks from future landslides. They might decide to face the risks for the values they hold dearly.

***Conditions in the place of relocation*:** Participants indicated that living conditions in the camp are harsh and the weather is hot. Participants also argued that the pieces of land that were allocated to survivors who accepted relocation are too small yet we have big families. Most of them did not get houses like the government had promised. A key informant revealed that: "*out of 600 households who were relocated, only 230 got houses, the rest are still staying in make-shift houses under harsh conditions*." (FGD:14.03.17). This makes victims who are still staying in risky areas resist relocation because they fear to go through the same challenges.

According to some victims, Bulambuli district where other affected people are yet to be relocated is situated in a low land neighbouring the highlands. This makes it susceptible to flooding, thus, participants said: "*you cannot take me from landslides to floods*." (FGD: 25.03.17). Another respondent argued: "*taking us from Bududa to Bulambuli will be like jumping from a frying pan into fire."* (Personal conversation 01.03.17). Literally meaning, floods are worse than landslides. One key respondent indicated that: "*the area's closeness to Karamoja*[2] *region (inhabited by cattle rustlers) also makes victims hesitate to relocate for fear of insecurities in that area*." (Personal conversation: 04.03.17).

This finding is related to one of the arguments presented in the 2014 World Disaster Report (IFRC, 2014) that people who are faced with risks from the environment make decisions to stay or return to the affected area because they feel they are more in control. This is because, the variables they have to deal with are known to them, thus, that they can make responses within an existing framework of experiences. The report explains that the fear of physical violence or crime in a new 'safe' place can also make people insist on staying in an 'unsafe' area (IFRC, 2014). The individual's motivational factors that influence behaviour determine which actions that person performs (Ajzen, 1991:181). For those involved in disaster risk reduction strategies, local's people's intention for performing a given action or making a specific decision need to be understood.

This *could* be the case for the people of Bududa affected by landslides because the mentioned *Karamojong* ethnic group neighbouring proposed relocation area are known for violence, killings and cattle rustling in Uganda with a history of long-term violent conflicts with its neighbouring areas and possession of illegal firearms.

***Connection to clan ties*:** Data from the study indicates that, the fear to lose family and clan ties makes people resist relocation. Culturally, the Bamasaba ethnic group live together as clans and the camp where they were settled has refuges from different regions and countries like Rwanda, Sudan, Burundi among others. Participants said they do not want to lose this clanship and benefits that come with it like sharing and togetherness. One key informant noted: "*if you see one settlement in this area, it is for a particular clan, people here do not want to mix with other clans."* (personal conversation: 04.03.17).

[2] Karamoja region is inhabited by the karamojong ethnic group who are believed to have migrated from modern day Ethiopia. They have a traditional belief that they own all the cattle by a divine right and thus are always involved in violent conflicts with their neighbours due their practice of cattle raiding.

In relation to the social capital theory (see chapter two), this finding *could* be true. As argued by Onyx and Bullen (2000); Pretty (2003) and Mathbor (2007), social networks, reciprocity, trust, social norms, the commons, social contacts, social cohesion, and togetherness are crucial, and people do not want to lose the connection they have living together as either families, clans, groups or communities. These ties provide them with benefits that people fear might be missed if they accept to be relocated. The 2014 World Disaster Report (IFRC, 2014) also highlights that people would rather face natural hazards/disasters in one location than the possibility of loss of reciprocity from family, friends, neighbours and the community. That is why most people exposed to threats from the environment prefer to stay in the same areas or to return to the same areas immediately after the disaster.

***Cultural practices and beliefs*:** The cultural practice of 'Embalu' (public male circumcision) is conducted every 'even year' among the Bamasaba and people are very attached it. Most participants substantiated that even though it can be conducted in the resettlement camp as well, the vigour is never the same as when it is conducted in Budada. They said as well that they feel shy and uncomfortable to practice it among other 'alien' ethnic groups. Also, easy access to 'Malwa' (locally brewed beer) makes people hesitant to relocate. Respondents claimed: "*here we enjoy 'Malwa', even if ingredients can be taken to another place, the way it is brewed here is different and special*". (FGD: 27.03.17).

According to all landslide victims and most key informants, the 'Bashebi' (leaders of the cultural practice of male circumcision) are not allowed to leave the tribal land. If they do, the deceased ancestors who want the continuity of this cultural practice will call them back. One participant sighted: "*if the 'Bashebi' accept to be relocated, spirits of our ancestors can appear to them in their sleep and order them to come back lest they die*". (Personal conversation: 08.03.17). Participants also indicated that they have special types of trees where circumcision is supposed to take place. They explained that such indigenous trees may not exist in other areas of the country where the government wants to take them.

Victims who resisted relocation especially those above 40 years of age said the Bamasaba ethnic group have a belief that when you migrate and go outside Bududa, your life expectancy reduces. This according to them is because Bududa has cool climate which does not allow disease causing organisms like mosquitos that cause malaria to thrive unlike in other places of Uganda. One respondent 59 years old, said: "*maybe my children can relocate but me I cannot because I am already old, if I go there I can die immediately*." (Personal conversation:

11.03.17). Victims also indicated that the climatic conditions which they regarded as 'cool and comfortable' make the place favourable compared to the resettlement camp which is a hot and dry zone.

One important aspect worth noting is that, most of the Bamasaba' who stay in this area have never moved out of the district. They have never experienced life in any other place and thus, think life will be hard in the 'new' relocation place.

Most study participants indicated witchcraft as one of reasons why people prefer not to relocate. This is because in this community, people are free to practice it. Participants in the FGD explained that: "*in this community, witch-craft is a common practice but when you go to another place and practice it, you can harm someone and they will obviously have no mercy on you."* (FGD: 17.03.17). Key informants also affirmed this when one of them mentioned that: "*witchcraft is practiced in this community, I cannot rule it out, I know it is there. People use it to punish others, to revenge, or when they are jealous of you*." (Personal conversation: 17.03.17).

Another cultural factor is the aspect of 'bull fighting'. Study participants in half of the FGDs and a big number of personal interviews indicated that culturally, the 'Bamasaba' refer to themselves as 'bull fighters'. They rear big bulls using zero grazing. Therefore, they resist relocation because they feel the conditions in the relocation area will not enable them to continue with this practice.

These cultural beliefs and practices that people are attached to show the vital role of cultural capital and how people's decisions even in times of danger are culturally grounded. Their fear of failure to continue with their cultural practices influences the decisions they make. As argued by Newman & Dale (2005), social capital consisting of strong network ties can be a hindrance in excess quantity as it can lead to enforcement of social norms that have the capacity to work against change and innovation. Peoples cultural beliefs, values and norms and their need to continue engaging in their cultural practices makes them hesitant to accept plans to relocate them to safer areas.

Male dominated decision making: Female participants in interviews and FGDs revealed that men make the most decisions like relocation in a home. In response to the question if there are opportunities for relocation, would you accept to be resettled*? One participant said: "If my*

husband accepts, I can go but if he refuses, I cannot go because men here make such big decisions in the family". (Personal conversation: 16.03.17).

Some male participants acknowledged this claim saying: *"if I decide that my family does not relocate, they cannot because my wife has to do what I say."* (FGD:27.03.17). As explained by the IFRC (2014), Culture itself can enable some people and groups to have more power than others. Therefore, culture 'normalizes' and legitimizes particular attitudes and behaviours that lead to vulnerability. In the case of the study area, even though women who explained this were aware of the area's susceptibility to landslides, they had to respect the decisions made by the men/husbands because their culture and society dictates so.

As indicated by Cannon (2008), in some countries or locations, there is socially constructed vulnerabilities where people live in areas at risk from a hazard, but their opportunity to live safely is constrained or made impossible by the (class or ethnic, gender, or other) social structure. In the study area, just like in many African settings (male dominated), gender plays a big role in how and who makes 'major' decisions in the household. For the study area, if the man of the house says *no* to relocation, it is likely that the woman will continue staying in an unsafe area as her prospect to live in a safe area is constrained by the social structure where men dominate or make household decisions.

Social capital at the bonding and bridging levels can have both hindering and facilitating effects to those involved (Portes, 1998; Newman & Dale, 2005). According to Newman & Dale (2005), people might be more vulnerable to disasters due to their social status or position in society. In this case, the un equal relations that exist in this society between men and women regarding who makes the decision to relocate can make women live in a vulnerable environment not because they want to but because the society dictates that men make the most important decisions in the family.

4.4.4 Reasons for relocation

Not all study participants resisted relocation. A few respondents, especially those affected by the Bumwalukani and Bunabutiti landslides, said they wanted to be relocated because they considered the area risky. They explained that a landslide might happen again this year if it rains a lot. This as they indicated: *"we want to be relocated but the government just promised us, they have not done so. We fear this year if it continues to rain we night experience another landslide because cracks have developed in the soil."* (Personal conversation:18.03.17).

Landslide victims who accepted relocation were mostly those who had lost almost everything (houses and land). Unlike in Nametsi where even after the landslide the land at the site remained fertile and intact, land at Bumwalukani and Bunabutiti could no longer be used for agriculture because the topmost fertile soil was washed away into the valley. Participants called what happened in Nametsi a mudslide because houses, people and crops were buried in the mud but the soil stayed close to the spot where the landslide started.

Their decision *could* also have been influenced by their realisation that area is vulnerable to future landslides. Because they do not have money to buy land for themselves in a safe area, they accept relocation. It can also be because victims who were relocated to the refuge settlement centre in 2010 now two homes since they retained their lands in the affected area. They come to do agriculture and go back to the camp during heavy rains.

However, each of these respondents gave one or more pre-conditions for relocation. These included; if relocation is done within Bududa, if they remaine the rightful owners of the land in the affected area, if government gives them the same size of the land in the relocation area with land tittles indicating that they are the rightful owners and, if they can transfer their ancestral graves. All these preconditions show how people in the study area attached great importance to their land.

4.4.5 Emerging issue: Land as a source of livelihood

Like earlier stated, the major economic activity of the study participants is agriculture. Therefore, land plays and important role in their lives. They grow plants like bananas, coffee, onions, bananas, carrots, cabbage among others which are used some for consumption and others for sell. The land is fertile and the continuous rains support plant growth. Responses like *"our lands are fertile, we can plant anything and it grows. The land where they relocate victims is dry and they only crop that can grow there is maize"* were dominant.

These responses show that sometimes, even though people are aware of the risks they face due to their continued stay in unsafe environments, attachment to their lands influences how they make decisions in times of disasters. Additionally, it could also be because people in the area fear to lose their source of livelihood and belonging. This is because respondents were asking themselves questions like what will happen if the government one day decides to close the settlement camps and use the land for other projects? Since they have no document showing ownership of the small pieces of land they are allocated to when they decide to be relocated,

they fear to become homeless and landless in the future. Therefore, people may give high priority to everyday needs than the risks they face inhabiting areas exposed to disasters. As argued by Schipper et al. (2014), people prefer dealing with the known risks than having to face the situation in the unknown environment, they prefer the known to unknown (The saying of 'better the devil you know than the angel you don't' fits in this situation.

4.4.6 Emerging issue: Sources of people's vulnerability in the study area

While discussing how respondents' responses and decisions with respect to risk are affected by culture/indigenous knowledge, the issue of vulnerability of the local population in the area emerged. Vulnerability relates to the propensity or predisposition to be adversely affected (IFCR, 2014). The United Nations International Strategy for Disaster Reduction (UNISDR) (2014) highlight that, poor populations across the world are more vulnerable to natural hazards and disasters and have the least amount of resources to respond to such shocks.

In fact, some scholars argue that disasters only happen because trigger events (natural hazards) interact with vulnerable people (Nathan, 2008). Poor communities often live in the most hazardous and unhealthy environments exposed to threats from the environment. Factors that contribute to people's vulnerability in the study area are natural, cultural, social and economic. Economically, the area like indicated in chapter one is characterised by enormous poverty which constitutes its main source of vulnerability (Osuret et al., 2016; Misanya, 2011). Agriculture which is done on a small scale is the main source of livelihood with a few people engaged in small scale businesses conducted in the trading centres. One respondent explained:

> "*we are poor, we do farming but our land is small so we do not get a lot of yields. I would prefer to buy a small piece of land for construction in a relatively safe area close to this place so that I can always come back but I cannot afford to do that. So, I have to stay here and face the risks because I do not want to be relocated t afar place where the government wants to take us."* (personal conversation: 17.03.17).

Naturally, the mountainous nature of the terrain and the rocky soils contribute to the area's susceptibility to landslides. Additionally, most respondents refuse to acknowledge that their engagement in activities like over cultivation of the slopes and deforestation contributed to the increase of landslide occurrences. Some of them shift their responsibility to external factors. This means that as long as people continue denying that their actions expose the land to more landslides, they will continue engaging in them thus further exposing the area to future calamities.

Cultural beliefs and practices also increase people's vulnerability to landslides. Local people's connection to their ancestral homes, kinship, cultural practices and beliefs has contributed to their vulnerable situation especially where people choose to stay in high risk area because their ancestors were buried there. Beliefs that family planning methods have side effects make people hesitant to use them. They produce many children per woman which has led to rapid population growth in the recent past. This population has increased pressure on land and also extended its activities including settlement in risky areas.

Binding social ties; local people are vulnerable partly because of their connections to their families/clans, friends and neighbours. Respondents explained that close ties are very helpful as people share daily necessities with each other in their close networks. For instance, close friends and family help out when one is sick, they help in child care among others. Therefore, people do not want to lose the connections, sharing, mutual help, social cohesion, social contacts and mutual existence with their close ties. In general, participants relied on their cultural beliefs and indigenous knowledge to respond to landslides and to make decisions regarding whether to relocate to a safer area or not.

PART 3: Landslide adaptation

In this part, the ways in which people in the study area use of culture and indigenous knowledge to adapt to landslides is presented and discussed.

4.5 The extent to which cultural beliefs and indigenous knowledge are used in adaption

From the literature presented in Chapter 2, people's culture and indigenous knowledge is vital in disaster management. This section presents how cultural beliefs and indigenous knowledge have been used to adapt to landslides in the area.

Recognition of signs of a potential landslide

Like earlier mentioned in the literature, the study area has been affected by landslides since the 1900's (Juventine, 2012). Because of this exposure to previous landslides, study participants indicated that local people have gained experience and knowledge in predicting the likelihood of future occurrences of the same. This cultural and indigenous knowledge based on long term experience with landslide occurrences enables people to predict, act, recover, cope and adapt to the landslide prone area through activities and strategies they have developed as a community. One participant notes: *"this knowledge is helpful because we can see at least one*

or two of the signs and then we run a way for safety which reduces on the risks". (Personal conversation: 09.03.17).

This finding *agrees* with findings by Krüger et al. (2015) who argue that, culture is seen as an adaptation to risks from hazards, normally, those that are repetitive in nature because it allows forewarning especially among people who have experienced the same disaster before. These are some of the signs study participants described that they see when a landslide is about to happen:

- Cracks develop in the land and then water starts oozing out of the cracks
- The behaviour of birds; birds start whistling continuously, they leave their nests and keep flying in the air
- Heavy running water from the slopes, this water is usually with a deep/dark brown colour.
- Soil starts smelling in a different unusual way. Participants could not explain how exactly this smell is like but they emphasized that it is a different smell.
- The type of rains; light rain but it rains continuously for man days
- The colour of the clouds; they are light dark clouds
- The shaking of the ground and bushes. According to the participants, for those who have never experienced any landslide before, may not realise the ground is shaking.
- Flooding of rivers and river banks, the water level of the rivers increases

Ability to predict the possibility of a landslide makes people feel more in control of the situation since they can see them and evacuate. One of my respondents in Bunabutiti argued that: *"when the landslide happened here in 2015 and 2016, many homes were destroyed but none of the inhabitants lost their lives. This was because we were able to see a big crack in the land and vacated our homes." (*Personal conversation: 05.03.17).

Study participants said when one community member notices a possible sign, he/she circulates the information among other community members so that they can run to safety. This shows that societies faced with disasters rely on social unity, social cooperation and collective strategies aimed at reducing risks from recurring disasters.

Figure 10: A crack identified by community members is Bunabutiti parish

Source: Author (2017)

Community members also indicated that sometimes their predictions are not accurate which can lead to more deaths. For instance, in the landslide of Bumwalukani, as one respondents explained; when people saw that the crack that had developed in the land during the 1997 landslides suddenly widened, they drew a sketch map of how the path of the landslide was likely to be. Unfortunately, when it happened, there was a diversion from their initial predictions and the landslide ended up affecting those that were thought to be safe. They cited a gentleman who has initially escaped but after the predicted path was drawn, he went back to call his family members but was trapped on the way and died. Even though there can some irregularities in the predictions, the signs have proved to be dependable.

Planting indigenous trees

Study participants explained that their parents encouraged them to plant trees so that the roots of the trees can help keep the soils intact. Participants emphasized that in the past, their parents used to plant and preserve the mature trees because of their importance. Cutting trees was done at a very trivial scale, thus even with heavy rains or winds, trees acted as catchment areas and wind breakers. Currently, after a realisation that increase in deforestation has accelerated landslide occurrences in the area, community members have reverted to planting trees, focussing more on indigenous tree species. However, a differing view was expressed by the people of Bumwalukani. They believed that trees contributed to the death of people as the fallen

trees stems blocked people from escaping. They therefore did not believe that planting trees can help them adapt to the situation.

Digging terraces and contours

Some study participants said digging terraces is practiced as a way of controlling the flow of water from slopes during heavy rains. Planting elephant grass along the terraces is also practiced to control running water. Elephant grass provides a double benefit of providing vegetation cover and source of animal feeds. However, through interaction with more study participants, some them disclosed that few people can practice terracing even though they are aware that it is importance. This is because, they have small plots and they have to use them for planting crops.

Identification of settlement areas

Respondents indicated that their indigenous and cultural knowledge as useful in identification of safe places for settlement. According to study participants, parents and older people in the community always show the young people which areas are safe for construction and the direction they should take in case of heavy flooding or a landslide so that they are not trapped. One respondent indicated that: "from our experience and what our parents told us, we know that hillsides are safer than valleys. Our grandparents used never to construct in valleys but the population has increased, we have not where to construct." One key informant indicated that:

> "*for us with landslides, indigenous knowledge is very important. Parents showed us the path ways of previous landslides. Since landslides usually follow the same path if they occur again in the same place, it is advisable never to settle in the path of a past landslide."* (Personal conversation: 04.03.17).

The early warning system

One of the key informants indicated that: "*the area has an early warning system that uses indigenous knowledge and local people.*" (Personal conversation:10.03.17). During heavy rains, one person in the local community is given the responsibility to measure the water level of rivers. When water levels increase high above average they report to the local leaders who inform other community members to vacate risky areas. Furthermore, one key informant indicated they have community radios that are operated by local people. These radios are supposed to be used to send alarms to the community in case there is a sign of a likely landslide.

However, some landslide victims I interacted with claimed that the community radio is located in a different sub-county. Thus, whatever is aired my not be heard in time by people from other sub-counties. So, even if there is a warning of a likely landslide, people in sub-counties might not hear it. They also argued that, sometimes the landslide is abrupt and there is not time to warn people.

Praying to God

Participants explained that they pray as families for their deceased relatives and friends. Since some participants believed that God causes the landslides to punish them, they resort to prayers to ask for God's forgivingness and protection from future landslides. Community churches during Sunday services also the deceased. "*We pray to God not to bring such a punishment upon us again".* (FGD: 25.03.17*).* In Nametsi Parish, people from in and around Bududa gather on 1st March every year to have joint prayers for the souls of those who have lost their lives due to landslides. I was fortunate to participate in this year's (2017) prayers because they were organised while I was still conducting fieldwork.

Figure 11:Annual prayers and a mass grave where body parts of those who could not be identified were buried

CASE: Trust in God amongst the survivors

"My name is Nambuya, we organise these prayers every year to remember our people who perished on 1st March 2010 and those who have died due to landslides in other areas in the district. We pray for their souls to rest in eternal peace and we ask God to forgive them where they might have gone wrong in their lives. These prayers are also a way of asking for God's divine intercession so that other landslides do not happen again.

Victims whose bodies were never discovered still lie beneath this ground, we come to pray for them. These prayers also help us to keep calm with our trust in God despite the risks we are encountered with while we live here. Like how the reverend just said now:

"*we do not fear death, even those died went to be with God. Everyone has his/her day/time. We believe in everlasting life even those who died, are alive in heaven."* (Personal conversation: 01.03.2017).

As indicated in the case above, praying to God in one of the ways people faced with landslides adapt to their environment. Religious faith and activities like prayers, religious rituals and meditation bring solidarity to the affected people to manage and adapt to an area that experiences recurring disasters (Aijazi Panjwani, 2015; Basit, 2007). People in the study area join annual prayers because they believe that God's divine intervention might stop disastrous events from happening to them or lessen their impacts. Similarly, after the 1991 Mt. Pinatubo eruption in the Philippines, as a coping and adaptation strategy, people resorted to trust in God, that he will make the best out of the situation (Guss & Pangan, 2004). According to Koenig (2006), after a major disaster, survivors who already hold a faith or those who were close to God in their lives often find that it helps them cope with the trauma and stress that comes with the disaster and to adapt to the post-disaster situation.

Sacrificing to the ancestors

A small section of the study participants who believed that landslides happened because they were not at peace with the spirits emphasized sacrificing to their ancestors as a way of calming down the spirits. As one respondent claimed: *"I sometimes make a sacrifice so that my ancestors are happy and stop causing the landslides but I do not do it often I have a few animals."* (Personal conversation: 27.02.17). This is a manifestation that people who are faced with disasters make decisions based on what they believe caused them. Therefore, their decision on how to adapt to the situation is influenced by their perceptions and beliefs. Participants who believed in witchcraft as the cause of disasters explained that: "*we are monitoring the witch's movements and actions* (referring to Wamaniala and his group of witches)." (FGD: 17.03.17).

These finding are in line with the finding highlighted in the 2014 WDR (IFRC, 2014) that, people faced with disasters embody the risks they face in a religious or symbolic way so that they can externalise it. Therefore, they make sacrifices and offerings because it helps them deal with risks and enable them feel they have some control over risk.

Individual and Communal night watch

Most male respondents in the FGDs mentioned that whenever it rains, men in the community mobilise each other. They identify a safe place and stay awake together at night to keep watch. Participants explained that: "*when we stay up and watch, we can be able to detect a sign of a possible landslide and evacuate our families. But when we fall sleep, we might be caught un-*

aware." (FGD: 01.03.17, 25.03.17). Other participants stressed that some people keep awake at night during the rainy season on an individual basis as well.

CASE: Keeping watch

"Whenever it rains, my husband sleeps on the veranda to keep watch. When you sleep in the house, you cannot hear the sound of the debris falling down the mountain but if you are out on the veranda, your chances of hearing it and running to a safer place are higher. During heavy rains, he comes out of the house with all of us and we sleep in the temporary shelter on a raised land like a small hill. We light fire and watch what is happening in the surrounding area." (personal conversation: 18.10.17).

Related to this finding, after the 1970 avalanche/landslide in Peru, the people of Yungay who were affected insisted on rebuilding the city in the same exact location even though there was a danger of future landslides (Oliver-Smith, 1979). After this landslide, Oliver-Smith (1979:39) argued that since time memorial, when a community is faced with a crisis, they may suffer unembellished individual and collective stress during and after the disaster. Thus, as a way of coping and adapting to the situation, people display distinctive patterns of social organisation. This social organisation represents a function of adaptive strategy developed to cope with the problems facing both individual and society in general both during and after disasters.

Thus, collective communal night watch shows the importance of social cohesion and solidarity manifested in how social groups look out for each other even in times of danger. Calling each other when they see a landslide sign, also demonstrates how social capital has the capacity to increase human capital to guard against likely disaster occurrences with the aim of reducing their impact especially on human life.

Related to this, another adaptive strategy participants highlighted is temporarily movement from the risky area. Respondents narrated that whenever it rains continuously, those who stay in high risky areas temporarily move away from the area to stay with friends and family located in relatively safer areas. This shows the importance of social capital represented by the bonds and how people rely on them even in adaptation to the risky situation. The above adaptation strategies that have been developed that are embedded local people's cultures and equip them with the confidence to cope with landslide disasters.

People and communities that are constantly affected by disasters devise means to respond and adapt to disasters, at the centre of adaptation strategies of these places is social capital. For example, like Mathbor (2007) explains, since Bangladesh expects a major disaster every two

years, the country has developed a successful and strong mechanism that uses social capital to recover and build the country after each disaster occurs. Therefore, for any country that is constantly faced with disasters, there is need for formulation of policy directives that emphasize community collaboration, cohesion, coordination, solidarity and utilisation of social networks as vehicles driving effective service delivery before, during or after disastrous events (Mathbor, 2007).

PART 4: Extent of incorporation of cultural and indigenous knowledge in landslide risk reduction strategies

In this part, the extent to which different actors, organisations and institutions involved in landslide risk reduction strategies are integrating peoples culture and indigenous knowledge in their strategies in deliberated.

4.6 The extent to which different actors incorporate people's cultural and indigenous knowledge

From the study, participants relayed that there are different organisations/actors involved in landslide related work. According to the participants, the notable organisations included Uganda Red Cross Society and the government of Uganda (through the Office of the Prime Minister (OPM). Others included; UNICEF, Trans Psycho-social Organisation (TPO), Uganda People's Defence Forces (UPDF), Oxfam, local leaders, churches and mosques, among others.

According to the district planning office and local government of Bududa, they are currently focusing on disaster risk reduction instead of relief. Government is working with local people to implement a project in land management, where they encourage contour ploughing and terracing while discouraging over cultivation. The local government is also encouraging tree planting by providing tree seeds to each household. This key informant asserted that: *"we work with the local people", she went on and stressed that; "in fact, the community advised us to start distributing indigenous tree seedlings."* (Personal conversation: 10.03.17). This is because local people have experience and know that indigenous trees have the capacity to withstand strong winds and also their roots keep the soils intact thereby reducing the possibility of a landslide".

Another key informant explained that the district has an early warning system that uses indigenous knowledge and local people to operate it. On this radio, Local people share information whenever they see any sign of a likely landslide.

Policy development: According to one of the district officials, the government of Uganda in 2010 formulated The National Policy for Disaster Preparedness and Management. This policy presents that, the primary responsibility for disaster management rests with the citizens with the government playing a supportive role. Section 1.1.4.2 of the policy states that: 'individuals within communities have valuable resources and information to share on the likelihood, causes and consequences of disasters. Given that the have rights to participate in key decisions that affect their lives, they are called upon to prepare for and participate in all processes of disaster preparedness and management.' (OPM, 2010:1-10). Thus, this policy acknowledges that local people have knowledge that can be useful for disaster risk reduction. With this policy, the district planner argued that the government is shifting its focus from disaster relief to disaster preparedness.

However, despite government's claim of emphasis on disaster preparedness as indicated in the policy and activities, almost all study participants (landslide victims) indicated that this is not the case. One critical respondent observed that: "*since now there is no landslide, the government is quiet. They only come when there is a landslide, their focus is on providing relief to the affected people"*. Land slide victims also stressed that in the designing of the policy, none of the local people/those at the grass roots was involved or consulted. Another aspect to emphasise is that the policy lacks an implementing law, and thus, nothing in it can be enforced. Leaders in the area said the law is in the pipeline but this is the seventh year since the policy was formulated.

Key informants and victims also ascertained that the OPM that deals directly with issues of disasters (including landslides) in Uganda is centralized. Even when local people have suggestions on what they think can be done to reduce landslide risks; they can hardly approach or find the officials in charge.

According to the Red Cross focal person in the area, their work is to support the government in its mandate of disaster management. Therefore, the organisation is working with the community to prepare them in case of future landslide occurrences. According to him, before 1997, Red Cross was focussing on relief and recovery. After the 2010 landslides in Nametsi, the organisation changed its approach to focussing on capacity building and mitigation. He posited that: "*we train village disaster management committees on how they can become more resilient and adapt to the disasters, these are supposed to go and train fellow community members."* (Personal conversation: 15.03.17).

The organisation trains community members on environmental friendly practices like making multipurpose fuel cooking stoves to reduce cutting down trees for firewood. They also encourage planting trees, bee keeping for honey harvesting to ensure that local people have more income generating activities to reduce over reliance on agriculture. This is aimed at reducing the pressure exerted on land through over cultivation. Indigenous methods of bee keeping like putting bee hives in the middle of tree branches are used. This also ensures that people plant more trees and reduce on the rate they cut down them down. When asked whether these actors use local people's knowledge, involve or consult victims in their activities and projects, almost all respondents submitted to the fact that different organisations come when a disaster happens, make assessments and write the names of those affected. Afterwards, they come back with items to give the affected. One respondent claimed; *"when many people die in a landslide, these organisations come quickly, do assessments and then bring relief items. They do not involve us or ask us what we want*." (FGD: 14.03.17).

Most respondents underscored that most of the actors or organisations focus more on relief and most of them never go back to the community until another landslide occurs. Study participants affirmed that: "*most of these organisations make promises and never fulfil them. It is only Red Cross through the area focal person that comes once in a while."* (FGD:14.03.17).

Even though the Red Cross focal person mentioned training village management committees as one of the activities they implement with local people, all participants avowed that: "*village disaster management committees that are mentioned in the government policy and by NGOs are not operational*." Indeed, through more investigation, I found out that in the study area, the village disaster management committees were non-existent. This undermines the capacity of local people to use their knowledge to adapt or prepare for landslides.

Moreover, like I explained in the relocation project (part 3), after the 2010 landslides in Nametsi, meetings were organised and local people through their council suggested that safer places in the district be made simple towns of Bududa so that those in high risk areas can stay there and only go to the highlands for farming. This suggestion was made by the local community and was informed by their cultural and indigenous knowledge, economic, and social concerns in both the affected area and the new 'safe' area (see Chapter 4, part 2). But, government on the contrary decided on relocation. People felt betrayed as FGD participants explained: *"we gave our suggestions when were called for meetings but as soon as the ministers went back to their offices, they decided on taking us to the camp. Our concerns were ignored.".* (FGD: 25.03.17). In this project, the district officials claimed to have consulted

people but what local people suggested based on their knowledge was not considered in the final decision the government made. This undermines and demotivates community participation in development or risk reduction efforts. This partly explains why those who were relocated already came back to the affected area.

As argued by Barrios (2010), anthropologists have noted that local knowledge and participation tend to be ignored or deliberately dismissed, as decisions are made by external actors. For instance, during the reconstruction projects after the 1998 Hurricane Mitch in Honduras, the government and international NGOs distributed minimally sized land packages among disaster survivors living in 'Limón de la Cerca'[3] fragmenting important relationships among former neighbours who formerly assisted each other in child and home care (Barrios, 2010). These actions of external actors had long term cultural and social implications for Limón municipality and the people (Barrios, 2010). This means that aspects like culture that local people consider vital in their lives may not be considered by external actors while making these decisions. The result is likely to be failure or under performance of such projects decided without grassroot participation.

Quite often, organisations or institutions involved in disaster risk reduction come into the affected community with their own cultures which at times conflict with those of the affected people (IFRC, 2014). Therefore, they may not understand why people insist on staying a risky area if they do not try to understand people's culture from the eyes of the people themselves. Paying a deaf ear to the concerns of the people in most cases lead to failure of strategies and programmes even if when they would have helped to reduce people's exposure to risks. Since culture is central to the perception of risk and choice made by vulnerable people faced with risks from the environment, it should be incorporated in the strategies aimed at reducing the risks and vulnerabilities of those involved (IFRC, 2014).

Among the reasons why the survivors wanted to be relocated within the same district is that they wanted continued access to their lands (for ancestral connections and as a source of livelihood), kinship, friends, networks and but the government did not consider this as important. Study participants also indicated that the government did not make necessary consultations with the local people and their leaders to identify who exactly were those at risk and needed to be relocated. That is, most of the people who were relocated are not exactly the

[3] 'Limón de la Cerca' municipality located in Southern Honduras is the largest housing relocation site for the survivors of the 1998 Hurricane Mitch in Honduras

people who inhabited high risk areas. There was a lot of corruption as most people had to buy their way to kiryandongo (pay government officers money to be relocated). Respondents as well highlighted that some of the relocated people were neither from the affected area nor the Bududa district. Furthermore, all victims and key informants indicated that those who were taken were not the actual victims of landslides.

These findings show that the government and other actors involved in landslide risk reduction recognise the need to incorporate culture and indigenous knowledge in the strategies aimed at reducing people's exposure to landslide risks but they have made less effort to integrate it in their plans, actions and projects

Local people's culture and indigenous knowledge can support disaster risk reduction and adaptation. For instance, cultural issues or beliefs affect people's willingness to take risks (or inability to avoid risks due to attachments and livelihood concerns) and the dangers they face (IFRC, 2014). However, this opportunity is often missed because organizations involved in disaster risk reduction do not regard culture as important in their work to reduce people's exposure to risks (IFRC, 2014), the same applies to indigenous knowledge.

Lastly, there is no trust between the government, relief organisations and local people. Respondents term the government 'corrupt' and thus they want to steal grab people's land. Distrust between can have negative impacts especially where local people and external institutions or agencies can make the affected people resist projects by external people based past bad experience with them. For sustainable disaster management, synergy between the affected community members, relief agencies and state agencies involved is critical. As argued by Macias (2016), trust in government, local and national level institutions as a significant driver of support for implementing new projects.

CHAPTER FIVE: SUMMARISING THE RELEVANCE OF UNDERSTANDING CULTURE AND INDIGENOUS KNOWLEDGE IN DISASTER MANAGEMENT

5. Introduction

In chapter four, I have discussed the use culture and indigenous knowledge play in the interpretation of the factors causing landslides, response and decision making, adaptation, and the extent to which different actors have incorporated people's cultural and indigenous knowledge in their strategies. This chapter presents the role and importance of culture and indigenous knowledge in disaster management highlighting the need for action towards incorporating this knowledge in disaster risk reduction strategies. The relevance of culture and indigenous knowledge is presented based on the research questions. Since responsive disaster management strategies (those that consider people's social contexts) have the capacity to lead to sustainable development, the relationship between culture, indigenous knowledge and development (illustrated in chapter two) is summarised. Additionally, a summary of how social capital and cultural capital are crucial in disaster prone areas is also presented.

5.1 Culture and indigenous knowledge in the perception of the causes

How do scholastic explanations differ or harmonise with cultural and indigenous explanations of the cause of landslides and the implications for landslide management? The short answer to this question is, whereas some perceived causes were in consonance with scholastic explanations, others differed. From the data and the discussion in chapter four, respondents' perceptions of the cause of landslides were influenced both by their knowledge or past experiences with landslides and beliefs. The fact that local people have the capacity to explain the same causes of landslides that scholars elucidate, is an indication that people have a clear understanding about the environment in which the live or have lived in for many years. People attach meaning to phenomenon based on their experience with it. Therefore, organisation/actors/institutions involved in disaster management, in this case landslide management, should ensure that a platform is created where indigenous or local people's knowledge can be integrated in strategies aimed at reducing the risks they face from the natural environment. Local people should be active participants as opposed to passive recipients of information about what external organisations think should be done to reduce people's vulnerability and risks.

On the other hand, some participants mentioned non-scholastic explanations as the cause of landslides like witchcraft, bitterness of the god/spirits, periodic occurrence, and acts of God.

These explanations were, among others, based on people's cultural beliefs, world views and religion. There is no scholastic or academic proof that these aspects are the cause of landslides. Nonetheless, people have a profound belief in them, which in turn influences their attitudes and actions in relation risk.

Still, even though there is no scholastic evidence about explanations related to divine beings and spiritual powers as the cause of disasters, these beliefs have been a common phenomenon in disaster stricken areas. According to Cannon, Schipper, Bankoff & Krüger (2014: 187), in different societies around the world, cultures frequently integrate religion and other belief systems that are partly 'invented' to enable people to rationalise their suffering and to live with risk. Cannon et al., (2014) further argue that, for thousands of years, spiritual beliefs have been predominant among societies that were faced with natural hazards for which there were no scholastic explanations at that time.

In the study area, some respondents believed that a landslide happens in the same location only twice is caused by a 'mysterious sheep'. These respondents believed that after a landslide has happened in the same place twice, it will *never* happen again. They emphasized that if a landside has happened in a place once, it has to occur again in the same exact location in the future even if people in that place put up measures aimed at mitigating it. Correspondingly, after it has occurred in the same location twice, it will never occur there again, and thus, there is no need to mitigate or prepare for it. This implies that organisations involved in disaster risk reduction strategies might experience challenges convincing this group of people to adopt any practice aimed at reducing their exposure to landslide risks or leave the risky area.

Study participants, especially those who belonged to the African traditional religion and 'Dini musambwa' (religion of the ghost), believed that landslides happened because their ancestral sprits or gods were bitter with them. They believed the spirits were angry since the current generation were no longer making sacrifices for them. So, as a form of punishment, the spirits/gods caused landslides. Similarly, another group of respondents, majorly comprised of Christians and Muslims, believed that God caused the landslides to punish them for their sinful behaviours. Religious and spiritual beliefs are social norms and values that can constrain disaster management strategies especially if not addressed by actors involved in disaster risk reduction.

These findings are in agreement with findings by Cannon et al., (2014) who argue that many societies have beliefs that God, spirits or gods intervene and cause disasters as a form of punishment and a manifestation of high power. These beliefs enable people to live in dangerous environments and feel they have some control over this environment by at least having some sort of explanation for their continued suffering. Consequently, people who hold these beliefs may feel there is little or nothing they can do about preparing for disasters because they will happen again.

Therefore, for the case of the study area, government institutions and organisations involved in landslide risk reduction must be aware of such beliefs systems that exist in this landslide prone area. They thus, must regard these beliefs as crucial and 'work with' them, not consider them irrelevant. This is because these perceptions can influence behaviours and actions of those affected towards risk. As highlighted by Cannon et al., (2014), in order to ensure success of outside support to people living and working in hazardous environments, organisations involved must acknowledge local people's beliefs as important and not ignore them or regard them as irrational.

5.2 Influence of culture/indigenous knowledge on response and decision-making

Do cultural and indigenous interpretations influence response and decision making of those affected? The answer to this question is yes. Quite often, people who are faced with disasters rely on their beliefs and interpretation to act and to make decisions. Their responses, therefore, are culturally grounded and contextualised. This can be regarding an immediate response or decisions in the long run/post-disaster situation. As argued by Call, (2012:1/5), human decisions cannot be understood in isolation from the deeply held beliefs and values that guide, stimulate, mobilise, and negotiate our relations with each other, the natural environment, and the spiritual realm.

As argued by Douglas & Wildavsky (1983), a person's behaviour towards risk is influenced by objective risk, but also their subjective perceptions of risk events. People's perception of landslide risks is not only an objective reality but also a subjective perception. This is because, they view landslides events in relation to other subjective realities in their society. That is why some participants in the study did not consider the area risky but considered it a fertile land with many opportunities to offer in terms of food and income. Others considered it their ancestral home and could not relocate despite the landslides. People's perception of risk is

likely to influence the decisions they make and thus, should be understood by disaster management organisations.

In part 2 of the previous chapter, I discussed how people's cultural beliefs and indigenous knowledge people's decision to either relocate or stay in the landslide prone area. This was discussed using two relocation projects by the government of Uganda for those people living and working in the landslide prone area, including the parishes where the study was conducted. As highlighted, most people resisted relocation and are still insisting on staying. Even those who accepted relocation in the first project returned to the area afterwards. Respondents cited attachment to their ancestral lands, need to protect the land and ancestral graveyards, connections to their clans and kinship, access to their staple food, ability to freely continue with their cultural practices, need to continue with their practice of Witchcraft, conditions in the relocation place among others as the reasons for their reluctance to moving away or returning to the affected area. All these beliefs are related to the culture of the people in the study area that influences their attitudes towards risk. Some aspects of culture can be an obstacle to disaster risk reduction strategies, and thus, need to be understood by interventionists. For instance, as stated in the literature, beliefs in sprits and attachment to ancestral lands are likely to make people resist any plans aimed at settling them in a much safer area. These beliefs represent some of the constraining components of cultural capital that can work against change in society.

Similarly, when respondents attach God or spirits as the cause of the landslides and subsequently pray or sacrifice to these spiritual beings to protect them from future landslides, this reflects the hindering aspect of social capital as it can make the affected people insist on staying in a risky area or hesitant to adopt mitigation and preparedness measures aimed at reducing landslide risks. This can therefore be an obstacle to disaster risk reduction interventions.

Furthermore, since people's perception influences behaviour, they make calculated risks of their actions in facing hazardous environments (Douglas & Wildavsky, 1983). Therefore, their actions in relation to risk reflect their society's social and cultural values (Douglas & Wildavsky, 1983). Thus, the culture of people who live in areas exposed to disasters must be understood and incorporated in the strategies aimed at reducing their exposure to risks.

Female participants pointed that the decision to relocate is always in the hands of the men as heads of the households, and thus, if they decline, the whole family has to stay in the landslide

prone area. This shows how power relations in society affect decision making even in times of danger and the need for those engaged in landslide risk reduction work to ensure that such power sources and challenges are addressed.

5.3 Use of cultural beliefs and indigenous knowledge in adaption

To what extent have cultural beliefs and indigenous knowledge been used in adaption to landslides? The answer to this question is, to a larger extent. People rely greatly on their culture and indigenous knowledge for adaption; though more needs to be done to better make use of this knowledge. (Call, 2012) argues that, worldviews have an influence on community responses and adaptation in disaster-prone areas. From the data presented, it is evident that study participants use cultural beliefs and indigenous knowledge in a variety of ways to adapt to the situation.

Now that most of them have resisted relocation and others who were relocated have come back, people have devised strategies that are enabling them to 'live' in the area despite the risks posed by future landslide disasters. Among the adaptation strategies is the use of indigenous knowledge to predict the likelihood of a landslide. With prediction, they look at signs like development of cracks in the soils, the type of cloud formation, the behaviour of birds and other animals, and the colour of clouds among others (see Chapter four). Participants indicted that, if they see any of these signs, they run to safety which minimises on the number of fatalities. Their ability to predict future landslides increases their adaptability to the environment in which they live, and thus, interventionists can tap into this knowledge and integrate it with their technology based landslide forecasts, for more reliable predictions. As Murphy (2007) argues, indigenous knowledge and experiences in previous disasters can be utilised as a form of social capital to determine the possibility of a disaster, act when a disaster happens, in adaptation and in preparing disaster preparedness strategies.

Relatedly, the other ways through which natives utilize cultural and indigenous knowledge for landslide adaption include planting of indigenous trees that can withstand strong winds and heavy running water, engaging in individual and communal night watch and identifying safe places for settlement among others (see Chapter four). Participants explained that in identifying safe places, they use the knowledge passed to them by their parents showing them what places are safe and which are not. For instance, respondents consented that their parents told them valleys are not good for settlement because they are more affected since all the debris from flowing hills ends up in valleys.

In the study area, when a landslide occurs, people close to the place where it is occurring run for safety. Depending on where the house is located, the inhabitants know the safe direction to take in case a landslide occurs. This knowledge helps some of them to escape even when they have not been able to predict the landslide early, thereby, reducing the number of causalities. This knowledge passed on from their parents and based on their long term stay in the area, is helping them live in the landslides prone region. Gaillard & Mercer (2013) maintain that, indigenous knowledge has formed a basis for action among many communities especially those faced with threats from the natural environment. Cultural beliefs, worldviews and indigenous knowledge influence response and thus should be paid attention to and utilised for sustainable landslide risk reduction strategies.

Additionally, those who believed that the angry spirits and gods caused the landslides resorted to making sacrifices as a way of asking for forgiveness clemency and future protection in the wake of calamity. Since these participants believed that sprits were angry for not making sacrifices to them, as a way of adapting, they made periodic sacrifices to appease the spirits so that they stay at peace with them. As the Theory of Reasoned action argues, people's intentions drive their behaviour (Eagly, & Chaiken), that intentions result from subjective norms and attitudes toward the behaviour (Feather, Norman, & Worsley 1998). When people believe that spirits are the cause of landslides and they make sacrifices to appease them, their actions are based on the norms and values they hold and might have an impact on risk reduction strategies if ignored by those involved.

Similarly, those who the divine powers of God as the cause of landslides, adopted prayers to him as a way of adapting to the situation. Besides the normal prayers organised on Fridays, Saturdays or Sundays for the different religious denominations, an all-encompassing annual prayer is organised on 1st March to remember and pray for all those whose souls perished and to as well as seeking for God's protection. Therefore, this group of people keep strong faith in the lord despite the risks they face. Recognising the beliefs systems of local communities is vital by disaster risk reduction interventionists, because they provide a basis for understanding the social realities and reasons as to why people act the way they do. From this, disaster interventionists can have a point of entry into the community and a starting point to extend their help.

5.4 Incorporation of cultural and indigenous knowledge by disaster management actors

To what extent have different organisations or institutions involved in landslide management work incorporated people's culture and indigenous knowledge in their disaster risk reduction interventions? The answer to this question is, to a lesser extent. As discussed in the literature review in Chapter two, people have a clear understanding of their environment considering that they have had a close interaction with it for ages (Mawere, 2014). They have forged ways to manage it and deal with the risks it poses to them. Therefore, the aspect of what local people themselves 'know' or have known and used for many generations should be strengthened if actors involved in disaster risk reduction and disaster management are to achieve sustained impacts Natives' cultural and indigenous knowledge has been central in their lives and in dealing with disastrous situations. However, most actors involved in disaster risk reduction strategies do not acknowledge or utilize this knowledge in their work to reduce the impacts of disasters.

From the findings, it is evident that the government and other organisation involved in landslide risk reduction have made headways to recognise the roles culture and indigenous knowledge play in areas affected by landslides, but the rate at which it being incorporated is disheartening. For instance, steps were in the formulation of a policy for disaster preparedness and management which recognizes that local communities have important knowledge and resources that can be tapped for sustainable disaster risk reduction. However, at the local level, nothing has changed. The 'activities' government and other organisations 'mentioned' implement, do not translate into 'concrete actions'. Additionally, the focus of these actors is more on relief than landslide preparedness or adaptation. Respondents explained that most organisations come to the area only after a landslide occurrence.

Regarding activities aimed at building the capacity of local people to become more resilient and adapt to landslides, the actors are not active at the community level. As for the government, they plan relocation projects (discussed in Chapter four) without consulting/considering the culture and knowledge of the people. This explains why the first relocation project to Kiryandongo refugee settlement camp failed to yield intended results, and the new project underway to relocate people to Bulambuli district is also likely to meet the same fate. This is because the same concerns that local people raised related to cultural attachments and need to maintain their livelihood sources in the risky area (access to their agricultural land) have been ignored by the new project. Moreover, the very people to whom the project is intended have

not been consulted or involved in planning process. From the findings, it is clear that the actors, in this case, the government and the NGOs mentioned above have to a greater extent neglected local people's culture and knowledge in their interventions.

5.5 The interconnectedness between culture, indigenous knowledge and development

Having discussed the relevance of cultural beliefs and indigenous knowledge in disaster management, it is imperative to highlight the relationship between these two aspects and the overall development of an area. In Chapter two, I presented an illustration of the relationship between culture, indigenous knowledge and development. From the findings, it is evident that people make decisions based on their cultural beliefs, world views and knowledge that they have acquired from their parents and through their experience living in disaster prone areas. Indigenous knowledges are well known for their ability to describe, explain, predict and attach meaning to nature thereby creating resilience especially at the local level (Cadag & Gaillard, 2012). Hence, the need to consider this knowledge in development projects.

When people are faced with threats from the environment, their culture provides a criterion for them to select between available alternatives (Mawere, 2014). The decisions people make regarding the actions to take and their attitudes towards projects aimed at reducing their exposure to landslide risks may consequently have an impact on the development of the area and the country. For instance, if people have strong attachments to their lands or cultural beliefs, all development efforts made to re-settle them in a safer area are likely to fail. Subsequently, all development efforts or gains attained in the risky area might be destroyed in the event of another landslide which will have an impact on the overall development of the area and the country at large.

5.6 Social cultural, and economic capital: Facilitating and hindering aspects

Worldwide, as Bernier & Meinzen-Dick (2014) argue, societies or groups have faced disasters and have come up various institutional responses to cope, recover, adapt and prevent future shocks. Social capital has been at the centre of all strategies aimed at responding, coping and adapting to disasters. Findings from this study indicate that people relied on the close ties they have with family, friends and neighbours especially in the immediate hours after the landslide. These bonds and traditions for mutual help facilitated evacuation, provided shelter, food, comfort and other items that landslide victims needed before relief agencies came in to offer extra help. Social networks based on bonds are vital because whenever a disaster strikes, the affected people repetitively rely on their networks especially the bonds at the micro lever for

support (Dynes (2006). Social bonds also acted as a source of collective support in exhuming the bodies of the deceased from the mud, organising burials for the fallen brothers and sisters and providing psycho-social support to the survivors.

This concurs with the findings by Clason (1983), who concluded that individuals actively involved in caring relationships are more likely to survive a disaster than those with less caring relationships. Study participants also indicated that even in the long run, some of them are still depending on their close networks for survival in the post-landslide situation. This shows the vital role that close social networks (bonding social capital) have, especially in the immediate hours of the landslide, and also in adaptation and recovery. People in the community who are connected to many social networks both at the bonding and bridging levels, receive more and fast support in case of a landslide and they manage to recover quickly than those with less connected relationships. According to Bordieu (1986), individuals or groups who have access to critical resources have the necessary agency to recover well and fast after a disaster.

Local leaders and authorities acted as bridges that connected the affected community to external agencies and authorities like the government. Local leaders informed relevant authorities about the disaster and also solicited for help. As Newman & Dale, (2005) emphasise, social capital at the bonding and bridging levels can have both hindering and facilitating effects as the ties that bind some people together exclude others. For instance, religion is a particularly important driver of perceptions and behaviour, in both constructive and harmful ways (Joakim, & White, 2015). In the case of this study, religion had both facilitating and hindering aspects. When landslides occur, churches and religious leaders come and pray for the dead and the survivors. These prayers and gathering are a form of social capital that gives hope and comfort to the victims dealing with the suffering and trauma. At the same time, when religious norms and values like a belief that God caused the landslides are accepted, they can make people who stay in high risk areas resist relocation or refuse to adopt practices aimed at reducing their exposure to risk; this then represents a hindering source of social capital that can be an obstacle to disaster risk reduction.

Cultural beliefs and attachments to ancestral lands represent a hindering component of social capital that can increase people's exposure to future landslides risks. Additionally, male domination in decision making also presented a constraining effect of social capital manifested in how the social structure dictates the kind of power relations that exist in a society. In the study area, the social structure that grants men dominance over decision making puts women

in a disadvantaged position as they cannot decide for themselves whether to relocate or not. Thus, they live in a risky area, not because they want but because the social structure constrains their power to make and implement their choices. Actors involved in landslide risk reduction work ought to understand the power relations that exist in society and dress them in their interventions. As Murphy (2007) argues, in disaster situations, is important to unravel the nature of relationships within and between communities and between communities and the social environment in which they are embedded. Additionally, land as a form of economic capital plays a big role in the lives of people especially those living in rural areas. In the study area, land is the main source of livelihood as people depend on it for agriculture. Thus, continued access to their source of livelihood plays a vital role in the decisions they make in relation risk.

Concepts of social capital (social, cultural and economic capital) have dominated have for long dominated development and sustainable development discourses, theories and activities trying to explain how sustainable development can be achieved if local communities actively participate in their own development **(**Collier, 1998**)**. This represents a shift in disaster management work from top down approaches to focus on local level management and integrated system perspectives (2007).

CHAPTER SIX: CONCLUSION

6. Introduction

Disasters disrupt development and have been on the increase globally due to climate change (IPCC, 2013). Landslides are a common disaster in hilly regions of the world. In Uganda, landslides occur commonly in the Eastern part along the footsteps of Mt Elgon and have left communities living there with enormous loss of property and lives. Like I highlighted in the introductory part of this report, most people who live in areas prone to risks (like landslides) are aware of the dangers they face. Yet, they persist on staying there to earn a living, because they have few or no alternative(s).

Additionally, people who have been affected by natural hazards or disasters often return to their homes or the affected area immediately after the disaster. Some of them totally refuse evacuations or relocations by external agencies and the government. To achieve successful disaster risk reduction strategies, it is important to understand how decision making among people who are exposed to natural hazards or disasters is embedded in their culture and indigenous knowledge. It is also important to understand if disaster risk reduction intervention measures acknowledge or neglect local people's culture and indigenous knowledge and the implications of acknowledging or neglecting cultural aspects of local communities.

6.1 Why cultural beliefs and indigenous knowledge?

Communities, through exposure to past disasters have developed a body of indigenous knowledge passed from one generation to another. Based on this knowledge, people in these communities are, to a substantial degree, able to predict, respond, cope and adapt to disaster prone areas. As argued by Shaw et al. (2009), indigenous knowledge forms the foundation for most communities' coping and adaptation strategies that have been significant in helping many people living in regions exposed to disasters survive amidst calamities for many years. However, most of the indigenous knowledge is not utilized while designing and implementing disaster risk reduction strategies (Kelman et al, 2012).

Furthermore, disaster risk reduction interventions often assume that, given the necessary information and awareness, people would not 'live' in areas exposed to risks from the natural environment (IFRC, 2014). However, this is not the case as more scientific information is unlikely to change people's minds. On the contrary, scientific information can reinforce denial

among the affected people, because their view point is informed by their culture and an emotional attachment to their community that which to is more important.

Findings from the study show that people interpreted the cause of landslides based on their indigenous and experiences from previous landslides. That is why study participants often explained causes that are in tandem with scholastic explanations. For instance, they pointed at heavy rainfall, over population, over cultivation and deforestation, area topography, and type of soils as some of the factors contributing to increased landslide occurrences. These explanations, like indicated in Chapter four, are also postulated by scholars as factors causing landslides even in other places of the world. This shows that local people have a clear knowledge of their natural environment; through their experience with past landslide occurrences, have accumulated vast knowledge about their causes.

People take risk-related decisions from a range of alternatives based on local knowledge, past experience, experiments, opportunities and existing surviving mechanisms in their regions (Joakim & White, 2015). Study findings also portray that people affected have other interpretations of the cause of landslides that are based on their cultural beliefs and knowledge. Since religion is part of culture, some religious and spiritual explanations were also highlighted by study participants. For instance, participants believed that landslides were acts of God, that occurred due to witchcraft, bitterness of the spirits and, that they occurred in intervals or periodically. These explanations are indigenous and are informed by people's culture and beliefs. These beliefs influence how people respond to disaster immediately and how they react to the government intervention projects.

For example, most people who held these cultural beliefs resisted relocation because they believed in divine protection from future landslides. Others resisted relocation because they have strong attachments to their ancestral lands, while others do not want to lose their source of livelihood. The fear of uncertainties in the 'new safe' area can make people stay in a risky area just because they believe they have more control over the variables in the place they are used to (IFRC, 2014). Such people's attachments to their environment can increases their vulnerability to future landslide shocks. This is a lesson to organisations involved in landside risk reduction, so as not to assume that local people will act based on the information they receive from external people who tell them that the area is risky.

Additionally, findings indicate that people use their indigenous knowledge to adapt to landslides in different ways. This has helped them 'live with' landslides and also reduce on the impacts whenever a landslide occurs. Among the adaption strategies is their ability to predict the likelihood of landslides using signs like the behaviour of birds and animals. Recognition of these signs is only possible if one has lived in the area for some time and has knowledge about them. Prediction enables them to evacuate whenever they see a sign, and this reduces on the number of fatalities. People use indigenous knowledge passed to them by their parents to identify which places are safer for settlement.

Community members also mobilise each other, particularly men, to stay out at night and keep watch during heavy rains so that, in case a landslide occurs, they are able to run to safety. People know from experience that when you are asleep at night and a landslide occurs, you might be caught off-guard and die. Moreover, People who have faith in God and other spiritual beings also pray or sacrifice to ask for divine protection. This keeps them calm while trusting that they are under the protection of 'something or someone' powerful. External organisations, in this case, the government and NGOs like Red Cross should understand and work with local people's culture in order to achieve responsive and sustainable DRR strategies. This is because, if people's culture is ignored by these actors, its facilitating aspects can be missed or its hindering features can be an obstacle to sustainable disaster risk reduction strategies.

On a positive note, as highlighted in the (IFRC, 2014), beliefs help people affected by a disaster to cope with the immediate impacts and longer-term consequences and are an important psychological and social element in recovery from the same. Additionally, beliefs can provide a reserve of social capital that can be tapped to facilitate recovery, including support, information and resource sharing (IFRC, 2014). Beliefs can also offer a platform, framework and social grouping that can be useful for educating about risk reduction especially at the community level.

On a negative note, beliefs present an obstacle for building back differently, relocating people or making other changes to livelihoods to help reduce exposure to future hazards (IFRC, 2014). For instance, people who have a spiritual connection to their tribal lands can resist relocation from a high risky area thus contributing to more vulnerability to future disaster shocks. This way, beliefs can create vulnerability that can turn hazards into disasters. Last but not least, beliefs can create an alternative and acceptable reality among those affected by hazards that

makes it difficult for disaster risk reduction interventionists to educate to about risk reduction (IFRC, 2014).

Study findings also show that different organisations/actors involved in landslide management work have not done enough to recognise the role culture and indigenous knowledge play in influencing how people affected by landslides interpret, respond, and adapt to landslides. Most landslide risk reduction strategies like the relocation of affected people, are done without considering their culture. People's knowledge and experiences are not fully incorporated and utilised in the strategies to reduce landslide risks, as people are just informed and not consulted in planning or implementation of these strategies.

Landslide risk reduction interventions should understand and incorporate the facilitating aspects of culture and indigenous knowledge into their strategies. They should as well work with the constraining components of people's culture that might be an obstacle to disaster risk reduction strategies (Collinson, Duffield, Berger, da Costa, & Sandstrom, 2013; Dalisay & De Guzman, 2016). Local people's interpretations should not be ignored or considered irrational because to the people living in disaster prone areas, these beliefs and explanations are logical (IFRC, 2014). As argued by (Rahill et al., 2014), culture, religion, beliefs and spirituality even if not understood by organisations working to reduce risks due to disasters, they should be recognised as a form of social capital that can be utilised in recovery and adaptation.

In a nutshell, this study has made a significant contribution to knowledge by providing an understanding of how culture and indigenous knowledge are used in the interpretation of factors causing landslides and how cultural beliefs and indigenous knowledge are used to adapt to landslides.

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Appendixes

Appendix 1: Introduction letter

UNIVERSITY OF AGDER
FACULTY OF SOCIAL SCIENCES

Date: 21st November 2016

Visiting Address: Gimlemoen 25A, Kristiansand
Phone: +47 38141763

Your ref.:
Our ref.:

To Whom It May Concern

Email: arne.o.oyhus@uia.no

Letter of Introduction for Ms Nuluyati Nalwadda

Ms Nuluyati Nalwadda is a student within the international Master programme in Development Management at the University of Agder (UIA), Norway. She is presently doing the fieldwork/data collection for her Master's thesis, titled: *Culture and risk: The role of cultural beliefs in people's perception of factors causing disasters and how they adapt to disasters. A case study of landslides in Nametsi Parish, Bududa district, Eastern Uganda.*

Nuluyati has done a tremendously good job in her studies at UIA, and we support her strongly for her work with the thesis. As can be seen, the topic for her thesis is of great importance and relevance, not only for Uganda, but also on a global scale.

We would very much appreciate if you could give Nuluyati any assistance she will need while doing her thesis work.

Yours Sincerely

Arne Olav Øyhus
Professor and Nuluyati's supervisor

University of Agder
Norway

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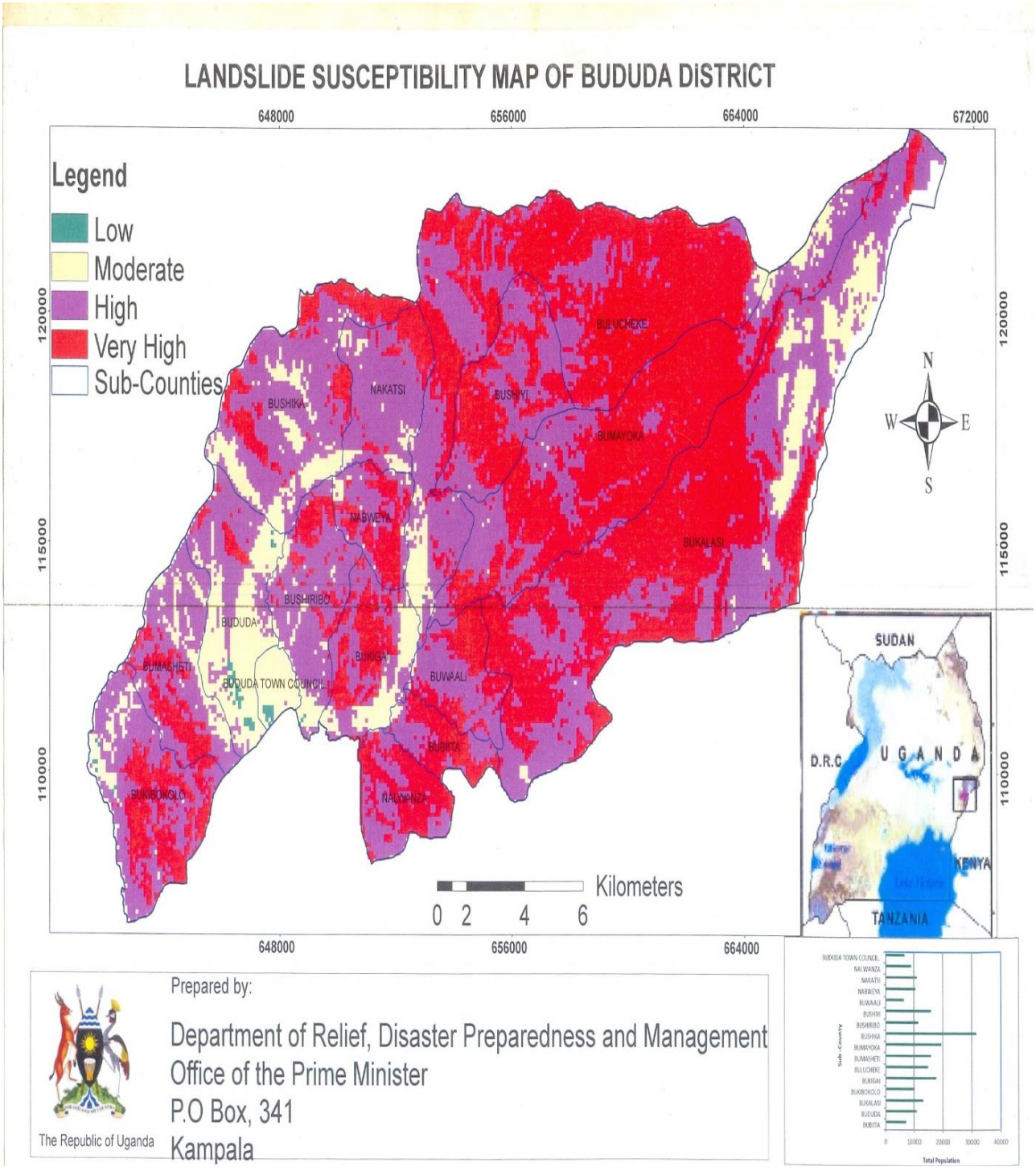
Billing address
Universitetet i Agder – Fakturamottak
Postboks 383 Alnabru
0614 Oslo

To all Concerned

Please accord this lady all the necessary assistance and cooperati

DCAO
FOR CHIEF ADMINISTRATIVE OFFICER
10/03/17
10 MAR 2017
Sign:.....
BUDUDA DISTRICT LOCAL GOVERNMENT
P.O.BOX:292 MBALE

Appendix 2: A map showing landslide hot spots in Bududa district



Appendix 3: Interview guide

UNIVERSITY OF AGDER

MSc. Global Development and Planning - Development Management Specialization

Interview guide

(For landslide victims)

Dear respondent (s)

My name is Nuluyati Nalwadda, I am a student at the University of Agder in Kristiansand Norway, currently pursuing a Master's degree in Global Development and Planning/Development Management specialisation. As a part of the programme requirement, I am conducting a study on *the role of culture and indigenous knowledge in understanding people's perceptions of factors causing landslides and how they adapt to them: A case study of Bukalasi, Bulucheke and Bushika sub-counties, Bududa district, Eastern Uganda.* I hereby kindly request for a few minutes of your time to answer the questions I am going to ask you. Your Reponses will be useful in providing me with the necessary information to answer my research questions. The information you shall provide will be treated with utmost confidentiality and will only be used for academic purposes. Also, your name will not be written anywhere in the research report as all the responses will be anonymous. Lastly, your participation in this study is voluntary, and thus, you are free to opt-out in case you wish so from the beginning, or during the study. Thank you very much.

Best regards,

Nuluyati.

Section 1: Profile of the respondent		
Question/statement	**Additional questions**	
Age		
Sex		
Location/village		
Major economic activity		
Residential status		
Household (hh) composition		
No. of hh members		
Age ranges of hh members	Response Categories	**Number (n)**
	20-30 years	
	31-40 years	
	41-50 years	
	51 and above	

Level of education	No education at all	
	Primary	
	Secondary	
	Tertiary/vocational	
	University degree	
Occupation		
Ethnic background		
Religion	Christian	
	Muslim	
	Traditionalists	
	Others (specify)	
Marital status	Married	
	Single	
	Widow (er)	
	Others (specify)	
Section 2: The influence of cultural/indigenous interpretations in explaining the causes and effects of landslides		
How do cultural perceptions (traditions, beliefs and norms) and indigenous knowledge influence your interpretations of the cause and effects of landslides in the area?	▪ How have landslides been perceived in this community over time? ▪ Have your parents, grandparents or fellow community members passed any knowledge related to landslides to you? ▪ Has this knowledge helped you in any way to understand the causes and effects of landslides? ▪ Based on your knowledge, what do you think are: a) the causes of landslides in this area? b) the effects of landslides in this area? ▪ Are there any warning signs or symbols, that you see and predict the likelihood of a landslide? If yes, what are these signs or symbols? ▪ What explanations do you have regarding the continued occurrence of landslides in this area? **Additional questions** ▪ Is there any connection between ancestral spirits or dark powers and the occurrence of landslides in this area? *(For interviewer: probe if yes)* ▪ In the past, have you been able to predict landslides before they actually occurred? *(For interviewer: probe if yes)*	
Probing questions		
The role of immigrants in landslide causation	▪ Have you had any immigrants into this area in the recent past? If yes,	

	▪ Could you please explain how immigrants have contributed to the occurrence of landslide in this area? ▪ In what ways, do you think this role of immigrants in causing landslides would have been avoided?
The role of deforestation in landslide occurrence	▪ Have people been involved in cutting down trees in this area? If yes, do you think this has contributed to landside events in the area? ▪ How has it contributed to landslides in this area?
Steep slope cultivation	▪ Is steep slope cultivation common in this area? If yes, ▪ How has cultivating on the steep slopes contributed to increased landslide events?
Economic activities and landslide occurrence	▪ What is the major economic activity in this area? ▪ What other livelihood activities do the community members engage in? ▪ Do you think these activities in a way have contributed to the increase in landslide occurrence? If yes, could you please explain.
Role of population explosion in landslide occurrence	▪ From your experience, has there been an increase in the population rate in this area in the recent past? If yes, ▪ How has this increase in population contributed to landslides in the area?
Farming patterns and land tenure systems	▪ How have the farming methods today changed in relation to those practiced in the past in this area? ▪ How have the new farming methods contributed to increased occurrences of landslides in the area? ▪ What land tenure system is practiced in this area? ▪ How has such a system contributed to landslide occurrences in this area if any?
Section 3: The use of cultural/indigenous knowledge in adaptation to landslides	

How has indigenous/cultural knowledge been used to adapt to landslides in the area?	▪ Is there any knowledge on landslide adaption that you acquired from your parents or grandparents that you find useful? *(for interviewer: probe how if any)* ▪ In what ways, do you use this indigenous knowledge to adapt to landslides in this area? ▪ Do you pass this knowledge to your children (and grandchildren where applicable? ▪ What methods do you normally use to pass on this knowledge? ▪ Tell me about your reactions to a landslide occurrence a few minutes/hours after it has occurred? ▪ How does the community intervene immediately after the landslide has occurred? ▪ What resources does the community use for intervention? ▪ When do other relief agencies and the government normally come in? *(probe: Immediately after the landslide has occurred or later?)* ▪ What happens when they come in, what do they do? ▪ Do you consider this area risky to stay in? If yes, ▪ Why have you continued to stay in this area? ▪ How do you manage to live in this seemingly risky area? ▪ If there were opportunities for relocating you to relatively safer places, would you accept? (probe for why if NO) ▪ Does your culture in any way make you prohibit you from shifting to another supposedly safer area? ▪ What aspects of your culture prohibit you from such relocation?
Section 4: The extent to which different actors involved in landslide work have incorporated people's cultural and indigenous knowledge in their interventions to reduce the risk to landslides in this area	
The use of cultural/indigenous knowledge by external agencies in landslide risk reduction management	▪ Who are the other actors involved in landslide risk management in this area besides the government? ▪ What can you comment about their work with regard to risk reduction/management? ▪ What do they do in case of a landslide occurrence? ▪ Do these actors involve or consult you in the work they do related to landslides? If yes, how?

	▪ Do the actors involved in landslide risk reduction respect your knowledge while designing and implementing landslide risk reduction interventions in this area? ▪ In what ways to they make use of your knowledge and experience in their interventions? ▪ Do you think these actors have done enough to involve you in landslide risk reduction work? If no, why? ▪ What about the government, how has it been involved in landslide risk management activities? ▪ How does the government involve you in its work of landslide management? ▪ Do you think the government has done enough to involve the local people in landslide risk reduction strategies? If no, why? ▪ Can you recommend any individual(s) in this area you think might be vital and wish to participate in this study? ▪ Do you have any final comments to make regarding this discussion? ▪ Do you have any questions you would like to ask me?

Thank you very much for your time and contribution to this study

UNIVERSITY OF AGDER

MSc. Global Development and Planning - Development Management Specialization

Interview guide

(For relief agencies, local leaders, district officials and cultural leaders and religious leaders)

Dear respondent(s)

My name is Nuluyati Nalwadda, I am a student at the University of Agder in Kristiansand Norway, currently pursuing a Master's degree in Global Development and Planning/Development Management specialisation. As a part of the programme requirement, I am conducting a study on *the role of culture and indigenous knowledge in understanding people's perceptions of factors causing landslides and how they adapt to them: A case study of Bukalasi, Bulucheke and Bushika sub-counties, Bududa district, Eastern Uganda.* I hereby kindly request for a few minutes of your time to answer the questions I am going to ask you. Your Reponses will be useful in providing me with the necessary information to answer my research questions. The information you shall provide me with, will be treated with utmost confidentiality and will only be used for academic purposes. Your name will not be written anywhere in the research report as all the responses will be anonymous. Lastly, your participation in this study is voluntary, and thus, you are free to opt-out in case you wish so from the beginning, or during the study. Thank you very much.

Best regards,

Nuluyati.

Section 1: Profile of the respondent	
Question	**Additional questions**
Age	
Sex	
Location/village	
Major economic activity	
Name of the organisation	
Residential status	
Section 2: The influence of cultural/indigenous interpretations in explaining the cause and effect of landslides	
How do cultural perceptions	**For community leaders, opinion leaders and elders**

(traditions, beliefs and norms) and indigenous knowledge influence your interpretations of the cause and effects of landslides in the area?	▪ How have landslides been perceived in this community over time? ▪ Have your parents or grandparents passed any knowledge related to landslides to you? ▪ Has this knowledge helped you in any way to understand the causes and effects of landslides? ▪ Based on your knowledge, what do you think are: a) the causes of landslides in this area? b) the effects of landslides in this area? ▪ Are there any warning signs or symbols, that you see and predict the likelihood of a landslide? If yes, what are these signs or symbols? ▪ What explanations do you have regarding the continued occurrence of landslides in this area? ▪ How have landslides affected your family in particular? ▪ Do you have any final comments to make regarding this discussion? ▪ Would you recommend any other community member in this area you think would be interested in participating in this study?
The role of immigrants in landslide causation	▪ Have you had any immigrants into this area in the recent past? If yes, ▪ Could you please explain how immigrants have contributed to the occurrence of landslide in this area? ▪ In what ways, do you think this role of immigrants in causing landslides would have been avoided?
The role of deforestation in landslide occurrence	▪ Have people been involved in deforestation in this area? If yes, do you think this has contributed to landside events in the area? ▪ How has it contributed to landslides in this area?
Steep slope cultivation	▪ Is steep slope cultivation common in this area? If yes, ▪ How has cultivating on the steep slopes contributed to increased landslide events?
Economic activities and landslide occurrence	▪ What is the major economic activity in this area? ▪ What other livelihood activities do the community members engage in? ▪ Do you think these activities in a way have contributed to the increase in landslide occurrence? If yes, could you please explain.
Role of population explosion in landslide occurrence	▪ From your experience, has there been an increase in the population rate in this area in the recent past? If yes, ▪ How has this increase in population contributed to landslides in the area?

Farming patterns and land tenure systems	▪ How have the farming methods today changed in relation to those practiced in the past in this area? ▪ How have the new farming methods contributed to increased occurrences of landslides in the area? ▪ What land tenure system is practiced in this area? ▪ How has such a system contributed to landslide occurrences in this area if any?
Section 3: The use of cultural/indigenous knowledge in adaptation to landslides	
How has indigenous/cultural knowledge been used to adapt to landslides in the area?	▪ Is there any knowledge on landslide adaption that you acquired from your parents or grandparents that you find useful? *(for interviewer: probe how if any)* ▪ In what ways, do you use this indigenous knowledge to adapt to landslides in this area? ▪ Do you pass this knowledge to your children (and grandchildren where applicable? ▪ What methods do you normally use to pass on this knowledge? ▪ Tell me about your reactions to a landslide occurrence a few minutes/hours after it has occurred? ▪ How does the community intervene immediately after the landslide has occurred? ▪ What resources does the community use for intervention? ▪ When do other relief agencies and the government normally come in? *(probe: Immediately after the landslide has occurred or later?)* ▪ What happens when they come in, what do they do? ▪ Do you consider this area risky to stay in? If yes, ▪ Why have you continued to stay in this area? ▪ How do you manage to live in this seemingly risky area? ▪ If there were opportunities for relocating you to relatively safer places, would you accept? (probe for why if NO) ▪ Does your culture in any way make you prohibit you from shifting to another supposedly safer area? ▪ What aspects of your culture prohibit you from such relocation?
Section 4: The extent to which different actors involved in landslide work have incorporated people's cultural and indigenous knowledge in their interventions to reduce the risk to landslides in this area	
The use of cultural/indigenous knowledge by external agencies in landslide risk reduction management	▪ Who are the other actors involved in landslide risk management in this area besides the government? ▪ What can you comment about their work with regard to risk reduction/management? ▪ What do they do in case of a landslide occurrence?

	▪ Do these actors involve you or consult you in the work they do related to landslides? If yes, how? ▪ Do the actors involved in landslide risk reduction respect your knowledge while designing and implementing landslide risk reduction interventions in this area? ▪ In what ways to they make use of your knowledge and experience in their interventions? ▪ Do you think these actors have done enough to involve you in landslide risk reduction work? If no, why? ▪ What about the government, how has it been involved in landslide risk management activities? ▪ How does the government involve you in its work of landslide management? ▪ Do you think the government has done enough to involve the local people in landslide risk reduction strategies? If no, why? ▪ Can you recommend any individual(s) in this area you think might be vital and wish to participate in this study? ▪ Do you have any final comments to make regarding this discussion? ▪ Do you have any questions you would like to ask me? **For relief agencies** ▪ Have you been involved in landslide management activities in Bududa district as part of your operations? If yes, in what ways? ▪ Based on your experience, why do the local people continue staying in landslides prone areas despite the risks they face every day? ▪ Do you think culture in any way influences people's decisions to continue living in this area? If yes, in what ways? ▪ In the design and implementation of your risk reduction strategies, how do you deal with sensitive issues like culture? ▪ Can you cite from your experience, instances where you have seen local people apply their lived experiences and knowledge to intervene in risk reduction activities? ▪ What would be your comment on the role culture/indigenous knowledge has played in risk management in this locality? ▪ What to do you think the government and other actors can do to tap this indigenous/cultural knowledge to reduce people's risk to landslides? ▪ Have you encountered ay challenges especially related to culture in executing your landslide risk reduction intervention? If yes, like which ones?

	▪ What attempts has your organization made to blend indigenous knowledge with contemporary adaptation strategies for risk reduction? ▪ Could you recommend any other individual(s) in your organization you think might also be helpful in participating in this study? ▪ Do you have any question or final comments to make regarding this discussion? **Community leaders and officials in charge of disaster management** ▪ Generally, what do you comment about people's continued habitation of areas prone to landslides? ▪ Do you think these people have alternatives? If yes, what are these alternatives? ▪ Are people taking on these alternatives to live in safer areas? If no, why? ▪ For those people who are still inhabiting the risky areas, what have you done to help them adapt to landslides? ▪ What measures has your organization put in place to mitigate the risks of future landslides in Bududa? ▪ Do you consider people's indigenous knowledge/culture and strategies useful in reducing risks to landslides in your interventions? ▪ What to do you think the government and other actors can do to tap this indigenous/cultural knowledge to reduce people's risk to landslides? ▪ What attempts has your organization made to blend indigenous knowledge with contemporary adaptation strategies for risk reduction? ▪ Have you encountered ay challenges especially related to culture in executing your landslide risk reduction intervention? If yes, like which ones? ▪ Do you have any final points to make in this respect? ▪ Can you recommend any individual(s) your organization you think might be vital and wish to participate in this study?

Thank you very much for your time and contribution to this study

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MSc. Global Development and Planning - Development Management Specialization

Focus group discussion interview guide

(Observation)

Observe the likely contributors to landslide occurrences

Observe the vegetation cover especially on the steep slopes

Observe activities being carried out in the area

Observe the current farming practices and methods

Observe the settlement patterns in the area

Observe the visible impacts of previous landslides

Observe the visible interventions being implemented to reduce the risk to landslides

Observe any other observable phenomenon

Take pictures for pictorial evidence

UNIVERSITY OF AGDER

MSc. Global Development and Planning - Development Management Specialization

Focus group discussion interview guide

(Qualitative document analysis)

Review reports written about landslides in Bududda

Review existing strategic plans and interventions available on landslide management in the area and how they have been implemented in the area