Members of Mwala VCPC in TA Mbiza, Zomba. Photo credit: © Titukulane RFSA 2021/ Fundi Kayamba-Phiri

Community-led Resource Mobilization and Early Warning Systems Process Assessment

Full Report

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ABSTRACT

This report examines the motivation and willingness of Village Civil Protection Committees (VCPCs) and communities to mobilize resources at community level for Disaster Risk Management (DRM). To do this, a participatory action research (PAR) approach was utilized, facilitated by SWOT analyses, in combination with focus group discussions (FGDs) and key informant interviews (KIIs). The findings revealed that communities had prepositioned resources to prepare for disaster response as part of risk reduction. Participants identified their ability to mobilize themselves as a community; to mobilize funds and food; well trained and knowledgeable structures, good agricultural practices, and good governance as major strengths. Opportunities for resource mobilization included enterprise, piece work (*ganyu)*, irrigation farming, access to safety net programs, and youth participation. Weaknesses included the disorganization of some community structures, lack of support or political will from community leaders and the government, lack of accountability from VCPC members, and reluctance to adopt improved agricultural practices. Community-based early warning systems, although available, are insufficient to provide effective risk reduction for natural disasters. There is a lack of documentation concerning indigenous early warning systems, which impedes the development of effective and contextual strategies for risk reduction. The recommendations include increasing awareness among traditional leaders, defining resource mobilization structures, documenting guidelines and transactions for transparency, investing in early warning infrastructure and capacity building, documenting indigenous early warning signs, and intensifying watershed restoration and conservation to increase disaster preparedness.

Keywords: Community-led resource mobilization, disaster risk management, early warning systems, climate resilience, climate vulnerability, preparedness and response, National Resilience Strategy (NRS), VCPCs, youth engagement, Malawi

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ACRONYMS

ACPC	Area Civil Protection Committee
CBEWS	Community-based Early Warning System
CDA	Community Development Assistant
CDF	Community Development Fund
CPC	Civil Protection Committee
DCCMS	Department of Climate Change and Metrological Services
DCPC	District Civil Protection Committee
DoDMA	Department of Disaster Management Affairs
DRM	Disaster Risk Management
EWIS	Early Warning Information System
EWS	Early Warning System
FAW	Fall armyworm
FGD	Focus Group Discussion
GVH	Group Village Headman
IEWS	Indigenous Early Warning System
KII	Key Informant Interview
MET	Metrological
NRS	National Resilience Strategy
RFSA	Resilience Food Security Activity
RRO	Relief and Rehabilitation Officer
SEWS	Scientific Early Warning Information System
SWOT	Strengths, Weaknesses, Opportunities and Strengths
TA	Traditional Authority
VCPC	Village Civil Protection Committee
VDC	Village Development Committee
PAR	Participatory Action Research

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INTRODUCTION

USAID is implementing a Resilience Food Security Activity (RFSA), Titukulane, in Mangochi and Zomba districts to support the effective implementation of the National Resilience Strategy (NRS). The main objective of the NRS is to guide investments in agriculture, reduce impacts and improve recovery from shocks, promote household resilience, strengthen the management of natural resources, and facilitate coordination between government institutions, civil society organizations, and development partners. Titukulane is a five-year project being implemented in Malawi by CARE together with Emmanuel International, International Food Policy Research Institute (IFPRI), National Smallholder Farmers Association of Malawi (NASFAM), Save the Children, and WaterAid. The overall goal of Titukulane is to achieve sustainable, equitable, and resilient food and nutrition security for ultra-poor and chronically vulnerable households in Mangochi and Zomba districts.

Titukulane is building capacities of women, men, girls, and boys and addressing systemic weaknesses that limit opportunities and reduce the likelihood of sustained outcomes. *Titukulane* is also building the capacity of decentralized government structures to enable them to effectively deliver on their role in building and strengthening the resilience and adaptive capacity of the target communities. Rural communities need to mobilize resources for disaster risk management to reduce their vulnerability to natural disasters and build resilience. The availability of resources such as information, technology, personnel, and financial resources can help communities prepare for and respond to disasters and mitigate the impact of any potential disasters. Additionally, mobilizing resources can improve access to early warning information systems, which can help provide timely warnings and support the effective evacuation of affected communities.

Figure 1 below shows the national disaster risk management (DRM) institutional structure, which is the primary framework for vertical and horizontal coordination of disaster-related issues in Malawi. District, city or municipal level structures for disaster risk management include District Civil Protection Committees (DCPC), Area Civil Protection Committees (ACPC), and Village Civil Protection Committees (VCPC). At village level, the CPC comprises representatives from various structures within the Group Village Headman area and government extension workers stationed within the communities. Within the VCPC are representatives of women and the youth. *Titukulane* has supported Zomba and Mangochi District councils by establishing and revamping VCPCs by providing guidance on membership and training on DRM. Further, *Titukulane* is also building the capacity of youth networks within the communities through trainings on Theatre for Development, a social behavior change approach that gives voice to the youth to be agents of change and promote civic dialogue and community engagement for improved anticipation of shocks and stresses.

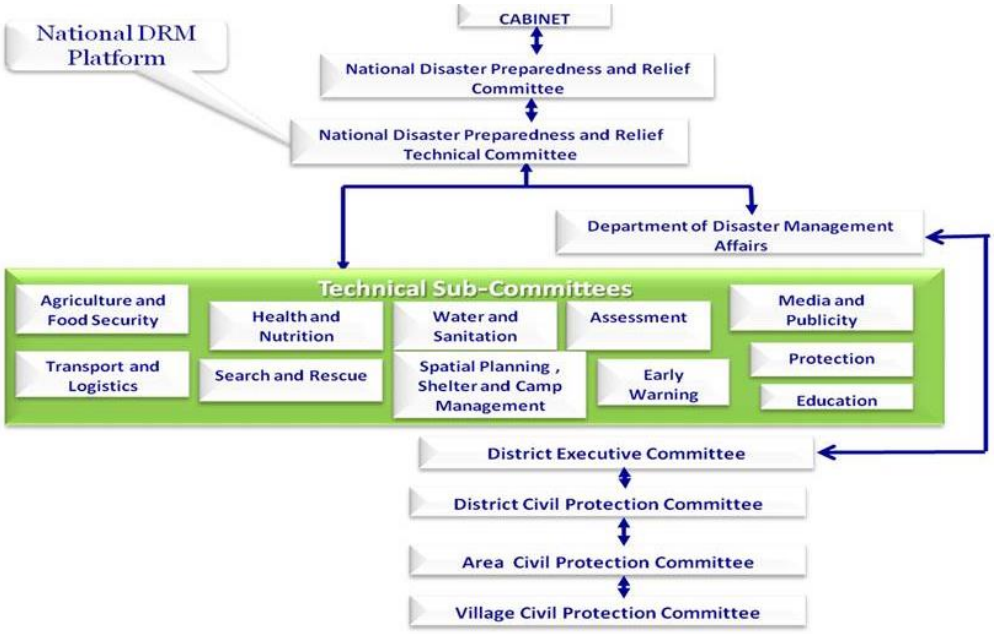


Figure 1 *National disaster risk management (DRM) institutional structure. Source: National Disaster Risk Management Policy (2015)*

Conducting process assessments or evaluations in on-going projects is essential for identifying strengths and weaknesses in implementation strategies and making necessary adjustments to achieve project objectives. This supports learning and adaptation, ultimately leading to more effective and impactful project outcomes. As part of the Collaborating, Learning, and Adapting (CLA) approach, the community-led resource mobilization assessment is intended to engage the targeted communities to fundraise, design their own disaster risk management (DRM) and resilience strategy plans, both at individual and or household level, which will be integrated into community level DRM planning. *Titukulane* conducted trainings on resource mobilization in 2022 and will continue to support communities throughout 2023 to ensure sustainable uptake of resource mobilization activities across Zomba and Mangochi districts. The assessment will be useful to enhance capacity building and strengthening activities targeted towards DRM structures; to ensure that resource mobilization is community-led, unlike common practices where DRM structures are sole funders of DRM initiatives, which potentially increasing their vulnerability and inhibits community ownership of initiatives, such as having functional early warning systems.

The results generated an understanding of how resource mobilization organized and can be enhanced for effective disaster risk management at community-level. The results will also feed into on-going capacity building on resource mobilization as well as functionality of early warning systems. Further the results will inform the design of interventions to ensure that civil protection committees mobilize resources and implement their DRM plans to reduce their vulnerability to climate shocks and stresses. The results will also ensure that improvements to the current implementation plan are tailored to communities in Zomba and Mangochi and will also form a basis for future routine DRM assessments. The results will also be used to further the NRS advocacy agenda for systemic and structural changes within local structures for increased investment in the NRS.

Resource mobilization and early warning systems

Community-led resource mobilization for disaster risk management involves mobilizing resources within a community, such as funds, food, and volunteers, to prepare for and respond to natural disasters. This often involves local structures, such as Village Civil Protection Committees (VCPCs), engaging in activities such as fundraising, organizing voluntary labour, and collaborating with other institutions or organizations to prepare for and respond to natural disasters. Resource mobilization for DRM can also include strategies to increase public awareness around the importance of disaster preparedness, mitigation and response (Government of Malawi, 2015). This can be done through initiatives such as education campaigns, youth programs, and community engagement events (World Bank, 2009).

Community-based early warning systems (CBEWSs) involve community driven collection and analysis of information that enable warning messages to help a community to react to a hazard and reduce the resulting loss or harm (Macherera and Chimbari, 2016). CBEWSs are approaches used by communities to anticipate, prepare for, and respond to natural disasters, by utilizing local knowledge, observation of environmental cues, and traditional forecasting methods. CBEWSs are an important component of DRM, as they promote timely anticipation of risks, by enabling communities to access information about impending disasters (Global Climate Fund, 2017).

Indigenous early warning information systems (IEWS) use traditional knowledge and local observations to monitor and predict weather and climatic changes that include natural disasters. They provide detailed information about the hazard, helping local communities to take timely and effective preventive measures (Gaillard and Mercer, 2013). Scientific early warning information systems (SEWS) use scientific methods to monitor and predict natural disasters. They provide more detailed information about potential events, enabling more accurate decision-making processes (Wächter and Usländer, 2014).

In Malawi, indigenous early warning information systems (IEWS) have proven to be beneficial in supplementing scientific early warning information systems (SEWS) (Trogrlić et al. 2017). IEWS rely on traditional knowledge and local observations to understand the risks of natural disasters and provide information to help people take preventive measures. For example, IEWS has enabled Malawi communities to better prepare for floods, and other natural disasters (Trogrlić et al. 2017). Additionally, IEWS are more cost-effective and sustainable compared to SEWS, while providing a better understanding of local contexts, hazards, and risks. Additionally, combining existing scientific and indigenous early warning systems can lead to more comprehensive approaches and more accurate information, allowing stakeholders to be better prepared and respond more efficiently to disasters (Hermans et al. 2022). Often indigenous knowledge is often dismissed on the premise of unreliability or occasional inaccuracy. However, Hermans et al. (2022) argue that it is critical to understand what different knowledges can and cannot do in different contexts and acknowledge the hybrid reality of knowledge used for EWS.

EWISs are essential for food security and food systems. They provide information that can help policymakers and communities to recognize, anticipate, and respond to threats associated with climate change and natural disasters (Braimoh, 2018). For example, early warning systems enable communities to be better prepared for droughts or floods, allowing them to take pro-active measures and plan accordingly. Furthermore, early warning information systems help to provide access to timely and relevant information about changing weather and other environmental conditions, helping local food systems to become more resilient.

Climate hazards severely impact the environment and people's livelihoods in Malawi. Droughts can lead to crop failure and food insecurity, particularly for women who are often the primary providers of food and water in rural areas (Ingutia and Sumelius, 2022). Further, floods can destroy homes, disrupt water sources, and leave women without access to clean water or a safe place to live. These effects on women can be further exacerbated by poverty and lack of access to resources such as health care and education.

Studies have shown that women are more likely to access EW information than men (Brown et al., 2019, Pudmenzky et al., 2022, UN Women and UNICEF, 2019). Women tend to have more access to early warning information due to their involvement in informal village-level networks and their engagement with local and national governments and organizations responsible for providing early warning information. Inasmuch as women have more access to EW information, studies suggest that men are more likely to utilize early warning information due to existing gender norms and attitudes. In contrast, women may be less likely to take advantage of early warning information due to existing gender-based norms and constraints, such as access and control over productive resources and limited power and influence in decision making (Pudmenzky et al. 2022).

Studies have found that EWIS can help empower African women farmers by improving their access to timely and accurate information on weather, crop prices, and agricultural technologies (Brown et al., 2019, UN Women and UNICEF, 2019). This information can help them make better decisions about what to plant and when and how to respond to changing weather and market conditions. EWIS can help women access credit and other resources more efficiently by providing them with the necessary information to make better decisions about what crops to plant, when to plant them, and how to respond to changing weather and market conditions (FAO and CARE, 2017). This information can lead to improved incomes and livelihoods, improving access to credit and other resources, a challenge noted in *Titukulane's* Gender Analysis (Titukulane, 2022) in Zomba and Mangochi districts.

Malawi's climate change and extreme weather events are linked to an elevated risk of gender-based violence (GBV), amplified for women and girls due to restrictive cultural norms and practices. Poverty, displacement, and limited access to resources can exacerbate the risk of GBV, particularly during climate-induced disasters (Desai & Mandal, 2021). Furthermore, the breakdown of norms and mechanisms that see traditional mechanisms for responding to natural disasters, such as relying on community members for support, are no longer available due to a changing climate. The collapse of such support systems can lead to increased risk for vulnerable populations, including women, who often rely more on these mechanisms for coping with natural disasters. This places them at a heightened risk of GBV.

The Gender and youth sensitive Climate Vulnerability & Capacity Assessment (Kita and Tembo, 2022) conducted by *Titukukane* during the project's refinement period revealed that the most severe climate hazards in Zomba and Mangochi districts were dry spells, floods, strong winds and fall armyworm (FAW). Tables 1 and 2 below indicate the frequency of the aforementioned hazards.

Table 1: Summary of climate risk historical trends Zomba

Risks	Period/Year	Frequency
Dry spell	1949, 1974, 1981, 2001, 2007, 2011, 2018, 2019, 2021	9
Floods	1996, 2000, 2006, 2010, 2012, 2014, 2017, 2018, 2019, 2021	10
Strong winds	2001, 2002, 2004, 2009, 2010, 2014, 2018, 2021	8
FAW and another streak	2014, 2017-2021	6

Table 2: Summary of climate risk historical trends in Mangochi

Risks	Period/Year	Frequency
Dry spell	1994-2001, 2010- 2021	22
Floods	1979, 1984,1942, 1996, 2013, 2015, 2017, 2019, 2020	9
Strong winds	1949, 1978, 1986, 2015-2021	9
FAW and another streak	2014, 2017-2021	5

Floods, dry spells, strong winds, and the fall armyworm have devastating impacts on Malawi's food systems. Floods have led to crop losses due to standing water, while dry spells have led to decreased crop yields and a decrease in the nutritional value of crops. Strong winds have caused damage to crops, while the fall armyworm has shrunk harvests and caused widespread losses of maize and other crops. This, among other factors, has prolonged food insecurity in Malawi and exacerbated poverty, malnutrition, and hunger issues.

Problem Statement

Climate vulnerability underlies food insecurity in Malawi. Multiple resilience enhancement programs have been implemented for over a decade, attempting to strengthen the core resilience capacities to stem climate-induced food insecurity. Village Civil Protection Committees (VCPCs) are mandated to develop and implement DRM plans, with activities for each phase of the DRM cycle: preparedness, response, and recovery. However, efforts to mobilize resources for CPC's DRM plans are minimal. From implementation, *Titukulane* has noted that the functions of the VCPCs have usually focused on response activities, which include reporting of cases, registration, and distribution of relief items to those affected by natural disasters. Preparedness and recovery activities included in DRM plans are thus minimal and not funded.

Justification

Engagement with VCPCs in Zomba and Mangochi through Titukulane activities indicates minimal community-led initiatives to protect and cushion households against the effects of natural disasters. *Titukulane* has already trained VCPCs in Zomba and Mangochi on DRM plan and contingency plan development. To support resource mobilization training and activities, *Titukulane* sought to understand what resources are available at community level for VCPCs to foster a resource mobilization culture for greater community ownership of DRM initiatives, including Early Warning Systems and broadly, resilience building. The assessment would also inform national stakeholders, especially the Department of Disaster Management Affairs (DoDMA) and other NGOs implementing the NRS, of key areas of focus for community-led resource mobilization to ensure that NRS coordination begins from the grassroots.

Key Objectives

The main objective of the assessment is to analyze and understand enablers and barriers for community-led resource mobilization for disaster risk management (DRM) activities in Zomba and Mangochi districts. The analysis will provide a basis for identifying options for building and strengthening local capacity for enhanced implementation of DRM plans.

The assessment shall be applied to address the following specific objectives:

- Understand what motivates communities to mobilize resources for disaster preparedness, response, and recovery, respectively
- Assess the levels of resource mobilization for disaster preparedness, response, and recovery, respectively
- Assess the roles that men, women, and the youth play in resource mobilization and early warning systems
- Uncover barriers that prevent communities from mobilizing1 resources for DRM
- Understand the complementarity of indigenous and scientific early warning systems

METHODOLOGY

Previous routine monitoring visits have revealed that few VCPCs are involved in resource mobilization. A human-interest story was documented on how one of the VCPCs, from GVH Mwala had mobilized resources for disaster response. For this assessment, the team used the story to aid discussions with the participants, thereby using a participatory action research (PAR) approach to understand the motivation and willingness of VCPCs and community members to mobilize resources at community level for DRM.

PAR is a context-specific joint process where researchers and study participants reflect, identify issues and map solutions to change a specific situation's outcome. The PAR approach is a great tool for ensuring inclusive and active participation that allows men, women, and the youth to make joint decisions, thereby creating greater ownership of proposed change. PAR is considered a democratic, equitable, liberating, and life-enhancing qualitative inquiry distinct from other qualitative methodologies in that it features an individual's feelings, views, and reveals patterns free from the researcher's manipulation or bias (Koch & Kralik, 2006). PAR allowed for discussion and debate within the focus groups; it allowed community members to interface with community leaders to jointly agree on what resource mobilization initiatives are best suited for their community.

This assessment combined both secondary methods including desk-based literature review, and primary methods including Focus Group Discussions (FGDs), and Key Informant Interviews (KIIs).

The secondary data collection involved review of *Titukulane's* refinement study reports, especially the Gender and youth-sensitive Climate Vulnerability and Capacity Assessment (Kita and Tembo, 2022), which also focused on most of the sites that were sampled for this assessment. National documents such as the DRM policy were also reviewed to confirm the coordination of DRM activities, especially at district and community level.

FGDs were undertaken with VCPCs and community members, who represented both beneficiaries and non-beneficiaries of community disaster response funds. The FGDs were thus the primary data collection approach, complemented by the KIIs. Data collection took two days in each community to afford participants time for their daily commitments. On the first day, a representative from the group read out the case study of resource mobilization by Mwala VCPC (see Annex 2) as the rest of the group followed with their own copies of the story, as shown in Figure 2. The groups then discussed the case within their context, and conducted a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of resource mobilization for DRM in their community. On the second day, the researchers followed up with a focus group discussion, with the same participants from the previous day. The FGDs were aided by a semi-structured interview guide that focused on understanding the climatic context of the area, as well as enablers and barriers for community-led resource mobilization. Both the SWOT Analysis and guided FGDs were conducted in an open space and lasted approximately 2 hours each. A recorder was used for each session, placed at the center of the meeting point to ensure that all voices were audible. The groups were mixed, including men, women, the youth, the elderly, and local leaders. The groups were mixed as the purpose of the participatory tools used was to engage the community to discuss resource mobilization within their context, depending on whether they were already implementing resource mobilization activities.

Figure 2 *Participants engage in a SWOT analysis session in TA Jalasi, Mangochi, with one participant reading out the Mwala VCPC case study while others follow along with their own copies. Photo credit: © Titukulane RFSA/Fundi Kayamba-Phiri 2022*

KIIs targeted the Relief and Rehabilitation Officers (RRO) and Metrology (MET) Officers in both districts, the Area Civil Protection Committee (ACPC) Chairperson, Community Development Assistant (CDA), and the Group Village Headmen at community level. These were identified as key players in DRM related activities at district and community level. The information solicited through the interviews was used to confirm, verify, or clarify the information gathered from the FGDs. Each interview lasted 1 ½ hours on average, and all interviews were done face-to-face.

Annex 1 outlines the data collection plan, detailing the target locations and sampling. The sample included 4 district staff, namely Relief & Rehabilitation Officers (RRO) and Metrological (MET) Officers who coordinate DRM related activities at district level. At community level the study sampled 4 Community Development Assistants, 4 Area Civil Protection Committee member, representing each of the 4 communities that were sampled. The study also sampled 8 VCPCs from the 8 sampled GVHs and 8 Village Development Committee representatives and 8 GVHs as key informants. A total of 80 community members were included in the sample. The sample included community members who benefited from response funds within their communities. In areas where the VCPCs were not engaged in resource mobilization, the identified community members discussed and explored ways of mobilizing resources within their area.

Titukulane frontline staff assisted in sample selection by inviting community members representing the range of age, livelihoods, ethnicity, and wealth groups (hanging in, stepping up and stepping out households) within the village or selected committee.

Within each sampled TA, two GVHs were selected: one where the VCPC currently has resource mobilization activities, and the other where there are none. This ensured analysis of the enablers and barriers that affect community-led resource mobilization within a specific context. The data collection team was comprised of Titukulane staff, research assistants, and government extension workers. Consent for participation and recordings were sought from all participants prior to interviews and FGDs, and a representative of each group signed the consent form.

Thematic analysis of the transcripts was conducted. N-Vivo was used to enhance and verify the identification of themes.

The anticipated challenges and limitations were as follows:

- Low turnup due to other livelihood activities. To mitigate this, the team ensured strict time management with participants spending a maximum of 2 hours late in the morning or midafternoon to afford them time to attend to their daily activities. The SWOT Analysis and guided FGDs were also split between two days to mitigate for this purpose.
- Inactiveness of women and the youth during discussions due to cultural norms. The participatory approaches used, especially the SWOT Analysis exercise on Day 1 engaged all group members, first by allowing a group member to read out the case study. This tended to be either a woman or youth. The research team also comprised of male, female, and youths which assisted the communities to feel comfortable to express themselves.

FINDINGS

The main findings are discussed below, first outlining the characteristics of the sampled communities. These include livelihood options, and the climate risks and hazards that are most prominent in the areas. The findings are categorized into three main categories; the motivation factors for resource mobilization in areas where this is already taking place; the SWOT analyses; and the functionality of community-based early warning systems (EBEWS).

1. Livelihood Options

Participants indicated farming, petty businesses, and *ganyu* (piecework) as their main sources of income. In addition, a selected few indicated village savings and loans associations (VSLA) as a source of income, which provides capital for their businesses.

A. Agriculture

All participants were engaged in farming as a source of livelihood, with rainfed farming as the most common source of livelihood in all communities. The main cash crops were soya beans, groundnuts, and maize. There were variations in acknowledging maize as a cash crop, as most farmers' maize stocks are only adequate for consumption.

> *For food, people grow soya and maize. But I should say soya is also grown as a cash crop. But maize is mostly for food [consumption]. They sell maize when they have excess food and have kept enough for household use -* ***Community KII TA Jalasi***

A few communities practiced winter farming, mostly in Mangochi district. Participation in winter farming was also based on access to irrigable land, which mostly limits hanging-in households from participating as they either do not own or have resources to rent irrigable land. Instead, hanging in households are mostly engaged through *ganyu* in irrigation fields.

Besides small stock[1], very few households have livestock, which are mainly for sale. Below (Figure 3) is a seasonal calendar generated from the primary data showing farming activities throughout the year. The calendar also includes the months when communities mobilize resources, such as cash and maize, in anticipation of disasters. There was no variation in the communities' economic activities undertaken in the two districts, except that most fishing communities were in Mangochi district.

[1] For example, chickens, pigeons and goats

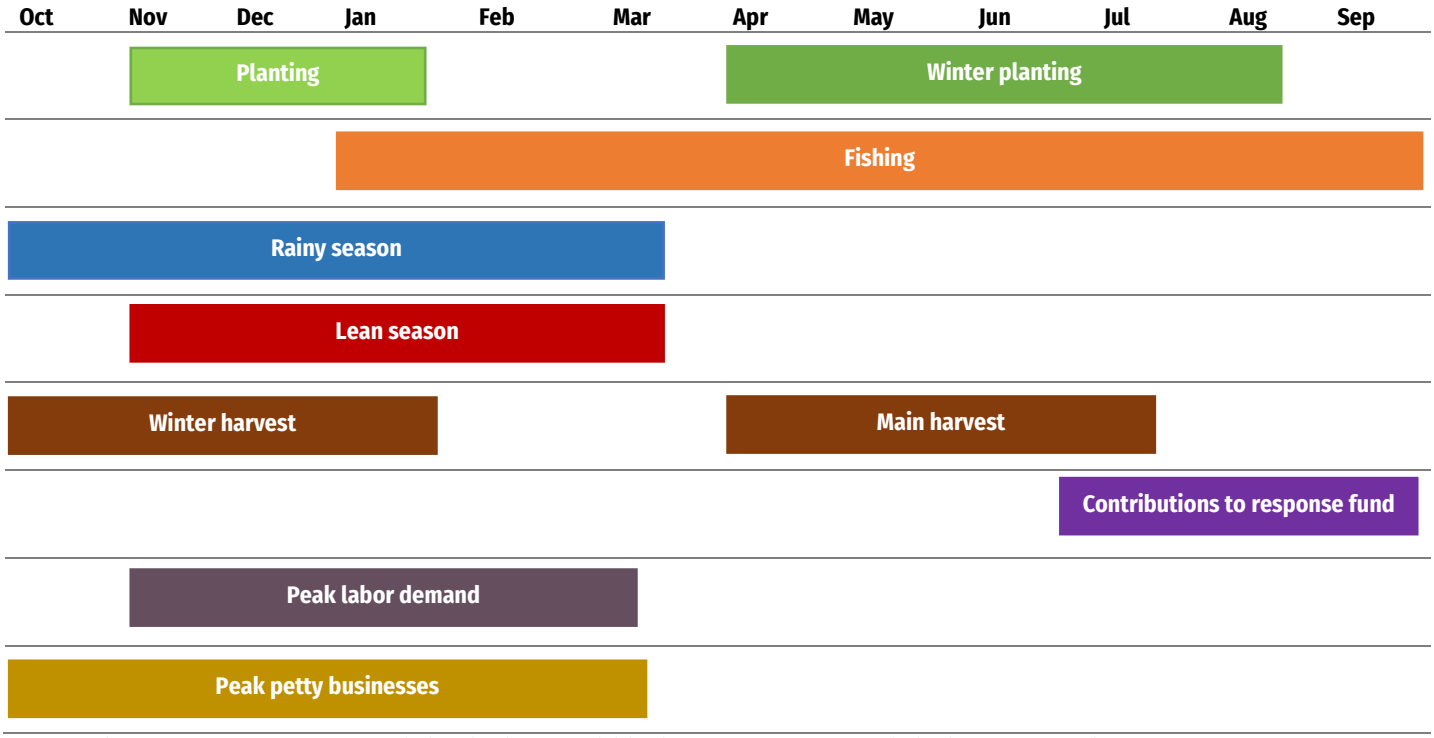


Figure 3 *Seasonal calendar depicting livelihood activities in Zomba and Mangochi districts.* Source: *Primary data*

a. Enterprise

Petty businesses were also among the top mentioned livelihood options. The participants mentioned several small-scale businesses as a source of their daily living. The common businesses sold vegetables, fritters, essential groceries such as soap, cooking oil, and other seasonal foods such as fruits. Some participants indicated proceeds from farming as capital for small businesses that help to sustain their livelihoods especially during the lean season.

b. Ganyu

The third most mentioned source of livelihood was *ganyu*. Participants explained that *ganyu* opportunities were offered by well-off households in the community. The types of *ganyu* varied from working in homes, molding bricks, to working farm fields in exchange for money or food. In Zomba, communities near Phalombe or Mulanje also reported temporarily migrating to Mozambique for *ganyu*.

> *Yes, some people do some piecework in estates in Mozambique...Mostly in farm fields. At times they cultivate maize. Sometimes they are given cash but at times they'd get maize as payment. And others even prefer getting maize when they do not have enough [food] at home -* ***Community KII GVH Mwamadi Mkwanda TA Jalasi***

> *But ...., as for us here, we did not go to school, so we cannot get office work. So, for us.... when we say we have eaten [managed to buy food] then it's from Mozambique since we are near that country, since we came from the area (all laugh), so we go back to our parents for help -* ***SWOT Analysis participant GVH Bello TA Mbiza***

2. Hazards

All communities mentioned they experienced hazards that affected their livelihood negatively. Almost all mentioned hazards were related to farming as their main source of livelihood. The most mentioned hazards were erratic rainfall, strong winds, flooding, dry spells and pests that damaged their farm

produce, which confirms the data and more frequent occurrence of these hazards in recent years, as reported in the GCVCA report (Kita and Tembo, 2022).

B. Climate risks and hazards

Participants articulated the hazards that affected them most and were able to rank hazards that affected them. Hazards were ranked based on severity and impact of the risks and the communities' general experiences. As such the four commonly mentioned hazards, such as strong winds, flash floods, dry spells, and fall army worm infestation, were mentioned in different communities at different rankings. Although the ranking varied across the communities, strong winds and dry spells were mostly ranked as the top two hazards.

The participants stated the following as the major effects of climate hazards:

i. The general disruption of livelihood options e.g., farming, and petty businesses
ii. Destruction of houses and structures
iii. Crop damage and therefore, low crop yields
iv. Women's increased climate vulnerability resulting from polygamy

> *These natural disasters have hindered the progress of many people because of the need for them to fix or erect new houses, restore the seeds that were destroyed by the natural disasters and earn to provide for their daily basic needs -* ***Community FGD GVH Chopi TA Malemia***

> *[After a disaster has occurred,] It becomes too late for us to plant; therefore, we wait for the next planting season in the following year -* ***Community FGD GVH Chopi TA Malemia***

> *If there are significantly low yields, it also means that those people [farmers] will not make enough money from the sale of their products, and that [in turn] also affects petty businesses that do not have customers to buy from them as money is not circulating -* ***Community FGD (Fund Beneficiaries) GVH Mwala TA Mbiza***

C. Most affected population

Most of the participants mentioned women, children, the elderly and the disabled as the most affected by natural disasters in the areas. In most areas, people living with disability were ranked first, especially those who need mobility assistance when a disaster occurs. The elderly were ranked second and mostly because they also need assistance to recover from disasters where their house collapsed. Most households in rural areas will either construct their own housing or afford to contract artisans to construct their house, for example, roofing. These options are not available to most of the elderly as their participation in income-generating activities (IGAs) is very low.

> *The most vulnerable are the elderly, female-headed households and child headed households. But the most affected are women and elderly... mostly because the elderly depend on others to help them and women, they are married so they depend on their husbands. So, when they are divorced or widowed it is difficult for them to find essential needs in households and maintain their houses. They usually have less to spend for the family. -* ***Community KII TA Jalasi***

There was an interesting discussion and observation in TA Katuli in Mangochi and TA Mlumbe in Zomba, where men also expressed that they are the most affected due to the pressure that befalls them in the face of disasters. The argument was based on the role that men play from disaster response to

recovery, which mostly affects their mental health as breadwinner to provide food and shelter for their households when affected by disasters.

> *Men are mostly affected as they are the ones who keep the household safe, …. and the men are affected by the fact that they will have to be there and fix things in the aftermath-* ***Community KII GVH Luwalika TA Katuli***

Although the participants acknowledged the role that men play in responding and recovering from disasters, the women in Ngalipa TA Katuli opposed this view by stating that in cases where men have more than one wife, they shun their responsibilities and move to their other wife's homestead in an area that has not been affected by the disaster. Thus, polygamy in Mangochi has significantly impacted disaster risk management and the welfare of women and children who are left to grapple with the aftermath of such disasters alone. In such cases, such households can be compared to female-headed households that struggle to recover from disasters due to low income, and the lack of assistance to reconstruct housing, for example.

3. Motivation for community-led resource mobilization

The study established that some communities are prepositioning resources to prepare for disaster response, as part of risk reduction. The communities through their civil protection committees (CPCs) are mobilizing resources to support implementation of disaster risk management and response plans.

When asked what motivated them to initiate resource mobilization activities, the communities indicated the occurrence of natural disasters which are increasing in intensity and frequency according to the communities. This has made communities realize the importance of resource mobilization, as support from the government is not always guaranteed. Furthermore, the process of receiving relief support from the government is bureaucratic and takes time, as there are several processes from the time CPCs submit their impact reports. In the meantime, those affected are left vulnerable without basic needs. Therefore, resources mobilized at the community level are what the communities called *"first aid"*, ironically assisting VCPCs to ferry disaster victims to the hospital.

For communities that established the fund last year, the participants indicated that they were motivated by actions taken by VCPCs to respond to the needs of those affected by providing them with maize and plastic sheets to protect houses that had been damaged. The evident return on investment encourages them to continue contributing to their response fund. The mere fact that the system is functioning within communities is a motivation to most community members.

> *Yes, I would say it is working and community members understand the need and support the initiative. So, the villages are mobilizing contributions and stockpiling them at one place. That way if we are ever affected, we will not wait for DODMA to respond. We will start to support each other immediately as we wait for government support* **- Community KII TA Jalasi**

From the SWOT Analysis sessions in communities without a response fund, the case study from GVH Mwala, TA Mbiza in Zomba was motivation enough to organize themselves and strongly consider establishing the fund. Observational evidence indicated that the SWOT Analysis discussions in at least four of the sampled communities had progressed to the point of planning meetings designed to begin mobilizing resources. The communities took advantage of the presence of the Group Village Headman

or their representative, the VCPC, government extension workers, to map out how resource mobilization would be implemented in their community.

It concerns us when we hear that others are doing something we are capable of but are not doing. Therefore, if we tell the people of this community about this initiative, I am sure they will welcome it. It is good that we have all the chiefs here who will carry the news to their people and inform them about this initiative - ***Community FGD & SWOT GVH Chopi TA Malemia.***

According to GVH Luwalika TA Katuli,

> *What the people from Mwala village did is showcasing a good example. They received the same training as we did, but they did not stop there but went further to practice it. It shows unity and willingness; as such, we have learnt the need to be united in one purpose because other disasters are mild, and we really do not need to sit and wait for the government to come to our rescue; we can help ourselves with such funds with unity, we can achieve great things -* ***SWOT Analysis***

A week after data collection, the VCPC in one of the sample GVHs, Menyanga in TA Jalasi, had commenced sensitization meetings in surrounding villages, and some community members had already started contributing to the fund. Besides the VCPCs being trained on resource mobilization by *Titukulane,* the case study from Mwala VCPC, was an effective tool to change the mindsets of the communities and drive the agenda for community-led resource mobilization.

Women in resource mobilization for DRM

Women play a crucial role in resource mobilization for disaster response. They are often the most involved in this process due to their wider social network and connections in the community. Women have access to several informal spaces where they can meet and discuss the importance of mobilizing resources for disaster preparedness. This includes spaces such as community gardens, marketplaces, and other social gatherings where they can engage with fellow women and share ideas.

In addition to their social network, women also have a strong commitment to visiting households and collecting resources. They understand the importance of being prepared for natural disasters and take an active role in ensuring that their communities are equipped to face these challenges. Women often take on the responsibility of visiting households to collect resources, which can include food, water, and other essentials that are crucial in the aftermath of a disaster. The involvement of women in resource mobilization not only ensures that communities are better prepared for disasters, but also empowers women by giving them an active role in disaster response and management.

4. Resource mobilization for disaster preparedness, response, and recovery

The participants indicated cash and maize as resources mobilized for disaster response and tree seeds for disaster preparedness. The assessment findings revealed that VCPCs are actively taking steps to reduce the impacts of natural disasters. However, the VCPCs are primarily unprepared for natural disasters, as most of their response efforts, including resource mobilization, are mainly reactionary attempts to mitigate the effects of the disaster. Transformational initiatives would prevent some of the disasters' effects, reducing pressure on the resources that the VCPC is mobilizing within the community.

When questioned about the possibility of bolstering their efforts to mobilize resources for their preparedness activities, the communities responded affirmatively. However, due to their initial stages

of implementation, they are currently prioritizing assistance for households that are most affected by disasters, and their limited resources cannot cover both response and preparedness activities. Other tasks such as dyke construction and installing early warning equipment are long-term projects that would require outside funding.

> *We think that one way of mobilizing resources for our preparedness activities is by approaching our MP [Member of Parliament] with a budget for our activities, so that some of the community development funds are allocated to disaster preparedness. Yeah, I think that would help. -* ***Community KII GVH Luwalika TA Katuli***

For a holistic approach to prevent, mitigate, and effectively respond to disasters, community efforts must be supported with allocations from the national budget.

Investment in disaster risk management is crucial for ensuring food security by enabling communities to mitigate the risks associated with natural disasters, such as droughts or floods, which can result in reduced crop yields and even famine. Effective disaster risk management requires adequate funding from the government, which can help protect the population from food insecurity and its dire consequences. Unfortunately, the National Disaster Risk Management Bill awaits enactment by Parliament, and as a result, there is currently no budget allocation for disaster risk management. While communities have demonstrated an ability to successfully coordinate disaster risk management activities, they face significant challenges in financing the primary activities required to mitigate the impact of natural disasters. As such, increased government investment in disaster risk management is essential for promoting food security and ensuring the well-being of communities in the face of natural disasters.

SWOT Analyses

A thorough analysis of the enablers and barriers of community-led resource mobilization requires a deep understanding of the contexts of diverse communities. In this study, such an understanding was deemed critical for accurately identifying the factors that drive or impede community-led resource mobilization. The SWOT analysis was found to be a valuable tool for enabling participants to identify the strengths and opportunities that exist within their communities, as well as to mitigate potential threats, and address weaknesses through counteractive measures. The issues that emerged from the SWOT analyses conducted in both districts are summarized in Figure 4, providing a comprehensive overview of the challenges and opportunities that need to be considered for effective community-led resource mobilization. By carefully examining the results of the SWOT analyses and utilizing the insights they provide, stakeholders can develop targeted interventions that build on community strengths and address identified weaknesses, thereby enhancing the overall success of community-led resource mobilization efforts.

Strengths

- Transparent and accountable VCPCs
- Coordination between chiefs and the VCPC
- Buy in from community because of the rapid response mechanism when affected by disasters
- Committee representation covers all villages
- Expended contribution to fund is reasonable for households given their livelihood options
- To enhance security the community keeps money instead of materials

Weaknesses

- Low participation of youth
- Negative attitude of some community members that can influence others to not contribute
- Irregular VCPC meetings
- Committee neglecting taking part in TFD as a means for social behavior change for increased contributions to the fund
- Lack of ownership / dependency syndrome
- Limited reach for responding to disasters due to mobility constraints
- Lack of buy-in of men
- Inactive membership of government extension staff in VCPCs
- Lack of strategy for collecting contributions e.g., timely collections

Opportunities

- Collective farming by VCPCs during winter and rainy season towards fund
- Fundraising drives e.g., big walk
    - Football match to raise funds
    - Travel theatre by the youth networks.
    - Lend the raised funds to VSL groups
- Engaging in piece work at nearby estates
- Assistance from NGO and government
- Contribution from other local committees
- Assistance from business and well-off persons in the community

Threats

- Climate change related disasters e.g., floods, dry spells and strong winds affecting people's yield and their capacity to contribute.
- Severity of disasters beyond the capacity of the committee
- High cost of goods due to high inflation affects quantities purchased and distributed against funds collected
- Closure of estates that provide alternative income in cases of bad harvests
- Fire

Figure 4 *Summary of SWOT Analyses in Zomba and Mangochi districts*

Strengths

Several issues were identified as strengths regarding resource mobilization initiatives to reduce the risk of disasters within the sampled communities. Most of the issues were mentioned in both districts by both upstream and downstream communities. Community members mentioned their ability to mobilize themselves as a community; to mobilize funds and food; well trained and knowledgeable structures, good agricultural practices, and good governance as major strengths.

a) The flexibility of cash and food contributions

The study also revealed that most communities have already mobilized resources in cash and in kind for disaster response. Contribution to the fund per household ranged between MWK 100.00 to MWK 500.00 as contributions towards the fund, with the majority contributing MK 200.00 per year. VCPC members coordinated the collection of the contributions. The VCPCs are responsible for purchasing, storing and distributing relief items to affected households during emergencies as per their guidelines.

All communities reported that they contribute cash and food items to the fund. The option to contribute food or cash ensures that all community members can contribute in cases where either of the two is unavailable.

> *We agreed every household should contribute at least a plate full of maize, and if they do not have maize or if they want to give money instead of maize, they should give at least MK300 -* ***VCPC FGD GVH Luwalika TA Katuli***

b) Community Mobilization

The ability to mobilize communities in response to natural hazards was a commonly mentioned strength by VCPC members, even though the fundraising methods differed. Most community members corroborated the sentiments shared by the VCPC members. In GVH Luwalika, TA Katuli, Mangochi a group consisting of chiefs and VDC members was formed. The group contributes money to the fund, which is used to purchase maize and plastic sheets to support the affected households. The amounts collected varied from one community to another. Table 3 below shows resources mobilized by VCPCs. Mwala VCPC was the only committee that had mobilized resources for two cycles (2 years). The remaining 3 VCPCs had mobilized resources in preparation for the 2022 – 2023 season. When Cyclone Ana hit, 35 members of the GVH Mwala community were most affected, with damages to their houses and loss of food stocks. The VCPC distributed relief items to the 35 members, consisting of 15 kilograms of maize and 10 meters of plastic sheets for house coverage per household.

Table 3 Resources mobilized by VCPCs

Community	Resources	Total Collected	Distributed Items
GVH Mwala, TA Mbiza, Zomba	Cash	MK 162,700	525 kgs of maize 3500 meters of plastic sheets[2]
GVH Sikamu, TA Mlumbe, Zomba	Maize	17 bags	None (First cycle)
GVH Mwamadi Mkwanda, TA Jalasi, Mangochi	Maize	30 bags	None (First cycle)
GVH Ngalipa, TA Katuli, Mangochi	Cash	48,000	None

In other cases, VCPC members pay a committee membership fee which is used to respond to natural disasters. The average membership fee was MK500 per committee member, with a total of MK 7,500 collected per month from 15 members. During the SWOT Analysis and FGDs this method was discussed at length for its negative impact on other activities that the VCPCs have in their DRM plans. The mobilization of community resources provides Village Community Preparedness Committees (VCPCs) with additional resources to reach households affected by disasters, thereby alleviating the burden on VCPC members who are solely volunteers and responsible for disaster risk management. Community resource mobilization therefore assigns the VCPCs a coordinating role, rather than a sponsoring role.

Figure 5 *A participant records the discussion points during a SWOT analysis session in TA Mbiza, Zomba. Photo credit: © Titukulane RFSA/Samuel Chibaya 2022*

Thus, resource mobilization is not a new concept in *Titukulane* impact areas. There have been efforts to gather and allocate resources in the past. However, the absence of central coordination has resulted in certain methods of resource mobilization being more harmful than beneficial to the members of the community structures. Lack of coordination in resource mobilization can result in inefficiencies, waste, and potentially even harm to the intended beneficiaries. For example, if resources are not distributed equitably or fairly, it can lead to tension, conflict, and mistrust within the community.

The findings indicate the importance of resource mobilization implemented as a collective action by the community rather than relying solely on the VCPC to contribute to the fund for several reasons. Disasters affect the entire community; everyone should be involved in preparedness, mitigation, and response efforts. Involving the whole community in resource mobilization can increase the pool of resources available, making it more likely that the needs of affected households will be met.

Community resource mobilization initiatives that involve broader community participation tend to be more sustainable, inclusive, and effective, as observed in GVH Mwala, TA Mbiza in Zomba. The community members are more likely to take ownership of the initiative, which can increase their engagement and commitment to disaster risk management activities in the long run. Additionally, it can help to build trust and social capital among community members, leading to stronger social networks and better community resilience in the face of disasters.

Relying solely on the VCPC to contribute to the fund can place a significant burden on the committee members, who are often volunteers and may have limited resources of their own. It can also create a perception that disaster risk management is the sole responsibility of the committee, leading to a lack of engagement and participation from the broader community. Therefore, involving the whole community in resource mobilization is crucial for effective disaster risk management and community resilience.

c) Increased capacity of civil protection committees

Participants mentioned training in resource mobilization, provided by *Titukulane,* as a major contributing factor to the success of community-led resource mobilization. Participants argued that training helped the VCPCs to be organized in order to coordinate the initiative in a transparent manner. The participants noted that the training complemented an earlier training on Disaster Risk Management (DRM), also provided by *Titukulane.* The success of community-led resource mobilization in the Titukulane impact areas has been attributed to the presence of well-trained Village Community Preparedness Committees (VCPCs). According to most VCPC members, the training in resource mobilization provided by *Titukulane* has contributed to their ability to mobilize resources effectively. The participants noted that the training helped organize the VCPCs and coordinate the initiative transparently.

Moreover, the training on resource mobilization complemented an earlier training on Disaster Risk Management (DRM), which Titukulane also provided. The combination of both training helped to equip the VCPCs with the necessary skills and knowledge to mobilize resources and respond to disasters in an effective and sustainable manner. By building the capacity of the VCPCs, Titukulane has empowered the communities to take ownership of disaster risk management and resource mobilization initiatives, which has resulted in greater community resilience and self-reliance.

> *So, when Titukulane project came, they gave us proper training on what we are supposed to do as a committee, and now we are independent, we do not entirely rely on help from the government. We can provide first aid treatment to those who get injured through disasters, which we could not do before. We also mobilize resources as a way of preparing against the negative impacts of disasters that come due to climate change -* ***Community FGD GVH Mtuluko TA Jalasi.***

d) Improve agronomic practices

Participants also mentioned their ability to follow improved agronomic practices such as box ridges, early planting, planting certified seed and drought tolerant crops, and watershed conservation that reduce climate risks and afford them high yields, enabling them to contribute to the response fund. The downscaled seasonal forecast and advisories from agriculture extension workers also compliment these agronomic practices.

> *When they tell us that there will be drought, we make sure that we utilize the first rains for planting so that when the drought comes it should find the maize at a stage where it cannot be affected. If we fail to plant with the first rain, the maize does not grow well - Community FGD & SWOT GVH Chopi TA Malema.*

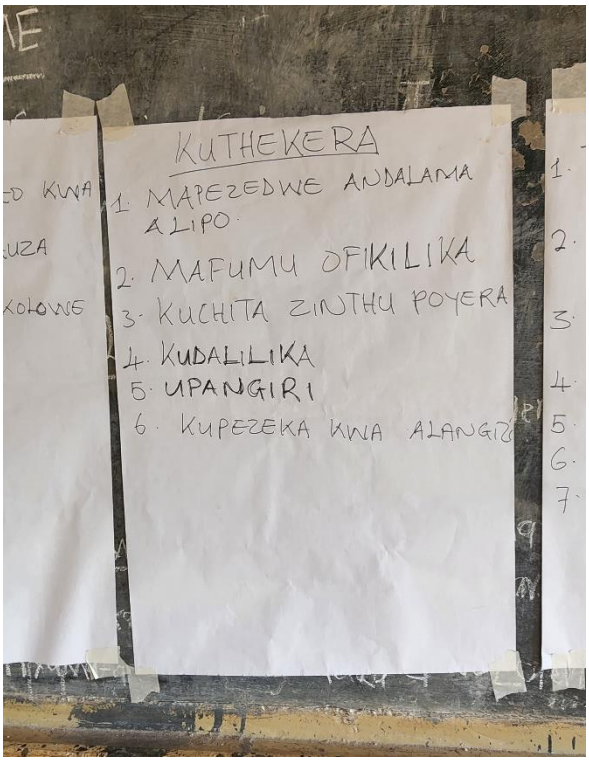
e) Good governance

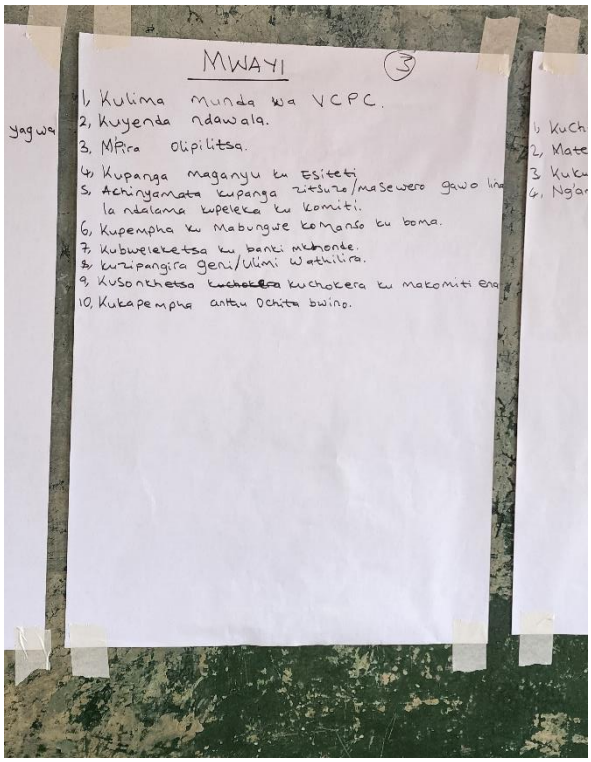
Another strength of the community-led resource mobilization has been attributed to good governance within the VCPCs and traditional leaders. According to most community members, trust in those elected

to coordinate the initiative has been essential to the success of resource mobilization. They have identified humility and transparency as key qualities of a good leader and argued that such leadership has enabled effective coordination and mobilization of resources.

Some of the participants continued to contribute towards the fund despite not directly benefiting from it, because of their empathy and solidarity towards those affected by disasters. Establishing and enforcing rules around resource mobilization in the community has also helped guide people to participate in community actions.

Overall, good governance practices within the VCPCs and the broader community, characterized by transparency, humility, and trust in leadership, have facilitated effective community-led resource mobilization.





Figures 6 and 7 *SWOT Analyses from Mangochi and Zomba, highlighting strengths (left) and opportunities (right) identified by participants. Photo credit: © Titukulane RFSA/Fundi Kayamba-Phiri 2022*

Opportunities

Participants identified several opportunities to enhance resource mobilization. Almost all the participants mentioned enterprise, *ganyu*, and irrigation farming as key opportunities. These activities enable individuals and groups to generate income that can be used to prepare for and respond to disasters. Additionally, few participants highlighted access to safety net programs, such as cash-for-work programs under Titukulane and other similar projects, and village savings and loan association as other opportunities.

Some of the VCPC also engaged in group piece works, pooling their earnings to buy essential items like maize and prepare for impending disasters. Notably, the Village Community Preparedness Committees

(VCPCs) have the advantage of youth representation. Youth integration in VCPCs, and DRM in general, was indicated vital in ensuring that their perspectives, skills, and capacities are fully utilized in the planning and implementation of disaster risk management activities. This, in turn, can lead to more effective, sustainable, and inclusive DRM efforts that benefit everyone in the community.

Observations during the SWOT analyses revealed that the young people brought fresh perspectives, innovative ideas, and valuable insights pertaining to how resources can be mobilized within their communities. One example was that TfD performances would increase civic dialogue around issues, and Youth participation in DRM activities can also help address intergenerational challenges and promote social cohesion within communities. By involving different age groups in DRM activities, communities can promote understanding and collaboration between generations, helping to build a more cohesive and resilient society.

Weaknesses

Several weaknesses came out of the discussions (Figure 2). The weaknesses highlighted by participants also pose as barriers to resource mobilization for disaster risk management, trickling down from national to community levels. The disorganization of community structures, lack of support or political will from community leaders and the government, lack of accountability from VCPC (Village Civil Protection Committee) members, and reluctance to adopt improved agricultural practices were identified as some of the weaknesses that hinder effective resource mobilization. Furthermore, the lack of financial resources allocated at the national level to support DRM plans at district and community levels exacerbates the problem. These weaknesses and barriers need to be addressed at all levels to ensure adequate resource mobilization and effective implementation of DRM plans.

a. Disorganization of the community structures

This was the most cited weakness and barrier to resource mobilization, noted both at community and district levels. While there are some guidelines and best practices for resource mobilization at the national and district levels, there is a lack of guidance on how communities can mobilize resources to support their own DRM plans. The lack of guidelines can be a significant barrier to effective and sustainable DRM, as communities may struggle to coordinate and sustain resource mobilization, negatively affecting progress made to build the community's trust.

During the district KIIs with the Relief and Rehabilitation Officers (RROs) and Metrological Services Offices (MET Officers), it was indicated that resource mobilization occurs during contingency planning. It was noted that developing a contingency plan is not a true reflection of resource mobilization because these resources are not made available when disasters occur. District Councils are supported with funds from DoDMA for some of their activities. However, they require more funds to invest in DRM at district and community levels. The districts also depend on partner activity budgets, such as *Titukulane's*. Although the main focus for resource mobilization is at community level, the findings that district level activities require the same, especially for activities that are aligned to the National Resilience Strategy, however, are not aligned to any of the district's partner activities. The District Civil Protection Committee (DCPC) is also training VCPCs on resource mobilization, and therefore has the capacity to mobilize resources also to support other DRM initiatives at community level.

b. Inadequate capacity of the district council to generate real-time data

The other weakness observed was the lack of capacity for districts to generate their data in real time in response to disasters. In Mangochi, it was observed that the district only managed to collect some data and send it to national centers where data is processed, and results are sent back. This gap means that

communities may not have adequate time to prepare for certain types of disasters, with the most frequent example being strong winds that can impact numerous households. This can lead to strained response funds, resulting in the possibility of inadequate relief items being allocated to each affected household.

I should point it out here that we only generate the information [collect raw data from stations], and we don't process it. We send it to the head office, where it is processed, and this is not only for Mangochi but also for other districts. And they return to us in the form of a message - ***District KII Mangochi***

c. Lack of accountability of duty bearers

For communities without a response fund, VCPC members and community members cited lack of trust as a potential setback to mobilize resources. The participants expressed that certain community members were hesitant to take part or offer their support because they perceived a lack of accountability when carrying out other VCPC initiatives. Specifically, the distribution of relief items from DoDMA in response to natural disasters can be influenced by social status or reputation factors. This has created concerns among some community members, who feel that the process is not transparent or fair. It was also reported that some people don't contribute because they have never benefited from any material distribution in the communities, even when registered as households that have been most affected by a natural disaster.

d. Lack of political will

The VCPC members expressed concern over the lack of support from some traditional leaders and their higher-level committees as affecting their resource mobilization activities. Despite the response funds, the committees felt that ACPCs have the role to standardize these efforts at TA level, as the VCPCs mandate is limited to GVH level. The VCPCs also expressed that this agenda can be further popularized with support from politicians within their area: for instance, that some funds from the community development fund (CDF) can also be allocated for disaster response. In addition, the VCPC complained that DRR issues are not considered in village level plans. They reported that at community level they can propose to have DRR activities within the VLAPS but when it gets to a TA level, where the main committee is there, it's difficult for projects identified at lower level to be considered. Some of the setbacks are also due to political promises made by Members of Parliament, that deter VCPCs from implementing their plans:

> *The politicians tend to politicize things; they can come in and tell us not to bother with the contributions and that they will give their money to us -* ***SWOT Analysis GVH Luwalika TA Katuli***

The other setback that the participants mentioned was the overreliance on chiefs to disseminate messages on resource mobilization, because some chiefs are not trusted in the communities. The ideal situation is for the VCPCs to jointly hold sensitization meetings with the chiefs.

Threats

The severity of natural disasters can have a detrimental effect on efforts to anticipate potential shocks and in some cases, can even result in communities being worse off, regardless of the response fund due to the severity of the effects of a disaster. Participants have noted that the mobilized resources are typically used as the initial response to disasters, which highlights the urgent need to reduce the risks

associated with these hazards. However, the significant impact of these hazards can also have a negative effect on the ability of VCPCs to respond effectively to disasters. Additionally, the inflation rate in Malawi has increased by 25% this year, resulting in higher costs for essential goods and hindering preparedness efforts. According to Figure 1, the optimal time to gather resources is immediately after the harvest. Due to the effects of inflation and the rise in maize prices, it is likely that committees will end up spending more money on fewer goods. This means that they will not be able to respond to as many affected households as originally planned.

5. Community-based early warning systems (CBEWS)

Early warning information systems (EWIS) play a critical role in resource mobilization for disaster risk management and reduction. EWIS are able to detect, predict, and communicate risks, providing the necessary information to mobilize resources and mitigate the impact of disasters. In particular, EWIS can help reduce vulnerability to natural disasters by providing communities with adequate warning and timely access to resources such as relief funds and shelters.

The most common sources of scientific early warning information in our impact areas are as follows:

- Seasonal outlook or seasonal forecast that is disseminated by the Department of Climate Change and Metrological Services, which is downscaled from National to District Level
- Rainfall and river gauging stations within communities

This information is then disseminated to communities through radio, SMSs from varied stakeholders, as well as participatory scenario planning (PSP). PSP is a process that brings together extension staff, civil protection committees and community members, where the downscaled seasonal forecast is discussed to understand potential future climate scenarios (short-term and long-term) and likely impacts on various livelihoods. PSP informs choices of crops and agronomic practices for given scenarios that are context-specific to communities.

Radio was among the most mentioned sources of information relating to early warning on weather changes. However, some of the youth pointed out that the radio is no longer appealing to them as a source of information, and therefore they access EW information through phones or extension advisories.

Less than a quarter of the participants reported receiving EW information through phones. Although there is no organized system where they can access the information, participants reported that they could receive text messages from relatives or gather the information on google.

> *We receive messages. We sometimes receive a warning concerning weather changes and we follow proper measures to protect our homes -* ***Community FGD (Fund Beneficiaries) GVH Mwala TA Mbiza***

In preparation for an imminent natural disaster, various measures can be taken to reinforce housing, particularly in areas that are prone to strong winds and cyclones. When cyclones and floods are expected, households downstream may move to safer upstream dwellings. VCPCs take steps to ensure that households in the downstream areas construct raised houses that can protect them from flooding. When it comes to building houses, VCPCs recommend the use of burnt bricks rather than traditionally used unburnt bricks which are more vulnerable to damage from strong winds and flooding.

The sources of indigenous early warning information are as follows:

- Elderly storytelling of indigenous early warning signs, passed on from one generation to another
- Observation of nature e.g., birds, trees, insects, the sun, wind

Indigenous early warning systems (IEWS) predict rainfall patterns, crop yields, pests, and strong winds. They are not able to predict other natural disasters like flooding and cyclones. All participants mentioned that indigenous EW information was used to predict the rains. The most common beliefs mentioned were the shedding of tree leaves indicating heavy rainfall or budding of flowers indicating the early start of the rainy season.

There is a major decline in indigenous knowledge as a source of EW information. This is attributed to two main factors:

- Ideals of modernity
- Ecological shifts, such as loss of biodiversity

With increased deforestation the presence of certain birds that predict rainfall patterns has significantly declined, and most of the youth have never even heard of these birds. Further, tree cover loss affects rainfall patterns and soil health, resulting in low yields. For instance, one of the indigenous signs shared was the early flowering of mango trees, meaning farmers should expect high yields. However, the depletion of trees that leaves farm fields bare, eliminates a key precondition for high productivity of crops. In turn, with limited knowledge of the interdependency of the ecosystem, communities have lost trust in indigenous signs.

> *Nowadays we don't follow them as they don't work anymore, we rely on the scientific ways only - **VCPC FGD GVH Luwalika TA Katuli***

Available equipment and access to EW information

Most participants reported that their communities did not have early warning equipment. They were, however, able to receive information from various sources. In the few communities where instruments were available, the most common instruments were a rain gauge, wind vane and river line gauge. However, there are very few wind vane systems compared to the communities most affected by strong winds. There is a gap in EW equipment that corresponds to the climate hazards that communities are most affected by. *Titukulane* has installed rive line gauges in 28 communities where flooding is most rampant, however there is a need to increase these and other types of equipment across the areas.

Access to EW information was a challenge in the past and remains so in some cases. The Meteorological departments at district level are responsible for generating data, which is then analyzed and disseminated by DCCMS from their national center in Blantyre. However, recently the department has invested in automated rainfall gauging stations, which has also enabled both the department and community level gauge readers to access information easily, specific to their area.

> *As for the rainfall stations, we stopped employing people, we rely on the community members for the readings and data collection. And we even encourage them to share with the people from the agricultural department, which has facilitated easy sharing of data- **District KII Mangochi***

This was corroborated by community members who reported that they are able to read and interpret the results and act.

> *When there is much rainfall, we can tell through the rain gauge, and we take precautionary measures if we suspect anything might happen. As for other weather changes, we receive the news from the radio-* ***Community KII GVH Mtuluko TA Jalasi***

In hard-to-reach areas, where access to mobile phones and radio is limited, community or in-person dissemination of EW information is common. VCPCs, early warning teams and local chiefs deliver such messages through community meetings. The VCPCs and early warning teams also use megaphones to disseminate EW information. Titukulane distributed megaphones to all VCPCs for the same purpose. VSLA meetings are also key for dissemination of EW information. VCPC members are also either members of VSLAs or organize themselves to disseminate EW information to all VSLAs in their area as part of their campaigns.

For some participants, access to early warning information was linked to closeness to the source of information. They argued that hard to reach areas did not get information as compared to areas that were close to urban centers. This also applies to EW information disseminated through the agriculture extension services.

> *The thing is the extension worker stays near Namwera and more developments [initiatives] are in that area. You know our area is very remote so usually people do not consider us because this area is typically more rural as compared with Namwera-* ***Community KII GVH Mwamadi Mkwanda TA Jalasi***

However, the participants explained that there were improvements in the dissemination of EW information through Theatre for Development (TfD) performance by youth clubs in the communities. *Titukulane* has trained 131 youth clubs in TfD, specifically for disaster risk management interventions such as increasing the functionality of early warning systems. This was acknowledged by the youth participants and men and women. Through these performances the youth share the downscaled seasonal forecast and compliment agriculture advisories by illustrating agronomic practices that communities should follow given the expected scenarios for that season.

The participants also acknowledged the role of women in EWS, through social spaces such as waterpoints, VSLAs, and maize meals. More women access EW information, confirming that they are the main food providers for their households, therefore requiring EW information for decision making. Women share EW information messages through social spaces, and share best practices for anticipating impending disasters, as compared to men who acknowledged not discussing seasonal forecasts within their circles. Two men explained:

> *I was taking it in a family situation. If a woman hears about the news from the village bank or the borehole, she comes home and tells the husband what she has heard. Therefore, as a family, you make decisions together on how you should move forward from there-* ***VCPC FGD, GVH Mtuluko TA Jalasi***

> *At least women follow such messages and act on them. Men also usually ignore these messages. Men say these messages are not usually accurate-* ***Community KII GVH Mwamadi Mkwanda TA Jalasi***

Some men expressed that they face various competing priorities and responsibilities that can make it difficult for them to prioritize disaster preparedness efforts. This includes attending community

meetings where early warning messages are explained alongside agricultural advisories. The limited access to early warning information and participation in participatory scenario planning within their community can also contribute to a lack of understanding and relevance of early warning messages. This can lead to a perception that the messages are unreliable or not applicable to their specific situation.

Most of the participants acknowledged that there were no records of indigenous signs. Community members reported that most of the beliefs are just passed from generation to generation with no proper documentation.

> *I will give you a good example, we had a PSP review at a district level, I think 2 weeks ago, that was also supported by Titukulane project. We struggled a lot [to integrate the scientific and indigenous knowledge] because we had no documentation, and we went to the review with only scientific knowledge, and it was difficult to operate on memory. And it was hard to remember [what the communities had told us], as such, it is important to document them for the sake of PSP, and of course, we can be able to try to integrate them in the long run* ***- District KII Mangochi***

Few participants believed in the IEWS, arguing that they work.

> *They warned us last year that the rains would start in October, and we did not believe it, yet we were shocked that it [, the rain,] indeed fell in October-* ***VCPC FGD GVH Luwalika TA Katuli***

Benefits of EWS

The participants overwhelmingly agreed that having access to information about impending shocks, such as natural disasters or other hazards, was critical for them to take appropriate action and prepare for potential risks. This information allowed them to plan and take proactive measures to protect themselves, their families, and their communities. They also mentioned adopting appropriate agronomic practices, such as crop rotation or conservation tillage, to help mitigate the effects of drought or other weather-related risks.

> *When we receive the information or heavy rains start, we know our crops will be damaged and when it is predicted that we will not receive enough rainfall we grow early maturing crops. -* ***Community KII TA Jalasi***

> *When we hear that there will be cyclones and heavy rains for days, what we do is to make sure that the children are at a safe and secured shelter to minimize the risk. -* ***VCPC KII GVH Luwalika TA Katuli***

In conclusion, early warning information systems are crucial for disaster risk management and reduction. They provide necessary information to mobilize resources and reduce vulnerability to natural disasters. The most common sources of scientific early warning information include seasonal forecasts and rainfall and river gauging stations. Indigenous early warning systems rely on observations of nature and storytelling, but their use is declining due to ecological shifts and ideals of modernity. While community based early warning equipment are not accessible, communities can receive information from various sources, including radio and phones. However, there is a need to increase the availability of equipment across all areas.

RECOMMENDATIONS

With the District Councils, Titukulane needs to create awareness among traditional leaders, key influencers, and their subjects on their role in disaster risk management. Despite the VCPCs leading the resource mobilization initiative, and the initial training which has played a pivotal role in mind set change, there are gaps in the participation of key leaders within the communities on resource mobilization. Furthermore, there is a need to link the CPCs to the existing resource envelopes within the communities such as constituency development fund and those outside the communities such as GEF[3] communities can tap from to support implementation of DRM plans.

The study highlights the need to develop standardized guidelines for resource mobilization at the community level. These guidelines should clearly define the organizational structure, sources of funding, methods of resource mobilization, selection criteria for fund beneficiaries, and record management. The lack of such guidelines has led to three different approaches to mobilizing resources in different communities: using VCPCs, creating standalone committees, and relying on local chiefs to mobilize resources.

Investing in early warning (EW) infrastructure that corresponds with common climate risks and hazards is important for enhancing climate resilience. Automated systems are particularly crucial for timely disaster anticipation. Titukulane plans to install automated EW systems in Mangochi district, increasing the total number to five. M-CLIMES installed similar systems in Zomba, but Titukulane will focus on Mangochi to address the specific needs of that region. To achieve an integrated EW system, community centers should be established within communities by DCCMS with support from *Titukulane*. Empowerment of community structures will ensure sustainable management of the equipment and provide tailored advisories, together with extension workers. By involving the community, the early warning system will be more effective, and the community will have greater ownership of the system. This would require an investment in capacity building of village civil protection committees and early warning teams to record, analyze, disseminate information, and mobilize resources for disaster response. With resources from *Titukulane,* DCCMS should invest in more early warning equipment and capacity building of structures before the project phases out. This has the potential to illustrate increased anticipatory measures beyond the life of the project.

Reviving indigenous early warning systems (EWS) is important for timely disaster anticipation and can complement scientific information. This can increase access to EW information as community members receive the information firsthand. Indigenous information is also closer to the specific context of an area. Documenting indigenous early warning signs for integration with scientific information is key to inform participatory scenario planning and ensure context-specific considerations.

With resources from Titukulane and DoDMA, it is important to document indigenous early warning information specific to TAs and incorporate this in disaster risk management and contingency plans. To make this information more appealing to the youth, local artisans' illustrations of indigenous early warning information can be shared in strategic places such as schools and health centers. Departments of Forestry and Land Resources should continue to intensify watershed restoration and conservation that will assist to restore indigenous early warning systems, as forest cover is a crucial precondition for

[3] The Global Environment Facility Small Grants Programme (GEF SGP), implemented by the United Nations Development Programme (UNDP), is a multilateral fund dedicated to confronting biodiversity loss, climate change, pollution, and strains on land and ocean health.

functionality and accuracy of these systems. To restore trust in indigenous systems, through VCPCs, Early Warning Teams and VNRMCs, *Titukulane* should raise awareness of the interdependency of living organisms within the ecosystem that determine the functionality of EWS.

Engaging with decision-makers is a crucial step in advocating for the enactment of a national DRM bill. Utilizing CISANET, Titukulane's advocacy partner, is a great strategy to engage with decision-makers, including members of parliament and government officials. CISANET can be tasked with arranging meetings with relevant decision-makers to present the proposal for the national DRM bill and explain how it will benefit their constituencies. They can also provide relevant information and data to support the case for the enactment of the bill.

Policy briefs, presentations, workshops, and other awareness-raising activities can be organized by CISANET to increase awareness about the benefits of a national DRM bill and its relevance to implementation of the National Resilience Strategy. Efforts need to be made to consider how building the resilience of community structures to mobilize resources can be scaled across the 4 pillars of the NRS, and also to show how integration of interventions across the 4 pillars will result in greater achievement of community resilience. They can engage with local community leaders, civil society organizations, and other stakeholders to inform them of the proposed bill and its potential impact on their communities.

To effectively address the impact of natural disasters on interventions, it is crucial to explore and discuss with stakeholders on how building the resilience of community structures can be scaled across the four pillars of the National Resilience Strategy (NRS). Disaster risk management is a fundamental component of this effort and can significantly minimize the impact of natural disasters on various interventions, from agriculture and nutrition to social protection. By prioritizing disaster risk management and building community resilience across all pillars of the NRS, we can create a more comprehensive approach to disaster risk reduction and build sustainable communities that are better equipped to cope with the challenges posed by natural disasters.

REFERENCES

Begum, A., Zada, S., & Gul, K. (2015). *Indigenous early warning information systems: A review.* International Journal of Disaster Risk Reduction, 16, 61-72.

Braimoh, A., Manyena, B., Obuya, G., & Muraya, F. (2018). *Assessment of Food Security Early Warning Systems for East and Southern Africa*. World Bank.

Brown, E., Fuentes, L., Balbi, E., & Raut, M. (2019). *Gender Transformative Early Warning Systems: Experiences from Nepal and Peru.* Practical Action. Rugby, UK.

Desai, B. H., & Mandal, M. (2021). *Role of Climate Change in Exacerbating Sexual and Gender-Based Violence against Women: A New Challenge for International Law.* Environmental Policy and Law, 51, 137-157.

FAO & CARE. (2017). *The future of food and agriculture: Trends and challenges.* Rome: Food and Agriculture Organization of the United Nations.

Gaillard, J. C., & Mercer, J. (2013). *From knowledge to action: Bridging gaps in disaster risk reduction.* Progress in Human Geography, 37(1), 93–114.

Global Climate Fund. (2017). *Scaling up multi-hazard early warning system and the use of climate information in Georgia. Annex II: Project design document.* UNDP.
https://pims.undp.org/attachments/5846/215450/1707455/1717243/FP-UNDP-040218-5846-Annex%20II.pdf

Government of Malawi. (2015). *National Disaster Risk Management Policy.*

Hermans, T.D.G., Šakić Trogrlić, R., van den Homberg, M.J.C., Aerts, JCJH, Buchroithner, M.F., Evers, M., Hudson, P., Lassaletta, L., Przyluski, V., and Renaud, F.G. (2022). *Exploring the integration of local and scientific knowledge in early warning systems for disaster risk reduction: A review.* Natural Hazards, 114, 1125-1152.

Ingutia, R., & Sumelius, J. (2022). *Determinants of food security status with reference to women farmers in rural Kenya.* Scientific African, 15, e01114.

Kita, S., Tembo, D. (2022). *Gender Analysis Report.* Produced by Titukulane RFSA. Malawi

Koch, T., Selim, P. & Kralik, D. (2002). Enhancing lives through the development of a community-based participatory action research program. Journal of Clinical Nursing, 11, 109-117.Kamanga, L. (2015). *Climate Change and its Effects on Gender Based Violence in Malawi: A Literature Review.* Journal of Development and Gender Studies, 15(7), 107-123.

MacDonald, C. (2012). *Understanding participatory action research: A qualitative research methodology option.* Canadian Journal of Action Research, 13, 2, 34-50.

Macherera, M., & Chimbari, M. (2016). *A review of studies on community-based early warning systems.* Jàmbá: Journal of Disaster Risk Studies, 8, 206.

Pudmenzky, C., Lisk, I., Vitols, L., Ribero, C., Millar, B., Steinbach, R., Bannon, V., Drew, R., Allis, E., Sjaavik, L., Gallasch, S., Tripathi, R., & Tapia, B. (2022). *Gender equality in the context of multi-hazard early warning systems and disaster risk reduction.* World Meteorological Organization. Bulletin nº: Vol 71 (1)

Kakota, T. and Kamoto, J., (2022). Gender Analysis Report. Produced by Titukulane RFSA. Malawi

Trogrlic, S.T., Wright, R., Adeloye, G., Duncan, M.J., & Mwale, F. (2017). Community-based flood risk management: Experiences and challenges in Malawi. International Journal of Disaster Risk Reduction, 2(4), 13.

UN Women and UNICEF. (2019). *Gender and Age Inequality of Disaster Risk.* Geneva.

Wächter, J., & Usländer, T. (2014). The role of information and communication technology in the development of early warning systems for geological disasters: The tsunami show case. In F. Wenzel & J. Zschau (Eds.), *Early warning for geological disasters* (pp. 133-142). Advanced technologies in Earth sciences. Springer.

World Bank. (2009). *Risk Management and Response to Natural Disasters through Social Funds and Community-Driven Development Operations*. The World Bank.

ANNEXES

Annex 1 Data Collection Plan

District	TA	GVH
Zomba: **-1 KII with RRO & MET Officer**	TA 1: Mbiza 1 KII with ACPC Chairperson & CDA	GVH Mwala: 1 KII: VDC Chairperson, traditional leader (GVH) 3 FGDs: 1 FGD with VCPC 1 FGD with community members (beneficiaries of the community disaster response fund) 1 FGD with community members (non-beneficiaries of the community disaster response fund)
		GVH Bello: 1 KII: VDC Chairperson, traditional leader (GVH) 2 FGDs: 1 FGD with VCPC 1 FGD with community members
	TA 2: Mlumbe 1 KII with CDA, and Traditional Leader	GVH Sikamu: 1 KII: VDC Chairperson, traditional leader (GVH) 2 FGDs: 1 FGD with VCPC 1 FGD with community members
		GVH Mchinjo 1 KII: VDC Chairperson, traditional leader (GVH) 2 FGDs: 1 FGD with VCPC 1 FGD with community members
Mangochi: **-1 KII with RRO & MET Officer**	TA 1: Jalasi 1 KIIs: CDA and Traditional Leader	GVH Mtuluko 1 KII: VDC Chairperson, traditional leader (GVH) 2 FGDs: 1 FGD with VCPC 1 FGD with community members
		GVH Mwamadi Mkwanda 1 KII: VDC Chairperson, traditional leader (GVH) 2 FGDs: 1 FGD with VCPC 1 FGD with community members
	TA 2: Katuli 1 KIIs: CDA and Traditional Leader	GVH Ngalipa 1 KII: VDC Chairperson, traditional leader (GVH) 2 FGDs: 1 FGD with VCPC 1 FGD with community members
		GVH __ 1 KII: VDC Chairperson, traditional leader (GVH) 2 FGDs: 1 FGD with VCPC 1 FGD with community members
2 KIIs	***4 KIIs***	***8 KIIs and 17 FGDs***

Annex 2 Mwala VCPC case study as read and discussed during SWOT Analyses

Nkhani ya kwa GVH Mwala, TA Mbiza

Zomwe zikuchitika kwa Gulupu Mwala ndi zopatsa chidwi ndi chilimbikitso.

Gulupu Mwala ali ku Zomba kwa Mfumu yaikulu Mbiza. Anthu a kwa Mwala akhala akuvutika ndi Ngozi zogwa mwadzidzidzi kwa nthawi yaitali, chaka ndi chaka.

Ngozi zomwe amakhudzika nazo kwambili ndi ng'amba, ntchembere zandonda za chilendo, mphepo ya mkuntho ndi madzi osefukila.

Mu chaka chathachi, anthu amene anakhudzidwa ndi ngozi'zi ali motele.

Ng'amba ndi ntchembere zandonda za chilendo, ma banja 1,616

Sayikloni ANA ndi Gombe, ma banja, 157

Mphepo ya mkuntho, ma banja 38

Ngozi zimenezi zapangitsa anthu ambili kuti abwelele mbuyo, Kamba kofunika kukonza kapena kumanga'nso nyumba zawo, kubwezeletsa mbeu zimene zidaonongeka mmunda, komanso mapezedwe awo a Ndalama a tsiku ndi tsiku, popeza ma bizinesi amayenda pamene anthu m'mudzi ali ndi Ndalama.

Polimbana ndi momwe anthu amakhudzidwila ndi Ngozi zimenezi, komiti yowona za Ngozi zogwa mwadzidzidzi, inakhala pansi ndi kukambilana za m'mene angathandizile anthu a midzi yomwe ili mwa Gulupu Mwala.

Akomiti anapanga chiganizo chakuti akhanzikitse thumba limene lingathandizile ma banja okhudzidwa ndi ngozi zogwa mwadzidzidzi. Akomiti anakhala pansi ndi mafumu onse mwa Gulupu Mwala, kuti akambilane za momwe anthu angamasonkhele zinthu zothandizila makomo okhudzidwa ndi ngozi zogwa mwadzidzidzi.

Mogwilizana ndi mafumu, a komiti anakhanzikitsa chimenechi, ndipo mgwirizano unali okuti midzi 25 yomwe ili yokhudzidwa izisonkha. Chaka chathachi, mudzi uli onse unasonkha K7,500. Izi zinachitika mmalo mosonkha chimanga Kamba chokuti anthu s'anakolole chimanaga chambili chaka chatha'chi. Komiti inayelekeza kuti idzasonkhetsa K187,000. Mudzi uliwonse utasonkha, Ndalama zinakwana K162, 700.

Akomiti anafotokozelanso kuti abambo, amayi komanso achinyamata amatengapo gawo posonkha Ndalama imeneyi. Kutengela ndi kukula kwa mudzi, ma banja ambili anasonkha K200 ku thumba limeneli. Midzi imene ili ndi anthu ochepa, mwina anasonkha K300 khomo lili lonse.

Kutabwela mphepo ya mkuntho komanso ma saikloni kumayambililo kwa chaka chino cha 2022, makomo okhudziwa anakwana 35, ndipo komiti inakhala pansi ndi kupanga chiganizo chogula

chimanga komanso ma plastic okuti anthu afolele nyumba zomwe madenga anasasuka, kapenanso makoma anagwa.

Zimenezi zinagulidwa ndipo komiti inayitansitsa msokhano wa anthu onse, kumene analengeza zimenezi, komanso anthu onse amene anapeleka ma lipoti okuti akhudziwa. Pa msonkhano'po akomiti anafotokozela m'mene katundu agawidwile, ndipo zonse zinagawidwa pomwepo.

Chaka chino, kamba ka kukwela kwa mitengo ya zinthu, khomo lili lonse likusonkha K300, ena K400. Komiti imasonkha Ndalama zimenezi miyezi ya July ndi August, anthu akakgulitsa zokolola zawo. Zinthu zimenezi zikagulidwa zimasungidwa mwa chinsinsi ndi msungi chuma yemwe amamudziwa ndi Atcheya ndi anthu ena ochepa mu committee.

Anthu amene anasokha koma s'analandile chithandizo atsimikiza kuti asonkhanso ndalama chifukwa choti awona m'mene anthu ena athandizikila, ndipo kuti ngozi ndizosayembekezeleka, wina aliyense akhoza kukhudzidwa.

Translated summary:

The story of Mwala Village in Zomba rural exemplifies the transformative impact of organization and community-driven initiatives on socio-economic development. Faced with delayed feedback and inadequate response structures during times of disaster, the people of Mwala took matters into their own hands. Through the establishment of a communal account and proactive measures, they became the first responders in their community, providing immediate support to affected households.

The Mwala Village Civil Protection Committee (VCPC) recognized the need for a coordinated and village-owned response mechanism. Collaborating with local chiefs, they mobilized the community and created a communal account to minimize the suffering of those affected by disasters. Their efforts proved crucial during the series of devastating cyclones that struck Malawi, as they purchased maize to alleviate food shortages in the area.

Their organized approach extended beyond disaster response. When fire engulfed houses or storms damaged roofs, the VCPC swiftly acted, providing assistance and resources to affected families. They exhibited a deep sense of unity and solidarity, ensuring that no one was left behind in times of hardship.

The VCPC's actions were not undertaken in isolation but were supported by the Titukulane Project, which aimed to strengthen local governance structures in the region. With USAID funding, the project trained committee members and focused on skills development and capacity building. By empowering the villagers of Mwala, the project enabled them to manage resources effectively and tackle the challenges they faced.

The impact of their organized efforts extended beyond Mwala Village. With the establishment of the communal account and their proactive approach, they became a beacon of hope for other communities. Their success demonstrated that positive change is possible when individuals come together, empowering themselves and their neighbors.

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