Community Based Flood Risk Management Approach in Northeastern Uganda

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Abstract

This study was conducted in the Amuria district of Northeastern Uganda. The aim of the study was to assess the performance of Community Based Disaster Risk Reduction (CMDRR) approach in mitigating disaster effects in the area. The objectives were to assess the effectiveness of community preparedness, response, and recovery efforts in mitigating disasters in the study area. Aberilela and Wera sub-counties were purposively selected, and two parishes were chosen from each of the two sub counties based on their vulnerability to flood disasters. A sample of 300 household heads were randomly selected. Methods of data collection included questionnaires, in-depth interviews with key informants, focus group discussions, observation, and documents review. The collected data were analysed using descriptive statistics and triangulated with thematic analysis of the data from interviews and field observations. Results from the study indicate that the CMDRR approach had performed well despite some shortcomings. The approach had been able to prepare the community by training them in disaster management activities, developing hazard prone maps, disaster plans, established effective rescue measures and other response measures for the affected communities. However, it had failed in building capacity among the communities to stock essential services including food, early warning systems and in detecting and predicting disaster as well as building gender and age balanced capacity in the communities. Overall, the performance of CMDRR committees in Amurai and particularly Abarilela and Wera sub-counties was above average. The study recommends that government should adopt this approach and replicate it in other disaster-prone areas for effective disaster management.

Keywords: Disasters, Communities, Managed, Risk reduction, Preparedness, Response and Recovery

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Background

Globally, disasters have devastated communities over the past decades. Closely linked to this is the fact that the number of people reportedly affected by disasters worldwide has increased by one-third and reported deaths have gone up to 84% (HPN, 2007). Over 95% of the reported deaths are in developing countries (Nabalegwa & Acor, 2017; HPN, 2007; Vinod & Ramon, 2015). If such trends continue, it is estimated that by 2050, natural disasters could have a global cost of over $300 billion per year (HPN, 2007). It should also be noted that disasters were identified as one of the inhibiting factors in the realization of the Millennium Development Goals (MDGs) and are likely to do so in the realization of the Sustainable Development Goals (SDG) including the prime goal of poverty eradication and hunger (MDGs assessment report 2012). The realization of other goals is also likely to be slowed down by disasters including those that concern universal education, health, elimination of domestic and sexual violence as it affects women and girls, protection of children rights, and reduction in rural-urban migration. This is likely to happen in poor countries, whose economies depend on donor funds (Nabalegwa & Acor, 2017).

Global climatic change has increased the frequency and severity of hydro-meteorological hazards including floods and drought (Vinod & Ramon, 2015). Flood related disasters are common on the global scale, affecting developed and developing countries. However, the effects of floods in developing countries are greater than the developed world because of the vulnerability of communities in the developing world. Their coping strategies are limited due to poverty. The World Food programme (WFP, 2007) reported that Africa had suffered from the worst floods in decades extending in an arc from Mauritania in the west, to Kenya in the east, affecting an estimated 1.5 million people in Ghana, Togo, Sudan, Ethiopia, Rwanda, Uganda and finally

Kenya. Many people were made homeless resulting in the need for food distribution to flood victims across the region.

In Uganda, the WFP needed a total of U.S $ 65 million to continue feeding 300,000 flood victims as well as refugees and displaced people. The most affected areas were those in low-lying areas that make them susceptible to flash waters from the highlands. Western Uganda experienced its worst floods in 2013 since 1976. Rivers draining from Rwenzori Mountains burst their banks forcing thousands from their homes and washing away crops and eight people were confirmed dead. One of the key causes of floods in Kasese was lack of de-silting of the river channels as it used to be in the 1960s for the last 40 years. Silting narrows the river course and surging water volumes burst the bank or change their course (NEMA, 2018). Kampala capital city has not been spared.

In Teso sub-region, floods reached catastrophic proportions, causing Ugandan parliament to declare the country's first ever "state of emergency" in 2009. The cost of the damage caused by floods in Teso sub-region was estimated at Uganda Shillings 120 billion to cover six districts of Amuria, Katakwi, Bukedea, Kaberamaido, Kumi and Soroti (Daily Monitor, 2007). The funds were for restocking food, relocation of internally displaced persons, rehabilitation and improvement of school environment, reconstruction of roads, control of disease outbreaks, shelter and safe water provision among others.

The most affected districts in this sub-region were Amuria and Katakwi, where crop losses both pre- and post-harvest were very high (FAO & WFP, 2007). The two districts are extensively covered by swampy and are low-lying areas and generally of flat terrain. Consequently, they serve as a water 'sink' for water flowing from surrounding higher areas of Kabong, Moroto and

Nakapirit. Moreover, the soils in this region are water impermeability, which maintains high ground water levels.

In the Amuria District, food balance sheet indicated that the area would have a deficit of 16,419 tones of cereals, and 27,743 tones of roots and tuber. Many households suffered total losses of some crops, especially cassava, sweet potatoes and groundnuts. Obarilela market found in Obarilela sub-county where this study was conducted, was subdued by floods due to its location. It had limited range of food commodities on offer at the time of the study. Price changes ranged from 29% to 257% for groundnuts and sorghum compared to the neighboring markets that ranged from 33% to 50%.

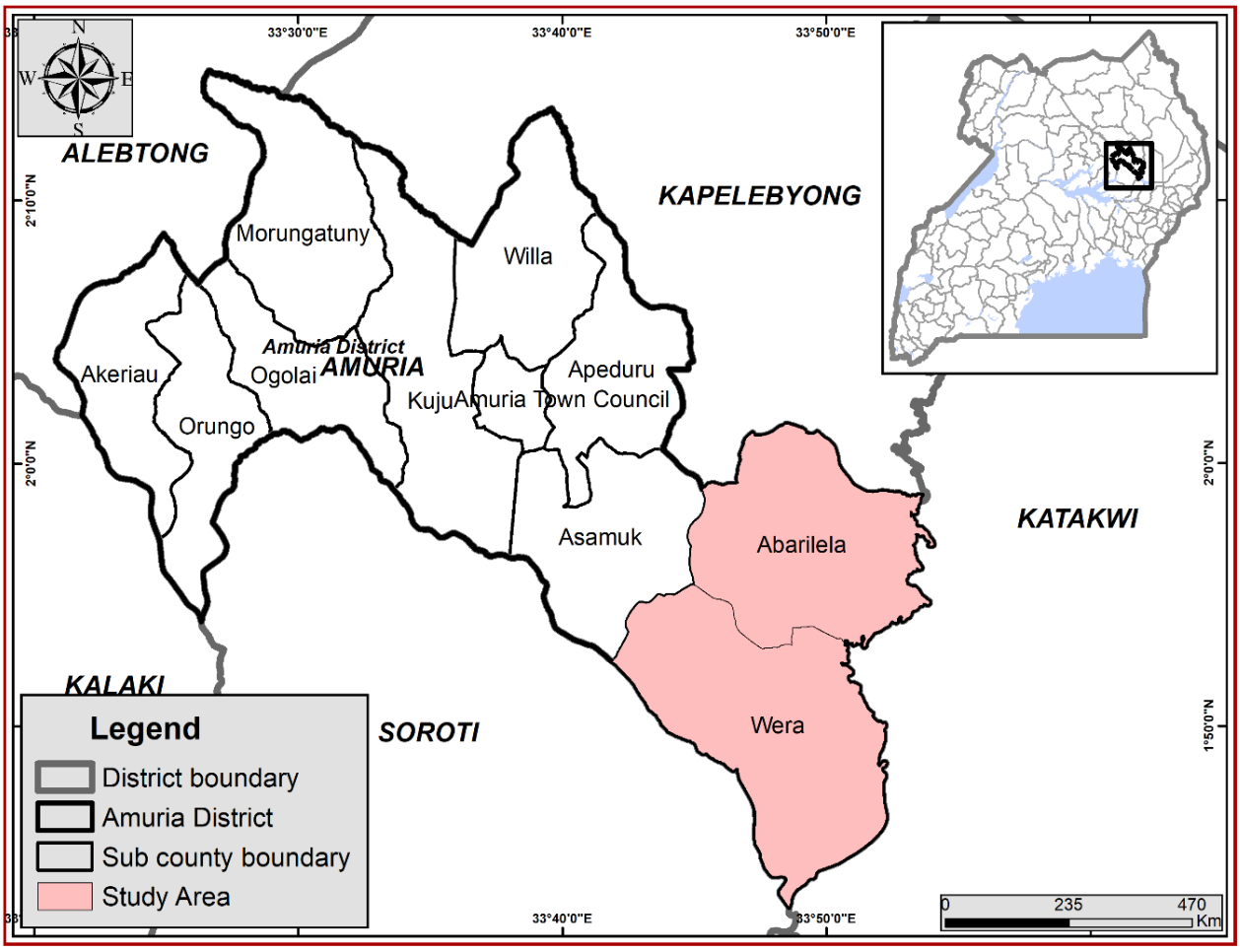

Figure 1: Map of Amuria District showing the sub-counties covered in this study

Despite the efforts made by government and international agencies, Uganda has experienced a wide range of disasters directly affecting most parts of the country. The fact that the largest percentage of the population is poor, disasters increase their vulnerability. This is especially so, in Amuria District where the re-occurrence of floods on an annual basis has left the poor in more precarious situation. The only option to get out of this situation is for the country to mainstream disaster risk reduction (DRR) into programme design, in such away as gender and HIV have been included, and used as reference points, in designing and choosing programmes (Concern, 2005). To mitigate flood disaster effects in the area, the local leaders adopted community management

disaster risk reduction approach. It was initiated by the church as supplement to government district disaster management committee. This is based on the principle that community participation is the most effective element to achieving sustainability in dealing with natural and man-made disaster risks (Bhagat, 2013; Shesh & Murshad, 2006; Jafari, 2020)

This study, therefore, was to provide a preliminary analysis of the salient aspects of the performance of CMDRR strategies and how effectively the approach had achieved its objectives in building the capacity of the communities of Amuria District to prepare, respond and manage disasters.

This approach has been in place for the last ten years, but its effectiveness in mitigating the impact of flood disasters is still doubtable. Many people seem not to understand the approach well and therefore, the impact of floods on the communities in Abarilela and Wera is still high.

The Community Management Disaster Risk Reduction (CMDRR) approach to managing disasters and consequently reducing poverty and vulnerability has been defined by Binas (2010:2) as "a process of bringing people together to collectively address common disasters and pursue common disaster risk reduction measures". It should also be noted that vulnerability is a location-based regional phenomenon (Yi Lixin et al., 2013). Caritas Caritas Czech Republic (2009 :12) defines CMDRR as a process whereby a community systematically manages its disaster risk reduction measures to become a safer and resilient community. It is a process of mobilizing a group of people in a systematic way towards achieving a safe and resilient community. It envisions a dynamic community that is cohesive in making decisions, deals with conflicts, manages collective and individual tasks, respects the rights of everyone, demands their rights, and addresses and bounces back from hazardous events. Disaster mitigation has been defined as a measure that can be taken

to minimize the destructive and disruptive effects of hazards and thus, lessens the magnitude of a disaster.

Community Management Disaster Risk Reduction builds on the Disaster Risk Reduction (DRR) approach. Dawald (2011:17) defines disaster risk reduction as measures designed to protect livelihoods and the assets of communities and individuals from the impact of hazards by:

- reducing the frequency, scale, intensity and impact of hazards,
- strengthening the capacity of communities to withstand, respond to, and recover from hazards, and,
- government and development partners establishing appropriate interventions when the communities' capacities are overwhelmed,
- favourably influencing the social, political, economic and environmental issues that contribute to the causes and magnitude of impact of hazards.

DRR is a complementary or integral part of other programmes such as micro-finance, food security, promoting agricultural diversity or capacity building. A disaster results when the hazard occurs and affects community, overwhelming its capacity to cope. Disasters affect people, their livelihoods and their environment. The magnitude of impact is directly related to intensity and scale of the hazard and vulnerability of individuals and communities. Globally, DRR is given a high priority. The World Conference on Disaster Reduction in Kobe in 2005, concluded with Hyogo Declaration, which contends that "*States have the primary responsibility to protect the people and property on their territory from hazards and …. to give high priority to disaster risk reduction in national policy, consistent with their capacities and resources available to them" Pg.2.* This was further followed by the Yogyakarta declaration in Indonesia in 2015.

The fieldworks conducted in Kenya and Ethiopia, as well as other studies by (Cordaid, 2012; Korugyendo & Nathan, 2012); indicate that communities trained in CMDRR are better able to cope with disasters. CMDRR is a multi-hazard approach to disaster risk reduction, which brings

communities to the center of hazard identification and analysis, risk assessment and managing disaster (Cordaid, 2013).

Herryal et al. (2017) highlighted the success of Community Based Disaster Risk Reduction (CBDRR) in the special province of Yogyakarta and central Java of Indonesia in handling earthquake, landslide, floods and Murapi volcano eruptions. The communities felt empowered and were able to organize their limited resources to mitigate the impact of disasters in their areas before the central and local government could come to their rescue.

In Uganda, CMDRR is practiced by Trans Cultural Psychosocial Organization (TPO) working with the community of Kipinyang village to address their dependency syndrome because of displacement from Katakwi.

Amuria District is found in Northeastern Uganda bordered by Otuke District to the North, Napaka District to the Northeast, Katakwi District in East, Soroti District to the South, Kaberamiado District to the Southwest and Alebtong District to the West. It is a plateau altitude area with gently undulating slopes, lying between 2º 0'13" North, 39' 4" East (see figure 1). The climate of Amuria is tropical. This climate is Classified as Tropical wet and dry (Aw) according to Koppen Geiger climate classification. The average temperature is 23.6ºc, the average rainfall is 1285 mm, and the least average monthly amount of rainfall is 18 mm occurring in January. The greatest amount of rainfall occurs in August, with an average of 182 mm; the difference between the driest month and the wettest month is 164 mm and the variation in annual temperature is around 3.4ºc.

Most of the areas of Amuria District are covered with rocks of basement complex of the Precambrian age that include granites, magnalites, gneiss, schists and quartzites. The soils fall mainly under the Serere-Amuria catena that are mainly of the ferralitic type (Sandy sediments and

sandy loams). Bottomlands contain widespread deposits of alluvium (UNDP, 2015). Because of the flat nature of the land, it has swamps with chain of rives that are flowing towards lake Bisina another swampy lake of the Kyoga basin. This leads to flooding in the generally flat area in Amuria and particularly Abarilela and Wera sub-counties.

The study was guided by the following objectives:

(i) establish the level of disaster preparedness of communities in mitigating loss, damage and disruption in the event of disaster occurrence in Abarilela and Awera sub counties of Amuria District and;

(ii) analyze the effectiveness of CMDRR in responding to and recovering from disaster impact in Abarilela and Awera sub counties, Amuria District.

Methods and Materials

The study employed cross-sectional design because it provides information as conditions were prevailing at the time of the study. The limited resources in terms of time, human and money did not allow the researchers to cover the whole district, and rendered interviewing the whole population in the sub-county an impossibility. A cross-section was done in two sub-counties and one parish was selected from each of the two sub counties. This was based on the vulnerability of the parishes to the flood disaster. In addition, the area was the most isolated in the district.

Household heads, local council leaders, technical staff at the district and the sub-county, and CMDRR committee members constituted the study population. Purposive sampling was used in selecting the local government staff, (12) community leaders (councilors) 17) and CMDRR committees who are (19) in number. The remaining (252) community members were randomly

sampled from the community using systematic random sampling. The sampling frame was the household village registers obtained from Parish chiefs.

The field tools that were used in the study included; semi-structured interview guide. Transect walks, community mapping and historical profiling. Semi-structured interviews were used to obtain information from both groups and individuals on both general and specific aspects flood hazards, disasters and their effects on communities. It was also used to collect information on the performance of CMDRR committees in the area and community perceptions on underlying causes of floods and actions taken by communities on preparedness and response. This was preceded by observation, informal and unstructured interviewing done in the area during the four village transect walks. The aim was to gain deep understanding of the themes of interest necessary for developing relevant and meaningful semi-structured questions. This was adopted because the researchers were not going to have more than one contact with the respondents. Tape recording and note taking were done and the recorded information was further transcribed. Thematic questions were developed to guide the interview.

Transect walks were done to establish interaction between physical environment and human activities, focusing on land use, environmental changes and the physical areas vulnerable to the flood disaster. The systematic walk along footpath in the area from north to south and west-east together with the locals enabled the researchers to explore the effects of floods on the communities. This was done during the initial stages of the study. Simple questions were presented to the community members about the effects of floods, their Preparedness and response measures in place. The role of CMDRR in helping communities to mobilize local resources was thrown to the communities. This helped in learning more about the environment and economic and social

resources of the area. The spatial information was organized and refined along the transect walks leading to the production of community maps.

Community mapping as a method of data collection was used in collecting information on topography, houses and infrastructure were mapped along transect. Historical profiling to identify trends in flood disasters and the vulnerability of the communities was done by listening to the local communities and their leaders. Life histories and historical tracing to reveal trends in environmental changes, livelihood strategies and performance of CMDRR committee to flood disaster response was collected. The brief history of floods in Amuria and particularly Abarilela sub-county was revealed and the research team got to know its effects on the community. The team was able to establish the preparedness and response measures that have been used in the area from the historic time, including the tradition methods. Also, social and gender analysis of the preparedness and response training done by CMDRR is areas was done.

Data collected were analysed using simple descriptive statistics. Triangulation method was used to validate the statistical data in comparison with thematic patterns from interviews to identify congruency and contradictions in the data collected. Unique identifiers that had been assigned to the respondents helped in quantifying the information collected. Common and recurrent themes were noted for discussion of the results. Second person was used to transcribe the data on tape record to confirm or bring new perspective. Pattern analysis in terms of location, gender, age and performance of CMDRR from the respondents were done. The aim was to establish the preparedness and response of the communities in relations to locations in the study area and the training benefits by all the members of the communities. The level of preparedness and response according to the various indicators identified were used to establish the performance of CMDRR in Amuria.

Findings and Discussion

The findings and the discussion are in line with the types of disasters that occur in the area and the performance of CMDRR in mitigating the impacts of the disasters on the communities regarding preparedness and response to floods in the area.

Types of Disaster and performance of CMDRR in the study area

The respondents were asked to identify the types of disasters that occurred in Abarilela and Ware Sub Counties. The results indicated that floods were ranked at 99.7%, emerging as the most experienced disaster, followed by droughts with 98.6%, wars and cattle rustling with 95.8% respectively, forest fires 79.70% and epidemics 45.60%. The findings of this study are in line with ISDR (2008) that ranked floods as the recurrent disaster in sub-Saharan Africa between 2000-2005.

In assessing the performance of Community Managed Disaster risk reduction in the study area, the aspects that were used include existence of emergency drills, early warning systems, hazard maps, stocking food items, public awareness, and capacity building activities.

Hazard maps provide important information to help people understand the risks of natural hazards and help mitigate disasters. They indicate the extent of expected risk areas and can be combined with disaster management information such as determining evacuation sites and routes. In this study, the researcher intended to find out whether the community was prepared with hazard maps. The community members in the parishes were asked whether they were always prepared with hazard maps. This is because hazard maps are some of the requirements that indicate whether a particular community is prepared to handle disasters like floods.

It was noted that 67.4% of the respondents indicated that the communities in Amuria district were to some extent prepared with hazard maps. However, in an interview with some community leaders, it was indicated that they do not have hazard maps, but they do know mentally where each disaster comes from, their routes and severity. The technical officer confirmed that they do have hazard maps. One copy of the map was provided for the researchers to confirm their availability. The opinion of the research team is that although the hazard maps exist, these have not been disseminated to all community members for use. This is because over 30% of the respondents had never seen hazard maps. In effect, it reinforced the notion that the communities should have the knowledge of the disasters likely to occur in their vicinity. Jeannette & Kathleen (2006) however, emphasize the need to have hazard maps generated through knowledge sharing and or dissemination. Therefore, there is need to disseminate the hazard maps to all members of the community including the young since disasters do not discriminate.

Stocking of essential items especially food is also interpreted as an indicator of preparedness. Community Managed Disaster Risk Reduction is supposed to advise communities on what essentials to stock in case of a disaster. Only 12.9% of the respondents indicated that the Community Managed Disaster Risk Reduction advises them on stocking of essential goods. This implies that when flood disasters occur, many people are affected by hunger since they are usually caught off guard with little or no basic human necessities. An interview with one of the community leaders indicated that no stocking is done at the sub county and district levels but only at the household level. Thus, response to disasters becomes a problem in the event of occurrence, implying that there is always an outcry to government to supply emergency food in the short run, yet under Community Managed Disaster Risk Reduction, communities ought to be resilient.

Existence of emergency drills in the area

In an ideal situation, Community Managed Disaster Risk Reduction ought to undertake emergency drills in preparation for any upcoming disaster. Bullock et al., (2012) emphasize the need for emergency drills to be carried out right from the household to the community level in preparation for disasters. About 52.6% of the respondents interviewed indicated that no emergency drills whatsoever, have been conducted in these parishes to let people know how to handle disasters. The CMDRR needs to improve on this if people are to remain prepared to respond to floods in this area. The fact that Amuria experiences floods on annual basis, emergency drills should be routinely conducted

Early warning systems

Early Warning Systems (EWS) are vital in CMDRR since they alert vulnerable communities to prepare themselves for disasters. The findings from the study indicate that 70% of the community members acknowledge the existence of early warning systems. A historical profiling of early warning systems in the area indicated that communities are heavily relying on traditional rather than scientific methods of getting information. One of the informants said

> *'when trees flower a lot for instance 'etekwa' we know that rains are about to fall and when rare birds that come from the lakes appear it means floods and water logging are about to occur'.*

Cord Aid and IIRR (2013: ix) argue that for communities to be effectively prepared early warning systems ought to exist where the focal persons from upstream Committee relay information to CMDRR committee downstream on the intensity of rainfall. The existing EWS in the area are not able to forecast when a hazard is going to occur and predict its scale and intensity.

CMDRR and capacity building in Amuria District

It is important for the community to have capacity building activities to enable them to respond to disasters and develop resilience or the recovery after the disaster. The capacity of the communities to respond to disasters is easily gauged by the level at which the leaders communicate information, and functionality of the Community Managed Disaster Risk Reduction Committees. From the field data, more people acknowledged being informed about the impending disasters. There was evidence to suggest that the capacity building was done among community members in the parishes as indicated by 71.5% of the respondents. The field data indicates that the capacity of both the leaders and CMDRR committees were built by conducting some training. Analysis of the pattern of the respondents that had been trained indicated that most of the participants were men and were above 25 years of age. This implies that the training was not gender and age sensitive. The women and the young were left out of the disaster preparedness and response training. One of the key informants had this to say:

> *'I have been taught to see that during the farming season, I should have a separate garden of food for sale and for home use'.*

Since disasters do not discriminate, training should be for all as the case of what was observed in Yogyakarta – Indonesia where *Lingkar* association was training communities on disasters including the pupils in primary and Madrasa/Quranic schools.

The UNHCR (2008) states that to attain capacity building of people toward disaster reduction, there was need to train several community members in the use of participatory methods. Age and gender balance among participants should also be ensured and community leaders need to inform all members about their responsibilities as duty-bearers, particularly parents. It, therefore, remains a gap that not all the stakeholders were considered during the training.

Disaster preparedness plans in the study area

There are several views about community managed disaster Risk reduction, which emphasize that communities should have a plan of action. Despite all precautions taken, one may still be a victim of an unexpected tragedy. Coping with disasters will be much easier if one had planned for them. Everyone needs to have an emergency kit, first aid supplies, bottled water, nonperishable foods, and other important items. Jaeryl & David (2006) note that there is a need for a solid emergency management plan to guide the development of disaster preparedness. They further argue that much of the existing disaster preparedness plans have been developed from the "on-the-ground" policies and procedures of emergency management.

Disaster preparedness plans are a prerequisite to the management of disasters because they indicate what action and resources would be required before hand in response to disasters. The plans attempt to minimize the impact of disasters by structuring the response and effecting quick and orderly reaction to the disasters. One thing to note, however, is that these plans must be translated into action. In this study, the respondents were asked whether they had disaster preparedness plans that guide the community.

The results reveal that 70.7% of the community members had no disaster preparedness plans in the area. Interviews with some of the key informants (Government and community leaders) indicated that there were no disaster preparedness plans, but they plan as disasters arise since there were no adequate resources at the sub county. The argument of another informant who hails from Ocal parish was:

> *"Maybe it is with Soroti Catholic Diocese for Integrated Development Organization (SOCADIDO) officials. I have never come across it, meaning the CMDRR committee doesn't have it. This was evident during the collapse of*

> *Adiidindam; the committee had to call for help from SOCADIDO and could not do anything on their own".*

Response to disasters in the study area

The study also analyzed the effectiveness of CMDRR in responding to disasters. The indicators that were considered in this analysis of assessing the effectiveness of the response actions included death, loss of property and the general disruption to normal life. Results from communities show that 65% of the respondents indicated that there was loss of life. Nevertheless, interviews with the civil servants indicated that no deaths were recorded, while politicians and the CMDRR committee members reported that some deaths occurred. In addition, it seems that civil servants who are always committed in their offices have no time to get reports of the occurrences of death attributable to the disasters. In an interview with the political leaders, they indicated that:

> *"In other areas, people's houses collapsed on them especially in Acowa Sub County but not in Abarilela and Awera sub counties. For us, we fled to safe places." It's therefore clear that the death could have been caused by other disasters such as Kony wars and the Karimojong cattle rustlers other than floods.*

However, as stated earlier death alone is not the measure of ineffective disaster management. However, in all instances, the community was unable to cope on its own implying that the response mechanism was either slow or poor.

CMDRR and management of disaster health impacts in the area

Disasters usually come along with health impacts such as casualties, poor hygiene, and many others. A community trained in the use of CMDRR strategies is expected to be prepared to respond quickly through the use of available capacities. An investigation on community preparedness and response to health impacts indicated that 80% of the community members were prepared. They

indicated that they were well equipped to be able to respond to health-related problems that will be triggered disasters.

They further indicated that they had first aid boxes, health education and general sensitization given to them to enhance and maintain good hygiene. However, some informants indicated that there was too much malaria, which affected both old and young. In addition, HIV/AIDS became rampant as people were forced to live in schools /camps. Furthermore, there were no latrines; human waste was all over the places. Some families had one meal a day while others had no meal at all. School structures collapsed and children could not attend school for some days. There was no pasture for animals to feed on. Much of the food rot in the gardens, and there was nothing to sell to obtain money for necessities and as a result, many children fell sick and got malnourished. This, therefore, implies that there is doubt about the community's ability to handle disaster-related health problems. However, WHO & UNISDR (2009) recommend that in the quest to build the capacities of communities to respond to disasters, there is need to ensure the availability of basic needs: food, WASH (water, sanitation & hygiene), non-food items and shelter. Psychological and medical needs keep families together and re-unite those families that have separated. There is a need to take special care to assist higher risk and more vulnerable populations, including the elderly, children and people with disabilities. It is important that there are 'safe spaces' for youth, children, women and other vulnerable populations to prevent abuse during emerging cases. It further notes that there is a need to include local participation in camp management, organization and building.

Availability of emergency aid

The availability of emergency aids such as ambulances, firefighting equipment, and bicycle ambulances determines the ability of the community to respond to disaster effectively. It can be noted that the availability of emergency aid, which are elements of effective disaster response, are never in place in these parishes. Results from interviews with community members indicated that about 53.3% acknowledged the non-existence of emergency aid in the flood afflicted areas. This means that peoples' lives remained in total danger with occurrences of illnesses and death. It also means that the communities in Abarilela and Awera Sub Counties are not prepared to handle emergencies when floods occur.

Construction of temporary shelter

In the event of a disaster, temporary shelter should be constructed for the disaster victims. This could be done using tarpaulins, papyrus mats, grass and so forth. The aim is to avail shelter as a basic need as a means of response. Analysis of the provision of this item as response activity indicated that 49.8% of the respondents acknowledged receipt of these items, while 50.2% indicated that these items are never provided.

This lack of shelter means that either each family in the community endeavors to erect one or the government and NGO make this provision. One of the key informants agreed with this said:

> *"Everybody had to construct for himself/herself own shelter except for the vulnerable who got tarpaulins from Government and NGOs but did the erecting of shelter themselves and through help from the clan".*

This quote above indicates that Abarilela and Awera were able to use their capacities to respond to the disaster hence community readiness as compared to their counterparts in Ethiopia (Cordaid and IIRR, 2011). In Ethiopia, villages came to be known as the GendaMaskin or the villages of the poor due to their high poverty levels, which was because of severe deforestation of the Gora

Babo hill and uncontrolled quarrying by the Ada villagers and outsiders, which resulted in the loss of biodiversity, wild animals, trees, shrub, and grass species. Excessive run off from the hill exposed those that lived along the flood lines in the village at the town of Dire Dawa to potential flooding. The Government, Private Sector, NGOs, quickly responded with emergency shelters, food relief, medical aid and psychological support. When the emergency was over, almost all the organizations withdrew. This implies that, response is merely about short-term supplies to help victims continue to respond to immediate challenges.

Food and nonfood relief supplies

The supply of food and nonfood items to a disaster-affected community indicates that the community is unable to respond to a disaster. The respondents were therefore, asked whether food and nonfood relief was supplied when a disaster occurred in this parish. About (70.9%) of the respondents indicated that food items were not supplied to the parishes affected during the disasters. This implied that the communities were not getting sufficient support from the second party, the government or the NGO. This is in line with the interview results where the informants said they had to fend for themselves and some of their colleague victims lost their lives in search of food. This step is an indication of progress towards community resilience using CMDRR.

These findings are in line with that of Rogge (1992) who pointed out that when preparations are made beforehand, it strengthens the capacity of the community to respond. Having guidelines established, tools and resources identified, and a plan of implementation, makes responses more timely, effective, and comprehensive.

Search and rescue

Search and rescue are one of the components of response to disaster. Victims are rescued either by the trained members of the community or by external stakeholders. The element of searching and rescuing the victims of disaster was fairly done. About 63.9% of the respondents acknowledged that there were always rescue efforts by external and internal stakeholders when a disaster occurred in the parishes. This means that during disaster, people who were drowned in waters were rescued and those who were abducted by the rebels were rescued. It is noteworthy that the methods of search and rescue of the victims were local, for instance local boats, jerrycans and pieces of timber to keep the rescuer on a float. The idea behind CMDRR is to encourage the mobilization of locally available resources towards becoming disaster resilient. Another component of response to disaster is re-establishment of destabilized services. The services, which were destabilized in these parishes according to the respondents, were repaired. A greater number of the respondents acknowledged this with a response of 54.7%. This means that services like education, medical and social services, which were destabilized by the cattle raiders, civil wars of the lord's resistance army and floods have been made to some extent available to the people.

CMDRR and recovery

Recovery programmes aim at bringing back the communities affected by the disaster to their previous levels or even those better than before. In this case, the effectiveness of CMDRR in restoring the communities including repair of damaged infrastructure in the area, access to medical facilities and food security.

Repair of disaster damaged infrastructure

According to data collected from the field, 65.3% of the respondents acknowledged that repairing of roads; houses, and social services in the area were provided by CMDRR committee. This means that, to some extent, the recovery process from disaster hazards in the Amuria District was gradually getting to its roots. However, they had to change their construction methods from use of raw bricks to use of mud and wattle. Recovery refers to an individual's and a community's ability to 'pull through' the disaster and bounce back to its pre-disaster level of functioning (Buckle et al., 2000; Kimhi & Shamai, 2000; Maguire & Hagan, 2007). This finding is in line with the claims of earlier scholars, in that some people had built their houses and had settled meaning that recovery is a gradual process. The road network is a very important aspect of recovery because of its importance like easy access to medical centers, markets and schools without which a disaster-affected community continues to be poverty prone.

Repair on the roads is key in helping communities recover from drastic disasters. However, transect walks through the villages revealed that the road networks were still in a bad state. A pool of stagnant water could be observed on the roads and some had deep and wide valley that was difficult to cross. There was also fear that even if they were worked on, the next floods will sweep the murram way. In a local webpage, Uganda clusters, noted that as a means of recovery, the government of Uganda has adopted the parish disaster management approach. This system is a transition approach that aims to ensure that basic services (back born services) are provided to the population that has moved from mother camps to transit sites or home sites closer to the original homes before the displacement. The priorities have been the provision of basic health services and

education materials infrastructure, provision of safe water, stimulation of livelihoods, opening of roads among others.

Restoration of education standards along with staff houses and safe water for the pupils and students is going on in the recovery process. The responses indicated that pupils in these parishes have no proper schools to acquire quality education. About 70.2% of the respondents acknowledged that pupils had no well-equipped schools to be able to access quality education. This implies that education services in these parishes are poor with congested schools, long distances travelled by pupils, low teacher ceilings, and poor welfare of teachers. This has resulted in poor academic standards in all schools in the district. Transect walks and interactions with the community indicated that, generally the communities were poor. The principle of CMDRR, which aims at mobilizing the community to pool resources for preparedness and response could not work. The human resources were available, but there were scanty financial resources, thereby limiting the operations of CMDRR in Amuria.

Access to food security

For one to ensure a healthy body and mind, there should be a balanced diet. Food security is one of the indicators of performance of CMDRR in helping communities recover from a disaster. Communities that are food secure bounce back from hazards and disasters very fast. However, results from the study revealed that there was no food security in Abarilela Sub County. About 78.6% of the responses from the community members reported having no adequate food. This, therefore, means that the communities have not yet fully recovered from disaster effects as they still face hunger as their biggest challenge. Most people do subsistence agriculture where the family consumes all food. Thus, most houses run out of food shortly after harvest. People in these

communities do yet have the culture of storing food. Hence, they are more vulnerable to food insecurity in the event of a disaster. The informants from SOCADIDO stated that they gave some planting materials to the community that had formed groups in the two parishes. These planting materials included orange and mango seedlings, onions, tomatoes, cassava cuttings among others to make them food secure. They however, added that despite SOCADIDO's efforts they were still food insecure. This then implies that the CMDRR strategy is not well structured in Abarilela and Awera sub-counties to help the community recover adequately. Observations during the transect walks revealed that less than 10% of the food storage facilities were identified in this area. Historical accounts from one of the councilors were that:

> *"before 1990, every home in Amuria had at least a granary of millet and sorghum. Since the political insurgence of the 1990s followed by the cattle rustling all these were destroyed".*

Conclusion

The CMDRR has not performed well in preparedness and response to flood disasters in the area. This is because the principles on which CBDRR is based are missing on the ground. The communities are supposed to be more organized to be able to mobilize resources that can enable them to prepare and respond to disasters. However, in this case, the people of Amuria are generally poor. This limits resource mobilization yet the infrastructure that are susceptible to floods require large amount of money to restore. Secondly, the level of social cohesion is low and many of them feel the government has the sole responsibility of helping them. Such attitude makes them develop apathy towards community self-help, which is the basic principle of CMDRR. However, the CMDRR should continue to build capacity and prioritize stocking of food as essential flood

disaster resilience. Modern early warning systems that detect floods easily should be introduced in the area and the old system should be integrated in the modern scientific methods. Disaster preparedness plans should be developed at the village level. The local communities should be involved in developing hazard plans should be given priority because this is one of the basic principles of Community Based Disaster Risk Reduction Committee as it was observed in CBDRR of Yogyakarta and central Java in Indonesia.

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