

The Interlinkages Between Climate Change, Disability and Food Security in Uganda (case study) and the other two (Ethiopia and Mozambique) TOFI selected countries.



## ACKNOWLEDGEMENTS

This report was commissioned by NUDIPU (The National Union of Disabled Persons in Uganda) and the Atlas Alliance and prepared by Ben Busizori (consultant), supervised by Martin Ssenoga (Program Manager DiDRR & Covid 19 Focal Person, NUDIPU) and David Nangosi (back stopper). TOFI contacts in Mozambique and Ethiopia has contributed.

Study participants included – community members especially groups of persons with disabilities, government technical officers (eg District Community Development Officers and Production Officers) and representatives from key stakeholder groups involved in in disability inclusion in Bududa and Moroto districts local government authorities. Members of local government councils for persons with disabilities in Moroto and Bududa.

Government Ministries and Departments at district level included Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Ministry of Water and Environment (MWE), Ministry of Gender, Labour and Social Development (MGLSD); Non-government organizations and Civil society (eg. Karamoja Development Forum and Ecological Christian organization).

The study team is grateful for all comments and suggestions received from the stakeholders. Their advice and guidance remain invaluable!

## Abbreviations

AR5	Fifth Assessment Report (IPCC)
CBA	Community Based Adaptation
CCA	Climate Change Adaptation
CCD	Climate Change Department
DLOG	District Local Government
DPOs	Disabled Persons' Organisations
EbA	Ecosystems Based Adaptation
ENSO	El Niño Southern Oscillation
EPACC	Ethiopian Programme of Adaptation to Climate Change
FAO	Food and Agriculture Organization
FG	Farmer Group
FGDs	Focused Group Discussions
FTE	Full Time Employment Equivalent
GHGs	Green House Gases
KDF	Karamoja Development Forum
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MoGLSD	Ministry of Gender, Labour and Social Development
MRM	Monitoring, Reporting and Measurement
MRV	Monitoring, Reporting and Verification
MWE	Ministry of Water and Environment
NAP	National Adaptation Plan
NCCP	National Climate Change Policy
NDC	National Determined Contributions
NDP	National Development Plan
NUDIPU	National Union of Disabled Persons of Uganda
OPDs	Organisations of Persons with Disabilities
PDM	Parish Development Model
SAFA	Sustainability Assessment of Food and Agriculture systems
SDGs	Sustainable Development Goals
ToC	Theory of Change
TOFI	Together for Inclusion
VCA	Vulnerability and Capacity Assessment

## Glossary of Key Words

**Capacity:** a combination of all the strengths, attributes, and resources available within a community, society or organization that can reduce the level of risk, or the impact of natural hazards on a system.

**Climate change:** is the variation in the earth's regional or global state of the atmosphere over time scales ranging from decades to millions of years.

**Climate resilience** is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate. Improving climate resilience involves assessing how climate change will create new, or alter current, climate-related risks, and taking steps to better cope with these risks.

**Climate adaptation:** Adaptation is a process by which individuals, communities and countries seek to cope with the consequences of climate change. The Intergovernmental Panel on Climate Change Working Group II defined; Adaptation as adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

**Adaptive capacity:** is the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

**Climate Mitigation:** refers to measures taken prior to a hazardous event to lessen or limit the adverse impacts of hazards and related disasters and minimize its effects.

**Climate Variability:** refers to short term (seasonal, annual, inter-annual, several years) variations in climate including the fluctuation associated with ElNiño (dry) or La Niña (wet) events.

**DiDRR:** Disability Inclusive Risk Reduction aims to reduce the damage caused by natural hazards. This involves participation of persons with disabilities in planning, implementation and monitoring of actions, in climate change policies, conflict prevention and mitigation. It takes twin-track approach - ensuring that persons with disabilities have full access to relief operations, disaster risk reduction policies and conflict prevention/mitigation programs by removing barriers, and at the same time, addressing specific requirements through more individualised support for persons with multiple disabilities or high dependency needs.

**Disability inclusion:** refers to multiple initiatives undertaken that result into bringing on board persons with disabilities in a way that considers their needs and challenges at the same time upholding their rights to enable them meaningfully to participate in the development process.

**Disaster Risk Management:** is a systematic process of deploying administrative directives, organizational structures, operational skills, and capacities to implement policies, strategies, and improved coping capacities to lessen the adverse impacts of hazards/disasters and the possibility of disaster.

**Vulnerability:** The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. A system may be more or less vulnerable to different hazards, and the conditions that determine that vulnerability may also vary. So, in formulating vulnerability reduction strategies and plans, one must seek to identify and understand the root causes, rather than address the observable effects at the end of a causal chain.

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## 1. BACKGROUND

### 1.1 Introduction to the study

This report describes findings of the study commissioned by National Union of Disabled Persons in Uganda (NUDIPU). NUDIPU is part of the consortium Together for Inclusion (TOFI) of Disabled Persons' Organisations (DPOs) and NGOs with projects in six countries in Sub-Saharan Africa. The TOFI consortium is led by Organisations of Persons with Disabilities (OPDs) and the programme aim is to enhance the ability of people with disabilities to organise and to claim their right to be included in society, as well as to strengthen government and NGO capacity on disability inclusion. This study therefore assesses the interlinkages between disability, climate change and food security. The focus is on assessing to what extent persons with disabilities are included in analysis of the current situation in different efforts to build resilience in in three countries of Uganda, Ethiopia, and Mozambique where TOFI operates although Uganda was the main Country for Evaluation.

This study builds on NUDIPU's experience of protecting and promoting the rights of Persons with Disabilities who are disproportionately affected by climate related disasters due to accessibility challenges, challenges with self-evacuation, inaccessibility of the early warning information, and limited prioritization in DRR interventions, among others. NUDIPU anchors this study on the existing Disability inclusive Disaster Risk Reduction (DiDRR) project that seeks to mobilize Persons with Disabilities to unite and influence duty bearers and mainstream DRR actors to include them in the ongoing interventions, while at the same time building the capacity of mainstream actors to include Persons with Disabilities. Therefore, this study complements knowledge of Persons with Disabilities and their organizations to build their resilience to disasters. The study also complements the existing actions to sensitize mainstream actors on how to include persons with disabilities needs in the designing, implementation and monitoring of DRR plans

The report is largely based on existing information (secondary data) but also highlights in-country consultations that were conducted to take stock of existing data availability, institutional and technical expertise, national and sector development and climate change strategies and plans, to determine disability inclusive measures.

### 1.2 Scope of the study

The study **appraised**:

1. The main challenges related to climate change and food security in relevant areas where NUDIPU and other TOFI partners work. The study did comparative analysis of food security of persons with disabilities versus persons without disabilities at country level.
2. Assessed food security in terms of access, availability, and price of selected essential food items, and focus on any experienced changes especially within Karamoja and Bududa (the two case study districts).
3. Explored linkages between food security and climate change in a broad sense – supported by national and subnational statistics where possible.

4. Reviewed what has recently been published about the interlinkages between disability, climate change and food security in Uganda and the other two (Ethiopia and Mozambique) TOFI selected countries.
5. Attempted to track inclusion of persons with disabilities in different mitigation and or adaptation efforts and activities done by government, other stakeholders, and organizations
6. To what extent does the information from TOFI reports (field reports/quarterly/annual reports) give relevant disability inclusive knowledge and/or useful examples in areas where TOFI-partners are engaged.

## 2. METHODOLOGY

### 2.1 Study Design and Information Collection

The study is based primarily on available knowledge and existing studies/reports (**grey and white literature review**) on climate change resilience and food security. The study assesses to what extent persons with disabilities are included in analysis of the current situation in different efforts to build climate resilience based on reviewed reports from Uganda, Ethiopia, and Mozambique.



There was also **Primary data collection** applying a series of social research methods including.

1. Inception meeting with NUDIPU staff
2. Interviews with key stakeholders - government departments, civil society/ NGOs, and Focused Group Discussions with community members during field visits in Uganda.
3. Virtual presentation to Atlas Alliance secretariat, Atlas Alliance member organizations and NORAD) and integration of feedback.

### 2.2 Data/Information analysis

Reviewed information was reinforced by deep analysis of available and relevant

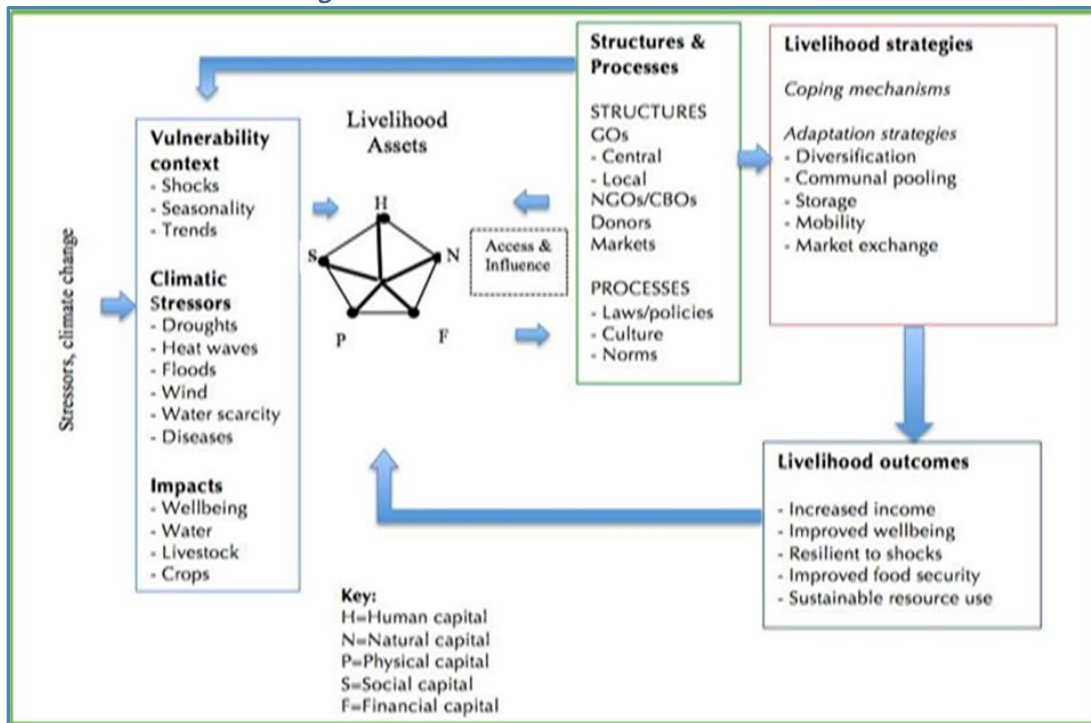
information from national to household levels, and other relevant data. Study looked for trends and gaps in disability, climate change and food security [from available information].

**Creating Reference:** The consultant ensured all content is properly cited and verifiable—to boost the credibility of findings and recommendations.

## 2.3 Study's Analytical Framework

**1. Sustainable Livelihood Framework (SLF):** The study deployed Sustainable Livelihood Framework (SLF) as analytical tool since it is rich in presenting the main factors that affect persons with disabilities' vulnerability context, adaptation/resilience assets, structures and processes, strategies, and outcomes. SLF, as illustrated in Figure 1 below, starts by elucidating stressors and vulnerability context arising from external environment having impact on livelihoods. For persons with disabilities/ poor and smallholder families, the vulnerability context is associated with shocks, seasonality and trends and changes over which they have limited or no control.

Figure 1: Sustainable Livelihood Framework



The results and recommendations of this study place considerable importance to livelihood assets also referred as resilience building blocks that determine how people respond to climate change and food insecurity. The stronger and more varied the asset base, the greater is the persons with disabilities adaptive capacity and the level of sustainability of livelihoods. The nature and combination of the livelihood assets, to which people have access, determines climate change adaptation/resilience choices. However, the combination of livelihoods assets should not be construed as static; quite the contrary, it is dynamic in that some assets shrink or expand over time changing the shape of the 'asset pentagon'. Livelihood assets are not the only determinants of the ability to cope with shocks. The assessment also took a transformational approach that considers other fundamentals such as education, skills and knowledge, gender and social inclusion, equity, and power to influence.

**2. Differentiated Approach:** The study considers a multidimensional view of resilience building blocks with focus on differentiated access and entitlements by persons with disabilities in



comparison to other groups within a community (often determined according to gender and social inclusion. The study attempted to answer the following questions:

1. Why are persons with disabilities more vulnerable in comparison to other vulnerable groups?
2. How persons with disabilities' vulnerability to climate change and food insecurity differ from those without?
3. What specific consequences does differentiate vulnerability/capacity to adapt to climate change have for persons with disabilities?

### 3.4 Limitation

There was challenge with access to information on relationship between climate change, disability, and food security. At the time of this study's data collection, TOFI partners had not worked or produced reports on climate change and food security. Generally, there was limited existing information at a detailed local level to significantly link climate data, disability, and food security factors. Nevertheless, researcher analysed climatic and statistical observations from relevant, previous studies especially Districts Social Economic Profiles (SEPs), national climate change vulnerability/capacity assessment reports and National Determined Contributions (NDCs) climate action plans. The conclusions of this research could therefore be comfortably applied in understanding climate change impacts on disability and food security. The researcher, however, cautions the interpretation of the results to be understood as a case study of Uganda (Moroto and Bududa districts) and generalization of the results to other countries should be subject to additional information.

### 3.1 Climate Change Impact on Food Security and Disability at Glance

#### 3.1.1 Introduction

Climate change is one of the greatest threats facing humanity in the 21st century. As worldwide patterns of temperature, precipitation and weather events change, the delicate balance of climate and life is disrupted, with serious impacts on food and agriculture. According to Intergovernmental Panel on Climate Change (IPCC) climate change special report of 2018 reveals that global warming is likely to exceed 1.5°C between 2030 and 2052 if it continues to increase at the current rate. Warming greater than the global annual average is being experienced in many land regions and seasons. There is continuous rise in average temperature, extreme weather occurrence, occurrence of drought and floods, intensity, and frequency of storms, change in precipitation, and so many other identified and unidentified effects. A reduction in precipitation is determined over Africa and the southwestern parts of South Africa including Mozambique. Projected rainfall changes over sub-Saharan Africa in the mid- and late 21st century is uncertain. In regions of high or complex topography such as the Ethiopian Highlands, downscaled projections indicate likely increases in rainfall and extreme rainfall by the end of the 21st century. Near surface temperatures have increased by 0.5°C or more during the last 50 to 100 years over most parts of Africa, with minimum temperatures warming more rapidly than maximum temperatures (IPCC 2018).

Increase in average global temperatures of just two to four degrees Celsius above pre-industrial levels could reduce crop yields by 15-35 percent in Africa. An increase of two degrees alone could potentially cause the extinction of millions of species. This means that countries already struggling with food security such as Ethiopia, Uganda and Mozambique are likely to find they struggle still harder in the future. The IPCC projects that yields from rain-fed farming in some African countries could be reduced by up to 50 percent by 2020 (IPCC, 2013).

Climate change is having the largest impact on the world's poorest and most vulnerable people. Within this group, 20% are persons with disabilities, who are nearly always doubly disadvantaged, and that 82% of persons with disabilities in developing countries live below the poverty line (World Report on Disability 2011). Much is written about the impact of climate change on the world's most vulnerable groups of people – who it is anticipated will be disproportionately affected.



Persons with disabilities lack assets, social networks, mobility, and political power, commonly cited as being critical for adaptation/resilience to climate change (Tanner et al. 2008). Despite the incidences of high risk of climatic hazards on food security, there is little or no specific research on the disability inclusion in climate resilience action at the detailed local level in Uganda, Ethiopia, and Mozambique. To be effective global and national efforts need to be aligned with local realities and focused on how policy can support the adaptive capacities and resilience of vulnerable smallholder farmers and communities' (Adger2003, p.193). However, most of vulnerability and capacity assessments are focused on national level indicators and may


not adequately capture specific information about farm level food security and adaptation strategies by persons with disabilities. There is little literature to date that discusses the climate change vulnerability of persons with disabilities within Africa. Climate related reports and strategies such as IPCC, NDCs and Human Development Reports do not identify persons with disabilities as requiring inclusion measures in adapting to their changing environment. For example, this study reviewed Uganda, Ethiopia and Mozambique Nationally Determined Contribution (NDC)s action plans to cut emissions and adapt to climate impacts where it was found that vulnerable groups are aggregated as gender. These NDCs' set targets for mitigation and adaptation do not define disability inclusion targets, and do not elaborate a system to monitor and verify progress on inclusion issues.

### 3.1.2 Climate Change Impact on food security in Mozambique, Ethiopia, and Uganda

All target countries (Mozambique, Ethiopia, and Uganda) face a high risk of climatic and hydrological hazards such as droughts, storms, floods, and associated landslides. The countries are agrarian-based economies and therefore largely dependent on environmental and natural resource for food security. Generally, over 80% of the countries' population are smallholder farmers and an estimated half of the population live in extreme poverty of less than \$1.90 per day, with 60-80% of the population experiencing food insecurity in at least one month of the year (World Bank, 2016).

*Table 1: Climate Change Trends (over the past several decades)*

Parameter	Mozambique	Uganda	Ethiopia
<b>Extreme Events</b> 	<ul style="list-style-type: none"> <li>A long history of catastrophic flooding (occurs almost annually during the rainy season) and is largely influenced by La Niña and the Intertropical Convergence Zone (ITCZ).</li> <li>Droughts are particularly frequent in the central and southern regions.</li> <li>Cyclones are common to the exposed coastline of Mozambique from October to April.</li> <li>Strong winds, storm surges, and heavy rains from cyclones damage infrastructure, disrupt water sanitation and electricity supply systems, and degrade the coastal environment (GoM NDC 2021)</li> </ul>	<ul style="list-style-type: none"> <li>Changes in rainfall seasonal patterns. Landslides have increased over the last 30 years.</li> <li>Flooding has become more frequent, largely due to more intense rainfall</li> <li>Increased temperatures leading to disastrous droughts (MAAIF, 2018).</li> </ul>	<ul style="list-style-type: none"> <li>Flooding affected 617,000 people in mid-2021 and caused large-scale losses of livestock and crops.</li> <li>Droughts have a similarly serious impact, driving food insecurity and pushing people to urban areas for work (NDC 2020).</li> </ul>
<b>Drought</b> 	<ul style="list-style-type: none"> <li>From 2000 to 2014, Zambezia and Sofala experienced more consecutive dry days compared with 1981–1999.</li> <li>From the 1960s to 2018, southern Mozambique experienced more persistent droughts.</li> <li>Increased rainfall in northern areas and reduced rainfall in southern areas during El Niño years.</li> </ul>	<ul style="list-style-type: none"> <li>Projections indicate substantial increases in the frequency of days and nights that are considered "hot" in current climate. Annually, projections indicate that "hot" days will</li> </ul>	<ul style="list-style-type: none"> <li>Temperature in Ethiopia is projected to rise by between 1.6 and 3.7 °C by 2080 (GIZ 2021)</li> </ul>

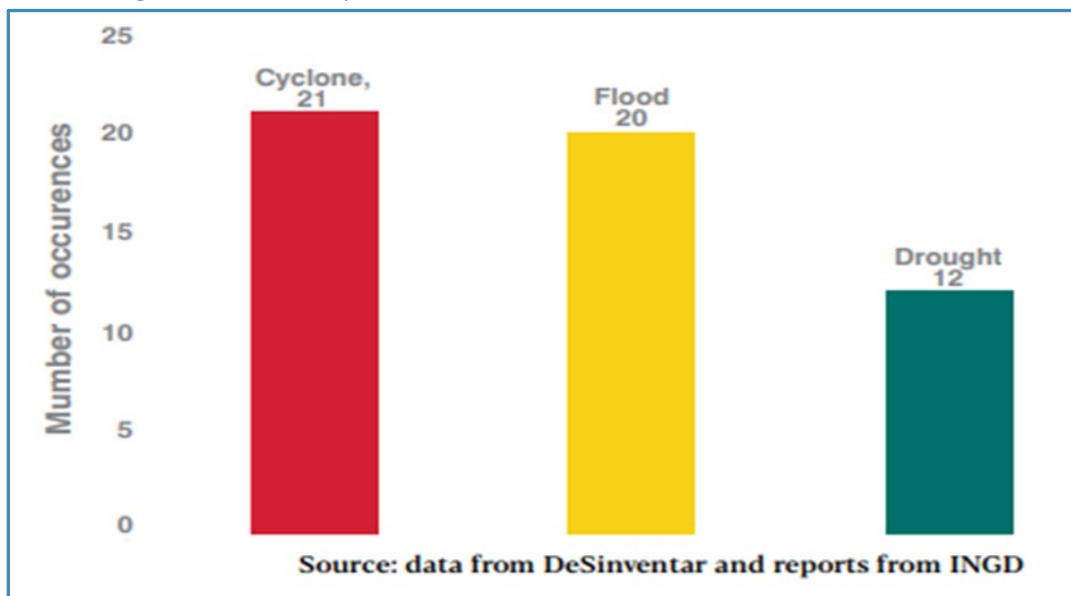
		occur on 10- 27% of days by the 2030s (UNDP 2012).	
<p><b>Precipitation</b></p> 	<ul style="list-style-type: none"> <li>From 1960 to 2019, average annual precipitation decreased by 7 mm (~1%) per decade.</li> <li>Rainfall variability increased from the 1960s until 2018, with more rain in the northern regions, more variability in the central regions, and more drought coupled with episodic floods in the southern region.</li> <li>Average annual precipitation is projected to decrease by 5%–8%, reaching 1,150–1,190 mm (WFP 2018).</li> </ul>	<ul style="list-style-type: none"> <li>Decreased in annual average rainfall have been observed since 1960, at an average rate of 3.4 mm (3.5%) per month per decade.</li> <li>Projected: The proportion of rainfall falling in heavy events is projected to increase, with increases in annual rainfall ranging from 0 to 15% by the 2090s, (UNDP 2012).</li> </ul>	<ul style="list-style-type: none"> <li>Moderate to strong El-Nino years such as 1963-64, 1972-73, 1982-83, 1991-92, 2002-03, 2009-10 all showed annual rainfall deficit as compared to 1961-1990 average (Funk, 2015).</li> <li>Projected trends indicate that through the end of the century there is a likely 20% increase in extreme high rainfall events</li> </ul>

### 3.1.3 Experienced Climate Hazardous Events.

**Mozambique:** Floods are the most frequent event followed by tropical cyclones. This trend has changed a little in recent analyses covering the period 1980 - 2019, which show tropical cyclones as the most frequent event, followed by floods, and followed by droughts. This small change is influenced by the phenomenon that occurred during the 2018/2019 rainy season during which the country was affected by two tropical cyclones IDAI, and Kenneth and tropical depression Desmond (GoM NDC Analysis 2022). It is observed that the events that struck the country in the 2018/2019 rainy season are those that caused the most suffering to persons with disabilities and those that recorded the most losses and destruction.

For instance, the tropical cyclones IDAI and Kenneth, which occurred in the 2018/2019 rainy season, resulted in losses in livestock due to the death of 5,428 cattle, 10,305 small ruminants, 3,191 pigs and 124,498 poultry; in fisheries, 2,189 vessels were destroyed and 77 engines damaged, 2,387 fishing gear units lost and 5,210 tons of fish lost; in fish farming, 562 ponds and 228 cages totally destroyed and 396 tons of fish lost. Water supply and sanitation was affected by cyclone IDAI in 2019 and according to assessment, 705 water supply boreholes and wells were destroyed affecting about 211,500 people, 47 water supply systems of cities and secondary towns were paralyzed which created restriction in water supply to 1,639,244 people. 1,529,389 ha of crops were affected. On the other hand, more than 30 districts are prone to drought and the population living in these districts is deprived of water supply sources for human consumption, for the irrigation of small vegetable gardens and for watering livestock (GoM-NDC 2021).

Figure 2: Mozambique's Total number of extreme events from 1980-2019



According to the figure 2 above, the most frequent climate disaster events occurring in Mozambique are cyclones followed floods and drought.

**Uganda:** Extreme events leading to disasters such as floods, droughts, and landslides have increased over the last 30 years. Flooding has become more frequent, largely due to more intense rainfall (MAAIF, 2018). Overall, the country experiences extreme weather events; for example, short and heavy rainfall leads to mudslides, landslides and flooding, particularly for the country's mountain regions and related districts such as in the Mt Elgon region (Mbale, Bududa and Sironko) and Kasese and Bundibugyo in Mt Rwenzori region (IFRC, 2021). The impacts of climate change such as droughts, floods, storms, heat waves and landslides have had serious effects on agricultural production, food security, nutrition, incomes, health status and the livelihoods.

Climate change is affecting a wide variety of sectors; agriculture, water, health, and human settlements have been particularly affected. Agriculture and land use sector is experiencing the impact of climate change which is evidenced by increasing temperatures, frequent droughts, flooding, prolonged dry spells, hailstorms, landslides, lightening, pests and disease epidemics for livestock and crops and shifts in rainy seasons (USAID, 2013; MWE, 2014a; Irish aid, 2018; WB, 2021). Climate change could see a reduction in the national production of food crops such as cassava, maize, millet, and groundnuts by the 2050s, resulting into a total loss value of up to US\$1.5 billion. Climate change trends in Uganda such as reduced water availability and watershed re-charge is likely to stress fisheries, resulting in disrupted livelihoods and significant economic losses (FAO, 2015).

**Ethiopia** is exposed to numerous hazards including droughts, floods, volcanoes, and earthquakes. Increasing urbanization in Ethiopia is putting pressure on existing infrastructure as well as scarce available land and an already limited natural resource base. Recurring droughts and floods have



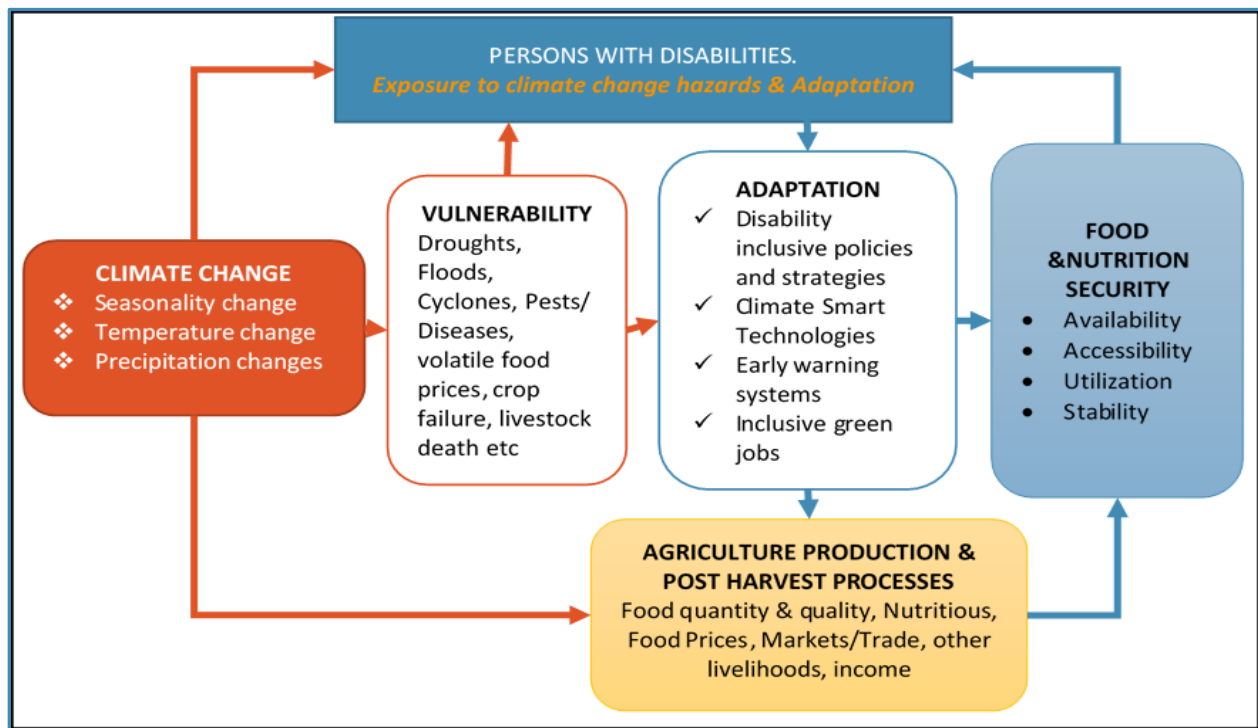
### 3.2 Climate Change Specific Impact on Disability and Food Security

#### 3.2.1 Climate Change Impacts on four (4) dimensions of Food Security.

The World Food Summit of 1996 considered food security definition that involved food security not only at national level but at household and individual level. Food security was defined as: when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This definition put the emphasis not only on supply side but also on demand side, consumption and on the access – both physically and economically.

The UN food and agriculture organization (FAO) redefined the concept further to include social access to food (FAO 2001). Four dimensions of food security have been deduced from the definition above, these are availability, access, the utilization of food and stability of both availability and access to food. Climate change impact translates to the productive sphere, to economic and social dimensions, bringing a range of additional risks on availability of food, on access to food and utilization of food, as well as on the stability of these characteristics, for both persons with disabilities and those without households. This study found out that climate change, disability and food security are inextricably linked in all countries of Uganda, Ethiopia, and Mozambique.

Figure 4: Climate Change Impact on Food Security Source: Ben Busizori (Author)



### 1. Climate Change Impact on Food Availability:

For food and nutrition security to be attained food must be available in sufficient quantities and be of appropriate quality. Such food can be supplied through household production, other domestic output, commercial imports, or food assistance. Food availability is probably most frequently used as a measure of food security and it has a channel with climate change which directly affects food security (Thompson et al. 2010). As shown in the above diagram, the major direct impact of climate change is expected to have on food security is through food availability component due to changes in agricultural productivity.

According to Moroto and Bududa Districts Production Officers, climate change has affected persons with disabilities and all farming families since they have small farm sizes, low technology and low capitalization among others which lead to low food production and increases vulnerability. In Karamoja, most of these farmers are concentrating on livestock and crop production (mainly maize and sorghum) that which are more vulnerable to droughts and floods. The FGD participants in Rupa-Naoi village mentioned that crop and livestock production is affected in multiple ways, both directly and indirectly.

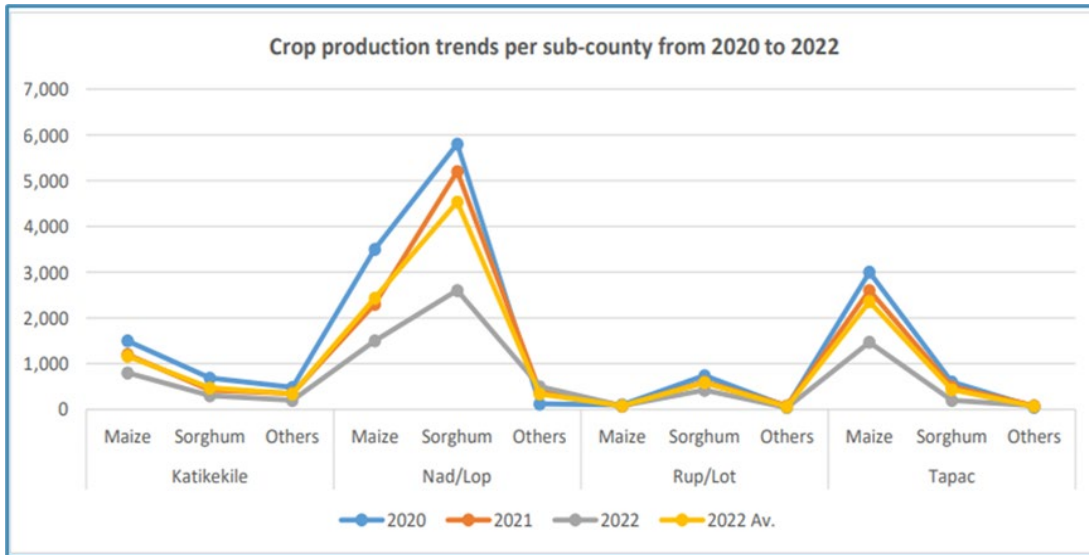
The most important climate change impacts on food security are also experienced in animal productivity and health. It was reported that over 80 percent losses in animal numbers are recorded during serious drought events in the past decades and recently the season of 2020/2021. That dairy yields have decreased by almost 60 percent as result of deficit of green grass and water during the droughts.

The FGDs participants and key informants in both Karamoja and Bududa districts recalled that climate change has led to poor agriculture production greatly affecting the livelihoods and income of persons with disability.

In Karamoja, crops were completely wiped out by drought in the 2021/2022. African Army Worm (AAW) devastated most crop fields specifically cereals and grasses. Over 90 % of the fields were reportedly affected. Moroto district production officer confirmed to this study that there has been decline in planting returns from 2020 to 2022. He attributed decline in planting to poor distribution of rainfall and COVID 19 lockdown restrictions.



Figure 5: Moroto District Crop production trends in acres from 2020 to 2022:



It was stated during Naoi village FGD that due to repeated drought and army worm attacks, farmers get frustrated. It was reported that there a noticeable shift in when the rainy season starts. Farmers can no longer plan when to plant. The rain that was expected in the month of March started late in the month of May when farmers had already been frustrated and given up on planting.

“In 1970s we knew that the rains would phenomenally start between January and March. March (Iomarauk- the month of mushroom) but these days it comes towards end of May. If the rain comes a bit earlier in late March, it is interspersed with dry spells.

Most crops grown by us, like maize and sorghum dry up during unpredictable dry spells that occur in between rain season”. 70 years old KII participant.

For decades, the Karamoja region has been characterised by violent conflict, high levels of poverty and food insecurity. It is vulnerable to severe natural disasters with frequent droughts and resulting loss of crops and livestock and historically, has been isolated. The economic growth experienced in the rest of Uganda has had little impact in Karamoja. An estimated 82 per cent of the population lives in poverty. As a result, the area has been dependent on food aid and donor assistance for decades, with numerous emergency aid programs. On a sad note, there is marginalisation of mostly persons with disabilities and women in the development circles, leading to high levels of unemployment coupled with limited support to attain high levels of education.

While in Bududa disastrous land movements (landslides) have increased in intensity and frequency. Bududa has historically been prone to landslides, arising from rainfall variability. The most recent land movements were experienced on 4<sup>th</sup> June 2019 in Bunamwamba North, Buwashi Upper, Bunamboka Upper, Shisakali, Bubisikwa, Bunamwamba. These landslides led to 5 human deaths and over 100 people were injured. Gardens in 6 villages were destroyed representing over 100 acres of Crops (Coffee, Banana, Maize, Beans among others) and 26 Livestock (Cattle, Goats, Pigs and Poultry) were killed and infrastructure especially roads were damaged.

Table 2: Bududa Landslide Damages to Agricultural sector

Crop name	Partially damages in terms of land extent (Acres)	Fully destroyed in terms of land extent (Acres)
Coffee	66	14
Banana	45	15
Beans	70	18
Yams	5	11
Sugarcanes	1	1
Cassava	3	6
Maize	46	35

Climate change events such as landslides and diseases were explained by FGDs and KIIs clearly telling how they are linked to food security availability. FGD participants explained that landslides in Bududa have had serious impact on the environment and society, including loss of life, property, and livelihoods. FGD participants further explained that landslides and other climate change impacts have reduced income at farm level. That the destruction of crop and livestock and increased production costs or prices have reduced long-term household productive capacity. Exposure to risks lowers incentives to invest in production systems, often with negative impacts on long-term productivity, returns and sustainability. Reductions and risks to agricultural income have also been shown to have effects on household capacity and willingness to spend on health and education.

More so, **food price increases** especially in Karamoja, greatly affect persons with disabilities since they are poor and lack diversified sources of income. Generally, food prices are explosively increasing all over the country. According to Uganda Bureau of Statistics, between April last year and April 2022, there was a major increase in the cost of a range of commodities. For example, cooking oil increased by 57 percent, maize flour prices increased by 25 percent. During August, a

**FGDs participant at Naoi Village asserted;**

*“Between the year 2019 and 2022, there is surprising food prices increase. one tin (3kgs) of maize increased from Shs3,000 in 2021 to the current price of Shs10,000. A cup of cowpeas increased from Shs500 to Shs4,000. A kilo of rice increased from Shs3000 to shs5000. A finger of yellow banana increased from Shs 500 to Shs 1000. Salt pack increased from 500 to 1000.”*

kilogram of dry beans increased from Shs3,607 to Shs3,805 while a kilogram of maize flour increased from Shs3,343 to Shs3,421. Fresh cassava increased from Shs827 to Shs914 while green cabbages increased from Shs810 to Shs1,012. In October 2021, 24 percent of wealthier households and 55 percent of the poorer households went without eating for a day, 37 percent of wealthier households and 66 percent of poorer ones had members who had to skip a meal. According to the study, half of all households (48 percent) ran out of food at some point in the previous month

and more than one out of three (37 percent) of the households went for a day without eating, while about 62 percent of households said they were worried that they would run out of food<sup>1</sup>.

## 2. Climate Change Impact on Food Accessibility:

Access to food refers to the ability of individuals, communities, and countries to purchase food in sufficient quantities and quality (FAO 2001). Access means physical and economic access to food that is determined largely by purchasing power and income of the population. Majority of the persons with disabilities stated that they were not earning and that if they got money, its small amounts from their family members and friends ranging from Shs100 to Shs10,000 per month. Even the category of people without disabilities who were engaged in economic activities earned less than Shs150,000 per month. The impacts of various types of climate change anomalies on farm income indicates that the impacts are greatest for the persons with disabilities since they among the poorest farmers. Popular alternative economic activities include; working in stone quarries, artisanal and small-scale mining (ASM), charcoal trade, firewood collection, gathering bamboo shoots (Malewa), casual labor in town and trading centres and petty trade of items such as salt, soap, tobacco and sale of local brew. They are very few people who earned above \$50 per month in both Moroto and Bududa and majority of those who earn above that were said to be in formal employment and livestock sectors. Majority of persons with disabilities are crop farmers who had the lowest quarterly incomes.

Moreover, persons with disabilities vastly depend on nature-based agriculture for both livelihoods and incomes. In such circumstances where there is low agriculture productivity, farmers will have fewer incomes to purchase food in enough quantities and quality. Other factors that affect persons with disabilities' access to food in Bududa and Moroto include high food prices during famine, access to markets, the level of poverty, unemployment condition and dependence ratio, educational status and land/property rights.

There is also high food price inflation. Cost of food in Uganda especially Karamoja has increased tremendously. The annual inflation rate, estimated at 10 percent in September 2022, has been increasing since early 2022, underpinned by increasing food and fuel prices. Food inflation was estimated in September at 18.4 percent, compared to 5.3 percent in January. Food prices reached high levels due to tight market availabilities, amid sustained local demand, as households are mostly purchasing food from the markets due to the depletion of their own stocks caused by consecutive poor harvests. Above-average export demand, mainly from Kenya, where crop production in 2021 and of the first season in 2022 was also reduced, and high fuel prices, underpinned by the ripple effect by the war in Ukraine, have exerted additional pressure on food prices. In September 2022, average national prices of cassava flour, matoke cooking bananas, beans and maize flour were between 55 and 80 percent higher on a yearly basis (UBOS 2022). Increasing food prices will affect persons with disabilities more since they rely primarily upon subsistence agriculture, yet markets have long been important as a secondary source of food. In general, there is a hungry season as crop yields do not meet demands, and food must largely be

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<sup>1</sup> Uganda Bureau of Statistics May 2022. Consumer price indices and inflation rates

bought from markets. Food price increases and declining rates of income growth results in further food insecurity.

### 3. Climate Change Impact on Food Utilization:

Food utilization depends on how food is used, whether food has enough nutrients and whether diet can be maintained. Food utilization refers to the individual or household capacity to consume and benefit from the food (FAO, 2011). The utilization component of food security is generally related to nutritional aspects of food consumption. Climate change affects food utilization capacity through challenges to production rate and pattern of different food items and this affects persons with disabilities' nutritional requirements. In case of Karamoja and Bududa smallholder rain-fed farming is relied on food security. Livestock subsector would complement nutrition but most of the animals and their products are not consumed by households but sold for money to cater for other basic needs such as education and health. Climate change is affecting the income and capacity of the persons with disabilities and other smallholder farmers who need to purchase a diversity of food items to get a balanced diet amidst farm productivity failure and food inflation. For this, climate change (declined crop and livestock productivity) is one of the root causes of the recent high and volatile food prices.

According to FGDs participants in both Bududa and Moroto districts, due to this high food price, families spontaneously reduce both quality and/or quantity of food they eat, consume less preferred food and allocate

nutritious food only to infant household members. Most persons with disabilities households receive what micronutrients they do get through the consumption of plants. There are main ways by which climate change could directly affect micronutrient consumption by changing the yields of important crop sources of micronutrients, by altering the nutritional content of a specific crop, or by influencing decisions to grow crops of different nutritional value.

*“we are hungry, sick, and dying of hunger and malnutrition. Most times, we do not eat anything the entire day. We lack water, river Musupo which we depended on dried 3 years ago. Crops dry before maturity; no grass for animals and they are also dying of unusual diseases. We cannot offer to join those who are mining and others that move to as far as Kenya in search of food. Food aid from OPM is only 1kg of beans and 3kgs of maize flour per family quarterly. Persons with disabilities are left to die”*

Moroto FGD female participant with disability

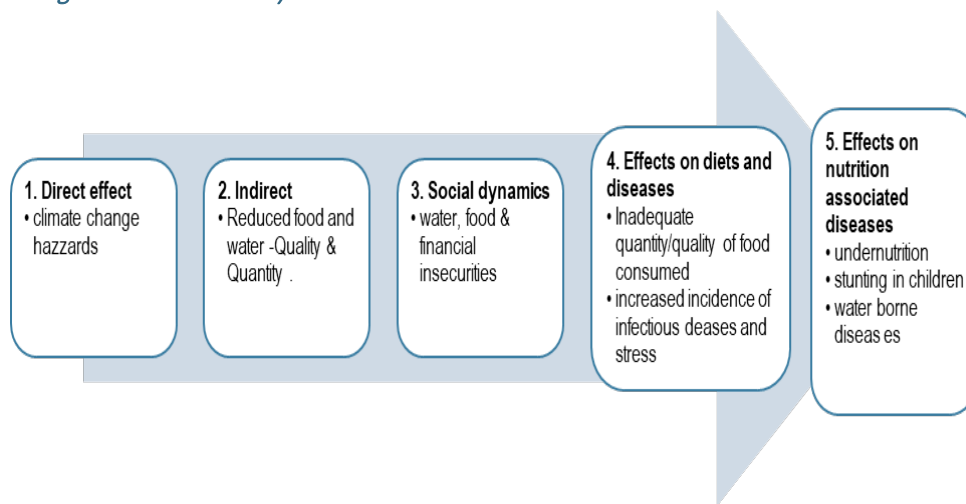
The latest data from the Integrated Food Security Phase Classification (IPC) indicates that all nine districts in the Karamoja region are classified in IPC Phase 3 (Crisis). About 41 percent of the population or 518,000 people found themselves facing high levels of acute food insecurity between March and July 2022. The report says the food security situation in the region has continued to deteriorate, with the population in crisis level increasing from 27 percent in June 2020, to 30 percent in April 2021, and to 41 percent in April 2022. Households facing high levels of acute food insecurity have large food consumption gaps and can only meet their minimum

food consumption requirements after employing crisis and emergency coping strategies. Data from IPC also indicates that two (Kabong and Moroto) districts in Karamoja region had critical levels of acute malnutrition during the lean season of 2022 (February to July). This translates into a level four rating, which usually requires emergency supplies. Elsewhere, four districts have serious levels of acute malnutrition and three districts have alert levels of acute malnutrition.

While the quantity and quality of food is decreased, the price of staple crops has increased, reducing affordability of a safe and nutritious diet, particularly for persons with disabilities who are low-income category. According to FGDs, many people are not affording a healthy diet and **infectious diseases** are increasing due to poor nutrition and low immunity. Malnutrition can worsen infectious diseases, which in turn are influenced by water security and can increase the risk of malnutrition, by reducing nutrient absorption.

According to Bududa district production officer, changing conditions are facilitating transmission of many human and livestock diseases. That banana bacteria wilt (BBW) is becoming rampant. The district is experiencing increasing tickborne diseases. For example, the Rhipicephalus Appendiculatus, the brown ear tick which used to be rare in the district is now common and causing East Coast fever (ECF) in cattle. Climate change can accelerate water-borne, air-borne, food-borne and vector-borne pathogens, with potential knock-on effects on the burden of malnutrition. FGD at Naoi village hinted on the observed increases in the prevalence of infectious diseases for example, malaria was mentioned to have increased with seasonal hunger.

*Figure 1: The main ways in which CC Influences diet and nutrition-associated diseases.*



Stunting and other mal- or under-nutrition related issues remain significant problem in Uganda. The household survey found that close to 15 per cent of households with persons with disabilities have a poor dietary diversity consumption, and 55 per cent have either a low or a medium dietary diversity score. This is 2 percentage points more than households with no members with a

disability (UBOS 2019)<sup>2</sup> Children under five years old, pregnant, and breastfeeding women and persons with disabilities were chronically malnourished due a host of factors including lack of access to appropriate food and poor nutrition practices.

#### 4 Climate Change Impact on Food Stability:

Food stability which refers to the ability to obtain food over time. Accordingly, food insecurity can be transitory, seasonal, or chronic (FAO, 1997). In transitory food insecurity situation of the study area, food is more available during maize harvest. In Karamoja, the start of the harvest in southern areas and the western farming belt and relative improvements in the terms of trade for sorghum improve food availability and access. From July to August, the retail sorghum price decline due to increased supply from local harvests combined with inflows of first season harvests from neighboring bimodal areas. At the same time, the price of charcoal, goats, and firewood increase from July to August, which generally improve the terms of trade for sorghum and increased food access for the poor. As the rest of the harvest becomes available, most poor households are expected to improve from Crisis (IPC Phase 3) to Stressed (IPC Phase 2) by October<sup>3</sup>. Below-normal rainfall in Karamoja more often results in below-average production that causes localized food deficits as well as reductions in income from major cash crops. At the time of analyzing findings of this study, food security projection indicated a likelihood of localized acute food insecurity in Karamoja. At the food production level, climate change disasters such as floods and droughts that regularly occur in the study area result in crop failure and decreased food availability. This often causes instability in markets resulting in food-price spikes which can cause transitory food insecurity.

Seasonal food insecurity is not key since Moroto does not experience regular pattern of growing season in food production. According to Moroto agriculture officer, there has not been one farming season that has ever been the same as the other. This may be because of season to season differences in weather patterns, particularly rainfall among other factors especially with dry land farming. For example, the 2020-2021 agriculture season was characterized by dry spell disasters, nevertheless this was followed by 2021-2022 season that had poor rains that matched poor agriculture season in entire Karamoja at large. However, rainfall season in Karamoja is said to always be characterized by a short planting window which farmers can no longer predict and somehow worse in their season preparedness to suit the short planting window which has increased climate change pushed chronic (or permanent) food insecurity. Climate change is likely to cause both chronic and transitory food insecurity, since repeated climate disasters can lead to the reoccurrence of transitory food security which makes households more vulnerable to chronic food insecurity.

Literature review has identified limited research related to climate change impacts on food security pillars such as food utilization. The most covered pillar is food availability since most studies on climate change and food security are concerned with agriculture productivity.

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<sup>2</sup> Disability Situational Analysis Household Survey 2019

<sup>3</sup> FEWSNET report release on Tuesday October 1, 2019.

### 3.3 Inclusion: How Persons with disabilities are more affected than persons without disabilities.

According to FGDs, there is still potential for discrimination on the basis of disability when resources are scarce. It was mentioned that for example, the food aid from government is handed out through specific distribution centers especially at subcounty headquarters which are not accessible by persons with physical disabilities. Furthermore, the needs of persons with disabilities continue to be excluded over the more long-term recovery and reconstruction efforts, thus missing another opportunity to ensure that resilience programmes are equitably accessible and inclusively resilient to future disasters. Widespread stigma, prejudice and misunderstandings also present a barrier to accessing climate resilience programmes, many people view persons with disabilities as people who cannot work and will not be able to contribute, which is part of the reason for the limited participation of persons with disabilities in mainstream programmes.

Most available programmes provide limited support and cannot be considered as climate resilience and social protection. Most programmes such as parish development models (PDM) have not yet provided longer term grants or loans. While they may provide some assistance covering basic needs, they cannot provide persons with disabilities with the support they need to live independently. The Uganda's Senior Citizens' Grant (SCG) is the only regular transfer available, and even this does not provide a benefit which is sufficient to cover the needs of older persons with disabilities, for example medical attention or assistive devices. NUSAF3 Moroto end of project report indicates that: *"the poorest and most vulnerable households were selected through the community-based targeting using vulnerability/wealth ranking criteria. Further classified as households with or without able-bodied adults. Unable bodied (10%) per sub-project especially beneficiaries for LIPW and DRF"*. However, unable bodied beneficiaries who are mentioned to have got direct transfer of daily wages included; orphaned teenagers and children headed households, people who are too old (over 60 years), women with pregnancy over sixth months. This report does not mention any specific inclusion measures received by persons with disabilities.

According to the persons with disabilities representatives at local government councils in Bududa and Moroto, universal accessibility standards are not applied in all public offices which makes it hard for them to effectively represent their constituencies. Limited access to education also presents a barrier to accessing other types of services and to inclusion in society in general. Deaf people are particularly disadvantaged by the limited availability of sign language teachers and interpreters, with many never learning sign language and therefore lacking the ability to communicate. This reduces persons with disabilities confidence or self-efficacy needed to demand services.

Climate change is having the largest impact on the world's poorest and most vulnerable people. Within this group, 20% are people with disabilities, who are nearly always doubly disadvantaged. In the study area, the first and the worst impacted are the most vulnerable populations (poor), with livelihoods vulnerable to climate change (depending on agriculture sectors), in areas vulnerable to climate change. As mentioned in previous pages, climate change will impact livelihoods and income of small-scale food producers and also, through food price increases and volatility, the livelihoods of poor net food buyers, constraining the persons with disabilities to

reduce their food consumption in quantity and quality. All FGDs and KII participants acknowledged that Persons without disabilities are having opportunity to resort to alternatives form of livelihoods in order to survive. The most prominent one is working in stone quarries, firewood, and charcoal trade, boda-boda, petty trading, and climate migration among others. FGDs also revealed that due to their physical circumstances, persons with disabilities are unable to get alternative sources of livelihoods and food. Most persons without disability who are physically fit are working casual laborer in informal sector as an alternative coping mechanism while some poor families including persons with disabilities send children to beg on dangerous streets of Kampala, Moroto Busia and some people have moved to as far as interior Kenya. It is estimated that about 800 Karimojong children and teenagers live in slums of Kisenyi and Katwe in Kampala as beggars and child laborers. It is so sad that many of these street-children are used as sex slaves or forced into prostitution. As many are impregnated because of this, there is a tremendous number of single mothers, aged 12-23 years

Although households with or without persons with disabilities have similar poverty levels, it is highly likely that the real levels of poverty in households with members with disabilities are underestimated due to the additional costs of disability. To maintain a similar standard of living or to perform specific activities, persons with disabilities often incur additional costs in comparison to their peers without disabilities. Direct costs include the additional costs that persons with disabilities and their families incur to achieve a reasonable standard of living in comparison to their counterparts without disabilities. As a result, when two households with the same level of expenditure are compared, the household with a member with a disability has a lower standard of living.

Naoi village FGD revealed that many persons with disabilities already face daily hardship in accessing adequate safe water for drinking, hygiene, and sanitation. Dry riverbeds hand-dug wells are drying up rapidly requiring digging even deeper. Persons with physical disabilities are exposed to increased water stress due to challenges associated with accessing deeper wells.

In Bududa, persons with disabilities shared their experience on how they suffer more or almost get abandoned during evacuation in mudslides disasters. That there is lack of preparation and planning, as well as accessible facilities and services and transportation systems. That temporary makeshift shelters and camps are not accommodative and easily accessible by persons with disabilities. That many times persons with disabilities are not well received in relocation processes due to a perception that they need more complex services. Relocation programme to Bunambutye in Bulambuli District, where the government, through the Office of the Prime Minister, has built new homes is considered to have disrupted physical, social, economic, and environmental networks and support systems which affects persons with disabilities much more than the persons without disabilities.

According to the persons with disabilities representatives at local government councils, universal accessibility standards are not applied in all public offices which makes it hard for them to effectively represent their constituencies. Limited access to education also presents a barrier to accessing other types of services and to inclusion in society in general. Deaf people are



particularly disadvantaged by the limited availability of sign language teachers and interpreters, with many never learning sign language and therefore lacking the ability to communicate. This reduces persons with disabilities confidence or self-efficacy needed to demand services.

### **Inclusive legal and policy frameworks:**

The governments have taken several legislative and policy steps that indicate commitment to advancing the rights of persons with disabilities. In terms of international instruments, these steps include: Signing and ratifying the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), Signing and ratifying other treaties that advance the rights of people, including those with disabilities, for example the UN Convention on the Rights of the Child, the African Charter on Human and People’s Rights, the Convention on the Elimination of All Forms of Discrimination against Women, and the Beijing Platform for Action – all of which make some reference to protecting the rights of persons with disabilities to fair treatment, appropriate care, inclusion and full participation in society.

**Mozambique:** Mozambique has adopted the main legislative instruments to protect the rights of persons with disabilities, such as the United Nations International Convention on the Rights of Persons with Disabilities (UNCRPD), ratified in 2012. The Constitution of Mozambique dedicates two specific articles (37 and 125) to people with disabilities, and there is a National Policy on people with disabilities established in 1999 which protects, among others, the right to integration in the family and in the community, as well as the right to education, work and social protection. Decree 53 of 2008 establishes the devices to allow the accessibility and mobility of people with disabilities in public places. In 2015, the Government of Mozambique adopted a Multisectoral Action Plan on Albinism to guide the implementation of measures to address the human rights and development challenges faced by persons with albinism in Mozambique. There is a plurality of tools to protect people with disabilities, together with the commitments undertaken by Mozambique at an international level, e.g. the UN 2030 Agenda.

**Ethiopia:** The Government of Ethiopia has adopted and implemented a number of laws, policies and standards pertaining to persons with disabilities, including their right to productive and decent work. The main ones are: Constitution of the Federal Democratic Republic of Ethiopia, adopted in 1995. Article 41(5) of the Constitution sets out the State’s responsibility for the provision of necessary rehabilitation and support services for persons with disabilities. Proclamation concerning the Rights to Employment for Persons with Disabilities, No. 568/2008, makes null and void any law, practice, custom, attitude and other discriminatory situations that limit equal opportunities for persons with disabilities. The Federal Civil Servant Proclamation No. 515/2007, provides for special preference in the recruitment, promotion, and deployment, among others, of qualified candidates with disabilities. However, this provision is applicable to government offices only. Building Proclamation, No. 624/2009, provides for accessibility in the design and construction of any building to ensure suitability for physically impaired persons. Growth and Transformation Plan (GTP) 2010-2015, establishes disability as a cross cutting sector of development where focus is given to preventing disability and to providing education and training, rehabilitation and equal access and opportunities to persons with disabilities. National

Plan of Action of Persons with Disabilities (2012-2021) aims at making Ethiopia an inclusive society.

**Uganda:** Uganda is a signatory to a number of key pieces of international legislation advocating for the rights of persons with disabilities, including the Convention on Vocational Rehabilitation and Employment of Disabled Persons (1983); the Convention on the Elimination of All Forms of Discrimination against Women; the Convention on the Rights of a Child; and the UNCRPD (2008). All domestic laws should be in accordance with the Constitution (1995) and given the Constitutional commitments to equality for persons with disabilities, it is therefore a Constitutional obligation to respect the dignity and rights of persons with disabilities. In addition, the Equal Opportunities Commission Act (2006), as well as the Children’s Statute 1996 (with its 2016 amendments) also provide for the specific rights of children with disabilities in Uganda. Uganda had already enacted several disability-specific laws: the most recent is the revised Persons with Disability Act (2020). Some initiatives currently being undertaken by the Expanding Social Protection II programme to enhance the inclusion of persons with disabilities within social protection. The programme is a key deliverable of Department of Disability and Elderly, Ministry of Gender, Labour and Social Development (MGLSD).

However, despite the good intentions outlined in legislation and policies, gaps remain, how they are implemented, monitored and degrees of compliance. the correlation between disability and food insecurity continues to prevail. Social and economic inclusion is still a big challenge in these countries. The instruments adopted by the governments are little known and applied; moreover, against an evolution of the concept of disability, which wants an effective emancipation of people with disabilities so that they are protagonists of the processes that concern them, the policies in force are based on obsolete definitions, which imply a welfare approach by the institutions. Added to this is the fact that access to technologies, a precious tool for improving the daily life of people with disabilities is still limited in Uganda Mozambique and Ethiopia.

## 4. LESSONS LEARNT, CONCLUSIONS AND RECOMMENDATIONS

### 4.1 Lessons Learnt

1. The results of this assessment reveal that the communities are aware of the persons with disabilities challenges a midst climate change shocks or hazards. In terms of gender and social inclusion, persons with disabilities are most vulnerable due to their disability circumstances and the underlying societal structural power issues including barriers to access and control of livelihoods capitals (resilience building blocks). All the vulnerabilities combined lead to loss of biodiversity, poor agriculture productivity, low incomes and poverty, food insecurity and increased Gender Based Violence (GBV).
2. In the aftermath of a disaster, families try to cope by making choices that may be harmful in the long term such as cutting trees for charcoal, spending less on food, health and education, or putting their school going children to work (child labour). There is a flick of hope since persons with disabilities are willing and ready to adopt pre and post disaster strategies with focus on vulnerable groups, including women and youth with disabilities. TOFI partners' livelihoods projects need to give special attention to disability inclusive climate change and food security resilience.
3. Due to drought and floods challenges, past and ongoing resilience interventions in the assessment areas of Moroto and Bududa districts are dominated largely by those which contribute directly to food supply and agricultural productivity in both normal and shock/crisis periods.
4. To equitably adapt and become resilient to shocks and ensure income and food security, persons with disabilities, they will need support to make a shift from absorptive to transformative resilience building strategies. Disability inclusive measures will require that persons with disabilities are assisted to democratically choose and prioritize their resilience building blocks to ensure they have the resources they need to prosper.
5. However, persons with disabilities and their members of households have a quest beyond farming to building resilience by means of diversified livelihoods and income sources. They desired employment/jobs/wage labour and diversified income and owning enterprises. They also preferred income generating activities and access to credit. FGDs participants mentioned that focus on income diversification and income generating activities is attributed to the fact that communities are aware that when there is income food security is settled and they can shift their focus away from food needs onto these business related activities.
6. Persons with disabilities have formed savings groups in both Moroto and Bududa. They hinted that loans /saving/credit as part of their top resilient priorities. This is linked to the mushrooming Savings and Credit Cooperative Organizations (SACCOs) that are vastly composed of women groups in rural setting. They were highly interested in acquiring loans

to help them set up businesses. The sedentary and collective action nature of persons with disabilities (they are not as mobile as persons without disabilities who move out in search of employment opportunities) gives them more chances to get loans from lending institutions and they want an expansion of these opportunities while youth on the other hand seek to economically empower themselves through small businesses and are much drawn to the financial economy.

## 4.2 Recommendations

1. There is need to **advocate for targeted assistance** that effectively takes account of disability. Prioritisation of assistance and its delivery should mainstream inclusion principles and be aware that households that have members with disabilities may experience higher needs and face barriers accessing assistance if not designed inclusively. There is need to promote resilience building interventions that are inclusive and accessible. It was noted that persons with certain impairments are finding it difficult to access food assistance provided by the government of Uganda due to lack of mobility. More so, public works programmes that provide alternative incomes benefit persons without disabilities who can take part in unmodified manual labour. TOFI partners need to continue engaging local government authorities to apply rights-based approach to livelihoods and food security interventions.
2. DPOs and TOFI-organisations need to further **educational/training programmes** to persons with disabilities. It was found out that limited access to education is still a barrier to accessing other types of services and to inclusion in society in general. Deaf people are particularly disadvantaged by the limited availability of sign language teachers and interpreters, with many never learning sign language and therefore lacking the ability to communicate. This reduces persons with disabilities confidence or self-efficacy needed to demand for disability specific and inclusive services.
3. There is need to commit resources to disability inclusive **climate change policy research and advocacy** by Atlas/TOFI/DPOs. TOFI partners need to proactively engage in climate change policy structures and processes to promote disability inclusive planning and implementation. As signatories and party to the Paris Agreement, Uganda, Ethiopia, and Mozambique have marked incredible progress towards implementing their National Determined Contributions (NDCs). TOFI partners should engage the NDCs partnerships at national and subnational levels. This will help to ensure that disability issues are included in results-based frameworks for coordinating climate actions. It should be noted that NDCs are aligned to the National Development Plans (NDPs). For example, in Uganda there is an open window for TOFI/DPOs to engage the National Climate Action Plan and District Climate Action Plans. Uganda's National Climate Change Act 2021 has created a National Climate Change Advisory Committee for which TOFI partners in Uganda can engage for disability inclusion in its technical advice and clarification of the responsibilities of districts and local governments with respect to climate change.

4. Enhance NGOs/DPOs/TOFI **coordination and collaboration** on food security and climate change related disaster and conflict management involving a large variety of stakeholders that all need to coordinate their efforts to ensure that disability is included in their projects as a core-crosscutting theme.
5. Provide disability and inclusion **training and awareness** sessions in all aspects of district management and on how to encourage the active participation of people with disabilities including youths and women with disabilities. Promotion of **behavioral change**- Social and Behavior Change Communication (SBCC) using Information Education and Communication materials in the local languages can be enhanced to dispel myths and misconceptions on disability and food nutrition. In addition, enhance community dialogues and awareness creation campaigns on the importance of good nutrition especially for persons with disabilities in categories of children, pregnant and lactating mothers.
6. While persons with disabilities are supportive of continuing and scaling up some of the successful interventions, they also made strong recommendations to **shift from absorptive interventions** (e.g., social assistance, distributions of food and other relief items) to **adaptive and resilience measures** (e.g., irrigation, productive farming, livestock). There is need for promotion of kitchen/backyard gardening and rearing of small animals like rabbits and chicken to improve dietary diversity of persons with disabilities households. Diversification of animal and crop husbandry such as planting a variety of nutritional foods, rearing first growing and easy to care for animals will not only improve food diversity but also income sources. Above all, the results of this assessment reveal that most persons with disabilities households are agro-based, and they expressed the need to have **transformative interventions** (e.g., business/job/market, loan/credits/saving). FGDs participants also recommended for several additional sectoral interventions, which were either not implemented in the districts before. Climate projections in Uganda show that critical thresholds for several crops may be crossed in the next 10 years, pushing farmers out of their current cropping choices and farming systems. Incremental adjustments in agricultural systems may not be enough to deal with the challenges that current and future generations of farming households will face. Incremental adaptation alone may act as a blockage for necessary change by increasing investment in the existing system or locale and narrowing down alternatives for change: what the resilience, transition and policy literatures refer to as 'lock in trap', 'incrementalism' and 'negative resilience' (e.g. Handmer and Dovers, 1996; Allison and Hobbs 2004; Anderies et al. 2006). Transformational approaches that are more proactive and ambitious will be required (Howden et al., 2007; O'Brien, 2011; Pelling, 2011).
7. **Resilience to repeated shocks** need to consider **supporting extension plans** that will minimize interruption in food security and livelihoods of persons with disabilities. Uganda National Agricultural Extension Policy (NAEP, 2016) extension policy emphasised the need to maintain an extension worker to farmers ration at 1:500 for effective and efficient extension service delivery. However, according to Moroto agriculture district officer the current extension staff to farmer ratios is estimated at 1:1,800, thus making it hard to reach most vulnerable groups such as persons with disability. Less than 10% of FGDs respondents used

modern farming methods which indicates that farming families needed extension services support to acquire some key elements of climate smart agriculture. TOFI partners need to strengthen extension policy engagement and advocacy with government responsible agencies.

8. Options to promote diversification should also encourage **private sector** investment in markets. Private investment in agricultural markets can be promoted in a variety of ways, including by improving the predictability of agricultural market; promoting stable macro-economic conditions and increasing investments in rural infrastructure, including roads and electrification. This also calls for reforms in extension services and farmers' cooperative organizations to be more disability inclusive. Participants during the KIIs meetings identified the need for policy de-risking measures, including research and provision of climate-resilient varieties and technologies, mechanization, public-private partnerships, and financial de-risking measures, including drought and weather-based insurance, tax incentives, loans and capacity building on green finance mobilization. The above measures can be provided by a public policy/Governments. Atlas alliance/ TOFI/DPOs could provide training to private sector, research, and policy advocacy.
9. Transformational adaptation will be possible when the TOFI and other stakeholders **promote adoption of alternative means of utilizing land resource**. Promotion of Ecosystem based Adaptation (EbA) will help increase food production without further depleting soil and water resources. Moreover, EbA technologies can generate both private and public benefits and thus constitute a potentially important means of generating "win-win" solutions to addressing poverty and food insecurity as well as environmental issues. In terms of private benefits to farmers, by increasing and conserving natural capital (including soil organic matter, various forms of biodiversity and water resources). Moreover, EbA approaches include community-based adaptation, ecosystem-based disaster risk reduction, climate-smart agriculture, and green infrastructure, and place emphasis on using participatory and inclusive processes and community/stakeholder engagement. Involvement of private sector stakeholders is substantial. EbA is viewed as an effective means of addressing the linked challenges of climate change and poverty in Uganda, Mozambique and Ethiopia where many people are dependent on natural resources for their lives and livelihoods.
10. Future TOFI resilience projects need to **promote diversification** of persons with disabilities households' livelihood strategies through multiple income sources, both on and off-farm, with a solid asset base sources since this is extremely critical factor as it enables households to spread risk against climate shocks/tresses. This will be possible through learning from proven practices by resilient households. Most households predominantly practice agriculture-based livelihood strategies through food crops whereas off-farm livelihood source and livestock are not intensified and diversified across households. During KIIs with Moroto agriculture officer, the households that had attained adaptive capacity/resilience characteristics were consistently described as having higher incomes because they benefited from a combination of income generating enterprises/business activities that include operating shops and restaurants, milling machines, being in savings and credit associations

etc, over and above agriculture. Given that farm holdings tend to be extremely small, it is incredibly difficult to maintain household food stability by depending on crop and subsistence rain-fed farming.

### 4.3 Conclusion

In conclusion, assessed communities are becoming aware of the need to break the cycle of vulnerability to climate disasters. Some FGDs members were aware that climate hazards or shocks push them especially the persons with disabilities to remain trapped in persistent and severe poverty- creating poverty traps. As persons with disabilities own very few assets, climate impacts to their livelihood push them further down the poverty line making it is exceedingly difficult for them to break this cycle.

Nevertheless, FGD participants listed as many characteristics to describe characteristics of a resilient and inclusive community. Typically, each group provided 3 to 5 characteristics. “Resilience” in the context of Moroto and bududa districts was described as; “all households in the community are able to produce enough food and earn income to feed their families adequately, every day and meet basic needs in a stable manner both in normal and hazards or shock periods”.

The communities in the assessment areas look at resilience predominantly from the angle of agriculture production. Improved farm practices and inputs, and livestock appeared within the top resilience priority. This reflects a predominance of agro-based livelihoods. It may also reflect the recurrent agriculture failure arising out of the repeated dry spells and rain seasonality changes. This in turn could imply limited opportunities or lack of awareness of other off-farm economic opportunities and availability of diversified livelihoods out of agriculture for persons with disabilities. There is generally limited involvement of the private sector in national and sub national adaptation efforts, including in developing products and services to reduce costs and impacts of climate change, while many players have limited awareness about the significance of climate change; and are unaware of their role in influencing the associated climate impacts.

The private sector’s participation is not significantly diverse but primarily engaged in crop and dairy value addition and export markets to neighboring districts, and countries and investment in tree plantations, and the provision of micro-insurance/finance credit. However, there are risks and barriers to private sector engagement in climate-resilient agriculture and food security. These relate to uncertainties arising on the supply side, including crop failure as well as risks related to inputs (eg. costs of climate-resilient seeds, land tenure regimes), market access, demand, and prices (Other risks include those arising from limited financial and technical capacity to cope with climate-related losses and to invest in climate-resilient technologies.

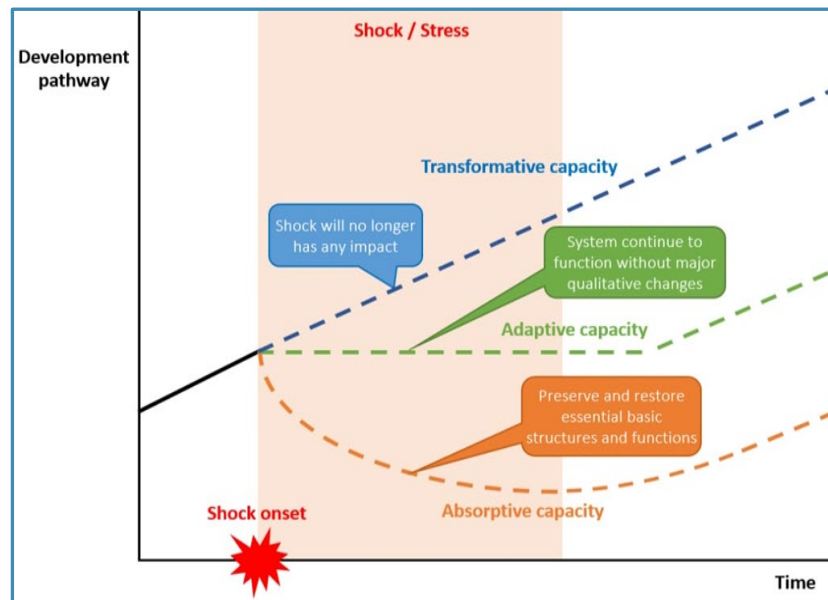
## Annex I: Resilience Capacities

All countries and the case study districts of Moroto and Bududa are largely characterized by rain-fed subsistence agro-based livelihoods. In view of the main hazards or shocks facing the districts, i.e., drought and flood, interventions that contribute to persons with disabilities **absorptive capacity** building are the ones related to saving lives and meet basic physiological needs, for example, by responding to immediate dietary requirements and rehabilitate damaged properties. Those interventions that contribute to **adaptive capacity** building are the ones related to maintaining the functionality of agro-based livelihoods and food security level even in the face of future floods and droughts. While interventions that contribute to **transformative capacity** building are the ones related to creating a fundamentally new system (e.g., off-farm livelihoods) so that the persons with disabilities will no longer feel the threats of climate-related hazards to agriculture productivity.

**Resilience can be boosted by strengthening three different types of capacities:**<sup>4</sup>

**1 Absorptive capacity:** The ability of a system to prepare for, mitigate or prevent negative impacts, using predetermined coping responses in order to preserve and restore essential basic structures and functions. This includes coping mechanisms used during periods of shock. Examples of absorptive capacity include early harvest, taking children out of school, and delaying debt repayments.

**2. Adaptive capacity:** The ability of a system to adjust, modify or change its characteristics and actions to moderate potential future damage and to take advantage of opportunities, so that it can continue to operate without major qualitative changes in function or structural identity. Examples of adaptive capacity include diversification of livelihoods, involvement of the private sector in delivering basic services, and introducing drought resistant seed.



**3. Transformative capacity:** The ability to create a fundamentally new system so that the shock will no longer have any impact. This can be necessary when ecological, economic or social structures make the existing system untenable. Examples of transformative capacity include the introduction of new mechanisms, Community based planning measures, and incentivizing actions to build resilience.

<sup>4</sup> OECD (2014). Guidelines for Resilience Systems Analysis: How to Analyse Risk and Build a Roadmap to Resilience. OECD Publishing: Paris.



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**Key Informants Questions Guide**

**Study on Climate Change Impacts on Disability and Food Security in Uganda, Ethiopia and Mozambique**

**Consent to Participate**

Thank you for agreeing to participate. You are being asked to participate as a volunteer in a research study conducted by NUDIPU. This study is designed to gather information about the linkages between climate change, disability, and food security.

Your participation in this project is voluntary; you will not be paid for your participation. The information you share is completely confidential.

The researcher would like to tape the discussion so that he makes sure to capture your thoughts, opinions, and ideas he hears from you.

You may refuse to answer any question or withdraw from the study at any time.

If you have any questions, please feel free to ask now.

**Part I: Questions for Policy Implementation Personnel**

Government workers, Community leaders, NGOs representatives

Name \_\_\_\_\_ Position/profession \_\_\_\_\_

1. Do you think there is climate change in your district?
2. If yes, what are the manifestations of climate change?
3. What do you think are the causes to climate change in the area?
4. Generally, how does climate change affect food security of this area?
5. Which pillar of food security is more affected (availability/production, access/food prices, utilization/nutrition), (*Interviewer explain in case the terms are unfamiliar*)?
6. Which groups of people are more vulnerable?
7. Are Persons with disabilities more affected/vulnerable than people without disabilities ?
8. What are the specific impacts of climate change on food security to the Persons with disabilities ?
9. What are the solutions to climate change impacts on food security among Persons with disabilities ?
10. What are Persons with disabilities doing to adapt to climate change while improving their food security?
11. What is your role in climate change related hazards?
12. How do you involve disabilities in climate change planning and implementation?
13. How does the government/NGO support Persons with disabilities in relation to climate change and food security?
14. What are the challenge and constraints to adaptation to climate change?
15. What should be done to improve the status quo?
16. Is there anything you want to add about climate change disabilities and food security?

**Part II: Questions for policy makers, Government officers**

Name ..... Position/profession .....

1. What is the role of your organization in relation to climate change and food security in the district?
2. Do you assess vulnerability to climate change? If so, how do you determine vulnerability of locations and people? Which group of people are more vulnerable?
3. What are the main policy concerns relating to climate change impact on food security and Persons with disabilities ?
4. Does the government have inclusion plans to support Persons with disabilities to adapt to climate change? If yes, can you explain: \_\_\_\_\_
5. How do you link disabilities and development planning to climate change and food security?
6. What are the challenges and constraints to supporting Persons with disabilities to build their climate change resilience and improve food security?
7. How do you disseminate climate disaster alert e.g weather information to different Persons with disabilities in the district?
8. Do you foresee constraints on adaptation to climate change by Persons with disabilities ?
9. Are there existing or planned strategies to specifically support Persons with disabilities to improve their food security?
10. Which is the best way forward to sustain food security of Persons with disabilities amidst climate change crisis?
11. Do you think climate change would present opportunities for disabilities inclusion?

**Thank you for your time**

### Focus Group Discussion Guide

#### **Study on Climate Change Impacts on Disability and Food Security in Uganda, Ethiopia and Mozambique.**

##### **Consent to Participate**

Thank you for agreeing to participate. You are being asked to participate as a volunteer in a research study conducted by NUDIPU. This study is designed to gather information about linkages between climate change disability and food security.

- Your participation in this project is voluntary; you will not be paid for your participation. The information you share is completely confidential, and the researcher will not associate your name with anything you say in the focus group discussion.
- The researcher would like to tape the focus groups so that he makes sure to capture the thoughts, opinions, and ideas he hears from the group. No names will be attached to the focus groups and the tapes will be destroyed as soon as they are transcribed.
- You may refuse to answer any question or withdraw from the study at any time.
- The researcher understands how important it is that this information is kept private and confidential and he will ask you participants to respect each other's confidentiality.
- If you have any questions, please feel free to ask now.

## 1. Introduction:

Welcome; researcher introduces himself and the research assistant. Let's do a quick round of introductions. Can each of you tell the group your name.

### *I Will consider the following:*

- Who we are and what we're trying to do?
- What will be done with this information
- Why we asked you FGD members to participate

## 2. Explanation of the process

I will ask the group if anyone has participated in a focus group before. I will explain why I am using focus groups discussion in my social research.

### *I will explain*

- We learn from you (positive and negative)
- Not trying to achieve consensus, we're gathering information
- No virtue in long lists: we're looking for priorities

### *Timeframe*

- Focus group will last about 30 minutes

## 3. Logistics/Materials and supplies for focus groups

- Pads and Pencils for each participant
- Focus Group Discussion Guide for Facilitator
- 1 recording device
- Notebook for notetaking

## 4. Ground Rules

I will ask the group to suggest some ground rules. After they brainstorm some, I will make sure the following are on the list.

- Everyone should participate.
- Information provided in the focus group must be kept confidential
- Stay with the group and please don't have side conversations
- Have fun
- I will ask the group if there are any questions before we get started and address those questions.

## 5. Sample Questions

1. Before this interview, had you heard about climate change? (*Interviewer explain in case the terms are unfamiliar*)
2. We would like to hear whether you have experienced erratic changes in rains or uncharacteristic floods/landslides or draughts event?
3. What event (floods/drought) is more occurring?
4. Are these climate change events affecting your food security?
5. Which pillar is more affected (availability/production, access/food prices, utilization/nutrition), (*Interviewer explain in case the terms are unfamiliar*)?
6. Are Persons with disabilities more affected/vulnerable than people without disability?

7. What are the specific impacts of climate change on food security to the Persons with disability; *(Interviewer explain in case the terms are unfamiliar and probe how different categories of Persons with disabilities are affected differently)*
8. How do you cope with the impact/ What are the survival strategies in case of crop/livestock failure due to prolonged droughts or floods? *(Interviewer explain in case the terms are unfamiliar)?*
9. What are the climate change adaptation measures employed by Persons with disabilities households to ensure food security?
10. Have you received any support to cope with climate change during the past years, specify from which sources and what type of support received?
11. How do you rate your participation in climate change policy interventions *(break down information)?*
12. We would like you to tell us some of the limitations or barriers to coping/adapting to climate change adverse impacts on food security?
13. What would you recommend in order to improve food security of Persons with disabilities amidst prevailing climate crisis?
14. Do you have anything you would like to add about climate change, disability, and food security issues? \_\_\_\_\_

**Thank you for your time**