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An Assessment of the Coping Mechanisms Against Seasonal Floods in Bumasheti Sub-County, Bududa District, Uganda

Emmanuel Tweh Friday [1*], Susanne Nambatya [2*], Lester Tenny [3*]

[1,2] Department of Development, Peace and Conflict Studies,
College of Humanities and Social Sciences,
Kampala International University.
Ggaba Road, Kansanga, Kampala District,
P.O Box 20000, Uganda

[3] A.Romeo Horton College of Business and Public Administration
University of Liberia.
Capitol Hill,
P.O Box 10-9020
1000 Monrovia – 10 Liberia

Abstract – The study mainly looked at the assessment of coping mechanisms against seasonal floods in Bumasheti Sub-County, Bududa District, Uganda. It identified the challenges affecting the coping mechanisms against seasonal floods in the area and it proposed solutions to the challenges. Simple random sampling technique, using the lottery method was used to select the 41 primary respondents for the study, who included the local community members, that is, the local farmers, youth and the elderly in the community. Purposive sampling was used on the 16 key informants who included the local leaders and the sub-county officials like environment officer, and other officials in the area. Quantitative data analysis was based on 41 questionnaires for the local community members. Qualitative data was gathered from the key informant responses and focus group discussions. Quantitative data was analyzed using the Statistical Package for Social Sciences (SPSS). Content analysis was used to analyze qualitative data. The findings revealed that mechanisms in place to alert people about seasonal floods are largely poor in Bumasheti Sub-County, Bududa District, Uganda. The findings also revealed that, using the irrigation canals was preferred, compared to other coping mechanisms. The findings further revealed that the construction of flood protection embankments is to a greater extent less relevant to the local populace in terms of coping with seasonal floods. The findings also revealed that flood plain zoning restriction on use of plains is not an appropriate coping mechanism for the area. The challenges affecting the coping mechanisms against seasonal floods in Bumasheti Sub-County, Bududa District identified by the study included: difficulty to repair cracks, loss of lives, difficulty to predict floods in this part of the world and the effect of steep area on the land. The proposed solutions to the challenges included the construction of safe place for food, clean water and basic necessities, defense against the spread of floods, disassociation from building under the hills and hard lands, constant watch to monitor water levels during the night and utilization of the indigenous knowledge passed down by parents. The study recommends that tight restrictions/rules be set which restrict settlement by people on those areas prone to flooding so as to prevent the negative impacts that might result to death.

Keywords – Seasonal Floods; Coping Mechanisms; Uganda.

Corresponding Author: Emmanuel Tweh Friday

I. Introduction

Natural disasters like floods have always been a matter of concern to human population all over the world simply because its occurrences spread in all continents. Heavy rainfall has triggered unprecedented flooding in many parts of the world. Every country in the contemporary world almost grapples with seasonal floods, and these are largely attributed to heavy rain falls (Williams & King, 2020). Liu et al. (2019) define seasonal floods as floods that occur seasonally by the over flow of the huge volume of water from rivers, lakes, oceans, or by heavy rains or down pours, hurricanes, cyclones, or tsunamis. Nabwire (2019) also indicated that seasonal floods either arise from over flowing of rivers, heavy rainfall over a short duration, or from an unusual inflow of sea water onto land which can be caused by storms such as hurricanes, high tides, seismic events such as tsunami with large landslides. Emerton et al (2020) and Shah et al (2020) noted that seasonal floods can also be triggered by heavy snow melting resulting from the effects of global warming or climate change. Muttarak & Dimitrov (2019) and Okoboi (2018) noted that seasonal floods occur when the discharge of the stream becomes too high to accommodate in the normal stream channel. Muttarak & Dimitrov (2019) added that when the discharge becomes too high the stream widens its channel by over topping its banks flooding the low-lying areas surrounding the stream. With the significant achievements in science and technology of the 21st century, people still continue to suffer the consequences of severe floods on all continents (Matata & Adan, 2018). The international federation of red cross and red crescent societies reported that from 1993 to 2002, flood disasters affected more people across the globe with appropriately (140 million per year on average) than all the other natural or technological disasters put together (Cirella et al., 2019).

Seasonal floods are associated with deaths, displacement of people and, destruction of property, among other effects. As indicated by Kassegn et al (2021), impact of floods is mostly felt on the African continent with damaging effect to the general populace thus causing significant migration and displacement. In Malawi for example, Becker (2021) reported that after a period of heavy rain in late December 2019, which resulted into flash flooding affecting part of the capital city Lilongwe, 33 people were killed, more than 100,000 people were displaced and nearly 200,000 households affected in the country (Becker, 2021). The flood also damaged at least 19 health facilities, destroying medicines and cold chain equipment (ibid). Eliste, et al. (2022) reported that in South Sudan, heavy rain and severe flooding in Maban caused damage to camps for refugees and internally displaced persons, causing large displacement of the local host and refugee communities. The authors added that the floods have destroyed housing, roads, and schools and left many people in search of a dry land and homeless in the country (ibid). The authors further added that the significant damage to livelihood assets, food crops, and livestock has diminished the community's ability to effectively start to recover (Ibid).

Kiross, et al. (2020) showed that the impacts as a result of floods have contributed to 18 percent loss of gross domestic product (GDP) with in many African economies. In Uganda, seasonal floods contribute to economic losses of over 70% of total losses of natural disasters that destroys an average of 800,000 hectares of crops making economic losses in excess of US$65 million (World Band Group, 2019). In Uganda, floods are mainly as a result of heavy seasonal rainfalls that result into severe floods in many parts of the country, with the Eastern region being the most affected. Winiwarter (2017) said that at the height of the seasonal floods, many rivers burst their banks and cannot be crossed on foot, with bridges washed away and the roads become impassable. Winiwarter (2017) and Okoboi (2018) added that in the worst affected areas, some schools, health centers, homes and other infrastructure are destroyed or badly damaged and many families are forced to seek shelter in school buildings on higher ground. According to Isaacman and Isaacman (2013), floods damage farmland by burying crops in silt, uprooting crops by the force of drowning crops. Flooding devastates wetlands and other wildlife habitats by depositing massive amounts of silt, leaving behind toxic substances such as petroleum products, fertilizers and pesticides and other man-made chemicals. The mechanisms to seasonal floods in Africa depend largely on the assets (natural resources, human and social, physical and financial capital) that one has or can access and how well these are utilized (Achberger, 2020).

Government and non-governmental efforts globally have supported communities to manage seasonal floods. The main focus is training on conservation agriculture, water harvesting, tree planting, provision of agricultural production inputs, and provision of livestock (Okaka, 2020). Despite the efforts by various stakeholders in addressing seasonal floods, available data indicates a gap in addressing seasonal flood impacts at local level (Okaka, 2020), which motivated this study, to understand and assess the coping mechanisms against seasonal floods in Bumasheti Sub-County, located in Bududa District in the southwestern slopes of Mount Elgon of Uganda. The study targeted Bumasheti communities as these are the most affected by seasonal floods in Bududa district. Bumasheti Sub-County was selected because of its historical flooding record which often occurs every year leaving many

displaced and to experience all sorts of trauma. Furthermore, Bumasheti town, Bududa District is reported to be among the areas in the country that have been most affected by seasonal floods, and series of damaged infrastructure have been reportedly committed by floods since the start of June 2021. Despite the efforts in place by the government of Uganda and international partners to safeguard and manage seasonal floods in the country, floods in the country are still on the increase (Wambede & Tweheyo, 2022). The study mainly looked at an examination of the coping mechanisms against seasonal floods in Bumasheti Sub-County, Bududa District. It provided the challenges affecting the coping mechanisms against seasonal floods in the area, and it proposed solutions to the challenges affecting the coping mechanisms against seasonal floods in the area. The study is particularly important to Uganda because it will help the government to fulfill its obligations of protecting the community since it will provide key information critical in the designing a strategy of coping mechanism. The government of Uganda has endorsed the Paris Climate Agreement (PCA) on how countries need to prevent disaster through activities that will affect the ozone layer of the earth. This study is timely because it provides a basis for strengthening seasonal floods early warning system and to identify gaps in the implementation of coping mechanisms and policies that protect the community as well as drafting effective strategy in support of the protection of lives and properties especially during seasonal floods. NGOs will be able to come up with projects to provide relief items, planning materials, drugs and vaccines for livestock (Griffith et al., 2020). The study is hoped to stimulate further research and it is expected to be used as reference material during other literature review in future researches on seasonal floods.

II. Coping Mechanisms To Seasonal Floods

The Paris Agreement on Climate Change, as a legally binding international agreement on the subject of climate change (Jacquet & Jamieson , 2016), went into effect on November 4, 2016 (Werksman, 2019), and it has been adopted by many countries in the world in a common cause to fight climate change and adapt to its repercussions (Li, 2016). The goal is to keep global warming considerably low such that there can be a climate neutral world by mid-century (Li, 2016). The Paris Climate Agreement has made improving adaptive skills and enhancing climate change resilience a worldwide goal. Adaptation to climate change is now assigned the same priority as mitigation (Jacquet & Jamieson, 2016). Uganda, on the other hand, amended its National Climate Change Policy on September 21, 2016, and then approved important legislation in August 2021, which went into effect in 2022, formalizing Uganda's legal framework for dealing with climate change. Uganda also recognizes the Kyoto Protocol, as well as a regulatory framework for climate change program monitoring, reporting, and verification. Article 9 of the Paris Climate Agreement specifically focuses on the climate change mechanism which provided the following mechanisms; compliance emission trading mechanism; voluntary emission trading mechanism amongst others which is mentioned in Section 9 (Part V) of the Act on climate change of Uganda which indicated institutional arrangements for governing climate change, creating National Climate Advisory Committee to provide independent technical advice and clarifying the responsibilities of district and local government with respect to climate change.

The United States geological survey (2021) pointed out that the embankments must be extensively used for protection against floods during floods seasons. People shift to embankments for temporary shelter and often settle down there for good. Thus, embankments and their slopes become permanent settlements to flood victims and their livestock. The survey further advised that there must be proper water shed management, timely cleaning, de-silting and deepening of natural water reservoirs and drainage channels (both urban and rural) must be taken up. Muneerudeen (2017) stated that the entire natural water storage place should be cleaned on a regular basis and encroachments on tanks and ponds or natural drainage channel to be removed well before the onset of downpour of rain. Floods can be prevented from affecting homes by inspecting and repairing any cracks or damage. The view of Nicolson (2020) is that construction and protection of all the flood protection embankments, ring bunds and other bunds be enhanced. Hydro-power plants (Dams) and levees can also be constructed as a temporary water storing space which reduces the chances of lower plain getting flooded. Flood plain zoning, which places restrictions on the use of land on flood plains, can reduce the cost of flood damage. Local municipality and national governments may pass laws that prevent uncontrollable building or development on flood plains to limit flood risks and to protect nearby property. Land owners in areas that adopt local ordinances or laws to limit development on flood plain can purchase flood insurance to help cover the cost of damage from floods (Kousky, 2018). Liao & Van Nguyen (2016) added that the buildings in flood prone areas should be constructed on an elevated area and if necessary, on stilts and platform.

Venkatcharyulu (2021) suggested that flood forecasting and warning should be issued for different areas mostly by the Central Water Commission Meteorological departments and by the state irrigation flood department. An effective early warning system is

one that can release warning in advance (ibid). It can change the existing scenario substantially and render informed decision making in adopting proper measures towards disaster preparedness, mitigation, control, planning and management (ibid). This kind of advance warning can help the authorities for better flood preparedness and also effective flood mitigation (ibid). Therefore, initiatives must be taken to modernize the operation of flood forecasting and warning by adopting the state of art technology and integrating it into the forecast and warning dissemination process. Irrigation canals or ditches should often be built and maintained on a county or city basis (Mishra and Sinha, 2020). If a property is prone to flooding, the development of ditches and irrigation canals can help to move water off the property, effectively limiting the damage that could occur. A professional can help determine the effectiveness of the ditch and the proper location of the ditch as per local ordinances (ibid).

III. METHODOLOGY

The study was conducted in Bumasheti Sub-County, Bududa District. The study employed a descriptive approach. Descriptive research designs answer how and what questions. There was a need to ask questions such as, 'What are the coping mechanisms against seasonal floods adopted by people in Bumasheti Sub- County, Bududa District? How do the people in the area perceive the coping mechanisms against seasonal floods adopted in Bumasheti Sub- County, Bududa District?' What are the challenges affecting the coping mechanisms against seasonal floods adopted in Bumasheti Sub- County, Bududa District? The study used a mixed-method approach where both qualitative and quantitative techniques were employed. The quantitative approach to research is suitable for generating statistical data while the qualitative approach to research can easily capture non – quantifiable data. Bumasheti Sub-County is located in Bududa District at the south-western slopes of Mount Elgon, approximately 36 kilometers (22 miles), by road, north-east Mbale. Bumasheti Sub-County is the biggest within Bududa District with an estimated population of 57,000 people (UBOs, 2019) and their main activity is farming, the main cash crops gown includes coffee, maize and bananas. The in-depth interviews were held with key informants who included the local leaders and the sub-county officials like environment officer, and other officials in the area deemed to possess knowledge on the subject matter. The primary respondents constituted the local community members, that is, the local farmers, youth and the elderly in the community. This study had a sample size of 57 respondents taken from a total population of 57,000 living in Bumasheti Sub-County (UBOs, 2019). Two methods of sampling were used. Simple random sampling technique, using the lottery method was used to select the 41 primary respondents for the study. Purposive sampling was used on the 16 key informants.

The questionnaire was used on the local community members and it entailed close-ended questions based on a four – Likert scale of response options (Strongly Disagree, Disagree, Strongly Agree, Agree). The interview guide was used on the key informants to gather additional in-depth data. Two (2) Focus Group Discussions were conducted with the local community members using the Focus Group Discussion guide. Questionnaires were checked for completeness by the research team. Quantitative data analysis was based on a total of 41 questionnaires that were complete, for the primary respondents considered for the study. Qualitative data was gathered from Key Informant Interviews and Focus Group Discussions. Quantitative data was analyzed using the Statistical Package for Social Sciences (SPSS). Content analysis was used to analyze qualitative data.

IV. RESULTS

4.1 Coping Mechanisms against Seasonal Floods in Bumasheti Sub-County, Bududa District, Uganda

The study sought to assess the coping mechanisms against seasonal floods in Bumasheti Sub – County, Bududa District, Uganda. Table 1 below provides the coping mechanisms against seasonal floods in the area and the study findings as per the responses gathered from the local community members on the coping mechanisms against seasonal floods in the area, assessing them using a four – Likert scale of response options (Strongly Disagree, Disagree, Strongly Agree, Agree) in terms of the most important mechanism to the least important mechanism as per the area context, in terms of coping against seasonal floods. SA stands for Strongly Agree, A – stands for Agree, DA – Disagree, and SDA – strongly disagree.

Table 1: Showing descriptive statistics on the Coping Mechanisms against Seasonal Floods in Bumasheti Sub-County, Bududa District

N=41	SA		A		DA		SDA	
	*Freq	%	*Freq	%	*Freq	%	*Freq	%
Construction of Flood Protection Embankment	9	22	2	5	20	49	10	24
Flood Plain Zoning Restriction on use of Plains	6	14.6	3	7.3	12	29.3	20	48.8
Flood Forecasting	1	2.4	1	2.4	9	22	30	73.2
Irrigation Canals	11	26.8	8	19.5	15	36.6	7	17.1

Source: Primary data, 2022. *Frequency

According to the results in Table 1 above, 22% of the respondents strongly agreed that the construction of flood protection embankments is important in the area, 5% of the respondents agreed, 49% of the respondents disagreed and 24% of the respondents strongly disagreed. This shows that the construction of flood protection embankments is to a greater extent less relevant to the local populace in terms of coping with seasonal floods, as confirmed by a total of 73% of the respondents' responses who were negative to the coping mechanism (under disagree and strongly disagree). Respondents in support of the construction of flood protection embankments argued that these can act as means of protecting low-lying communities and infrastructure against flooding. However, given the terrain of the area being mountainous, it would be costly and difficult for the government to situate these embankments, as flooding is normally from high in the mountains to low areas.

Findings showed that Flood Plain Zoning Restriction on use of Plains cannot be supportable as a coping mechanism to seasonal floods given the context of the area. The majority of the respondents strongly disagreed (48.8%) and disagreed (29.3%) that flood plain zoning restriction on use of plains is an appropriate coping mechanism for the area. It is true as well that the slopes of the mountains are utilized for farming and farming is the livelihood of the people in the area. In addition, it is believed that mountainous areas have fertile soils and there is always high yield in terms of production. It is a myth rather than reality to restrict the local inhabitants from utilizing their land, even if it is in a flood zone, or restricting them from using the grasslands on mountain slopes. Following this, a respondent from the local community said that:

> *Farming is everything to me. It is my source of income. I am very fortunate to have land in this area because I have not suffered with yields. The land is very fertile. Personally, I have no stress with fertilizers. And guess what, flood zones tend to be fertile because every nutrient is dumped and settles there.* (Local Community Member, Male, Bumasheti Sub-County, Bududa District)

There were fewer responses of 2.4% (strongly agree) and 2.4% (agree) which confirmed flood forecasting. The findings prove that mechanisms in place to alert people about seasonal floods are largely poor in Bumasheti Sub-County, Bududa District. Flood forecasting estimates and predicts the magnitude, timing and duration of flooding based on estimation of future water levels of rain which is important flood control planning and rehabilitation. A representative from the local government highlighted that:

> *It will be important for government to develop flood data collection mechanism that will be implemented by clusters' actors and local authorities and will be activated each year during flooding season in order to inform life-saving responses at early stage of the flooding in the community"* (Key Informant, Male, Bumasheti Sub-County, Bududa District)

Another representative from an NGO highlighted that:

> *As the rains continue, we expect that more people will be displaced but all humanitarian actors are already running out of emergency stocks and mechanism to assist people.* **(**(Key Informant, Female, Bumasheti Sub-County, Bududa District**)**

The findings revealed that, majority of the respondents participated in using the irrigation canals with a total positive response of 19(46.3%), compared to other coping mechanisms. Irrigation canals are important to be built simply because this system removes the excess water caused by heavy rainfall from the community. The technology to dig the irrigation canals is appropriate to the local setting of Bumasheti Sub-County, Bududa District, that is why this coping mechanism was the most preferred. In addition, this coping mechanism will also enable the local people to continue using their lands despite the flooding, because all the water will be captured / retained under the irrigation canals and it will not over flow to affect their fields or property.

4.2 Challenges Affecting the Coping Mechanisms against Seasonal Floods in the Area

The study rolled out the challenges affecting the coping mechanisms against seasonal floods in Bumasheti Sub-County, Bududa District, Uganda. These challenges were identified simply because it has been the integral part during the rainy season. In addition, the constant seasonal floods are affecting people in Bumasheti Sub-County, Bududa District negatively to both livelihood and livestock as well. Despite the above efforts undertaken by the local municipality leaders, government and international partners, it is still uncertain for many people yet the phenomenon has continued to occur. Table 2 below demonstrates the response rates from respondents on the challenges affecting the coping mechanisms against seasonal floods in the area.

Table 2: Challenges Affecting the Coping Mechanisms adopted in Bumasheti Sub-County, Bududa District

Response	Frequency	Percentage
Difficult to Repair Cracks	10	24
Loss of Lives	20	49
Difficult to Predict Floods	2	5
Effect of Steep area on the Land	9	22
Total	**41**	**100**

Source: Primary data, 2022

The findings in table 2 above indicated that 24% of the respondents reported that it is difficult to repair cracks especially knowing that the earth is beneath the foundation and it may get displaced due to water flow and soil erosion that happens during both the initial flooding and when the water recedes. The findings showed that 49% of the respondents mentioned the loss of lives that comes as a result of the rapidly flowing waters sloping down the hills which makes it hard to evacuate people or even rescue them. Respondents mentioned that death in floods comes as a result of direct contact with flood water and persons trapped in houses. Respondents mentioned others causes of death such as physical trauma, heart attack, sleeping, building collapsing and drowning in cars.

Still as shown in Table 2 above, 5% of the respondents explained that it is difficult to predict floods in this part of the world simply because of the inability of the government to provide forecast and communication equipment that will enable rational decision making on floods prediction. Also, 22% of the respondents said that the effect of steep area on the land tends to reduce the amount of infiltration of water into the ground, this water can then flow quickly down to rivers as overland flow (Li et al., 2020). Moreover, it also causes more through flow within the soil and can raise river levels.

4.3 Solutions to Challenges Affecting the Coping Mechanisms against Seasonal Floods in the Area

The study sought to propose solutions that could be considered in reducing the challenges affecting the coping mechanisms against seasonal floods in Bumasheti Sub-County, Bududa District, Uganda. Table 3 below shows the response rates from the respondents on the proposed solutions for effective implementation of the Coping Mechanisms against Seasonal Floods in the Area

Table 3: Solutions to Challenges Affecting the Coping Mechanisms against Seasonal Floods in the Area

Solutions	Frequency	Percentage
Construction of safe place for food, clean water and basic necessities	15	36.58
Constant watch to monitor water levels during the night	5	12.2
Defense against the spread of floods	10	24.39
Disassociate from building under the hills and hard lands	6	14.63
Indigenous knowledge passed down by parents	5	12.2
Total	**41**	**100**

Source: Primary, 2022.

The finding in Table 3 above indicated that majority of the respondents (36.58%) suggested the construction of safe place for food, clean water and basic necessities, followed by defense against the spread of floods (24.39%), disassociating from building under the hills and hard lands (14.63%), constant watch to monitor water levels during the night (12.2%) and utilizing the indigenous knowledge passed down by parents (12.2%).

Communities prone to floods must prepare themselves well in advance of the rainy seasons by storing up food, construct a safe place for cattle and have storage for clean water as these are the basic necessities which are difficult to obtain in flood situations when mobility becomes restricted (Jabeen & Allen, 2010). It is also advised that constant vigilance should be kept at night to monitor the rise of the water level. Sandbags, hard cements, trampoline, heavy stones and brinks should be kept in readiness as defenses against the spread of floods. Also, as part of the solution to the challenges affecting the coping mechanisms against seasonal floods in Bumasheti, Bududa District, the communities should also undertake measures to increase their disaster risk resilience. Consequently, the community members in an effort to keep safe should disassociate from building beneath the hills and hard lands and through the government to institute policy that will allow contractors to incorporate flood-proof sanitation method that will elevate buildings and hand pumps for clean drinking water. Another action towards the challenges affecting the coping mechanisms against seasonal floods in Bumasheti, Bududa District will be the utilization of the indigenous knowledge passed down by parents, which is not recognized as a resource of flood reduction in the most affected areas in Uganda. Indigenous knowledge includes not only techniques for flood preparedness and response, but also, it includes ways in which the communities are adapting to floods through alternate livelihood methods whenever floods occur (Prasad & Nigam, 2023).

V. Discussion

According to the findings in Table 1, it was established that there are coping mechanisms against seasonal floods in the area. However, their relevance in terms of the local context is what matters.

The findings revealed that majority of the respondents were negative towards the construction of flood embankments. The construction of flood embankments is not a bad idea; however, the geographical environment in the area appears to be a stumbling block to this effort. The flood embankments are recognized for their role in acting as security or as a wall to deter any damages that might be caused as a result of flooding. But with a mountainous terrain, it might be difficult to ascertain where to start the construction and where to end the construction, as mountainous areas do not have a straight shape, and danger can come from any point or side or fold of the mountain.

Table 1 further indicated that flood plain zoning restriction on the use of plains is not an appropriate coping mechanism against seasonal floods given the context of the area, where farming is the major livelihood of the people in the area and the respondents

revealed that mountain slopes / grasslands and typically the flood zones are associated with fertile soils and therefore farming thrives very well. It is important to note however that flood plain zoning restriction on the use of plains will be necessary for the area because it reduces the risk and cost of damage that flooding causes. National and local government should pass flood zone laws that restrict land use in such areas. These laws will prevent building and development in flood zones to lessen the risks associated with flooding.

Results further indicated that flood forecasting had fewer responses as an applicable coping mechanism in the area. There are no viable practices or mechanisms in place to alert people about seasonal floods. Meanwhile, community radios are good at communicating information within communities, and are well utilized for most local communities in the country. However, they can only disseminate information about what has happened, rather than what is about to happen. Nevertheless, seasonal floods continue to affect the people in the area even though the government has tried to increase awareness about the dangers of settling in flood prone areas and also relocating vulnerable communities to other suitable safe places, despite facing resistance from these communities refusing to relocate.

The findings revealed that irrigation canals were preferred and used compared to other coping mechanisms. Therefore, the government of Uganda should ensure the development and improvement of ditches and irrigation canals around areas in Bumasheti Sub-County, Bududa District. There should be proper location of the ditches as per local ordinances within the area and thereby engaging with professionals to help in determining the effectiveness of the ditches and ensuring they are allocated correctly.

The study identified challenges affecting the coping mechanisms against seasonal floods in Bumasheti Sub-County, Bududa District. One of the challenges was the difficulty to repair cracks. When flooding occurs, sometimes it is inevitable to see cracks on the ground (soil), on buildings, on roads, etc. The problem is that some cracks might be too deep that it could be very costly or even difficult to repair them. So, when another flood hits with the previous cracks unrepaired, the danger becomes exacerbated. Another challenge affecting the coping mechanisms against seasonal floods in the area is the loss of lives. Coping mechanisms against seasonal floods are meant to preserve and protect lives against the seasonal floods, but when there are casualties as a result of floods, then local community members are bound to question the effectiveness of the mechanisms in place, and therefore, the mechanisms might face resistance or lack ownership by the local community members. Another challenge affecting the coping mechanisms against seasonal floods is the difficulty to predict floods in this part of the world. For most local areas in Africa, it is true that governments plan for disasters after they have happened. It is not only a case of Bumasheti Sub-County, Bududa District, Uganda. Disaster preparedness is a matter of concern for most African countries. Lastly, respondents reported the effect of steep area on the land as a challenge affecting the coping mechanisms against seasonal floods in the area. This tends to decrease the amount of water penetrating into the soil. When water slowly penetrates the soil, it will flood the area.

The study proposed solutions that could be considered in reducing the challenges affecting the coping mechanisms against seasonal floods in Bumasheti Sub-County, Bududa District, Uganda These included the construction of safe place for food, clean water and basic necessities, defense against the spread of floods, disassociation from building under the hills and hard lands, constant watch to monitor water levels during the night and utilization of the indigenous knowledge passed down by parents. These are all important in promoting disaster preparedness, providing disaster relief and eventual disaster reconstruction.

VI. Conclusion

An assessment of the coping mechanisms against seasonal floods in Bumasheti Sub-County, Bududa District, Uganda showed that the coping mechanisms are largely not supported as per the area context, apart from using the irrigation canals which looks applicable and appropriate to the local setting, with majority of positive responses from the respondents. The Challenges Affecting the Coping Mechanisms against Seasonal Floods in the Area do undermine the efforts of local authorities, government of Uganda and international partners not only in the short run but also in the long term. Therefore, based on the results, there is absence of aggressive means of controlling seasonal floods and therefore heavy rainfall will continue to cause slides and disaster for the local populace. However, the study concludes that the available coping mechanisms such as the construction of flood protection embankments, flood plain zoning restriction on use of plains, flood forecasting and irrigation canal. are appropriate, if more research and resources are invested in their implementation as per the area context.

VII. RECOMMENDATIONS

- The government and the local authorities should embark on construction of irrigation canals and raised embankments such that during seasons of heavy rainfall, the water flow does not spill out to the outer land surface.
- The local municipality and the national government should construct bridges that are raised enough such that it directs the water flow to the main rivers and lakes.
- There should be tight restrictions/rules setup to prevent settlement by people in these areas that are prone to flooding so as to prevent the negative impacts that might result to death.

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