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Advancing Culture of Living with Landslides

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Landslide Risk Management in Uganda: A Multi-level Policy Approach

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Abstract

While landslides constitute a major risk in Uganda, this geomorphological hazard has been largely neglected by national and local authorities in West Uganda. Nowadays, disaster risk management is emerging in Uganda. Monitoring the on-going efforts is therefore crucial in this region. We identify the actors involved in landslide risk management in West Uganda and examine their roles and interactions by investigating both policy and practice. This paper describes a qualitative multi-policy level approach, based on extensive field work and literature on systems analysis and scalar politics. The results show that in theory, landslide risk management in this region consists of a well-structured National Policy (2010), including the establishment of horizontally structured platforms at different administrative levels and a focus on pre-disaster mitigation activities. In practice, however, the implementation is insufficient, as most platforms at local level remain dysfunctional or only meet after a disaster occurred. The dominant arena for landslide risk management remains at national level, despite the promotion of decentralisation, and the focus remains on post-disaster emergency measures, such as providing relief. At local level, bottom-up landslide risk reduction efforts are made that are disconnected from the national policy, scattered and done haphazardly. Thus, discrepancies exist between policy and practice regarding landslide risk management in West Uganda but efforts are moving gradually towards disaster risk reduction.

Keywords

Mass movements • Disaster risk reduction • Disaster governance • Multi-level governance
• Global south • Scalar politics

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Introduction

The paradigm of disaster research has recently shifted from a positivist paradigm to a human-ecological paradigm ending at a complex paradigm (Manyena et al. 2013). Research evolved from focusing on the hazard event to processes that generate vulnerability and loss of resilience to disasters (Manyena et al. 2013). This change occurred with the recognition that reducing the impact of disasters is a governance issue particularly after the Hyogo Framework for Action (HFA) in 2005 (Bamutaze 2015). The current international disaster risk management (DRM) agenda has been driven by the UN, first through the disaster decade in the 1990s, then the HFA in 2005 and recently the Sendai Framework for Disaster Risk Reduction (DRR) in 2015.

In order to investigate the impact of the international DRM agenda, we decide to look at a particular country in the Global South which tries to align with this agenda, namely Uganda. As DRM is emerging in Uganda, it is crucial to monitor the on-going efforts. Therefore, we evaluate the DRM from national to community levels in Uganda. Our case-study analysis of landslides in West Uganda might be illustrative for DRM in other countries of the Global South that attempt to align with the international DRM agenda.

This paper is organised as follows. The methods and approach are described in Section “[Methods and Approach](#)”. Section “[Results and Discussions](#)” describes the landslide DRM policies in theory and their implementation in practice which includes a mapping of the relevant actors, their roles and budget allocations at different scales. Thereafter, conclusions stressing their discrepancies and recommendations are given. For more details about this study, we refer to Maes et al. (2016b).

Methods and Approach

Study Area

This study focuses on Uganda, a Global South country with one of the highest population growth rates in the world (3.2%; UBOS 2013). Uganda is prone to several natural hazards like landslides, floods and droughts due to its geological, geomorphic and climatic conditions (Bamutaze 2015; CRED 2015; OPMRU 2010). Landslides are amongst the most common and devastating natural hazards in Uganda (Knapen et al. 2006).

Although several districts around the Rwenzori Mountains in West Uganda suffer from landslides (Jacobs et al. 2016), this region has been largely neglected in national DRM efforts. Our focus are three landslide-prone districts in the Rwenzori Mountains, namely Kasese, Bundibugyo and Kabarole (Fig. 1). Within these districts, we selected the sub-county with the highest landslide intensity, as suggested by the respective district officials (Kervyn et al. 2015). For

each sub-county, we chose two villages for analysis, i.e. one village heavily affected by landslides and one less affected.

The three districts differ in terms of population density, ethnic composition, economic development, affiliation to the ruling party and landslide occurrence (Table 1). The region is characterised by land scarcity due to a fast growing population and large parts that have been gazetted as national parks (Atukwatse et al. 2012). Different land use types are present: cash crop and subsistence farming in the highlands and cattle rearing in the lowlands (Atukwatse et al. 2012). Land pressure and different economic livelihoods are thought to be at the root of numerous conflicts over land in the area (Atukwatse et al. 2012). In addition, Bundibugyo district still faces the repercussions of the 1997–2002 insurgency by the Allied Democratic Forces (ADF) (Atukwatse et al. 2012).

Data Collection and Analysis

We studied the policy and institutional framework for DRM as well as the public perception about these regulations during three months of field work (summer of 2014). To identify the available and implemented policy instruments for landslide risk reduction, we analysed DRM documents and interviewed public sector stakeholders from local to national levels. We collected data at four different administrative levels, i.e. national, district, sub-county and village. For the three latter ones, we organised focus groups with key actors identified in the National Policy on DRM (OPMRU 2010). The chosen levels are the most relevant for DRM, according to this national policy.

We combined three different data collection methods, i.e. semi-structured interviews, focus groups and collection of secondary data sources. The latter includes disaster policies and risk assessments (for national level), budget allocations, development plans and disaster reports of the relevant Ugandan local governments (for district and sub-county levels), and the available vulnerability and capacity assessments and hazard maps of the Ugandan Red Cross (for village level). To analyse the DRM-framework, mostly data from the focus groups are used, which is a technique widely used by scholars engaged in qualitative research (Hopkins 2007). We minimised the methodological limitations of rigour and bias by repeating focus groups in several villages per sub-county. We strengthen the validity of the information by transcribing and coding all semi-structured and focus group interviews using NVivo software (Nvivo 2012).

Results and Discussions

Landslide Risk Management Policy

Formerly an emphasis was put on disaster response and recovery in Ugandan policies. In 2010, a new well-structured

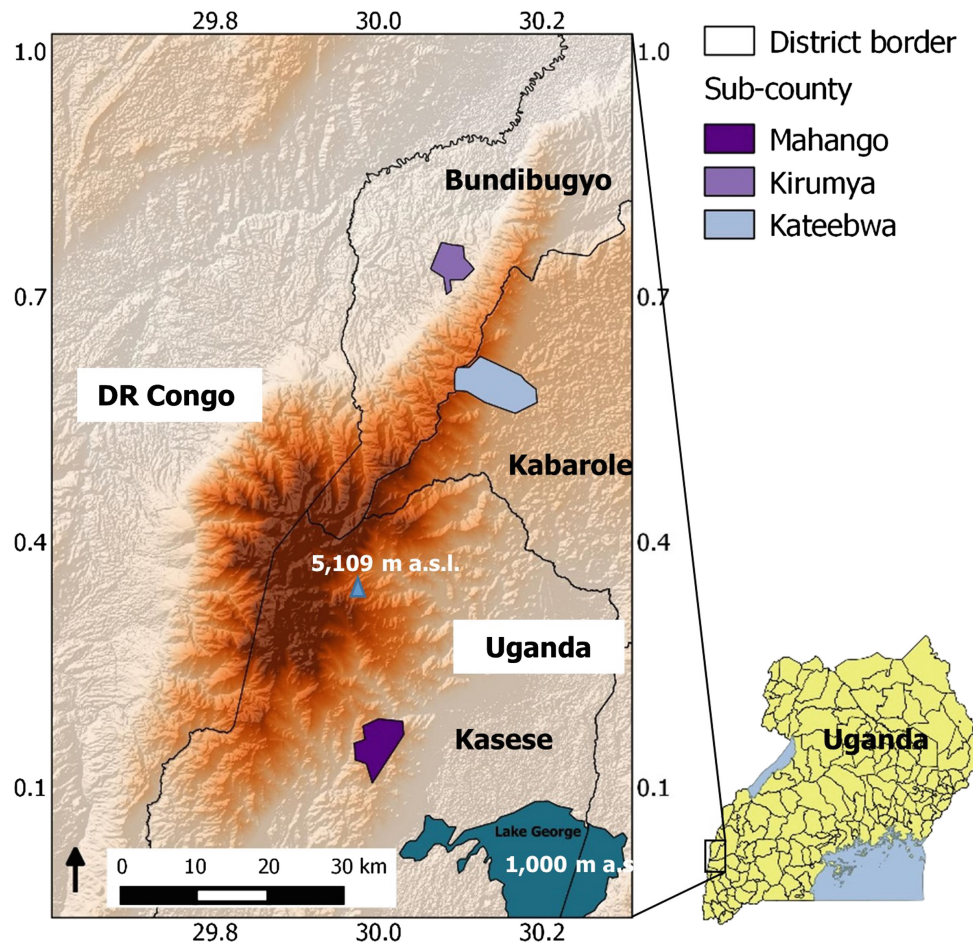


Fig. 1 Location of the three studied sub-counties and the corresponding districts in West Uganda (Rwenzori Mountains)

Table 1 Characteristics of Kasese, Kabarole and Bundibugyo districts

Characteristics	Kasese	Kabarole	Bundibugyo
Population (#persons) ^a	523,033	356,914	158,909
Area (km ²) ^b	3390	1824	2262
Landslide density (# slides/km ²) ^c	Moderate (3.0)	Low (1.7)	High (4.9)
Type of landslides ^c	Shallow	Shallow	Shallow and deep-seated
Main ethnic groups ^d	Bakozzo, Basongora, and Banyabindi	Batooro and Bakiga	Bamba, Babwisi, Bakozzo and Batuku
Percentage voting for ruling party in 2011 ^e	62.3%	88.5%	NA
Number of members of parliament ^f	6	4	3
Total district budget (billion UGX) ^g	45.3	24.7	19.8
Percentage of total district budget from donors ^g	5.7%	4.3%	11%
Percentage of total district budget from local revenues ^g	5.8%	2.9%	3.0%

(Fig. 1: ^aUBOS 2002; ^bUBOS 2013; ^cJacobs et al. 2016; ^dBamuturaki and Busiinge 2004; ^eVision Group 2015; ^fParliament of Uganda 2015; ^gDistrict Budget plans 2014/5: 1 EUR = 3750 UGX, 23/05/2016. As Ntoroko district split from Bundibugyo district in 2010, the numbers from sources before 2010 still include both districts. Landslide densities are based on key sub-counties within the three districts (Jacobs et al. 2016) and should therefore only be seen as background information)

National Policy for Disaster Preparedness and Management (OPMRU 2010) was established, which reflects a paradigm shift towards pre-disaster mitigation measures. This policy went along with the creation of the national department for Disaster Preparedness within the Office of the Prime Minister (OPM), the national DRR Platform as well as Disaster Management Committees (DMC) at district and sub-county levels.

According to the 2010 National Policy, the decentralised platforms (known as Disaster Management Committees or DMCs) are split into a policy and technical unit (OPMRU 2010). The overall purpose of these committees is to enhance horizontal interactions between all actors involved in DRM.

Other national policies also take DRM into account. The relevance of DRM in poverty reduction is recognised in the most recent Ugandan policies (Bamutaze 2015). A law to enforce DRM policies is however currently lacking in Uganda (Bamutaze 2015). As the 2010 National Policy is only at an initial stage, the monitoring and evaluation are still under discussion.

Because landslides are amongst the most common and devastating hazards in Uganda, they receive a fairly high attention nationally (Bamutaze 2015), especially in the Mount Elgon region due to the catastrophic events in 2010 (Misanya and Øyhus 2015). The responsibilities of the different DRM actors and the specific policy actions to be taken to increase DRR are ill-defined in the 2010 National Policy on DRM.

Landslide Risk Management in Practice

Current Actors Involved in Landslide Risk Management

The actors said to be involved in landslide DRM differ in both policy and practice, as well as their type of interaction and involvement. For convenience of analysis, we organise these actors into four levels (Table 2): international, national, district and sub-county, and village level. Some of the relevant actors work and operate at different levels simultaneously, e.g. NGOs and media.

At the international level, the actors involved in landslide DRM are national governments, international NGOs and UN agencies. At the national level, the OPM is the main actor with the National Environmental Management Authority (NEMA) as the lead actor for landslides. Other relevant actors and institutions include the national DRR Platform, different ministries, research institutions and national NGOs (Table 2). The National Emergency Coordination and Operations Centre (NECOC) is a new unit launched in 2014 to centralise disaster response efforts nationally.

At the district and sub-county level, the main actors involved in DRM are the district and sub-county

governments, the research institutions, the local NGOs and the local media (Table 2). The District Emergency Coordination and Operations Centres (DECOCs), are not (yet) established. In practice the District Disaster Policy Committee and District Disaster Technical Committee are combined into one District DMC, which only meets in case of an emergency and is dysfunctional in most cases. While the 2010 National Policy dictates that sub-counties should have a DMC, this is nowhere the case in the three studied districts probably due to lack of awareness and means. The private sector has some limited influence in practice which is manifested at the sub-county level. Especially in Kasese and Bundibugyo districts, where cash crops (coffee and cacao respectively) are major livelihoods, local associations and buyer organisations influence the farming practices through awareness campaigns and trainings. The media play a much more important role in landslide risk preparedness compared to their role outlined in the National Policy, through weather forecasting and awareness campaigns. At this level, several NGOs are active as well. Some districts and sub-counties are however more dependent on NGOs than others (Table 1).

At the village level, cultural and village leaders are active in landslide DRM. The village leaders are the extension of the district and sub-county governments in the village and therefore check whether policies are implemented in collaboration with the cultural village leaders, known as *omukulhuwabulhambu*. Civil society organisations active in DRM were only observed in Mahango sub-county (Kasese district), which is due to the involvement of the Swedish Red Cross. All studied villages have also one or two members in a village health team (VHT), which is linked to both district government and the Ugandan Red Cross Society (URCS) who is responsible for first aid and sensitisation on hygiene and sanitation, e.g. in the temporary camps after the 2010 landslides in Kateebwa sub-county (Kabarole district; Fig. 2a). Because these village health teams are dependent on a few persons per village, their success is highly variable between villages. Micro-finance associations are another dynamic actor at the sub-county level. In all the studied villages, such organisations are active and mainly involve women.

Actors' Roles in Landslide Risk Management

Table 2 presents all actors involved and their roles in landslide DRM, covering every DRR component. Our main observation is that their focus is on post-disaster emergency actions and awareness raising, and that efforts are scattered and done rather haphazardly. In the words of a Kabarole district official: *“There are only individual actions or isolated interventions and no systematic action.”* (Fort Portal, 08.08.2014). Furthermore, several district and sub-county officials stated that the roles and responsibilities in DRM are not clearly defined.

Table 2 Actors and their roles in landslide disaster risk management in West Uganda for different disaster risk reduction (DRR) components at various administrative levels

Level	Actor	DRR component								
		G	A	Pre-disaster			Post-disaster			
				RA	R&V	P	Res	Rec	D	
International	United Nations agencies (e.g. UNDP, UNESCO)	x	x	x				x		x
	International NGOs (e.g. CARITAS, Swedish URCS)		x		x			x		x
National	National government	Office of the Prime Minister	x	x	x	x	x	x	x	x
		Ugandan Wildlife Authority				x				x
		NEMA	x		x		x			
		Ugandan National Road Authority						x	x	x
		Ministry of Education		x						x
		Ministry of Water and Environment		x			x	x		
	National media (radio, TV)	x			x	x				
District and sub-county	District government	x	x	x			x	x	x	x
	Sub-county government	x	x					x	x	
	Research institutions (e.g. Busitema University)		x							
	NGOs (e.g. WWF, World Vision)	x	x		x			x		x
	Local media (radio)		x				x	x		
Village	Village leaders and cultural leaders	x	x		x	x	x	x		x
	Civil society (e.g. micro-finance associations, CBDRR groups, drama groups)		x		x	x	x	x	x	x
	Village health teams		x					x		
	People at risk		x		x	x	x	x	x	x

Adapted from Twigg (2007); G = Governance; A = Awareness; RA = Risk assessment; R&V = Risk management and vulnerability reduction; P = Preparedness; Res = Response; Rec = Recovery; D = Development; NGO = Non-governmental organisation; NEMA = National environmental management authority; CBDRR = Community-based disaster risk reduction

The post-disaster phase has the largest involvement of different actors. Response is mainly in the form of relief which is provided through a top-down approach by the OPM, NGOs and the private sector. In general, relief is limited and comes late, resulting in people looking for other ways to cope. The outcry and access to relief items depends on power relations of the affected communities, e.g. their access to external funding, rather than an objective assessment of the needs as indicated in several focus groups.

Awareness raising gathers several actors, including the local government, the private sector and NGOs through the radio, i.e. in specialised talk shows (e.g. in Bundibugyo and Kasese districts), and community meetings at village, parish and sub-county levels. The content of these awareness campaigns contain contradictions, as they are not yet based on proper risk assessment. For example, water harvesting measures, encouraged by some actors, have been reported to improve crop yields but increase the occurrence of landslides on steep slopes (Knapen et al. 2006). Sensitisation lacks information on how to avoid landslides and what to do in case of a landslide occurrence, except for Mahango

sub-county where the Swedish Red Cross is active. Here, advice is given to back-slope the earth walls next to the houses and to keep at least three meter distance from the earth wall for construction (Fig. 2b), as the collapse of this wall was the cause of several fatalities in Mahango sub-county in 2011.

Bottom-up Initiatives in Landslide Risk Management

Based upon the combined classification of Twigg (2007) and Vaciago (2013), landslide risk management and vulnerability reduction measures (Table 2) can be divided in several categories: reduction of vulnerability, hazard and exposure (Maes et al. 2016a??). Most of these measures are implemented rather haphazardly.

Concerning hazard reduction, planting of trees next to roads and houses for soil stabilisation (all districts), channelisation to prevent runoff water from stagnating and flowing into tension cracks to reduce landslide occurrence (Kasese and Bundibugyo districts), are reported as landslide risk reduction measures but rarely observed. Noteworthy is

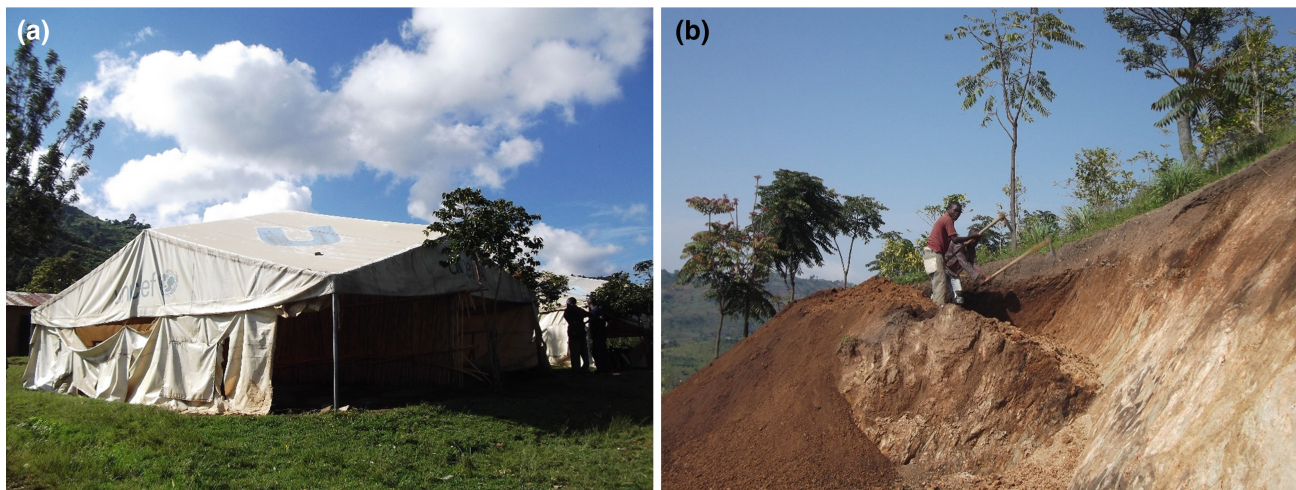


Fig. 2 Measures to cope with landslide risk in the Rwenzori Mountains (West Uganda): **a** Tents provided as relief items after 2010 landslides in Mutumba village, Kabarole district, **b** Back-sloping of earth wall near a farmer's compound in Buhandiro village, Kasese district

that the lack of the “mountain sweeping”, i.e. a cultural ritual intended to praise the spirits of the Rwenzori mountains by Bakonzo people - the major ethnic group living in the Rwenzori mountains (Table 1), was cited during most village focus groups as one of the causes of landslides in the area, as it was not practiced since 2006.

Concerning vulnerability reduction, people at village focus groups mostly referred to saving and credits cooperations as the primary providers for loans to cope with unexpected costs. In Nyangasa village, after the 2013 landslides whereby many lost their house, some cooperations collapsed because many could not repay their share. In villages with severe landslide impact, there are considerably less active saving and credit cooperations due to money shortage, e.g. Nyangasa village versus Nyabude 2 village. In Mutumba village, people stated that before the 2010 landslides more lending groups were active. These observations suggest that such lending groups are functioning properly in case of small-scale impacts but seem to malfunction when the impact concerns many households.

Concerning exposure reduction, permanent relocation has frequently been mentioned as a valid landslide risk reduction measure. In Kirumya sub-county, most of Nyangasa villagers shifted towards the town center after landslides and cracks destroyed much of their farmlands and houses in 2013. People also move to other villages or to the closest city in response to landslides, for example in Kateebwa sub-county after the 2010 landslides. Nevertheless some people remain in their houses despite early warning signs or

fear of future landslides because of lack of a social network or means as well as a sense of cultural attachment to the ancestral land. Temporary relocation during rainy nights in the two rainy seasons is practiced in most landslide-prone districts. In all studied sub-counties, farmers living in high risk zones testified that they stayed several nights a year with neighbours and relatives, either because they experienced landslides on their farms in the previous years or noticed early warning signs on their compounds. This practice is encouraged by local governments and also on the radio. Early warning signs of landslides, like tension cracks, water stagnation and formation of water springs, are known at all different administrative levels because they can be easily observed. These signs are reported from the village level, through local leaders to the sub-county and then to the district environmental officer or district community development officer in case these are threatening several households (e.g. major tension cracks at the mining site in Kilembe town since 2014 and cracks at Kirumya sub-county since 2013).

For a general—yet preliminary—qualitative overview of progress made in landslide risk management at the different administrative levels, we refer to Table 3. Our main observation is that most progress is made at national and—to a lesser extent—at district level. This distortion to higher administrative level can partly be attributed to the fact that the international frameworks manifest themselves mostly at the national level (UNISDR 2007). Despite the limited landslide risk management at sub-county and village level, bottom-up initiatives are taken but disconnected from top-down initiatives.

Table 3 Preliminary qualitative progress matrix of landslide risk components at national (N), district (D), sub-county (SC) and village (v) level

Disaster risk management (DRM) for landslides		N	D	SC	V
Components	Indicators				
Institutional framework	A legal framework for DRM exists with explicit responsibilities defined (for all levels of government)	S	I	I	NE
	Multi-sectoral platforms for DRM are operational (across levels)	G	I	NE	NE
	A policy framework for DRM exists that requires plans and activities	G	G	S	NE
	Adequate resources are available to implement DRM plans	G	I	P	P
Risk assessment	Risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors	S	P	NE	NE
	Systems are in place to monitor, maintain and disseminate data on landslides and vulnerabilities	S	P	NE	NE
	Early warning systems are in place for landslides	S	NE	P	P
Education and awareness	Public awareness strategies for DRM exist and are implemented with vulnerable communities	P			
	School curricula include DRM elements and instructors are trained in DRM	P			
Risk management and vulnerability reduction	Environmental protection, natural resource management and climate change policies include DRM elements	G	S	NE	NE
	Sectoral development plans (agriculture, water resources, health, environment, forestry, tourism, industry etc.) include DRM elements	G	I	P	NE
	Land-use zoning and plans, building codes and safety standards exist and include disaster risk-related elements which are rigorously enforced	S	P	NE	NE
	Technology options for DRM are available and applied	S	P	NE	P
	A long-term (national) programme is in place to protect critical infrastructure from landslides*	P	NE	NE	NE
	A procedure is in place to assess the disaster risk implications of major infrastructure and development project proposals	G	S	NE	NE
	Disaster preparedness and response	An independent assessment of disaster preparedness capacities and mechanisms has been undertaken and the responsibility for the implementation of its recommendations has been assigned and resourced	S	NE	NE
	Disaster preparedness plans and contingency plans are in place and regular training drills and rehearsals are held to test and develop disaster response programmes	S	P	NE	NE
	All organisations, personnel and volunteers responsible for maintaining preparedness are equipped and trained for effective disaster preparedness and response	S	P	I	I
	Financial reserves and contingency mechanisms are in place to support effective response and recovery	P	P	NE	P

Indicators based on UNISDR (2007): G = Good; S = Satisfactory; I = Inadequate; P = Poor; NE = Non existent; *means no data was available

Budget Allocated to Disaster Risk Management

Budget allocations are considered an important instrument in Uganda to assess government priorities in the implementation of policies and programmes such as DRR (Tumushabe et al. 2013). We analysed disaster budgets at different administrative levels, namely national, district and sub-county level.

At national level, DRR represents a small 0.4% of the 13.1 trillion UGX (3.5 billion EUR; 23.05.2016) total budget of the National Government of Uganda in 2013, despite the increased global commitment of resources and the fact that Uganda is highly disaster-prone (Bamutaze 2015). Of the total approved budget of the OPM in the financial year 2013–2014 (i.e. 193.2 billion UGX or 51.5 million EUR; 23.05.2016), 8% was attributed to the department on “Disaster Preparedness, Management and Refugees” (i.e. 14.8 billion UGX or 3.9 million EUR; 23.05.2016), mostly targeting relief and recovery. This share has increased since the implementation of the 2010 National Policy for DRM as of 2012 (Atukwatse et al. 2012).

At district and sub-county level, DRR is a cross-cutting task without a specific budget. Every sector contributes to disasters according to the affected sector, e.g. when a landslide damages a school building the education sector bears the responsibility for the repair. Emergency operations or DRR efforts are not budgeted. As such, no money is available for surveying the area or answering the outcries of people when a disaster has happened. As also observed by Tumushabe et al. (2013), districts and sub-counties are dependent on the central government and NGOs (Table 1) and thus limited in their own resilience, which is often the case in the Global South (Banks et al. 2015).

Conclusions

Based on the analysis of actors involved in landslide risk management in West Uganda, their roles and budgets, a clear mismatch between policy and practice comes forward: (1) risk management is more centrally organised than stated in the national policies; (2) the focus remains on post-disaster emergency actions despite the acknowledgement of a paradigm shift towards disaster risk reduction nationally, and (3) bottom-up approaches are implemented locally but disconnected from national policy actions. Disaster risk management is nonetheless emerging in Uganda and efforts are moving gradually in the already paved direction towards disaster risk reduction, e.g. drafting of contingency plans and setting up early warning systems.

This mismatch between disaster governance policy and practice might be attributed to political factors like dependency on national and foreign aid as well as poor law enforcement. The overreliance on aid as well as the

haphazard approach are reinforced by a persistent believe that disasters are an “act of spirits”. This overreliance confirms the suggestion of Raschky and Schwindt (2008) that plain aid, without disaster risk reduction, suppress local incentives and capacities for disaster resilience. Other explaining factors are scientific challenges such as the underreporting of hazards in specific areas, and contradictory advice on landslide risk reduction. Economic factors are the limited resources of the disaster risk management authorities and the decentralised platforms.

Recommendations

Based on the above conclusions, we urge policy makers, academics and planners in Uganda to recognise the need to adapt disaster risk management to the local context, including clear roles and responsibilities. As disaster risk management is dynamic and its actual implementation complex, a continuous evaluation is also crucial. It is advisable to increase the devolution of resources to lower levels for pre-disaster activities as well as to emphasise more the actual implementation of policies at the different administrative levels, based on clear targets and evaluation criteria, which should go hand in hand with capacity building. Capacity building is especially needed for disaster management committees at district and sub-county levels as well as for disaster management actors at village level, including village health teams and civil society actors. While platforms like disaster management committees are excellent tools for exchanging information, their potential remains not fully used. It appears that the legal framework is available, but without financial resources and clarity on responsibilities these forms of governance are doomed to fail. In addition, we underline the need to recognise the value of on-going bottom-up initiatives, to evaluate and implement them more systematically if deemed successful.

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