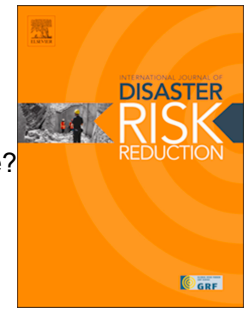

Why does community-based disaster risk reduction fail to learn from local knowledge? Experiences from Malawi

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Why does community-based disaster risk reduction fail to learn from local knowledge? Experiences from Malawi.

Abstract

It is often taken as given that community-based disaster risk reduction (CBDRR) serves as a mechanism for the inclusion of local knowledge (LK) in disaster risk reduction (DRR). In this paper, through in-depth qualitative analysis of empirical data from Malawi, we investigate the extent to which CBDRR in practice really takes into account LK. This research argues that LK is underutilised in CBDRR and finds that current practice provides a limited opportunity for the inclusion of LK, due to five prime obstacles: i) current approach to community participation, ii) financial constraints and capacity of external stakeholders, iii) the donor landscape, iv) information consolidation and sharing, and v) external stakeholders attitudes towards LK. In CBDRR, a strong dichotomy between local and scientific knowledge is maintained, and further re-examination of community-based approaches in practice is needed to make them truly transformative.

Keywords: community-based disaster risk reduction; indigenous and local knowledge; participation; knowledge co-production; Sub-Saharan Africa

1. Introduction

Nowadays it is widely recognised that communities at risk to natural hazards are central to disaster risk reduction (DRR), and their involvement in decision making processes across different layers of governance is actively encouraged in global policy frameworks (e.g., in the Sendai Framework for Disaster Risk Reduction 2015-2030). These local communities have abundant local knowledge (LK), developed through lived experience of natural hazards, and they rely on it for reducing the risks and managing the impacts of various disasters in their localities (Kelman *et al.*, 2012; Mercer *et al.*, 2010; Šakić Trogrlić *et al.*, 2019).

Similar to the recognition of local communities, global policies also acknowledge the importance of LK for DRR (Lambert and Scott, 2019). For example, the Sendai Framework emphasizes a need to include LK in local-level risk assessments (UNISDR, 2015), while the 2018 report on the 1.5° warmer world from the International Panel on Climate Change (IPCC) points out that LK is one of our available options for adapting to climate change (IPCC, 2018). It is obvious that LK is now gaining increasing interest (Salite, 2019), and various authors (Gaillard *et al.*, 2008; Hiwasaki *et al.*, 2014; Shaw *et al.*, 2009) described that this became especially apparent after the 2004 Indian Ocean Tsunami, when local responses that helped indigenous communities survive were widely shared, which sparked research interest in LK.

Although it is encouraging that (after decades of top-down and decontextualized approaches for managing disaster risks) communities and their LK are receiving increasing attention, the reality from the ground suggests that this increased attention does not result in practical inclusion of communities nor their LK in DRR. For instance, the 2019 Views From The Frontline Report by the Global Network of Civil Society Organisations for Disaster Reduction (GNDR, 2020), based on interviewing nearly 100,000 people in 43 of the world's most disaster-prone countries, found that only 16% of people at risk feel included in decisions on how to reduce their own risk. Similarly, many authors strongly argue that the rhetorical recognition of LK does not translate into its extensive inclusion in DRR approaches (Dube and Munsaka, 2018; Heijmans, 2012; Iloka, 2016; Kenney and Phibbs, 2015).

In this paper, we explore the dynamics between the inadequate inclusion of LK and approaches to DRR by looking into a specific approach: community-based disaster risk

reduction (CBDRR)[1] .Through a case study in Malawi, we aim to unpack the on-the-ground reality of LK inclusion in CBDRR and the extent to which the theoretical promise of LK inclusion through CBDRR is translated to practice. CBDRR is based on putting communities and their participation at its core (Delica-Willison and Gaillard, 2012; Shaw, 2016; Twigg, 2015); it recognizes that local communities have abundant LK, and it relies on this LK to effectively reduce the risk and impacts of hazardous events (Cretney, 2016; Dekens, 2007; Gaillard and Mercer, 2013). In this paper, by relying on in-depth empirical qualitative data from Malawi, we aim to investigate the extent to which CBDRR in practice really takes into account LK. More specifically, the objectives are to: i) explore CBDRR implementation on the ground and, ii) identify the obstacles in current CBDRR for the use of LK.

In Section 2, we present CBDRR and LK as theoretical framing for the present study, followed by an introduction to contextual setting of Malawi in Section 3. Section 4 details our methodological approach, and in Section 5 we present and discuss our results through five identified 'obstacles' for the inclusion of LK in CBDRR in Malawi. Finally, Section 6 outlines the main conclusions.

2. Theoretical framing: **Local knowledge and community-based disaster risk reduction**

According to a broad definition by Dekens (2007), LK in the context of DRR refers to everything that communities at risk know about natural hazards and associated risks, their perception of these risks, and a vast array of actions they take to reduce and manage these risks. LK includes peoples' knowledge of local hazards, vulnerabilities, and capacities (Kelman *et al.*, 2012), their local coping and adaptation strategies and learning that occurs due to being impacted by disasters (Tran *et al.*, 2009), as well as community institutions (Kniveton *et al.*, 2015).

There are various terms used for LK in the literature, including (but not limited to): 'indigenous knowledge', 'traditional knowledge', 'traditional ecological knowledge', 'rural people's knowledge', and 'people's science' (Antweiler, 2004; Mercer, 2012; Sillitoe, 1998). As Kelman et al. (2012) explain, the use of different terms is based on the

[1] In this paper, we are focusing on community-based flood risk management (CBFRM), which is a hazard specific-type of CBDRR. However, in the text refer to CBDRR, as this is a more commonly used term in literature and practice.

context, language and the academic discipline. We use the term LK, in line with Šakić Trogrlić *et al*. (2019) and their research in Malawi, primarily due to a fact that LK is conceptually broad term (Wisner, 2009) and it includes knowledge of all people who live in a certain locality for a prolonged period of time (Hiwasaki, 2017).

There are several characteristics of LK important to consider in the context of DRR.

- LK is not a community trait, as different people within a community will have different LK (Wisner, 2009). For instance, the LK of older people will often differ from that of younger people, and LK will differ according to a source of livelihood (e.g. farmers' knowledge different to fisherman').
- LK is differentiated across scales; in other words, different bodies of knowledge can be found at individual, household, and community level (Dekens, 2007; Hilhorst *et al.*, 2015)
- LK is engrained in a local socio-ecological context (Hilhorst *et al*., 2015), and this local character is what gives it agency, power, and relevance in development, and by inference, DRR (Briggs, 2005).
- LK is highly dynamic. While people are experiencing disasters, it constantly evolves (Mitchell *et al.*, 2016) and accommodates change (Acharya and Prakash, 2019). The dynamic nature of LK is also evident through a fact that this knowledge is not developed in isolation as it is continuously co-produced and ''cross-fertilized'' with 'scientific knowledge' (Acharya and Prakash, 2019; Mercer *et al.*, 2010; Tengö *et al.*, 2014). For instance, Acharya and Prakash (2019), while researching LK for flood forecasting in India, found that people regularly triangulate between the local signs they use to forecast flooding and official forecasting information they hear in the radios. Detailed discussions on the process of hybrid knowledge creation is available in, for instance, Alexander and Mercer (2012), Appleby-Arnold et al. (2021); Choudhury et al. (2021a,b), CMercer et al. (2012), Obi et al. (2021), Hermans et al. (2022), and Wang et al. (2019).
- LK is also determined by local power relations and has a power component attached to it. This results in both not everyone having the same access to knowledge as well as in knowledge of certain community groups (i.e., local elites) being privileged when external parties work with communities. For instance, Cronin *et al.* (2004), while researching LK related to volcanic

hazards in Vanuatu found that women have limited access to warning information and can be excluded during evacuation.

In terms of approaches to deal with disaster risks, LK is an important aspect of a specific approach, namely community-based disaster risk reduction (CBDRR). CBDRR emerged as an alternative approach to top-down and technocratic approaches that have failed to tangibly improve the situation and have been designed detached from local contexts and with a lack of participation of local communities (Scolobig *et al.*, 2015). In CBDRR, communities are active subjects in the process rather than passive objects and mere recipients of external interventions (Maskrey, 1989, 2011). Through a process of CBDRR, communities at risk identify and prioritise their problems, as well as select contextually appropriate solutions. Although the approach has been present for almost three decades, its importance is increasing (Van Niekerk *et al.*, 2018), which can be explained by increased challenges at local levels brought about by global environmental change, and an ever-increasing rhetoric of the importance of community inclusion in DRR. By surveying representatives of academia, government, private sector and non-governmental organisations (NGOs), Izumi *et al.* (2019) concluded that CBDRR is the most effective innovation in the field of DRR.

Given the focus of this paper on CBDRR, it is necessary to discuss how we conceptualise the notion of community. We acknowledge there is no single and unified community (Marsh and Buckle, 2001), and the notion of community is inherently complex. In DRR, the term is used uncritically by practitioners, policy-makers and donors (Pelling, 2007; Titz et al., 2018).

Since exposure to hazards is connected to a physical location, any conceptualisation of a community in disaster research needs to include this spatial dimension. For instance, Victoria (2003) conceptualised community as being a group of individuals and households that are residing in the same location that is exposed to a certain hazard (e.g., flood). Therefore, these individuals and households will have shared goals for reducing the disaster impacts (ibid.).

However, only underlining the spatial dimension of a community is misleading, since it ignores social dynamics and the heterogeneity of the concept (Titz et al., 2018). As explained by Twigg (2009), the spatial dimension is essential for understanding how hazard propagates in space; however, one must also understand vulnerability aspects of the community. In other words, it is equally important to comprehend the

differentiated vulnerability of groups within a community and where the vulnerability arises from (ibid.). People living within the same spatial area have different vulnerabilities and capacities (Abarquez and Murshed, 2004), as well as resilience attributes (Uddin et al., 2020). While some will be in a better position to deal with adversity, because of factors such as age, gender, and access to resources, others will be more vulnerable due to those same factors (Marsh and Buckle, 2001). Communities are inherently socially heterogeneous and contain different structures of power; where those with more power are in a better position to determine the direction in which community development will go (Pelling 2007). Among other diversifying features, communities consist of people with varying wealth, ethnicity, religion, caste, socio-economic means, and land ownership (Bowman and White, 2012; Delica-Willison and Gaillard, 2012; Ferdinand et al., 2012; Twigg, 2009). In addition, communities can be seen through a lens of a sense of belonging and commitment, common interests, values, attitudes and social structures (Marsh and Buckle 2001, Twigg 2009). People can be members of several communities simultaneously, e.g. based on location and religion (Twigg 2009). Communities are also very dynamic, since individuals having shared goals can join in a common effort and then separate (Twigg 2015).

Community participation is one of the cornerstones of CBDRR (Delica-Willison and Gaillard, 2012). The very concept of community participation has a long literature, and it is often represented as anything that involves the people (Cornwall, 2008). However, in practice, there are significant differences in levels of participation, and whether it is a mere, one-way information eliciting from local people, or rather a transformative process in which local people determine the research/project agendas (McCall and Peters-Guarin, 2012). In addition to the extent/level of participation, it is also important to consider ‘who’ participates, i.e. whether the heterogeneity of community is accounted for (White, 1996).

Community participation as a part of CBDRR should serve as a wheel for inclusion of LK; however, this is taken for granted and not critically investigated. The literature recognises there are still gaps in understanding how LK is used under the realm of the official approaches to DRR, including CBDRR (Carby, 2015; Dekens, 2007; Ouriachi-Peralta and Fakhruddin, 2014). It is argued that the question of the extent of LK inclusion in development remains open (Smith, 2011), despite widely-rehearsed rhetoric that LK presents an inherent component of good development practice. Through

exploring LK under the umbrella of CBDRR in Malawi, this paper brings insight into how LK interacts with CBDRR in practice.

3. Context of Malawi and flooding

This paper focuses on flooding in Malawi. Malawi has a long-standing problem with flooding, and the country is amongst the most vulnerable to climatic shocks and impacts of climate change in Africa (Barrett, 2013; Warnatzsch and Reay, 2019). It is a small, landlocked country, ranked as the third poorest in the world (International Monetary Fund, 2018), with 51.5% of population living below the poverty line (The World Bank, 2017). Malawi's economic situation is heavily impacted by flooding and other natural hazards (e.g. droughts, dry spells, and landslides) which stifle development. For instance, floods occur in 16 out of the country's 28 districts (UNECA, 2015), and there is a reported increase in flood frequency, magnitude and impacts (Botha *et al.*, 2018; Chidanti-Malunga, 2011). A recent analysis by the Global Facility for Disaster Reduction and Recovery (GFDRR, 2019) reported that around 100,000 people are affected by flooding on an annual basis.

In addition to typical annual flooding, Malawi experiences extreme floods. For instance, in March 2019, Cyclone Idai brought destruction across the country by killing 60 people and affecting close to one million (Government of Malawi, 2019). The flooding of 2019 came while the country was still recovering from the devastating floods of January 2015 where close to 1.2 million people were affected and around 170 casualties were reported (Government of Malawi, 2015; Rudari *et al.*, 2016).

Malawi presents an interesting case study for studying community-based approaches and their interaction with CBDRR, since CBDRR is a commonly employed approach for dealing with flood risks in the country (Kita, 2017; Šakić Trogrlić *et al.*, 2018) and previous research has found that communities have rich LK (Chawawa, 2018; Šakić Trogrlić *et al.*, 2019). For instance, Šakić Trogrlić *et al*. (2019) conducted a detailed documentation of LK for FRM with communities in the Lower Shire Valley and identified different dimensions of LK, which are presented in Figure 1.

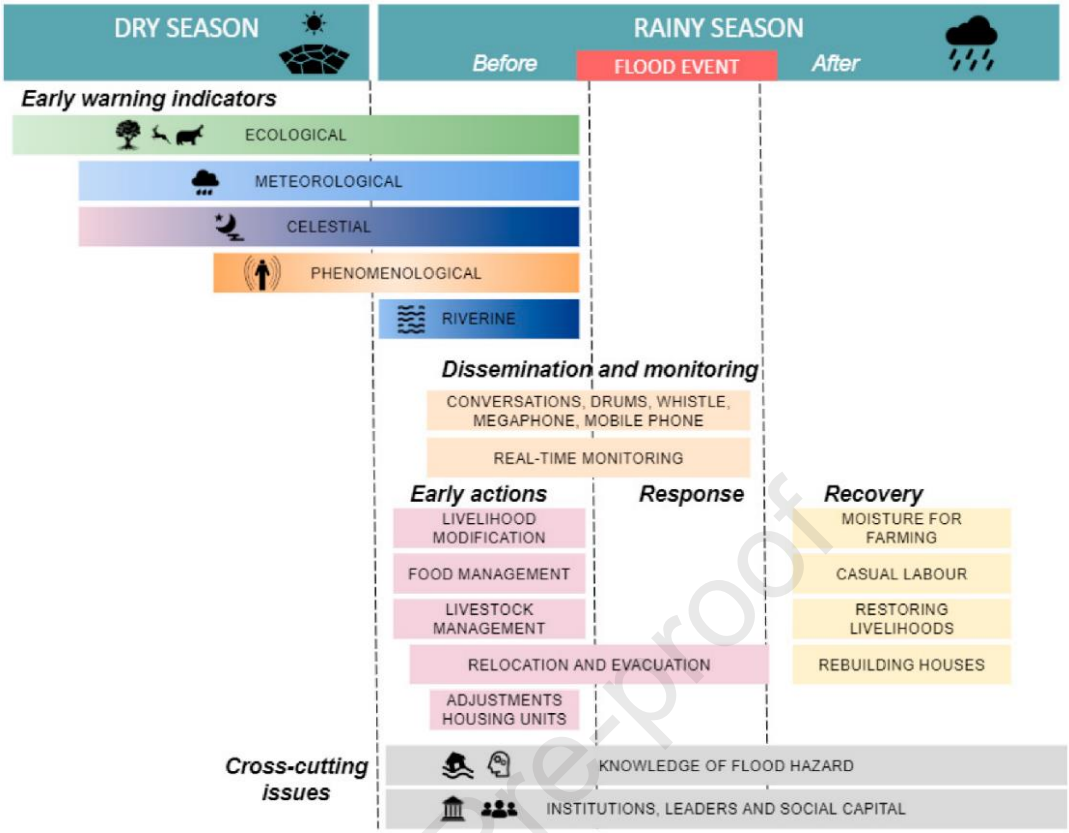

Figure 1: Dimensions of local knowledge for flood risk management in Malawi (adapted from Šakić Trogrlić *et al*. 2019)

The development of policy landscape in Malawi indicates that DRR is present in decision-makers' agendas, cuts across different policies and is envisioned as a multi-stakeholder process requiring cross-sectoral collaboration and significant investments. In 2015, the National Disaster Risk Management Policy was adopted as the main policy framework guiding implementation and coordination of DRR in the country (Government of Malawi, 2015) in line with the Hyogo Framework for Action.

In addition to the National Disaster Risk Management Policy, a reference to DRR is explicitly made in a number of national policies, indicating governmental recognition of the importance of DRR and the contribution it can make to the overall development of the nation. For instance, the National Water Policy (MoAIWD, 2005) identified the importance of preparedness and contingency plans as a part of overall water resources management. Furthermore, Malawi's most recent national development blueprint, Malawi Growth and Development Strategy III (MGDS III) acknowledges the importance of DRR under the Disaster Risk Management and Social Support theme (Government of Malawi, 2017). Similarly, DRR was identified as a separate theme in the National Adaptation Programme of Action (NAPA) (Government of Malawi, 2006) and the National Climate Change Management Policy (NCCMP) (Government of Malawi 2016. Botha et al. (2018) provided an analysis of the policy framework for DRR in Malawi, and they suggested that there is a lack of integration between different policies, and that the policies are wide in scope and without an adequate funding source. This suggests that despite its comprehensiveness, there are challenges related to policy implementation.

The main policies recognise local communities as core players whose participation is an important ingredient for successful policy implementation. For instance, National Disaster Risk Management Policy emphasises a need for community-level DRM plans, effective communication of risk information to communities, and development of capacity building, training and learning programmes for communities (Government of Malawi 2015c). It also explicitly recognises the importance of CBDRR by aiming to 'ensure the promotion of sustainable and long-term community-based disaster risk reduction measures.' (ibid., p.8). Similarly, The MGDSIII puts a strong focus on community-based approaches.

4. Approach

We base this paper on qualitative case study research conducted in 2016 and 2017 in Malawi. The study is focused on a practical problem of local knowledge integration in CBDRR; therefore, qualitative research which is useful for providing detailed understanding of practical issues was deemed appropriate (Bryman, 2012). The study adopted case study research design as an empirical inquiry for investigation of in-depth phenomena in a real-life setting (Yin, 2009), with primary geographical focus in the Lower Shire Valley (Figure 2). The Lower Shire Valley, composed of Chikwawa and Nsanje Districts, is the most flood prone area of Malawi with a high number of CBDRR initiatives taking place, and research team had previous contacts in the field; based on these, Chikwawa and Nsanje were chosen as case studies.

CBDRR activities in the districts are implemented by non-governmental organisations (NGOs) and governmental actors in collaboration with local communities. Consequently, our research focused on understanding perspectives of these three stakeholder groups. Qualitative research and associated research instruments allowed for gathering and analysis of these rich perspectives.

In March 2016, an initial scoping trip in the districts resulted in seven Focus Group Discussions (FGDs) with local communities, two FGDs with NGOs, and two FGDs with the members of the local government. Discussions were focused on understanding CBDRR in the districts, its practicalities at community level, and common challenges experienced by different stakeholders.

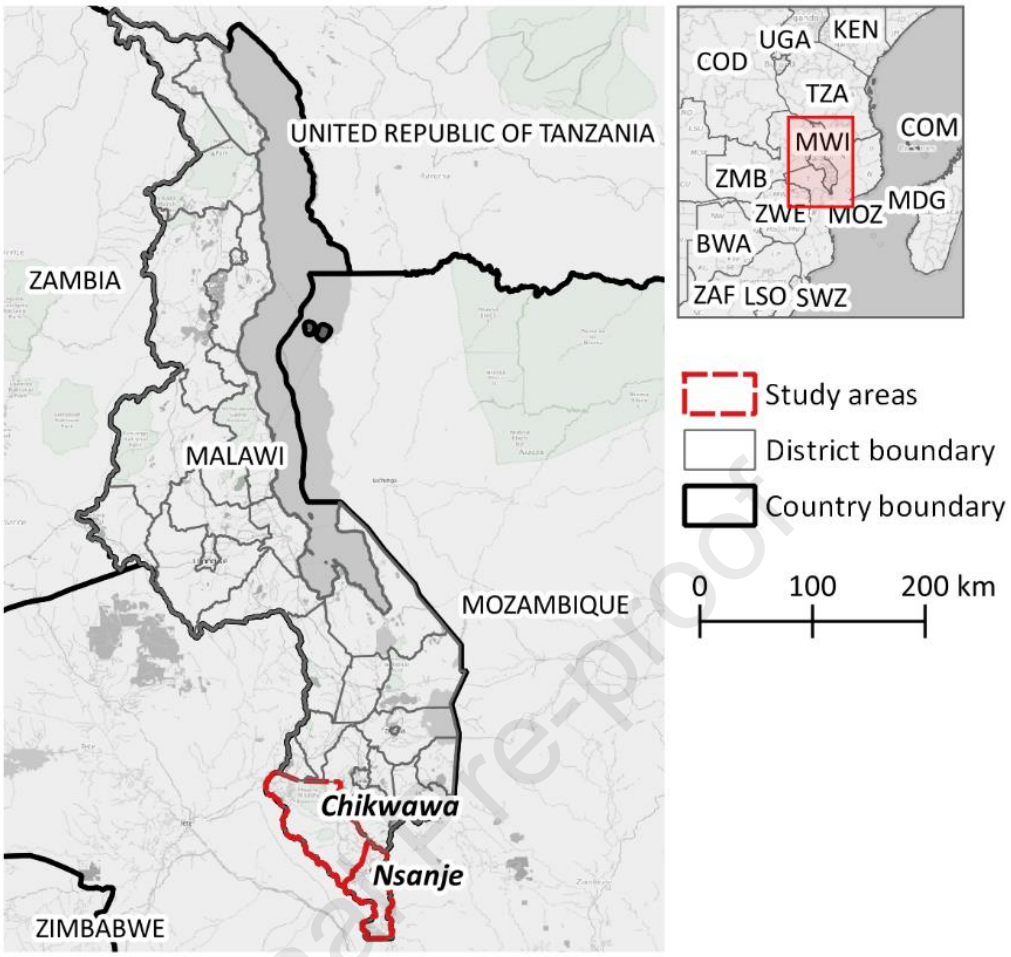

Figure 2: Geographical location of research (map created using the open data from the Open Street Map)

Figure 3: Analytical framework outlining research problem, theoretical framing and research approach

From June to September 2017, the main fieldwork took part in Malawi with a focus on understanding the flood-related LK of communities in the Lower Shire Valley; this included 15 FGDs and 36 Key Informant Interviews (KIIs) in seven communities. Furthermore, we conducted three FGDs with representatives of NGOs and local government in the Lower Shire Valley, and 68 KIIs with representatives of local and

national government, NGOs at district and national level, and flood risk consultants; we termed these stakeholder groups are external stakeholders. Interviews with representatives from national level were conducted in Lilongwe and Blantyre, and focused on understanding their engagement with communities and their LK under the realm of CBDRR.

At the community level, we targeted participants that lived in flood-prone areas experiencing frequent flooding, were known to possess LK related to flooding, and with previous experience of working with external stakeholders on CBDRR initiatives. For the government stakeholders, the focus was at the district level and on the representatives of ministries that are involved in the district-level DRR institutions (i.e. District Civil Protection Committees). At the national level, focus was on ministries and governmental departments involved in the DRR landscape in the country (e.g. Department of Climate Change and Meteorological Services, Ministry of Agriculture, Irrigation and Water Development, Department of Disaster Management Affairs). Finally, we engaged with representatives of local, national, and international NGOs with experience of project and programme work at community-level related to DRR.

FGDs and KIIs with members of local communities were conducted in Chichewa or Sena and were translated simultaneously by local researchers to the lead researcher who was then asking follow-up questions. Prior to commencing fieldwork, interviews and FGD guides were translated to Chichewa by a Malawian researcher working on the issues of flood risk management, making sure that the right terminology was used.

For both FGDs and KIIs, we relied on purposive and snowball sampling. Purposive sampling chooses participants with direct relevance to research aims in order to obtain in-depth information related to the phenomenon of interest (Bryman 2012). Unlike theoretical qualitative sampling, aimed at developing new theories, purposive sampling is concerned with providing insights from a real-life setting (i.e., the field) (Flick 2018). The premise in snowball sampling is that the researcher starts with initial interviewees, who then recommend to the researcher further participants that would be of interest for the study (Bryman 2012). The approach proved very useful in recruiting the participants from NGOs and government, both at the local and national level.

An important aspect to consider was sample size, which is challenging to determine in qualitative research (Bryman 2012, Saunders et al. 2018). We used data saturation as a criterion for determining the sample size. Data saturation means that further

311 interviews or FGDs bring very little or no new insights (Guest et al. 2006). In other
312 words, no new information is forthcoming (Galvin 2015). For interviews, it was reported
313 that saturation occurs within 12 interviews (Guest et al. 2006), while for FGDs 90% of
314 themes identified through data analysis occur within three to six FGDs (Guest et al.
315 2017). Both for FGDs and interviews, we were well beyond these numbers. Most
316 importantly, towards the end of the fieldwork, it was noticed that no new insights are
317 coming through interviews and FGDs, indicating that saturation has been reached.

318

319 In majority of cases (i.e. all but two KIIs) FGD and KII were recorded and later
320 transcribed. They were then analysed by using thematic analysis (using QSR NVivo
321 software), a common qualitative data analysis method based on identifying, analysing
322 and reporting themes within data (Braun and Clarke, 2006). We followed Nowel et al.
323 (2017) six stages of thematic analysis: 1) familiarising oneself with the data, 2)
324 generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and
325 naming themes, and 6) producing the report. The main themes are described in Section
326 5.

327 The limitations of this research stem from the overall limitations of a chosen
328 qualitative research methodology. For instance, case study research design and
329 reliance on qualitative data sources means that the findings are difficult to generalize.
330 However, generalisation in case study research is concerned with the expansion and
331 generalisation of theories (‘analytic generalisation’) rather than quantification of
332 frequencies (Yin 2009a). As Bazeley (2013) suggests, findings from case studies can
333 generate valuable insights into processes and causalities, thus contributing to
334 enhancing theoretical foundations. Further research limitations were concerned with the
335 reality of data collection, and while these could not be completely avoided, they were
336 minimised whenever possible. For instance, the inability of researcher to speak local
337 languages meant that some of the rich information during interaction with local
338 communities was omitted, although every effort was made by local research assistant
339 to provide detailed accounts of participants' accounts.

340

341 **5. Results and Discussion**

In this section, we first give a short overview of CBDRR system in Malawi, followed by a detailed discussion of five prime obstacles for a widespread inclusion of LK in CBDRR in Malawi that we identified through our analysis. The overview of main themes discussed in results is presented in Table 1.

5.1 Community-based disaster risk reduction in Malawi: a short overview

5.1.1 Institutional setup for CBDRR

Malawi is divided into three administrative regions (Northern, Central and Southern) and 28 districts. Following the transition to multi-party democracy in 1994 (Gaynor, 2010; Manda, 2014), and in line with the Local Government Act (Government of Malawi, 1998a) and Malawi National Decentralisation Policy (Government of Malawi, 1998b), Malawi has a decentralised governance setup, where local governments at district levels are provided with administrative and political powers. This process aims to improve the delivery of public goods and to facilitate community participation in governance and development initiatives (Cammack, 2011; Waylen and Martin-Ortega, 2013). Under decentralisation, national level ministries are required to devolve their functions and resources to district levels (Kita, 2017).

Malawi also has a decentralised DRR institutional system. At the lower administrative levels (i.e. districts, Traditional Authorities-TAs and Group Villages-GVs), DRR is coordinated by Civil Protection Committees (CPCs). At district level, it is District Civil Protection Committee (DCPC), at TA level it is Area Civil Protection Committee (ACPC), and at GV level it is Village Civil Protection Committee (VCPC).

Table 1 Overview and description of the main themes identified through thematic analysis.

Theme	Description	Data
Institutional setup for CBDRR in Malawi	An overview of main DRR institutions and a setup of decentralised institutions in Malawi	Primary secondary literature with additions from KIIs and FGDs with NGOs and government
CBDRR in practice	Elaborates on the implementation of CBDRR in Malawi, identifying main actors and describing core processes	KIIs and FGDs with government, NGOs, and local communities
The obstacles in current community-based disaster risk reduction for the use of local knowledge		
Community participation practices	Critical exploration of how community is represented in current CBDRR and power relations determining whose LK is taken into account.	Primarily KIIs and FGDs with communities, with additions from the government and NGOs
Financial constraints and capacity of NGOs and government	Lack of funding for the work of decentralised governmental institutional structures and	Primarily KIIs and FGDs with NGOs and government

	NGOs, and limited human capacity for engagement with LK	
The donor landscape	Current funding landscape focused on short-term projects and donor-driven agendas as an obstacle for LK integration	Primarily KIIs and FGDs with NGOs
Information consolidation and sharing	Coordination and flow of information in current CBDRR is inadequate resulting in the loss of community-generated inputs and their LK	Primarily KIIs and FGDs with NGOs and local government
External stakeholders' attitudes	A lack of holistic understanding of LK from external stakeholders (i.e., government and NGOs) and preference towards scientific knowledge	Primarily KIIs and FGDs with NGOs and local government, but with inputs from local communities

365

366 Overall, CPCs are in charge of coordinating all matters related to DRR at their
367 respective levels, including mitigation, preparedness, response and relief operations
368 (UNECA, 2015). At the district level, DCPC is a sub-committee of the District Executive
369 Committee (DEC), whereas ACPC and VCPC are sub-committees of Area
370 Development Committee and Village Development Committee, respectively. One of the
371 core activities of CPCs at all levels is the development of Contingency Plans and
372 Disaster Risk Management Plans; the plans created at GVH level are supposed to feed
373 into plans created at Area level, that are in turn supposed to feed into District level
374 plans (Šakić Trogrlić *et al.*, 2018). The process of developing Contingency Plans, both
375 at national and at district levels, is triggered by the release of the seasonal weather
376 forecasts at the end of September (Botha *et al.*, 2018).

377 Although a decentralised institutional setup exists in Malawi, previous research
378 found it to be inefficient, owning to funding and human resources shortages at lower
379 administrative levels, poor coordination between administrative levels, and abuses of
380 power by some of the local level politicians and councillors (Kayuni and Tambulasi,
381 2011; Kita, 2017; O'Neil and Cammack, 2014). Consequently, the government is not in
382 a position to effectively deliver services to its people, including DRR.

383 Therefore, local and international NGOs complement governmental efforts. In
384 Malawi, NGOs do more than merely complementing the governmental efforts, and are
385 at the forefront of implementing FRM in the country, primarily through community-based
386 approaches delivered by approximately 80 different NGOs, both international and local
387 (Kita, 2017; Lumumba Mijoni and Izadkhah, 2009; Nillson *et al.*, 2010; Shela *et al.*,
388 2008).

389 *5.1.1 Community-based disaster risk reduction in practice*

At the district level, CBDRR is characterised by a nexus between local government and NGOs. Local government has a mandate to coordinate all the DRR activities (e.g., mobilisation of resources, information sharing with decentralised structures), including all the activities implemented by NGOs. In both Chikwawa and Nsanje, there is an officer of the Department of Disaster Risk Management Affairs (DoDMA), whose core responsibility is DRR coordination at the district level.

Upon arriving at the district, and before starting a specific project, NGOs are obliged to present their planned activities to the District Executive Committee, which provides NGOs with guidance, including in which areas they are supposed to implement their activities. Furthermore, drawing on civil servants' specialities, local government supports NGOs with technical expertise (e.g., District Water Officer assisting NGOs with setting-up community-based early warning systems). Finally, district government officers are in charge of the monitoring and evaluation (M&E) of projects implemented by NGOs.

Different governmental departments are involved in CBDRR at district level through membership of DCPC. Since there is no separate budget line for DoDMA, different departments implement activities that fall under the realm of DRR in their work with communities (e.g., reafforestation, river bank protection).

NGOs are supporting government mandates. This was heavily emphasised by research participants from both the NGOs and the government. During the fieldwork, the presence of NGOs in the communities was observed to a much greater extent than the government; for instance, NGOs assist in the development of district-level contingency and development plans by providing finances and knowledge from the grassroots; they form and train CPCs; they deliver various development projects with a component of DRR. In order to assist with the overall coordination efforts, NGOs are asked to give regular updates on their activities and submit reports to the local government.

Local government and NGOs (or more often, NGOs with the involvement of individuals from the local government) provide capacity building training to CPCs and share information with communities (e.g., early warning information, seasonal forecasts). They provide support: for example, material inputs in flood mitigation activities, community-level planning support in the design of village contingency and village action plans, provision of relief after the floods.

In the existing CBDRR, the community is represented through VCPCs and ACPCs. In the current setup, VCPCs are mediators between communities at large and external stakeholders. Therefore, they are uniquely positioned to share insights from the grassroots with project implementers, including LK. VCPC members highlighted their involvement in a wide range of practical activities, such as installing river training works, planting trees and grass, capacity building training, warning message dissemination, provision of advisories to people in flood-prone areas, and search and rescue. VCPC members are involved in participatory activities (i.e. Participatory Rural Appraisals), and they receive training which they are supposed to cascade to other community members. Moreover, VCPCs are in charge of facilitating planning at local levels, through the production of Contingency Plans and Action Plans, the outcome of participatory activities identifying local needs and proposed solutions. These documents are supposed to guide any development (including DRR) work at community levels, as well as inform the district level documents.

VCPCs are the first point of contact for any organisation that comes to work in the community. They assist in the selection of project beneficiaries (e.g. individuals that will receive an allowance for working on road reconstruction after the floods), actively support implementation of activities (e.g. in communities where there is community-based early warning system, there will be a designated VCPC member doing the readings), and provide material inputs (e.g. collect stones and sand for construction purposes). Finally, VCPCs have a mandate to monitor that the projects are being implemented according to community wishes.

5.2 The obstacles in current community-based disaster risk reduction for the use of local knowledge

In the previous section, we provided a short overview of CBDRR in Malawi, with a detailed analysis and critique provided in Šakić Trogrlić *et al*. (2018), which focused on a hazard-specific type of CBDRR, community-based flood risk management (CBFRM). The results from their study suggest that community-based approaches in Malawi operate under a number of challenges, both internally created and externally exposed, which effectively impede the realisation of its benefits on the ground. Although focused on community-based approaches, the study of Šakić Trogrlić et al. (2018) also identified a number of challenges applicable for the overall DRR in the country, e.g., a lack of in-country resources, relief-oriented aid approaches, and challenges in terms of

456 proactive DRR financing, stakeholder participation, decentralised governance and
457 project management. Also, while the study of Šakić Trogrlić et al. (2018) points out
458 recent advances in terms of focus on risk mitigation and preparedness, the focus in
459 Malawi still remains on response and recovery, also shown by a study of DRR
460 governance in Malawi by Kita (2017).

461 A number of previous studies have identified challenges for community-based
462 approaches (Shaw, 2006; Thi My Thi et al., 2012; Van Niekerk and Coetzee, 2012). For
463 instance, Amini Hosseini et al., (2014) explored main challenges on community-based
464 approaches in earthquake risk reduction in Tehran, Iran, and identified following
465 challenges: a) insufficient information and skills in disaster preparedness and
466 management; b) insufficient attention towards vulnerability reduction; c) low level of
467 collaboration among the community members and local authorities; and d) insufficient
468 number of disaster oriented community-based organizations. However, these studies
469 made no explicit link to how these challenges influence the use of LK. Even though the
470 theoretical foundations see community-based approaches as a principle vehicle for LK
471 contributions to DRR, the realities from the ground point to a mismatch between theory
472 and practice, which we identify through the following five obstacles discussed in the
473 subsequent sections, with example quotes by research participants presented in Table
474 2.Based on these, this paper argues that the current setup and practice of CBDRR in
475 Malawi is not sufficiently facilitating the inclusion of LK.

476 **Table 2**: Example quotes from research participants on the obstacles in current
477 community-based disaster risk reduction for the use of local knowledge

Obstacles identified	Example quotes
Community participation practice	'*When you are trying to formulate community-based structures, you find that people who are found in these structures are the same people as in other structures, and they have the link to community leaders. So in that case, I say that participation is not equal and not fairly spread within the community*.' (FGD with the District Civil Protection Committee in Chikwawa) '*Most of the projects that failed in the Lower Shire, it is because NGOs came and said we want to do this, we got funding and we want to assist you with this. [...] Because they do not involve the communities themselves, usually the projects fail.' (KII with a representative 2 the national government*)

Financial constraints and capacity of NGOs and government	‘’*And the local knowledge comes in as just one component within the project activities, it is not like it has been taken as one major activity that has been implemented in the district. So, at times you can pass on without looking at it very critically because of the resources that are available*.’’ (FGD with NGOs in Chikwawa) ‘’*I think, purely pragmatically, for a lot of us, time is an issue, to try and really understand it. You get a bit of funding and you have a certain amount of time to deliver something and you have to achieve certain results, and the time taken to really understand some of these issues is not always there, and we acknowledge that*.’’ (KII with a representative 12 from NGO at national level)
The donor landscape	‘*Normally, community-based activities do not need much. But maybe our budget lines are on other things. But this is embedded in each and every project that we are doing. […] We act and dance to the tune of donors. The donor says my money should be here, and if disaster mitigation is not there, what do you do? Nothing*.’’ (FGD with NGOs in Nsanje) ‘*You know, sometimes donors… They like to prescribe how you should use money, which at times might be out of context with what you want to do. […] We have seen in projects where you have a copy of a project which was done in India for example. Indian and Malawian context, they are different*.’’ (KII with a representative 1 from NGO at district level) ‘*If the donor has got some funds, then you say we are going to implement this project using local knowledge, maybe he will also ask to provide proof whether that will work or not. So if you get the challenge, they will say, why not just use modern technologies where we are guaranteed that once when we implement a,b,c,d, we will have a,b,c,d as a result*.’ (KII with a representative 11 from the local government)
Information consolidation and sharing	‘*The big challenge is the information sharing. Of course, we have NGOs, they are part of the DEC [District Executive Council]. They come, they present whatever interventions they would wish to implement, then maybe they are given a go ahead, go and implement. Maybe once when the implementation starts, the sharing of information now becomes a challenge*.’ (KII with a representative 11 from the local government)
External stakeholders’ attitudes	‘*I think there is a bit of arrogance in a way. […] There is a bit of that attitude in all of us. They are taken as beliefs, superstitions, things like those*.’ (KII with NGO representative at the national level 12) ‘*When they come they listen but they tell us that those are old ways, follow these ones, they will help you. That is what they teach us, and we are people who are being taught so we can’t have more wisdom than them that we cling to our local ways. We may not learn*.’’ (FGD with communities in Kanseche) ‘*We need to document and validate. That is the key. Because you can’t just [say] this is how it works, but we need to validate it*.’ (KII with NGO representative 16 from the district level)

5.2.1 Community participation practices

CBDRR should be a platform for local people to identify their issues, voice out their needs, and identify and lead their risk reduction efforts. Through this, it should also serve as a wheel for the inclusion of LK. However, our findings indicate that participation, as an essential element, is not satisfactory in CBDRR in Malawi, when . It is currently based on the interaction of external stakeholders with VCPCs, which are an entry point for organisations and 'the face' of a 'community'. This is problematic for several reasons.

First, according to our analysis, these committees (i.e. VCPCs) are often overlooked, marginally involved in the design and implementation of projects, and have limited power to influence the process. For instance, as explained by an FGD participant in GV Tizola: ''*they* [government and NGOs] *meet us but have already decided on what they will do*.''. By inference, this indicates limited opportunities for the contributions of LK. Second, at times there is a disconnect between VCPCs and other community members; some participants were sceptical of the extent to which VCPCs represent the views of the community at large and cascade down the benefits received (e.g. the skills acquired through training). Taking into account the heterogeneity of LK specifically, and community as a concept, it then becomes apparent that not everyone's LK is equally taken on board, which presents one of the main failings of current CBDRR in relation to LK. This also indicates that not everyone in the community has an equal opportunity to influence decisions regarding project activities nor to be actively involved in the process, and it is in contrast with the theoretical characterisation of community-based approaches as a platform to enable differing vulnerabilities and capacities to be taken into account (Abarquez and Murshed, 2004b). Third, it was found that elderly people, recognised as the main custodians of LK, are seldom members of VCPCs, nor are they regularly consulted by the VCPCs.

Furthermore, and of critical importance in relation to LK, is that village level politics influence the selection of VCPC members. At times, the process is influenced by local leaders who prefer to place those close to them in the committees, further reinforcing the existing power relations. Moreover, sometimes external stakeholders base their participation approach on merely consulting the chiefs, with no involvement of other community members, which clearly points to limited participation of wider 'community' and consideration of 'who' participates. Powerful individuals within a community might influence decisions to suit their interests rather than those of the greater community. The results indicate that CBDRR in Malawi is often blind to the

514 complexity of power relations and local level politics and leads to 'elite capture', a
515 problem that is affecting the delivery of benefits of community-based projects (Mansuri
516 and Rao, 2004; Platteau, 2004). What this suggests in relation to LK is that in current
517 CBDRR in Malawi, one must ask a question of whose knowledge counts, as it becomes
518 apparent that the dismissal of the influence of village level politics and local level power
519 relations creates differentiated opportunities for people to contribute with their LK in the
520 process. Taking into account the heterogeneity of LK this becomes problematic.
521 Previous researchers of LK (Agrawal, 1995; Briggs, 2005) have argued that very often,
522 both the academic and development practice remain ignorant of the relationships
523 between power and LK, and this study adds additional evidence of this.

524 A further concern is the extent of community participation in policy design, which
525 if present, is limited to discussions with few local elites. Similar concerns of the
526 government in Malawi being detached from the people they are representing was raised
527 by Kita (2017). Limited involvement in policy design indicates that people's LK fails to
528 be considered. A number of policies in Malawi see the value of LK. However, next to
529 mere recognition, a clear operational guidance of how this knowledge could be included
530 is absent. As Romero Manrique *et al.* (2018) argue, this type of general and vague
531 recommendations for the use of LK in policies does not result in practical knowledge
532 inclusion during policy implementation.

533 These findings on participation caution against uncritically assuming CBDRR to
534 be inclusive and participatory. They suggest that current CBFRM, although aspiring to
535 'open the doors' for communities, essentially does not deliver the promise of
536 participation through community-based approaches, and consequently, the inclusion of
537 LK.

538 *5.2.2. Financial constraints and capacity of NGOs and government*

539 The lack of funding undermines the working of decentralised institutional
540 structures in Malawi. Decentralised DRR governance is seen as a way to deliver more
541 targeted development results and increase the participation of local communities
542 (Djalante and Thomalla, 2012; Grady *et al.*, 2016), and by inference, the inclusion of
543 LK. This process in Malawi has been delivered through the creation of decentralised
544 institutional structures (i.e. DCPCs, ACPCs, and VCPCs). However, the institutional
545 structures across different levels have no operational financial resources, and are not
546 properly staffed or equipped. These resource constraints mean limited capacity to

engage with local communities, and in the process, become exposed to LK, indicating that decentralisation 'on paper' does little to facilitate LK inclusion. For instance, VCPCs are community representatives in a voluntary capacity who might lack time, resources and equipment to engage with the wider community, thus directly creating the previously mentioned horizontal disconnect within VCPCs and community at large. The implications cascade at higher levels, as ACPCs lack the financial capacity to engage with VCPCs. Moreover, DCPCs, as the instrumental arm of the local government for DRR, have very limited operational funds. The devolution process is very recent and has not been operating as envisioned in practice. The majority of DRR funding is still held centrally at the level of national government. As a result, this makes DCPCs limited in interacting with communities in the flood-prone areas, consequently resulting in the detachment from LK. Although they acknowledge awareness of LK, in these circumstances, what they can do is limited; hence, they rely on NGOs.

However, NGOs are also not without their own funding challenges, which comes at the expense of participation and inclusion of LK. For instance, results suggest that NGOs are often constrained by finances and time given to develop their proposals. Therefore, rather than conducting extensive participatory activities for a solid baseline, which would enable project proposals based on local realities, NGOs often use secondary data from the districts (e.g. District Development Plans, District Socio-economic Profiles), which are outdated. As participants from NGOs explained, their donors rarely fund the inception phase, where organisations would have an opportunity to come up with a comprehensive baseline of the situation. This suggests that NGOs also operate under their own institutional constraints and are especially dependent on donor-politics.

In addition to funding challenges, based on the results, it can be argued that NGOs, and especially the local government, also lack human capacity to engage more actively with LK. For instance, some participants from NGOs complained that they struggle to employ staff well-versed in conducting participatory activities. On the other hand, the whole of CBDRR coordination at district levels is based on a single officer from the Department of Disaster Management Affairs, while the extension workers from other departments are few in number and cover relatively large geographical areas. All of these factors have a direct implication on the extent of community participation.

5.2.3 The donor landscape

The obstacles for the inclusion of LK go well beyond local levels in Malawi. The results suggest that the existing donor landscape has a direct influence on the extent of LK use in CBDRR. For instance, participants from NGOs shared that they find it challenging to incorporate LK into their project proposals to a large extent since donors show preference towards technological and proven solutions. NGOs are dependent on donor funding and hence have to operate under their terms of reference. Interestingly, although the current DRR donor funding landscape favours phrases of 'community' and 'participation' (Titz *et al.*, 2018) , and LK is gaining relevance in global policies (UNFCCC, 2015; UNISDR, 2015), the results from Malawi suggest that experiences from the ground rarely reflect these landscapes and policies. This is also evident through further examples, where some participants from NGOs pointed out that projects rarely, if ever, contain a component on LK, and that donors lack flexibility, making it a challenge to incorporate local perspectives in the process.

The current donor funding landscape is not sufficiently facilitating participation of local communities, thus directly influencing the input of LK. For instance, CBDRR projects are often short-term, and participants from NGOs pointed out that donors are results-driven and want tangible results, which comes at the expense of participation, which is time and labour intensive (see also van Aalst *et al.*, 2008 and Pelling, 2007). Since NGOs compete for donor funding (Jones *et al.*, 2014), NGOs need to operate under terms that will secure them further work. What is most concerning is that the current state of community participation in CBDRR can be directly linked to what study participants refer to as 'donor-driven' agendas, resulting in projects that mirror the priorities of donors rather than actual local needs, bringing into question the extent to which community-based approaches differ from top-down approaches, adding to the claims by Heijmans (2009) and Van Niekerk *et al.* (2018) that community-based approaches can mirror top-down approaches, where topics of interest at local levels are externally decided. Donor agencies differ in the type of projects they finance according to their programme areas of interest (Luna, 2001). Kamara *et al.* (2019) drew similar conclusions while researching community drought resilience in Lesotho and Swaziland, arguing that power held by donors turns local communities into passive subjects with little influence on decision-making. In Malawi, this was evident in the narratives of NGOs who stated that they 'dance to the tunes of donors' and local communities who complained that their inputs are not taken into account. Donors have a lot of influence in countries that rely heavily on donor funding for DRR (Jones *et al.*, 2014).

614 *5.2.4 Information consolidation and sharing*

615 Delica-Willison and Gaillard (2012) argued that a multi-stakeholder approach is
616 one of the building blocks of successful CBDRR. However, our results suggest that
617 although CBFRM in Malawi is a multi-stakeholder effort, its coordination at district, and
618 even national levels, is often weak, characterised by a lack of accountability and
619 transparency, and requires improvement.

620 In relation to LK, the implication is in the way the collected information is
621 consolidated and shared. While both external stakeholders and local communities
622 raised a concern that LK is not documented, the findings suggest that a lack of
623 coordination in current CBDRR results in a loss of already documented LK. For
624 instance, this means that although NGOs document some of the LK while conducting
625 Participatory Vulnerability Capacity Assessments, this information will not find its way to
626 local government, since NGOs were heavily criticised for not sharing reports with local
627 government and failing to be accountable to the local government. Thus, the local
628 government will not be in the position to create a repertoire of documented LK, despite
629 identifying a need to do so.

630 Similarly, the decentralised institutional structure should facilitate a process
631 where priorities and inputs from the grassroots inform the planning at the higher levels
632 (i.e. districts). This remains a challenge in the existing setup. For instance, participants
633 mentioned that what was developed in the Village Contingency Plans will be
634 consolidated into the Area Contingency Plans which will further feed into the District
635 Contingency Plan. However, the review of the Contingency Plans in Chikwawa and
636 Nsanje revealed that, for instance, local warning indicators are not considered in the
637 district documents. In Chikwawa, the reference to LK is a mention of a single indicator
638 (frogs flocking into the communities), seeing local communities as sources of early
639 warning information, and acknowledging drum beating and whistle blowing as local
640 methods for warning dissemination (Chikwawa District Council, 2014). In Nsanje, LK is
641 referred to only with regard to the fact that the local indicators need to be documented
642 (Nsanje District Council, 2015).

643 *5.2.5 External stakeholders' attitudes*

644 Participants from NGOs and government (i.e. external stakeholders) generally
645 agreed that LK is not sufficiently used in their everyday work. We found that their

attitude towards LK also presents an obstacle for its enhanced inclusion. Whilst research participants from NGOs and government pointed out that LK is increasingly being seen as important and genuinely appear to recognise LK as potentially useful, little was revealed of how this importance is translated to practical application of LK, and they have identified a number of challenges for the use of LK. For instance, as LK is not documented, it makes it difficult for them to access it; there is no scientific evidence for most of LK so they cannot rely on it with confidence; LK is different between different locations making it time and resource intensive to collect it. As a common theme, participants asked for LK to be documented and validated (scientifically) before they can make further use of it. This indicates there is a strong perceived difference and dichotomy between the knowledge of local people and knowledge of those coming to work with communities at risk. CBDRR, an approach that is theoretically based on LK has done little to challenge this power dynamics, and has rather 'masked' this dichotomy behind the rhetoric of participation and community-based interventions (Šakić Trogrlić *et al.*, 2021).

These attitudes significantly influence the extent to which LK is currently included in DRR, since participants emphasise that it is difficult for them to use LK in the absence of proof of its effectiveness. Interestingly, although external stakeholders recognised that communities are in the best position to provide information about flooding in their localities, it seems that communities' accounts of how LK has been assisting them does not present sufficient evidence for external stakeholders.

6. Conclusions

It is often taken for granted that community-based approaches to DRR are the best avenue to include the knowledge of local people (i.e. LK). In this paper, by relying on in-depth empirical data from Malawi, we investigated the extent to which CBDRR in practice really takes into account LK. To the best of our knowledge, this is one of the first studies explicitly looking into whether the process of CBDRR is truly facilitating the inclusion of LK. We found that the current setup and practice of CBDRR in Malawi does not sufficiently facilitate the comprehensive inclusion of LK. We identify five prime obstacles in the current system, all effectively shaping the existing landscape of the lack of LK inclusion through CBDRR. These are: i) community participation practices, ii) financial constraints and capacity of NGOs and government, iii) the donor landscape, iv)

679 information consolidation and sharing, and v) external stakeholders' attitudes. The
680 identification of the five obstacles offers clear guidance on how to improve CBDRR with
681 respect to the mainstreaming of LK. For instance, multiple challenges experienced in
682 facilitating the participation of local communities were identified, which demonstrates
683 that policies need to move from mere recognition of the importance of community
684 participation to recommending a set of practical policy implementation guidance and
685 tools. By identifying how a lack of information consolidation and sharing hinders
686 CBDRR efforts, and by inference inclusion of LK, a need for policy instruments at the
687 level of local government that will mandate different stakeholders to share information
688 was revealed. The in-depth consideration of LK presented throughout herein can serve
689 as a basis for advocacy for further inclusion of LK in local and national policies.

690 Our results indicate that in CBDRR, a strong dichotomy between local and scientific
691 knowledge is maintained, and that CBDRR does little to change the practice of LK
692 exclusion from practice and policy across different levels. Consequently, CBDRR
693 continues to not benefit from the many advantages of LK knowledge integration. The
694 benefits of the use of LK in DRR at local levels are proven and many. For instance,
695 basing local-level DRR projects on LK means that actual needs are represented (Coles
696 and Quintero-Angel, 2018); it increases project sustainability (Allen, 2006); it is cost
697 effective and can reduce reliance on external assistance and aid (Dube and Munsaka
698 2018).

699 Our findings clearly indicate a need for a more critical review of community-based
700 approaches, how these are unveiled in practice, and how they can be transformed to be
701 truly inclusive of local communities and their rich local knowledge. Without critically
702 engaging with these questions, we run risk of continuation with CBDRR as a process
703 that is done at community levels rather than with communities (Maskrey, 2011), and
704 masking exclusion, dichotomy, and dominance of one knowledge system (i.e. scientific
705 knowledge) behind the 'promise of participation' delivered through community-based
706 approaches. Further research should be focused on building a typology of CBDRR
707 outlining different types of CBDRR, and how are these types actually representative of
708 the very theoretical ideas of CBDRR, including inclusion of LK. Finally, further research
709 should focus on designing CBDRR approaches inclusive of knowledge co-production
710 practices and learning across knowledge themes. This will, as Hermans et al. (2022)
711 argue, provide space for plurality of knowledge themes and context-based solutions.

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