



HAL
open science

Politicizing disaster governance: Can a board game stimulate discussions around disasters as matters of concern?

Kewan Mertens, Bosco Bwambale, Gina Delima

► To cite this version:

Kewan Mertens, Bosco Bwambale, Gina Delima. Politicizing disaster governance: Can a board game stimulate discussions around disasters as matters of concern?. *Environment and Planning E: Nature and Space*, 2023, 6 (1), pp.251484862110690. 10.1177/25148486211069000 . hal-03754090

HAL Id: hal-03754090

<https://hal.science/hal-03754090>

Submitted on 22 Apr 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

1 **Title**

2 Politicizing disaster governance: can a board game stimulate discussions around disasters as matters of
3 concern?

4 **Authors**

5 Kewan Mertens, Bosco Bwambale, Gina Delima

6 Corresponding author: kewan.mertens@vub.be

7 **Abstract**

8 The disaster risk reduction (DRR) community tends to treat disasters and risks in a managerial and
9 technocratic way, thereby disregarding the highly political nature of DRR. An alternative epistemology of
10 disasters, as “matters of concern”, is proposed and tested. Mobilizing concepts from Chantal Mouffe and
11 Bruno Latour, this paper illustrates how DRR can be transformed into a public issue. It is argued that
12 education and policymaking on DRR would benefit from a recognition of the hybrid nature of disasters. A
13 serious game is used to investigate proposed epistemology. The board game simulates political decision-
14 making on the reduction of risks due to floods and landslides in South-West Uganda. It is hypothesized
15 that the game can generate an ideal speech scenario that fosters discussions among players and possibly
16 even creates a space of political confrontation. Discussions during ten gameplays have been recorded,
17 transcribed and analysed (1) to understand how the dominant epistemology facilitates an apolitical
18 approach to disasters and (2) to understand the process of politicization and de-politicization brought
19 about when playing the board game in order to derive recommendations for future tools to facilitate a
20 political appreciation of disasters. Our results indicate that participants effectively experience affects,
21 power relations and confrontations during the game, but that a call for consensus and technical solutions
22 is used by the players to close the discussions and move on with concrete solutions. Insights from this
23 paper contribute to understanding why DRR is frequently treated as a technical issue in local and
24 international disaster governance. Epistemology and approaches proposed in this paper are expected to
25 stimulate innovative experiments towards a more political approach to DRR education and policy.

26 **Key words**

27 Disaster Risk Reduction; Serious Game; Anthropocene; Uganda; Landslide; Flood

28 **Acknowledgements**

29 This work was supported by the Flemish Inter-university Council (VLIR-UOS) through the VLIR South-
30 Initiative project UG2017SIN208A105 entitled “Enhancing community-based natural resources and hazard
31 management in Rwenzori Mountains” in collaboration with SATNET. Equally, this work would not be
32 possible without the participation of the local leaders, farmers, and Geo-observers from the Districts of
33 Kasese, Kabarole, and Bundibugyo and of course, the generous support from the Ugandan staff and
34 volunteers of the VLIR South Initiative Project. We would like to thank the VLIR South-Initiative project
35 partners at Mountains of the Moon University for the generous welcome and support, as well as Prof.
36 Matthieu Kervyn for helping with the game design and for revising a preliminary version of this
37 manuscript. Special thanks also for input, revisions, and support to Dr. Liesbet Jacobs, Dr. Jan Maes, Clovis
38 Kabaseke, and the members of the Centre for Sustainable Development at Ghent University. We are also
39 very grateful to the two reviewers who have provided extremely useful feedback to a previous version of

1 this manuscript, including many useful references to literature we were not aware of. The current paper
2 would not have reached the same depth without the input from the anonymous reviewers.

3

4

5

Unpublished work
Kewan Mertens

1. Introduction

Disasters are often portrayed as the product of a socio-ecological process combining so-called ‘natural hazards’ and ‘underlying societal causes’ that lead to exposure and vulnerability (Wisner et al., 2003). The recognition of disasters as mixed phenomena has led international institutions to talk about ‘un-natural disasters’ (Sanghi et al., 2010). This is the laudable result of a long-lasting struggle to highlight the socio-political in a field that has been dominated by the natural sciences (Bassett and Fogelman, 2013; Cannon, 2008). Yet, this mix of ‘natural’ and ‘societal’ causes is rooted in a modern ontology which artificially separates ‘society’ from ‘nature’, and the ‘political’ from the ‘technical’ (Collard et al., 2018; Latour, 1991). The epistemologies derived from this modern ontology consequently impose a non-symmetrical approach to the treatment of things (Latour, 1991). Splitting disasters into either social or natural elements obscures the entanglements of the issue to human and non-human entities (White et al., 2015). It is, therefore, the contention of this paper that research on disasters, as well as educational and policy initiatives for Disaster Risk Reduction (DRR), are hampered by this artificial split.

The Sendai Framework for DRR of the United Nations illustrates the practical consequences of the abovementioned view on disasters. The Framework has portrayed disaster risk as a traditional problem of governance, which can be addressed by setting up the proper institutions (Tierney, 2012; UNISDR, 2015). These institutions, such as the United Nations Office for Disaster Risk Reduction (UNDRR) and national DRR ministries which adopted the Sendai Framework, tend to propose a standard set of bureaucratic, economic, or technocratic arrangements, through stakeholder engagement or top-down enforcement, to reduce disaster risk (Tierney, 2012; Yamamoto, 2017). Despite a recognition of the socio-ecological nature of disasters, the hegemonic paradigm in DRR thus remains technocratic and managerial (Collins, 2009; Maes et al., 2019). This technocratic approach to DRR is an illustration of what critical scholars call the *depoliticization* of environmental issues, a process whereby contingency, power relations, and exclusions are occluded¹ (Kenis and Lievens, 2014; Maes et al., 2018; Mouffe, 2006; Swyngedouw, 2010). In practice this leads to sub-optimal or dysfunctional DRR measures: studies in Pakistan (Mustafa, 2005) and Cameroon (Maes et al., 2019), for example, have shown how a technocratic approach to DRR led to technical interventions and risk zonation policies which were not supported by locals, were not properly enforced and ultimately led to risk accumulation.

At first sight, this apolitical approach to disasters may be surprising: disasters constitute public issues *par excellence*, since they affect people in different ways, interrupt livelihoods, and are surrounded by high levels of uncertainty. Public issues can be addressed politically when there is a space in which controversies, power imbalances, and processes of inclusion and exclusion are made visible (Kenis and Mathijs, 2014; Marres, 2007; Mouffe, 2006; Swyngedouw, 2010). The occurrence of a disaster has the potential to create such a space. We draw on Chantal Mouffe’s analysis of the political to understand why an apolitical approach to disasters is often preferred by researchers and practitioners in DRR (Mouffe, 2006).

We hypothesize that an apolitical approach to DRR is facilitated by the modern ontology because the latter makes it possible to prematurely close off a space for discussions (Latour, 2004a). Indeed, the focus

¹ Contingency refers to the fact that social relations are the result of historical processes which were indeterminate before their actual occurrence (Laclau and Mouffe, 1985). It is hidden in the process of depoliticization because an awareness of the contingency of a particular state of the world makes a critique of this state more conceivable.

1 on either “natural” or “societal” causes leads to a problematic situation in the case of disasters. In the
2 modern ontology, it is claimed that disasters happen because there are underlying “societal processes”
3 that lead to exposure and vulnerability (Wisner et al., 2003), but these processes are only turned into an
4 issue, a public concern, when the biophysical hazard unfolds². Since the hazard is the actual trigger, the
5 artificial split between “nature” and “society” might pave the way for a reference to quick, technical
6 solutions that prevent disasters from becoming political issues.

7 A flat ontology (Latour, 1993) is proposed to grasp the hybrid nature of disasters. A disaster is seen as the
8 outcome of a risky and contingent combination of attachments between humans and non-human actors.
9 Its sudden occurrence interrupts daily life and engages actors that were not previously aware of their joint
10 implication in a situation of risk. When they are affected by a disaster, actors thus gather around a
11 common matter of concern. The concept of “matter of concern” was introduced in the field of science
12 and technology by Bruno Latour³ to highlight how objects constitute “troubling, partially unknown
13 entanglements of humans and non-humans” (Latour, 2004b; Marres, 2007). This concept is contrasted
14 with “matters of fact”, which have often been used to close off political debates by drawing on a purported
15 superiority of science (Latour, 2004a, p. 144, 1991, pp. 190–194). When humans engage in controversies
16 around matters of concern, they “do not go into conflicts with their perspectives on things, [but] they go
17 into them along with the nonhuman things that make them act” (Blaser, 2016). While the flat ontology
18 has proven useful to understand discussions around a variety of environmental issues (Venturini, 2010),
19 to our knowledge it has not yet been applied to the case of disasters and DRR.

20 The proposed ontology of disasters is confronted with empirical observations during ten sessions with a
21 board game, DisCoord. This game was specifically designed to stimulate discussions on the governance of
22 floods and landslides in South-West Uganda. Board games and other innovative tools are increasingly
23 being developed and promoted to address prevailing problems in DRR capacity building and education
24 (Hagelsteen and Becker, 2019; Solinska-Nowak et al., 2018). Treating disasters as mixtures of natural and
25 societal causes, these tools often aim at providing readymade answers for DRR rather than creating spaces
26 for controversies (Abad et al., 2020). While still rooted in a modern ontology (see further), DisCoord
27 approaches DRR from a different perspective because it does not provide readymade answers. Rather, it
28 gathers human actors to stimulate political discussions around DRR⁴. The current paper does not aim to
29 promote DisCoord as an innovative approach, but rather (1) to use the empirical observations of
30 discussions during the game sessions to understand how the modern ontology facilitates an apolitical
31 approach to disasters and (2) to use observations to understand the process of politicization and de-
32 politicization brought about when playing DisCoord to derive recommendations for future tools to

² In many cases the hazard itself is the result of a combination of causes which are both human and non-human (Michellier et al., 2020). This additionally illustrates that the modern epistemology, with “nature”, *i.e.* hazard, on the one hand and “society”, *i.e.* vulnerability and exposure, on the other, is not suitable for a proper understanding of disasters.

³ He has not developed this alone, but built on previous authors such as Michel Serres, and contemporaneous thinkers such as Isabelle Stengers and Michel Callon (Stengers, 2003, p. 42).

⁴ The potential of DisCoord as a boundary object for the co-creation of awareness on disasters and disaster governance has been the subject of a previous publication by Delima et al. (2021). More information on DisCoord, as well as game rules and material, can be obtained from the following website: <https://games4sustainability.org/gamepedia/discoord/>.

1 facilitate a political appreciation of disasters. Despite the specificity of our case study, we believe insights
2 related to both research objectives can be useful for the field of DRR as a whole.

3 The following sections first elaborate on a conceptualization of disasters as matters of concern and the
4 consequences for a political take on DRR education and governance. The potential of existing board games
5 for DRR is subsequently discussed. The case study is presented in the section on materials and methods,
6 including a short description of the context in Uganda and the board game. We then explain how
7 discussions during ten game sessions and debriefings with local policy makers in Uganda have been
8 recorded and transcribed. Our analysis in Nvivo software has allowed us to identify recurrent patterns in
9 the discussions. The results provide insights on the different steps and challenges experienced in staging
10 disasters as political matters of concern while playing DisCoord. In the discussion, we argue that the
11 observations made during these game sessions are illustrative of a pattern in the field of DRR in general.
12 Recommendations are made for future DRR capacity building and education.

13 2. Theoretical framework

14 2.1. Political matters of concern

15 In this paper, it is argued that an integration of the flat ontology of Bruno Latour with Chantal Mouffe's
16 view on the political may provide a fruitful avenue for a political understanding of DRR (Laclau and Mouffe,
17 1985; Latour, 2004a, 1991; Mouffe, 2006, 2000a)⁵. As argued below, it is the combination of modern
18 ontology and a consensual view on politics that has made it simultaneously necessary and possible to
19 prematurely close off discussions by means of technocratic solutions to DRR.

20 The dominant paradigm, according to Chantal Mouffe, apprehends politics as a space of free discussion
21 in which a rational consensus can be achieved (Mouffe, 2006, p. 13). In such a view on the political,
22 different groups or ideologies are adversaries only in the sense of competition. They compete for power
23 by providing reasoned arguments in the neutral terrain of politics (Mouffe, 2006, 2000b). This view does
24 not leave space for affects, does not recognize the presence of a hegemonic order which has sedimented,
25 but contingent, power relations, and does not recognize the exclusions it may sustain and reproduce. The
26 consensus, according to Mouffe, is mostly discursive and excludes dissonant voices. This forces those who
27 do not agree to express their discontent in non-democratic and violent ways (Mouffe, 2006, pp. 69–82).

28 Against this paradigm, Mouffe posits that the explicit recognition of conflicts and controversies is crucial
29 from a democratic point of view (Mouffe, 2000b). The *we/they* distinctions, and the affective reactions
30 these arouse, are thereby explicitly acknowledged. It is recognized that hegemonic articulations and
31 identities are contingent and based on exclusions, and can therefore be questioned by counter-
32 hegemonic moves (Laclau and Mouffe, 1985; Mouffe, 2000a). Such a counter-hegemonic move
33 necessitates the articulation of a chain of equivalences across different struggles and against the
34 prevailing hegemonic order (Laclau and Mouffe, 1985). Such a chain of equivalences highlights
35 commonalities across struggles and thereby renders possible an opposition that overflows the specificities
36 of particular demands (Swyngedouw, 2010). By accepting the presence of conflict, the creation of a shared
37 symbolic space for the expression of dissent moreover prevents the *we/they* distinctions from becoming

⁵ We thereby follow the recommendation of Harman who suggested that a “full-blown Latour-Mouffe dialogue [would be] an intriguing prospect” (Harman, 2014, p. 170).

1 friend/enemy relations. Potentially violent antagonisms are thereby turned into what Mouffe has called
2 agonistic struggles (Mouffe, 2013).

3 There are a few similarities between the concept of matters of concern and the abovementioned views
4 on the political. Just like it is recognized that the creation of matters of concern entails the inclusion and
5 exclusion of a whole range of actors and attachments, so does the formulation of a political issue and the
6 establishment of political identities require the exclusion of alternative options and opinions (Goeminne,
7 2010). In both cases, it is claimed that exclusions, and the associated power relations, have to be made
8 explicit and thus remain contestable. Moreover, while matters of fact are rarely achieved in the case of
9 disasters, neither is full closure through agonism or consensus. Yet, the attempt to reach closure, *i.e.* to
10 generate matters of fact, is the exact reason of politics as well as scientific research (Goeminne, 2013;
11 Hillier, 2003).

12 The combination of a flat ontology with a non-consensual view on the political has concrete implications
13 for policy-making on DRR. In an epistemology of disasters that does not make a split between 'nature' and
14 'society', and that does not recognize the pre-eminence of matters of fact, a premature closure of
15 discussions by facts can be prevented (Latour, 2004a, p. 144, 1991, pp. 190–194). The construction of
16 disaster risk can thus be understood as the formation of a public issue (Marres, 2007). The articulation of
17 disaster risk into an issue goes hand in hand with the construction of a public composed of actors that are
18 implicated by the problem. While both a consensual and an agonistic perspective on DRR are theoretically
19 possible⁶, once disaster risk is treated as a matter of concern, choices for DRR cannot anymore be imposed
20 before this public is formed. Actors have to make explicit their attachments to the issue, thereby bringing
21 to light affective involvements and making visible the irreconcilability of some relations (Marres, 2007).
22 Processes of inclusion and exclusion are acknowledged. This opens up the possibility for, but does not
23 impose, the establishment of the chains of equivalence that are needed for the development of a counter-
24 hegemonic move and agonistic confrontations (Mouffe, 2006)⁷. A decision is possible only once all
25 attachments and disagreements have been taken into account. As summarized by Venturini (2010):
26 “controversies begin when actors discover that they cannot ignore each other and [they (temporarily)]
27 end when actors manage to work out a solid compromise to live together.” Such a closure is needed to
28 take decisions, but should never be considered final because new actors and attachments may always
29 appear (Latour, 2004a, pp. 264–275).

30 2.2. Board games on DRR

31 It has been argued that a shift from matters of fact to matters of concern entails a change in how
32 environmental issues should be discussed in education and policy-making (Block et al., 2018; Van Poeck
33 et al., 2016). Rather than transferring readymade facts and solutions, educational interventions on
34 matters of concern create a space for the articulation of a multiplicity of attachments, including similarities
35 and irreconcilable differences (Venturini, 2010). This should make space for controversies and agonistic
36 confrontations (Block et al., 2018; Van Poeck et al., 2016).

⁶ A discussion on the different stages in the political treatment of matters of concern can be found in Latour (2004b). He thereby proposes a concrete elaboration of the Parliament of Things (Latour, 1993) and cosmopolitics (Stengers, 1997) in earlier work.

⁷ The view on matters of concern that is presented here differs from the one expressed by Swyngedouw, who has too quickly associated this concept with depoliticizing projects of Beck and Giddens (Swyngedouw, 2010).

1 Board games have the potential to create a space for such types of discussions. They mobilize human
2 participants in a state of play (Jessen and Jessen, 2014) and allow players to experiment and interact with
3 each other (Squire and Jenkins, 2003; Treher, 2011). Board games can generate a temporary shared
4 symbolic space in which participants affectively engage with each other and with a given issue (Jean et al.,
5 2018; Wu and Lee, 2015).

6 Most games on disasters are still designed as tools to raise awareness and teach the players about DRR
7 (Abad et al., 2020). An overview of serious games for DRR can be found in Solinska-Nowak et al. (2018),
8 with some additional games listed in Abad et al. (2020). Recently, board games such as the RAMSETE
9 series, inSIGHT and DisCoord, have been designed and used to generate new knowledge about DRR from
10 the gameplay itself (Abad et al., 2020; Chmutina et al., 2021; Delima et al., 2021). The board game is then
11 considered as a framing tool which facilitates the discussions and the co-creation of solutions (Abad et al.,
12 2020; Delima et al., 2021). The freedom players experience to develop their own arguments and views
13 depends on the game design and the creativity of the participants, as well as on their experience with the
14 game environment (Squire and Jenkins, 2003; Wu and Lee, 2015).

15 We are aware of only one game, *Politics of Nature (PoN)*, which attempts to stimulate encounters and
16 discussions with a flat ontology in mind (Raffn and Lassen, 2021). It is presented as an ongoing experiment,
17 inviting participants to discuss an issue of common concern and to reflect on ways to create common
18 worlds, as well as to provide feedback on the game itself in order to adapt it to individual requirements.
19 A detailed analysis of the game dynamics during PoN is still to be made. We are also not aware of
20 applications to the topic of disasters.

21 3. An application on DisCoord board game in South-West Uganda

22 The usefulness of the proposed conceptual framework was tested by means of ten game sessions with
23 DisCoord in the Rwenzori region in West Uganda. The relevance of the framework for the Rwenzori region
24 and the particularities of DisCoord are explained below.

25 3.1. South-West Uganda

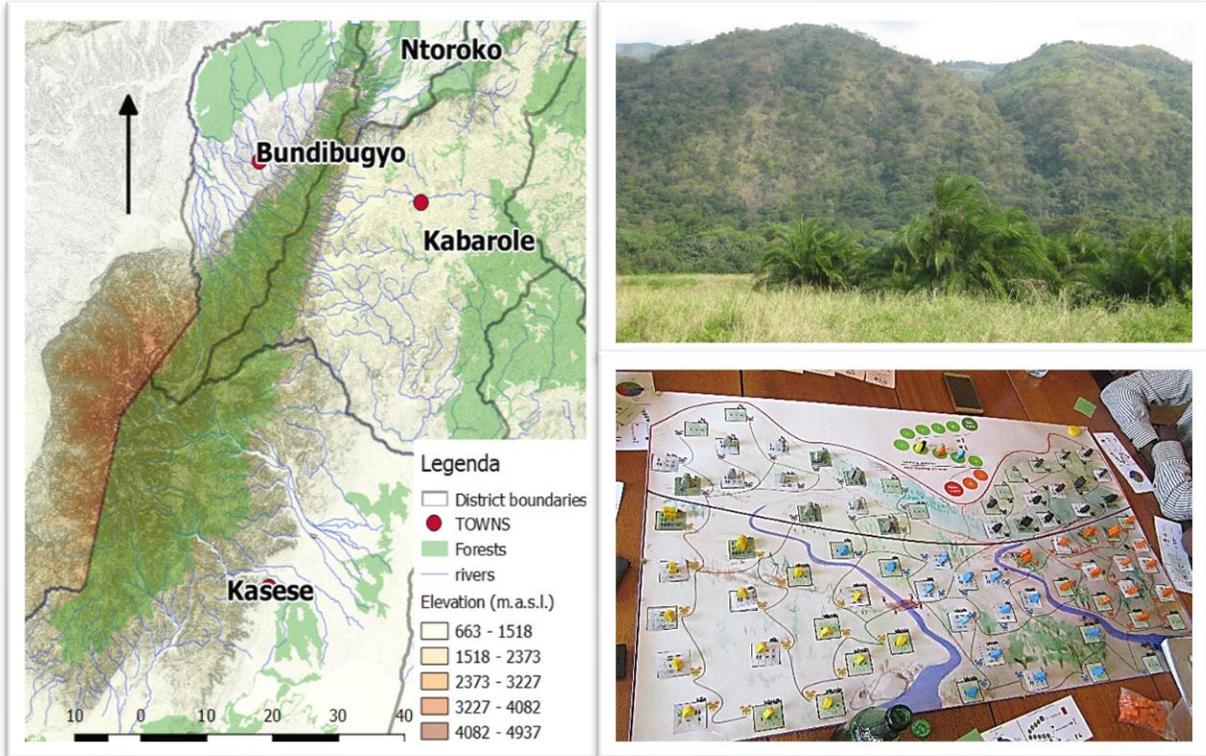
26 The Rwenzori mountains in Western Uganda (0°2'37"–0°48'20"N and 29°46'20"–30°15'35"E) cover an
27 area of approximately 3000 km², spread over 31 Sub-Counties in four districts: Kabarole, Kasese,
28 Bundibugyo and to a lesser extent Ntoroko⁸. The region (Figure 1) is frequently affected by landslides and
29 floods, which have a serious impact on the population (Jacobs et al., 2016b; Mertens et al., 2016). Several
30 antagonisms cut across the region. Besides the usual we/they divides such as urban/rural, land-
31 owning/landless, capitalists/laborers and government/public, as well as ethnic and religious
32 identifications, one divide is particularly relevant for current case study: since Disaster Management
33 Committees (DMC) are located in the lowland, there is a highland/lowland divide in access to DRR
34 interventions (see further).

35 Uganda enacted the National Policy for Disaster Preparedness and Management in 2010 which
36 established the National Department for Disaster Preparedness as well as DMC at the district and Sub-
37 County levels (OPMRU, 2010 cited by Maes et al., 2018). Maes et al. (2018) has demonstrated that the

⁸ Kabarole was split into two districts. The new district, called Bunyambagu, covers the highlands of the former district called Kabarole (Uganda Radio Network, 2017).

1 DMCs at the district level are dysfunctional because they only meet when a (serious) disaster happens,
2 and that DMCs at the Sub-County level are non-existent in the Rwenzori region. The district DMCs and all
3 other organs of district authority are located in the major towns in the lowlands of the Rwenzori. DRR in
4 the lowlands is, therefore, likely to receive relatively more attention as compared with DRR in the
5 highlands. This reflects a general tendency in the region, whereby minority groups and people from the
6 highlands tend to be excluded from public participation (Atukwatse et al., 2012, pp. 22–23). With the
7 exception of Bundibugyo district, which has landslides in both the lowlands and the highlands (Jacobs et
8 al., 2016a), the overall trend in the Rwenzori region is that the lowlands are mostly affected by floods,
9 while the highlands are more frequently confronted with landslides (Jacobs et al., 2018).

10 The spatial divide in public participation is exacerbated by differences in cultural affiliation between
11 people in the highlands and the lowlands (Atukwatse et al., 2012). Different cultural groups, or ethnicities,
12 currently populate the Rwenzori mountains, the numerically largest groups being Bakonzo, Babouissi,
13 Bamba and Batoro (Pennacini, 2007). While the distinction between ethnic groups mostly stems from
14 attempts of colonial authorities and ethnologists to get an overview on the structure of local society
15 (Kodesh, 2008), ethnicity currently plays an important role in the construction of identity of individuals
16 and groups, as well as in the political arena of the state (Pennacini, 2007; Stacey, 2003). The different
17 groups distinguish one another by their language and names. Recently, clashes between people in the
18 region have partly been claimed on ‘ethnic’ grounds (Atukwatse et al., 2012; Pennacini, 2007; Reuss and
19 Titeca, 2017). It has been argued, however, that these ethnic identities should be considered as superficial
20 banners below which historical, social-economic, and political conflicts are at play (Reuss and Titeca, 2017;
21 Syahuka-muhindo, 2007). Over-reliance on ethnic identification as an explanation of conflicts is therefore
22 not likely to solve the conflicts in the region (Sseremba, 2019). These political conflicts are sometimes
23 played out in violent, antagonistic ways because of a lack of alternative and democratic channels for
24 contestation (Atukwatse et al., 2012).



2

3 *Figure 1: Overview of the study area (map on the left panel), picture of the hills in Kabarole district (upper right) and picture of the*
 4 *board game during one of the game sessions (lower right). District administrations are located in the towns (red dots on the map),*
 5 *which are located in the lowlands. The game design mimics the landscape in the region. It is composed of two Sub-Counties in the*
 6 *hills, above the purple line, and three Sub-Counties in the lowlands. Two rivers originate in the highlands and flow down to the*
 7 *lowlands, thereby demarcating the boundaries between the Sub-Counties in the lowlands. Tiles on the board illustrate villages,*
 8 *which are connected by paths. Satisfaction in the different Sub-Counties is measured by means of the satisfaction scale on top of*
 9 *the board.*

10 3.2. DisCoord: a board game to stage DRR as a public issue

11 DisCoord is a 5-player board game, which was originally designed as an awareness-raising tool that does
 12 not describe the world as it is, but opens visions of what can possibly be done⁹. Its purpose is to stimulate
 13 stakeholders into a process of co-creation of DRR policy in a context where exposure of the population,
 14 hazards and land-use choices are strongly interconnected. The rationale behind the game is that the
 15 choice regarding which DRR policy measure to take is a political choice (see further). This implies that it is
 16 subjected to contestation, is limited by budget constraints, and depends on trading off different
 17 attachments and interests within a community. The game attempts to allow different views and
 18 attachments to come together and discuss. Not because they will be equally effective to reduce disaster

⁹ The game was designed as part of a collaboration of Mountains of the Moon University (MMU) in Uganda and the Vrije Universiteit Brussel (VUB) in Belgium. While the intention was to co-create the game, time constraints among Ugandan partners lead to a situation in which the game was mostly designed in Belgium and tested in Uganda. Implications for the future usage of the game, as well as reflections drawing on calls to decolonize universities, are included in the discussion at the end.

1 risk, but because their inclusion is necessary to come to DRR policy which makes sense for all actors (Block
2 et al., 2018; Gergen and Gergen, 2008).

3 Each of the players embodies a local leader (a chairperson of the Local Council III) and manages one of
4 five Sub-Counties in a district. Three of these Sub-Counties are located in the lowlands, facing mainly
5 floods. The other two are in the highlands, facing mainly landslides. As such, the game design simulates a
6 highland/lowland divide which is present in the region (Figure 1). There are five rounds in each game
7 session and each round consists of four stages: the District Council Meeting, Rainy Season, Growth Season,
8 and Harvest Season. The players have to manage their own sub-county and participate in the policy-
9 making at the overarching district level. At the sub-county level, each player plans the spatial distribution
10 of his/her villages and makes decisions about land use and investments. At the district level, the players
11 jointly decide which policies to adopt. As a Sub-County leader, a player must ensure that the local
12 population is satisfied with his/her leadership. This satisfaction is continuously monitored through a
13 satisfaction scale on top of the gameboard (Figure 1). While the game narrative adopts a “we are in this
14 together” discourse, and indeed actions of individual players are interrelated and may, for example,
15 increase the probability of disasters or increase the population pressure in neighboring sub-counties, the
16 satisfaction scale introduces a form of competition between the players. Drawing on previous research
17 and workshops organized in the region, we believe this contrast between the dominant discourse and
18 actual DRR practice mimics the management of disasters in the region (Atukwatse et al., 2012; Maes et
19 al., 2018).

20 Political decisions have to be taken jointly by the 5 players through a majority vote at the district level.
21 Players can thereby choose among a set of policy cards. The implementation of a certain policy depends
22 on the argumentation of the proposing player and the support gained by the other players. This pushes
23 players to engage in arguments and discussions. At the same time, it imposes power dynamics on the
24 players since the three players from the lowlands could systematically outvote the two players from the
25 highlands. A corruption card allows players to cancel policies shortly after they are passed. Game rules
26 make the use of such a corruption card costly to all players, thereby turning it into a vehicle for acts of
27 protest rather than an effective tool for rational decision making. While a consensus is thus theoretically
28 possible, *i.e.* when all players agree, so are (ant)agonistic approaches, whereby power dynamics and
29 associated choices are made explicit¹⁰. The decision-making process in the game thus reflects the current
30 situation in the region to some extent (Maes et al., 2018). The unpredictable nature of disasters is also
31 incorporated in the game since it is not clear whether and where landslides and/or floods will happen
32 each round. A post-positivist approach to risk is thus promoted, breaking with the assumption of possible
33 full mastery of disasters.

¹⁰ While it was the contention of the game designers that the game stimulates agonistic struggles, the following analysis and discussion makes it clear why this was probably not possible (Mouffe, 2006, p. 54). A reviewer pointed out that a sociocratic decision rule, or the decision-method proposed in *Politics of Nature* (Raffn and Lassen, 2021), could be interesting avenues to operationalize radical agonism. Future work should certainly consider these decision methods, as the move to voting during the game may sometimes shortcut discussions.

3.3. Data and methods

The data for this research have been collected within the scope of the Master's thesis of the third author during the months of October and November of 2018¹¹. The Master thesis investigated the potential of DisCoord as an awareness raising tool on DRR (Delima et al., 2021). The student, originating from The Philippines, developed her research topic in collaboration with researchers from Mountains of the Moon University (MMU, see co-authors of Delima et al. (2021)). The partners from MMU, a long-time partner of Belgian universities which is well-established in the region, organized and facilitated the game sessions. The game facilitator, who has a crucial role in the game dynamics, is from the region and was trained before the start of the data collection. She could flexibly adapt to the different circumstances during the game sessions while keeping the original intention of the game (which is to stimulate discussions). Because she speaks the local languages and is familiar with the biophysical and socio-political conditions of the study area, she could encourage discussions among the players during the game sessions and debriefings. The master student assisted her in all the game sessions.

Ten game sessions with a total of fifty participants have been conducted in the districts of Kasese (6 sessions), Bundibugyo (3), and Kabarole (1). Participants include members from the local government involved in DRR (leaders at village, parish, Sub-County, and district level), members of non-government organizations (NGO), or a citizen science network involved in DRR (Jacobs et al., 2019), as well as farmer representatives (Table 1). The participants, subsequently called game players, differ in terms of their formal role in society and their experience with disasters. Players from the citizen science network are farmers and have direct experience with disasters on their land or the land of their neighbors. They all attended a short training on disasters at MMU and engaged in awareness-raising regarding disasters in their villages (Jacobs et al., 2019). The local chairpersons also tend to have a direct experience with disasters in their communities, but they are not associated with MMU and have not followed training on DRR. Representing the local government, they typically form the bridge between the remote village communities and higher levels of the state. Members of NGOs and members of Disaster Management Committees (DMC) have more formal training on DRR and are often more aware of national and international policy on DRR. The three last sessions were conducted in Bundibugyo District, which is most often affected by violent confrontations between cultural groups in the highlands and lowlands (Atukwatse et al., 2012). All participants in Bundibugyo are from the lowlands. Also, the other groups are relatively homogenous in abovementioned characteristics (Table 1).

Table 1: Description of the players and game dynamics of each game session. Disaster Risk Reduction in a game is deemed successful if all households in the game are accommodated following a disaster and if players manage to keep the satisfaction of their population above zero. While the groups are relatively homogenous in some characteristics, the game flattens their potentially hierarchical relations because all participants become local chairpersons in the game.

Game #	Description of Players	General observations
1	Local Chairpersons of the villages (LCI) located in an area which frequently flooded in Kasese District in 2014	Limited discussions. Players struggle with game rules and language. Unsuccessful DRR.

¹¹ The first author of current paper originates from Belgium and has been doing research in the region for more than 6 years. He only attended the pilot tests and the first two game sessions. The second author is from the region, works at MMU and the VUB, and attended most game sessions.

	(Kule, 2014). All male participants, some have primary education only.	
2	Local Chairpersons of villages (LCI), a parish (LCII) and Sub-Counties (LCIII) from flood-prone Sub-Counties in Kasese District. All male participants, some have primary education only.	While many policies are being proposed, discussions are limited during gameplay. Players do not lobby for their policies. Unsuccessful DRR.
3	Local Chairpersons (LCIII) in the flood and landslide exposed Sub-Counties of Kasese District. All male participants.	Strong identification with highlands and lowlands, straight from the start. Lively discussions with arguments from inside and outside the game. Moderate success in DRR.
4	Members of NGOs and Media operating in Kasese District with DRR projects. Three male, two female participants.	Strong identification with highlands and lowlands. Lively discussions with arguments from inside and outside the game. Moderate success in DRR.
5	Members of Kasese District Disaster Management Committee (DMC). Four male, one female participants.	Strong identification with highlands and lowlands. Lively discussions with arguments from inside and outside the game. Successful DRR.
6	Members of the citizen science group on DRR called Geo-Observers' Network (Jacobs et al., 2019). Three male, two female participants, some have primary education only.	Discussions in this game are rather limited. It seems as if the players are trying to conform to the desires of the organizing team. Moderate success in DRR.
7	Two LCIII from the Sub-Counties of Kasese District and three farmers in the same Sub-Counties. All male participants, some have primary education only.	Limited discussions. Players struggle with game rules and language. Unsuccessful DRR.
8	Local Chairpersons (LCIII) from the disaster-prone Sub-Counties of Bundibugyo District. All male participants.	Limited identification with highlands/lowlands, but creative arguments related to real-life. Moderate success in DRR.
9	Two LCIII and three members of DMC from Bundibugyo District. Four male, one female participants.	Clear identification with highlands/lowlands. argumentations that aim for consensus explicitly take this divide into account. Unsuccessful DRR.
10	Two Bundibugyo DMC members and three NGO members operating in the same district. All male participants.	Detailed and sustained argumentations. References to differing interests and power relations. Moderate success in DRR.

1

2 The ten game sessions lasted on average for 3 hours, including the welcoming and introduction of
3 participants. They were interrupted by a break of approximately 1h during which lunch was served. A
4 drink was also provided during the gameplay. The debriefing sessions lasted for 30-45 minutes.
5 Discussions during the gameplays and debriefings have been filmed and recorded, and subsequently
6 transcribed. While players were invited to speak their own language, and frequently did so, the facilitation
7 of the game was done in English. Researchers from the region have translated the discussions that were
8 in local languages. Debriefing sessions were structured around seven open-ended questions, of which the
9 following four are relevant for current analysis: (1) "What was the biggest challenge in the game for you?";
10 (2) "How did you convince other players to vote for the policies you proposed?"; (3) "What were the most
11 effective strategies to pass policies?"; and (4) "What have you learned from the game regarding policy
12 making in your district?". The players were requested to write down their responses first before sharing
13 to the whole group in order to encourage them to reflect on their own game experience. We have thereby
14 followed the methodology adopted in Ansoms et al. (2015).

15 NVivo 12 was used to structure and analyse the observations. In order to identify the strengths of
16 attachments, we looked at whether arguments stemmed from intra-game dynamics or whether
17 references were made to sources outside the game environment. To understand how the modern
18 ontology and the game design might facilitate a depoliticization of DRR, we categorized the arguments
19 that emerged according to the fact-value dichotomy, which is central to the modern ontology. A

1 distinction was thereby made between facts, values, affects, and power relations. Discussions during
2 debriefing have been grouped into technical/managerial approaches, consensual arguments, and
3 interpretations of players that relate more to non-consensual decision-making and conflicts. Our
4 approach could be defined as a theoretical thematical analysis because we make use of our theoretical
5 framework to identify patterns in the transcripts and provide explanations to our findings (Braun and
6 Clarke, 2006). Recommendations on qualitative research of Baxter and Eyles (1997) have been followed.
7 Quotations of participants are used to illustrate our observations. Our notation makes explicit to which
8 game session and player we refer: G5P3, for example, indicates player three in-game session five. Also,
9 the role of the player in the game is made explicit: players 1 and 5 are always situated in the highlands,
10 while players 2, 3, and 4 are in the lowlands. A full overview of the players, together with information on
11 sex, age, education level, and job, is provided in the Appendix. Findings have been discussed with several
12 researchers involved in DRR in the Rwenzori. Feedback on the conceptual framework and the results was
13 obtained during seminars at the Vrije Universiteit Brussel (VUB), UGent and KU Leuven. Staff members
14 from MMU have participated in the two seminars that were given about the game at the VUB. Due to
15 practical constraints the findings of this research have not been presented to the participants of the game
16 sessions themselves.

17 4. Results: the game as a space for discussions

18 4.1. A public and an issue

19 The game artificially gathers stakeholders around a pre-defined issue. This could have been a problem
20 since the formation of a public and the articulation of an issue generally go hand in hand and are
21 stimulated by discontent with a certain state of affairs (Marres, 2007). Yet, in most of the game sessions,
22 this artificial setup does not prevent personal identification with the matter. Players readily identify with
23 their Sub-County and with the issues caused by landslides and floods. They attribute existing names to
24 their Sub-Counties and show awareness of the various issues in these places. At the start of game four, a
25 player from the highlands, for example, introduces herself as follows: *"I am here to be with you to work
26 together and brainstorm and help my Sub-County Mahango to address this challenge of landslides"*
27 (G4P1). Players also bring up their own issues and link these to landslides and floods. As G1P1 puts it in
28 the first round of the game: *"As I come from the mountain Rwenzori, there are so many problems we need
29 to face, so I beg the council that we should improve tap water in the mountain"*. Similarly, regarding floods
30 in the lowlands, G3P4 says at the start of the game: *"I beg your attention for the strenuous situation in our
31 Sub-County"*. Overall, involvement in the game and its topic is high, despite the explicitly constructed
32 nature of the public that is formed. This is likely due to the salience of the topic of disasters in the highlands
33 and lowlands of the Rwenzori, as well as to the fact that all players are concerned with disasters in their
34 personal or professional life.

35 Players in most game sessions tend to comply with the game's focus, i.e. the *script* that is inscribed in the
36 game (Jessen and Jessen, 2014), and provide arguments related to DRR from the start. These arguments
37 translate different attitudes towards disasters, policy-making and responsibilities for DRR. While G3P2
38 eloquently appeals to the players' empathy for affected households, *"May I say that before we bring in
39 electricity, before we bring in tourism, I would like the members to look into this [...]: we have lost the lives
40 of people because of the flood that occurred in our area."*, G9P1 stresses the responsibilities of individual
41 farmers: *"The way they construct their houses is not good, they are constructing on the steep slopes where
42 these disasters can be prone"*. In some game sessions, other issues are considered more urgent than

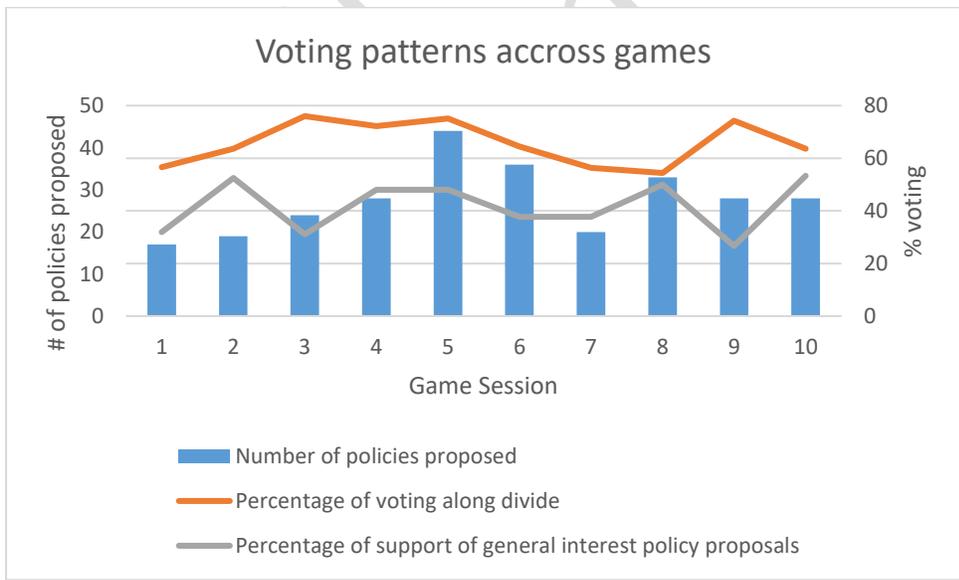
1 disasters. In game 10, initial discussions turn around food security, while the players in game 5, all
 2 members of the district DMC, mostly stress the initial importance of economic development. It is clear to
 3 the players that not all policy options can be implemented and that choices have to be made. Experience
 4 with policy-making at Sub-County level incites G3P2 to pragmatically argue at the start of the second
 5 round that *“the resources we have [...] may not be enough to fund all the policies and therefore [...] I am*
 6 *suggesting to have ranking, to sort out the priority areas”*.

7 Various other attachments are expressed during the gameplay and linkages are made with concerns in
 8 Ugandan society and the Rwenzori region in particular. Players refer to the conflict between economic
 9 development and environmental conservation, the challenges posed by quick population growth and
 10 disagreements regarding birth control, as well as issues related to corruption and refugees (see also
 11 Delima et al. (2021)). G3P2, for example, claims that *“we are all aware that corruption has been [present]*
 12 *in this country and if we are to offer services to the people then we will have to fight this corruption”*.
 13 Divergent opinions are thereby made explicit. As G1P1 bluntly puts it in the second round of the game: *“I*
 14 *am interested in conservation of the environment. Others are interested in making money”*.

15 Differences in formal education and experience with policy making around DRR are large across the game
 16 sessions. This influences game dynamics. Some groups and individuals, such as in games 3-6 and 8-10, are
 17 very quick in mastering the game, while others have more difficulties getting really involved. A lack of
 18 interest in games and difficulties with language probably lead a player in game 1 to sigh that *“this thing*
 19 *is long”*. During the debriefing session, G3P5 relates language issues to a personal concern regarding the
 20 use of formal English in Ugandan politics by saying that *“the official language used [at the district level] is*
 21 *a challenge because it hinders the level of participation”*. Linkages between game dynamics and dynamics
 22 within instances of decision-making in Ugandan society are thus made.

23 **4.2. Attachments**

24 Taking a closer look at discussions during the game sessions, as well as voting patterns for different policies
 25 (Figure 2), interesting differences between sessions appear.



26
 27 *Figure 2: Voting patterns during game sessions. Players tend to vote more in favor of policies that are beneficial for their region,*
 28 *defined as highland or lowland.*

1 In all games, but less so in game sessions two, eight, and ten, players tend to be more supportive of policies
2 that are advantageous for their own region only, defined as highland or lowland. This is of course driven
3 by the game design (Jessen and Jessen, 2014) since some policies are explicitly benefiting one group only.
4 It leads player G10P3, for example, to state: *“My fellows in the lowlands, you should vote for this policy
5 because we are going to create some channels [for flood prevention]”*. A we/they divide is thus
6 established: *“For us, we think of something different, and they are also thinking different”* (G4P3). In one
7 game session, this is explicitly linked to the mountain/lowland antagonisms that are present in the region.
8 Providing arguments against birth control, G10P4 in Bundibugyo District says: *“Here the population [is
9 related to] the condition of [each] tribe. So, the more population [in a] tribe, the more strength [it] can
10 have.”*. This is the only explicit reference in the ten game sessions to tensions between groups with
11 different cultural affiliations in the mountains and lowlands. During debriefing G10P4 further argued that
12 they need enough people to fight and reproduce, otherwise they will perish. G10P5 rebutted by saying
13 G10P4 should *“leave [his view] to himself”* and should think of the impact of a large population on
14 economic productivity. G10P2 also dismissed G10P4’s concern of security by pointing out that a big
15 population size does not only concern Bundibugyo District and that it has implications in the whole
16 country which suffers from finite resources. The discussion was halted by G10P5 who said *“if we continue
17 that, we are going to debate.”*

18 Some players are quickly aware of these power imbalances in the game and nourish these with their own
19 imagination and references to the actual situation in the District: *“As Karusandara Sub-County we are
20 blessed that we have all that it takes. [...] We also host the coordination system of the council. We shall be
21 making policies that should correspond with the interest of our people.”* (G4P4). While not made explicit
22 in the game design, the lowlands in the Rwenzori region are indeed home to the administrative units.

23 This situation leads to affective reactions during the game. Player G8P4 addresses player G8P2 in the
24 following way during the District council: *“Why are you voting? It is only benefitting the mountainous
25 people, let them vote!”*. Mishaps during the game are sometimes attributed to the other group: *“We are
26 carrying the burden of food of these people”* (G10P3, talking about mountain people, causing laughing).
27 Some players who are not doing well in the game become quieter. When asked why he was not fighting
28 more for being taken into account, G8P5 answers during debriefing: *“we are poor in the mountains”*, as if
29 that was a valid explanation in itself. This answer may be related to a deeply internalized historical
30 representation of highlands being poor as compared with lowlands (Syahuka-muhindo, 2007).

31 Different strategies are adopted to address these power imbalances. Some players explicitly call for
32 solidarity and cooperation. This can be in the form of affective outcries with real-life arguments that are
33 not related to game dynamics. G4P4, for example, says: *“Because I have many orphans here, I call upon
34 other organizations to come and help me to support [the] families, they are starving”*. Others support each
35 other *“just for purpose of good leadership”* (G5P3, voting for ecotourism in the mountains, causing
36 laughing). This sometimes causes surprises, such as when G2P4 observes that G2P5 is also hosting
37 refugees: *“Hey, mountain man, you are also hosting?”*. Others more explicitly engage in bargaining and
38 forge alliances. G10P1 and G10P5, for example, promote a policy measure that will bring revenue to the
39 highlands, and propose their reciprocal support for hotels in the lowlands. Explicit threats are used, such
40 as G5P1 who frequently waves with his corruption card whenever G5P2, G5P3, and G5P4 impose policy
41 measures that only favor the lowlands. Finally, individualistic strategies are also adopted. When refusing
42 to host refugees, G4P3 is asked whether *“you want people to die?”*, to which he answers *“Let them starve”*

1 (causing laughter). In a similar situation, G2P5 is more constructive, kindly suggesting: *“maybe you should*
2 *borrow from the central bank”*.

3 Interdependence and power relations are thus experienced and players frequently link them to real-life
4 circumstances. This leads G2P5 to claim that *“this game shows exactly what happens in politics; even*
5 *that’s the exact reason of politics”*. Interestingly, the explicit recognition of a we/they divide during the
6 game, such as in games 8 and 10, does not lead to less cooperation across this divide than in games where
7 players do not seem to acknowledge this (Figure 2). During debriefing, player G6P1 argues that *“you need*
8 *to convince your fellow chairperson that the idea you are bringing is okay and fit to all of them. But in the*
9 *real sense it may not benefit all of them: it is benefiting your own interest”*. While inconclusive with our
10 data, this suggests that game sessions in which the divide is not acknowledged might be less cooperative
11 than a situation in which people explicitly recognize differences and power relations.

12 4.3. A call for consensus and managerial solutions during debriefing

13 During debriefing, the biggest challenges in the game are systematically considered to be DRR policy
14 making and, related, convincing other players to vote for a proposition. As stated by G5P5, the difficulty
15 is *“coming up with a unified policy as different areas are affected by different disasters, well knowing that*
16 *the councillors have different interests for their people in disaster management.”* G3P2 says that *“people*
17 *or individuals have different mindsets”* and that *“if you have something to bring to the council, you need*
18 *to lobby to fellow council members”*. This is challenging, because *“one man’s meat is another’s poison”*
19 (G10P1).

20 Exclusions in the process of policy making are acknowledged. G8P4 explicitly states that *“the problem is*
21 *that planning is always done at the district level, and for us chairpersons, we are not part of the planning”*.
22 Also, inequalities and power imbalances are explicitly highlighted during debriefing. As G4P1 puts it:
23 *“Some people have more influence in policy making than others”*. Several players state that the challenge
24 is that the *“many are outcompeting the minority”* (G7P2). The participants link these observations to
25 reality. While being from lowland areas himself, G8P5 recognizes that *“the income generated in the*
26 *mountain areas is less compared to that one in the lowlands”*. Chains of equivalence with other groups
27 and concerns are sometimes established. Talking about policy makers, G6P5 relates the problems in DRR
28 to a general frustration with the political class: *“they don’t come down to first discuss with the people on*
29 *the ground. So, you find that those people make policies [...] that will not be implemented with the*
30 *community”*. G5P2 links this with another frustration claiming that *“for them, they don’t pay taxes [...*
31 *while] we pay and we earn very little”*. The recognition of exclusion and imbalances, as well as the links
32 made to other struggles, suggests that the game succeeds in presenting DRR as a political matter of
33 concern.

34 *“Rationalization”* of the policies, as well as *“counter-supporting”* of each other’s policies are proposed as
35 methods for convincing other council members (G5P1). This means that reasoned arguments have to be
36 provided and that win-win packages of several policies should be made to satisfy the majority. It is
37 observed that *“if something is not cross-cutting, someone may say I will not vote for that”* (G6P4).
38 Frequently players, therefore, claim that that the best strategy is to find policies that are of interest to all
39 players. As G3P1 puts it *“you needed to see a policy that can cross-cuts all Sub-Counties. So when you*
40 *present such policy, you don’t get so many challenges”*. For G5P5 this leads to the following conclusion:
41 since *“policy making is a collective responsibility, [...] we should formulate a policy whose outcomes are*

1 *beneficial [to all], both economically and socially*". G5P5 thus expresses a normative view that policy-
2 making should be all-inclusive.

3 When asked for a take-home message after the game, players mostly refer to two lessons: the importance
4 of *"working together"* (G1P1, G4P1, G9P2) and *"proper planning"* (G7P5, G8P4, G9P2) in DRR. For
5 example, it is important in policy making to *"not work for yourself but agree with others"* (G1P5) and to
6 *"leave out these selfish issues"* (G5P5). The player who initially argued that the biggest challenge in the
7 game is that *"the many are outcompeting the minority"*, also states that the main lesson learned about
8 policy making is to work *"hand in hand"* and agree *"with the common goal"* (G7P2). G3P2, on the other
9 hand, argues that *"we need to plan in advance and also plan for emergencies that may come"*. G10P5
10 stresses that this entails to *"identify the issue that needs to be addressed [... and] look at its cost implication
11 and the benefits"*. For this, the *"population should be educated to leave some land along the river as a
12 buffer"* (G1P5), since *"there are people living in areas [...] without knowing that it is a problem"* (G8P3).

13 Technical solutions for DRR are sometimes presented as desirable *"proposal[s] which [are] manageable
14 by everyone"* (game 5). This includes *"protecting the wetlands to conserve the environment"*, *"Creating
15 awareness about disasters"*, *"Encouraging good methods of farming"*, and *"supply electricity"* (G8P3).
16 Tree planting is viewed as a suitable solution that corresponds with both ambitions of working together
17 and engaging in proper planning. G4P1 concludes that *"people have to plant more trees, especially in the
18 hilly areas"*.

19 5. Discussion

20 In the result section of this manuscript, we noted the following sequence in the gameplays: (1) the players
21 gathered around a common concern and turned it into a public issue (Marres, 2007). (2) They subsequently
22 experienced different attachments as well as some of the conflicts those entailed. (3) Recognizing these
23 divergences led them to argue for consensus and technocratic solutions.

24 We now draw on existing literature on the depoliticization of environmental issues to argue that
25 divergences have discursively been denied rather than properly addressed. We propose an explanation
26 for why this happened during the 10 game sessions. Since we think this is a recurrent pattern in DRR
27 policy, we also derive some recommendations for future tools to facilitate discussions around disasters.

28 5.1. Discursive closure with managerial and technocratic solutions

29 The move from experiencing attachments and conflicts during the game to an explicit call for consensus
30 and *"cross-cutting"* (G6P4) solutions during debriefing is an attempt to reach some form of closure before
31 the end of the meeting. As mentioned earlier, the attempt to reach closure is an essential drive in politics,
32 even if full closure is never reached (Laclau and Mouffe, 1985, pp. 122–127). The desire to find cross-
33 cutting solutions can be understood as a recognition that both commonalities and antagonisms exist.
34 However, by giving greater focus to finding consensus, antagonisms are subdued and are side-lined in the
35 process of closure. Consensual solutions appear as the most desirable goal to the players, since, in the
36 end *"you are bound by the decision that was taken and therefore you are part of it"* (G5P5).

37 In the case of climate change in Western societies, Anneleen Kenis has convincingly demonstrated that
38 the consensus model does not always reduce conflict and contestation but often denies it discursively and
39 thereby forecloses the very possibility of agonistic confrontations (Kenis, 2019; Kenis and Lievens, 2014).
40 The need to deny conflicts discursively arises when the alternative, i.e. the opening of real negotiations,

1 is either too dreadful or impossible (Diken and Laustsen, 2004; Kenis, 2019). From being an ideal worth
2 striving for, the consensus model then becomes a restrictive imperative, an end in itself. A similar pattern
3 is observed here. Three reasons might have made the opening up of real negotiations impossible in our
4 case study.

5 First, the dominant discourse, in Uganda and abroad, is one in which conflicts and a multiplicity of
6 positions have to be avoided (Maes et al., 2018). In the Rwenzori region, violent confrontations in the
7 recent past (Atukwatse et al., 2012) might have contributed to conflicts being illegitimate and plurality
8 being an unfamiliar option. This is illustrated by the deliberate closure of discussions to avoid a debate on
9 existing conflicts during the debriefing of the game. There could, moreover, be a tendency among the
10 players to hide internal conflicts from foreign researchers and to present their society as corresponding
11 to a certain ideal of conflict-less decision-making. This does not mean that players cannot express their
12 true-to-life views in their actions, narratives, and game decisions under different circumstances. An
13 application of the boardgame without foreign researchers could therefore lead to more explicit
14 discussions.

15 Second, real negotiations might have been impossible because of the game rules. According to Laclau and
16 Mouffe, one needs to render visible the contingency of hegemonic relations to make them contestable
17 (Laclau and Mouffe, 1985). A real restructuring of the hegemonic order has to be a possible outcome of
18 the negotiations (Diken and Laustsen, 2004). Yet, the game design fixes a power relation between players
19 in the highlands and in the lowlands and thereby forecloses any contestation of this divide. It also does
20 not provide a description of historical and contingent events which may have led to the current divide
21 (see Syahuka-muhindo (2007) for this). As such, the game mimics the current decision modality in the
22 region. While other elements in the game have been questioned and modified by the players, a full-blown
23 discussion of power dynamics and fluid identities associated with the mountain/lowland divide and DRR
24 in Uganda did not ensue. Perhaps, a more explicit introduction about this divide incorporated into the
25 game at the start would have generated the space for deeper discussions.

26 Third, and more fundamentally, the boardgame is itself framed in the modern ontology, thereby
27 foreclosing certain attachments from the start and making real negotiations impossible. The concept of
28 risk, for example, is associated with a managerial, positivist view on disasters (Jasanoff, 1999; Mertens,
29 2022). The risk discourse adopted in DisCoord incites the participants to conceive public issues associated
30 with floods and landslides as the expression of a universal condition (risk) that can be addressed, or
31 managed, with the equally universal concept of DRR (Mertens, 2022; Wynne, 2005). The game implicitly
32 presupposes that we are in a situation in which the possible worlds are perfectly known (with a certain
33 probability) and can therefore be subjected to a process of rational decision making¹². This is perhaps
34 illustrated by the enthusiastic statement of G9P1 during debriefing: *“this game is actually impressive; it
35 has a scientific way of administering disaster-related cases”*. It has been argued that the concept of risk is
36 inherently depoliticizing (Swyngedouw, 2010). Others have argued that it is necessary to recognize the
37 highly political nature of the concept of risk because it embodies *“deeply embedded cultural values and
38 beliefs”* which involve different understandings of causality, agency and uncertainty (Jasanoff, 1999).
39 What is defined as risk thus indicates who possesses the hegemonic power.

¹² For a detailed discussion on risk and uncertainty, see Callon et al. (2009).

1 The third point is related to a neocolonial aspect of the game. While disaster ontologies, which are
2 different from the modern ontology are present in the region (Bwambale et al., 2018), these indigenous
3 knowledges and associated attachments with floods and landslides have not been mobilized during the
4 game sessions. It could be that players felt that they could not legitimately question the hegemonic
5 concept of DRR. If this is true, then the game failed in giving space to all the actors to “communicate from
6 their frame of reference” (Chilisa, 2012, p. 30). A situation is thus created in which real negotiations,
7 involving all the attachments and things that make humans act, have been impossible. Among others, this
8 is due to the fact that the modern ontology does implicitly not leave space for a multiplicity of ontologies
9 and attachments (Blaser, 2014). For an analysis of political and neo-colonial issues associated with the
10 use of the concept of landslide risk in Uganda, see Mertens (2022).

11 A combination of reasons has thus led to a situation in which differences have to be ignored, or
12 discursively denied. Such discursive closure can happen by relying on moral arguments (Mouffe, 2006),
13 psychological arguments (Kenis, 2019), or, as we argue here, scientific matters of facts. This is why
14 discussions during debriefing quickly moved from the identification of consensus as an ideal to the need
15 for technocratic solutions.

16 Within the modern ontology, technocratic solutions, resting on matters of fact, are indeed the perfect
17 tools to pretend that closure has been reached (Latour, 1993). Since the “natural” side of disasters, i.e.
18 the hazard, is free of the “societal” elements which may lead to conflict, disasters can be addressed in a
19 consensual way through technical measures that tackle hazard and exposure. Yet, this discourse is
20 problematic since technical solutions are actually not free of attachments. Their adoption tends to hide
21 that the practical outcomes of the decision making process are still inherently contingent and necessarily
22 entail some form of exclusion (Hillier, 2003; Swyngedouw, 2010).

23 5.2. How to (re)politicize disaster governance

24 As stated by Biesta (2011), interventions such as DisCoord should engage in subjectifying stakeholders,
25 *i.e.* expose them to and make them engage with the experiment of creating a common world, rather than
26 socializing them to predefined concepts of what society ought to be like. This requires a joint identification
27 of the actors and their attachments (Latour, 2004a, pp. 109–117; Venturini, 2010). The challenge for
28 serious games, such as DisCoord, that aim at creating a space to make visible attachments and
29 controversies, could therefore be to mobilize not just the players (Jessen and Jessen, 2014), but all the
30 other actors to which these players are attached. To reach this goal, several points have to be taken into
31 account.

32 A first point is that the major ontological shift this implies, from matters of fact to matters of concern, is
33 not easily attained among people in the DRR community, since they have been exposed to a dichotomous
34 approach to reality for years. The endeavor of the exercise, therefore, needs to be fully acknowledged in
35 both the design of the tool and its presentation to the participating public. As put by Block et al. (2018),
36 one needs to be modest by recognizing that knowledges are debatable, immodestly modest by explicitly
37 engaging politically with it, and one should dare to experiment with new tools and games which are
38 flexible, indeterminate and tailored to specific localities.

39 A second point is that the latter is only possible in case real co-creation is considered in the development
40 of the tool. While a different board game has previously been designed by a researcher of MMU
41 (Kabaseke, 2016), the game rules of DisCoord are mostly designed by Belgian researchers. True openness

1 regarding the tool to stimulate discussions requires an openness to the fact that a board game might not
2 be the ideal method. This probably demands that we further decolonize academic research to give space
3 to different epistemologies, i.e. ways of knowing and learning about disasters (Bwambale et al., 2020;
4 Mertens, 2022). Board games are more popular in Western Europe than in Uganda. As discussed, this
5 does not prevent players from quickly mastering the game rules and identifying with their Sub-County.
6 Yet, it might be worth integrating games with alternative innovative interventions, such as those related
7 to music and oral traditions, for generating discussions about disasters (Makwa, 2015).

8 Third, one needs to be aware that such openness to co-creation and indeterminacy might be very
9 uncomfortable to practitioners and researchers in conventional DRR (Stengers, 2018). It requires an
10 openness to the challenges posed by the presence of different ontologies of disasters (Blaser, 2014; Blaser
11 and De La Cadena, 2018). This may even challenge the flat ontology and associated cosmopolitics
12 themselves. It has, for example, been argued that the concept of “matter of concern” itself is not relevant
13 in non-Western regions because other approaches to politics and the environment would already be
14 existing and be better embedded in local traditions and indigenous knowledge (Luisetti, 2017). By
15 attempting to bridge a Western nature/culture divide with a Western concept, DisCoord might be
16 sidelining “counter-hegemonic alliances” between internal critiques of this divide and indigenous
17 knowledges (Luisetti, 2017). We have not found indications of such alliances for the case of Western
18 Uganda, though, but perhaps we did not pay the necessary “*immanent attention*” this requires (Stengers,
19 2018).

20 6. Conclusion

21 The observations of ten DisCoord game sessions with stakeholders in West Uganda has proved insightful
22 to better understand why DRR literature and practice remain predominantly managerial, despite frequent
23 reminders of the political nature of DRR in literature.

24 We have shown how the board game gathers players around a common concern of disaster risk and how
25 this concern is turned into a public issue. Participants experience divergent attachments as well as some
26 of the associated conflicts. Mimicking real-life conditions, the board game challenges the players to find
27 DRR strategies within the short time span of the meeting. During the debriefing, players recognize
28 divergences as well as the political nature of disasters, while at the same time stressing the need for
29 consensus and technocratic solutions.

30 Despite a vivid experience of the antagonistic nature of DRR during the gameplay, players thus end up
31 arguing that finding a consensus is necessary for DRR policymaking during debriefing. The adoption of the
32 consensus model as a restrictive end in itself eventually leads to the promotion of technocratic DRR
33 strategies. Several explanations are provided for why players tend to resort to a call for consensus after
34 playing the DisCoord game, including (1) the dominant aversion of conflicts around DRR in Uganda and
35 abroad, (2) the restrictive game rules which hide contingency and limit contestation, and (3) the modern
36 disaster ontology which is implicitly embedded in the game design. The combination of these three
37 elements is important. Our empirical analysis of the discussions during the gameplay and debriefing
38 suggests that, while matters of fact have been used to close off political discussions (i.e. the modern
39 ontology), it is a consensual view on politics and the lack of a real possibility for contestation which have
40 made this premature closure necessary.

1 These findings, which, in our view, are illustrative of a general pattern in DRR literature and policy making,
2 lead us to several recommendations regarding tools to facilitate learning and policymaking around
3 disasters. To generate real spaces of indeterminacy and discussion, future tools should (1) be co-created
4 with the target public in order to be locally relevant in both their method and content, while at the same
5 time (2) remain flexible and open to contestation and adaptation to different experiences and world
6 views. The combination of these two requirements is challenging in the context of DRR which is still
7 dominated by the modern ontology (*i.e.* a nature/culture divide) and a consensual view on politics. In our
8 opinion, a crucial requirement for the design of such tools is, therefore, to start from the central premise
9 that knowledge itself contributes to the formation of debatable matters of concern, which should
10 therefore be addressed in a way which is explicitly political. Yet, as illustrated with our case on the
11 DisCoord board game, this necessitates a major shift in how risks and disasters are conceived and how
12 discussions on DRR are framed.

13 7. References

- 14 Abad, J., Booth, L., Baills, A., Fleming, K., Leone, M., Schueller, L., Petrovic, B., 2020. Assessing policy
15 preferences amongst climate change adaptation and disaster risk reduction stakeholders using
16 serious gaming. *Int. J. Disaster Risk Reduct.* 51. <https://doi.org/10.1016/j.ijdr.2020.101782>
- 17 Ansoms, A., Claessens, K., Bogaerts, O., Geenen, S., 2015. LAND RUSH: Simulating Negotiations Over Land
18 Rights - A ready-to-use simulation. *Simul. Gaming* 46, 742–762.
19 <https://doi.org/10.1177/1046878115613491>
- 20 Atukwatse, P.B., Busiinge, C., Tuhaise, F., Ahaisibwe, F., Tumwine, Y., Kaahwa, F., Muhumuza, M., 2012.
21 Stuck in the mist Contextual analysis of the conflicts in the Rwenzori region. *Fort-Portal.*
22 <https://doi.org/10.1016/j.devcel.2004.09.002>
- 23 Bassett, T.J., Fogelman, C., 2013. Déjà vu or something new? The adaptation concept in the climate
24 change literature. *Geoforum* 48, 42–53. <https://doi.org/10.1016/j.geoforum.2013.04.010>
- 25 Baxter, J., Eyles, J., 1997. Evaluating qualitative research in social geography: Establishing “rigour” in
26 interview analysis. *Trans. Inst. Br. Geogr.* 22, 505–525. <https://doi.org/10.1111/j.0020-2754.1997.00505.x>
- 28 Biesta, G., 2011. The Ignorant Citizen: Mouffe, Rancière, and the Subject of Democratic Education. *Stud.*
29 *Philos. Educ.* 30, 141–153. <https://doi.org/10.1007/s11217-011-9220-4>
- 30 Blaser, M., 2016. Is another cosmopolitics possible? *Cult. Anthropol.* 31, 545–570.
31 <https://doi.org/10.14506/ca31.4.05>
- 32 Blaser, M., 2014. Ontology and indigeneity: On the political ontology of heterogeneous assemblages. *Cult.*
33 *Geogr.* 21, 49–58. <https://doi.org/10.1177/1474474012462534>
- 34 Blaser, M., De La Cadena, M., 2018. Pluriverse: Proposals for a World of Many Worlds, in: *A World of Many*
35 *Worlds.* Duke University Press, pp. 1–22.
- 36 Block, T., Goeminne, G., Van Poeck, K., 2018. Balancing the urgency and wickedness of sustainability
37 challenges: three maxims for post-normal education. *Environ. Educ. Res.* 24, 1424–1439.
38 <https://doi.org/10.1080/13504622.2018.1509302>
- 39 Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. *Qual. Res. Psychol.* 3, 77–101.

- 1 <https://doi.org/10.1191/1478088706qp063oa>
- 2 Bwambale, B., Muhumuza, M., Nyeko, M., 2018. Traditional ecological knowledge and flood risk
3 management: A preliminary case study of the Rwenzori. *Jamba J. Disaster Risk Stud.* 10, 1–10.
4 <https://doi.org/10.4102/jamba.v10i1.536>
- 5 Bwambale, B., Nyeko, M., Muhumuza, M., Kervyn, M., 2020. Questioning knowledge foundation: What is
6 the best way to integrate knowledge to achieve substantial disaster risk reduction? *Int. J. Disaster*
7 *Risk Reduct.* 51, 101850. <https://doi.org/10.1016/j.ijdr.2020.101850>
- 8 Callon, M., Lascoumes, P., Barthe, Y., 2009. *Acting in an Uncertain World: an Essay on Technical*
9 *Democracy.* The MIT Press.
- 10 Cannon, T., 2008. Vulnerability, “innocent” disasters and the imperative of cultural understanding.
11 *Disaster Prev. Manag.* 17, 350–357. <https://doi.org/10.1108/09653560810887275>
- 12 Chilisa, B., 2012. *Indigenous Research Methodologies.*
- 13 Chmutina, K., Tandon, A., Kalkhitashvili, M., Tevzadze, M., Kobulia, I., 2021. Connecting heritage,
14 vulnerabilities and capacities through a participatory game. *Int. J. Disaster Risk Reduct.* 53, 102005.
15 <https://doi.org/10.1016/j.ijdr.2020.102005>
- 16 Collard, R.-C., Harris, L.M., Heynen, N., Mehta, L., 2018. The antinomies of nature and space. *Environ. Plan.*
17 *E Nat. Sp.* 1, 3–24. <https://doi.org/10.1177/2514848618777162>
- 18 Collins, T.W., 2009. The production of unequal risk in hazardscapes: An explanatory frame applied to
19 disaster at the US–Mexico border. *Geoforum* 40, 589–601.
20 <https://doi.org/10.1016/j.geoforum.2009.04.009>
- 21 Delima, G., Jacobs, L., Loopmans, M., Ekyaligonza, M., Kabaseke, C., Kervyn, M., Mertens, K., 2021.
22 DisCoord: co-creating DRR knowledge in Uganda through interaction in a serious game. *Int. J.*
23 *Disaster Risk Reduct.* 102303. <https://doi.org/10.1016/j.ijdr.2021.102303>
- 24 Diken, B., Laustsen, C.B., 2004. 7-11, 9/11, and Postpolitics. *Altern. Glob. Local, Polit.* 29, 89–113.
- 25 Gergen, K.J., Gergen, M.M., 2008. Chapter 10 - Social Construction and Research as Action, in: Reason, P.,
26 Bradbury, H. (Eds.), *The Sage Handbook of Action Research - Participatory Inquiry and Practice.* pp.
27 159–171.
- 28 Goeminne, G., 2013. Does the Climate Need Consensus? The Politics of Climate Change Rvisited. *Symploke*
29 21, 147–161. <https://doi.org/10.5250/symploke.21.1-2.0147>
- 30 Goeminne, G., 2010. Climate policy is dead, long live climate politics! *Ethics, Place Environ.* 13, 207–214.
31 <https://doi.org/10.1080/13668791003778867>
- 32 Hagelsteen, M., Becker, P., 2019. Systemic problems of capacity development for disaster risk reduction
33 in a complex, uncertain, dynamic, and ambiguous world. *Int. J. Disaster Risk Reduct.* 36, 101102.
34 <https://doi.org/10.1016/j.ijdr.2019.101102>
- 35 Harman, G., 2014. *Bruno Latour - Reassembling the Political.* Pluto Press.
- 36 Hillier, J., 2003. “Agon” izing over consensus: Why Habermasian ideals cannot be “real.” *Plan. Theory* 2,
37 37–59. <https://doi.org/10.1177/1473095203002001005>
- 38 Jacobs, L., Dewitte, O., Poesen, J., Delvaux, D., Thiery, W., Kervyn, M., 2016a. The Rwenzori Mountains, a

- 1 landslide-prone region? *Landslides* 13, 519–536. <https://doi.org/10.1007/s10346-015-0582-5>
- 2 Jacobs, L., Dewitte, O., Poesen, J., Sekajugo, J., Nobile, A., Rossi, M., Thiery, W., Kervyn, M., 2018. Field-
3 based landslide susceptibility assessment in a data-scarce environment: the populated areas of the
4 Rwenzori Mountains. *Nat. Hazards Earth Syst. Sci.*, Submitted to: Natural Hazards and Earth System
5 Sciences. 18, 105–124. <https://doi.org/10.5194/nhess-18-105-2018>
- 6 Jacobs, L., Kabaseke, C., Bwambale, B., Katutu, R., Dewitte, O., Mertens, K., Maes, J., Kervyn, M., 2019.
7 The geo-observer network: A proof of concept on participatory sensing of disasters in a remote
8 setting. *Sci. Total Environ.* 670, 245–261. <https://doi.org/10.1016/j.scitotenv.2019.03.177>
- 9 Jacobs, L., Maes, J., Mertens, K., Sekajugo, J., Thiery, W., van Lipzig, N., Poesen, J., Kervyn, M., Dewitte, O.,
10 2016b. Reconstruction of a flash flood event through a multi-hazard approach: focus on the
11 Rwenzori Mountains, Uganda. *Nat. Hazards* 1–31. <https://doi.org/10.1007/s11069-016-2458-y>
- 12 Jasanoff, S., 1999. The songlines of risk. *Environ. Values* 8, 135–152.
13 <https://doi.org/10.3197/096327199129341761>
- 14 Jean, S., Medema, W., Adamowski, J., Chew, C., Delaney, P., Wals, A., 2018. Serious games as a catalyst
15 for boundary crossing, collaboration and knowledge co-creation in a watershed governance context.
16 *J. Environ. Manage.* 223, 1010–1022. <https://doi.org/10.1016/j.jenvman.2018.05.021>
- 17 Jessen, J.D., Jessen, C., 2014. Games as Actors-Interaction, Play, Design, and Actor Network Theory. *Int. J.*
18 *Adv. Intell. Syst. Cit.* 7, 412–422.
- 19 Kabaseke, C., 2016. UWASNET: Serious games: Mpanga rivershed management game [WWW Document].
- 20 Kenis, A., 2019. Post-politics contested: Why multiple voices on climate change do not equal politicisation.
21 *Environ. Plan. C Polit. Sp.* 37, 831–848. <https://doi.org/10.1177/0263774X18807209>
- 22 Kenis, A., Lievens, M., 2014. Searching for “the political” in environmental politics. *Env. Polit.* 23, 531–548.
23 <https://doi.org/10.1080/09644016.2013.870067>
- 24 Kenis, A., Mathijs, E., 2014. (De)politicising the local: The case of the Transition Towns movement in
25 Flanders (Belgium). *J. Rural Stud.* 34, 172–183. <https://doi.org/10.1016/j.jrurstud.2014.01.013>
- 26 Kodesh, N., 2008. Networks of knowledge: Clanship and collective well-being in Buganda. *J. Afr. Hist.* 49,
27 197–216. <https://doi.org/10.1017/S0021853708003629>
- 28 Kule, R., 2014. Meteorology Department Warns Of More Disaster in Kasese [WWW Document]. Uganda
29 Radio Netw. URL [https://ugandaradionetwork.net/story/meteorology-department-warns-of-more-](https://ugandaradionetwork.net/story/meteorology-department-warns-of-more-disaster-in-kasese)
30 [disaster-in-kasese](https://ugandaradionetwork.net/story/meteorology-department-warns-of-more-disaster-in-kasese) (accessed 7.7.19).
- 31 Laclau, E., Mouffe, C., 1985. *Hegemony and Socialist Strategy*. Verso.
- 32 Latour, B., 2004a. *Politiques de la nature Comment faire entrer les sciences en démocratie*. éditions La
33 Découverte, Paris.
- 34 Latour, B., 2004b. Why has critique run out of steam? From matters of fact to matters of concern. *Crit.*
35 *Inq.* 30, 225–248. <https://doi.org/10.1086/421123>
- 36 Latour, B., 1993. *We Have Never Been Modern* (translated by Catherine Porter).
37 [https://doi.org/10.1016/0956-5221\(96\)88504-6](https://doi.org/10.1016/0956-5221(96)88504-6)
- 38 Latour, B., 1991. *Nous n’avons jamais été modernes. Essai d’anthropologie symétrique*. Poche / Sciences

- 1 humaines et sociales, Paris.
- 2 Luisetti, F., 2017. DECOLONIZING GAIA - Or , Why the Savages Shall Fear Bruno Latour's Political Animism.
3 Azimuth V.
- 4 Maes, J., Molombe, J.M., Mertens, K., Parra, C., Poesen, J., Che, V.B., Kervyn, M., 2019a. Socio-political
5 drivers and consequences of landslide and flood risk zonation: A case study of Limbe city, Cameroon.
6 Environ. Plan. C Polit. Sp. 37, 707–731. <https://doi.org/10.1177/239965441879076>
- 7 Maes, J., Parra, C., Mertens, K., Bwambale, B., Jacobs, L., Poesen, J., Dewitte, O., Vranken, L., de Hontheim,
8 A., Kabaseke, C., Kervyn, M., Parra, C., Kabaseke, C., Bwambale, B., Mertens, K., Jacobs, L., Dewitte,
9 O., Vranken, L., de Hontheim, A., Kervyn, M., 2018. Questioning network governance for disaster risk
10 management: Lessons learnt from landslide risk management in Uganda. Environ. Sci. Policy 85,
11 163–171. <https://doi.org/10.1002/elan>.
- 12 Makwa, D.D., 2015. "This is the Life We Have": Music and Displacement among the Bududa Landslide
13 Survivors in Kiryandongo Refugee Camp, Northwestern Uganda., in: Solomon, T. (Ed.), African Musics
14 in Context: Institutions, Culture, Identity. Fountain Publishers, p. 285.
- 15 Marres, N., 2007. The issues deserve more credit: Pragmatist contributions to the study of public
16 involvement in controversy. Soc. Stud. Sci. 37, 759–780.
17 <https://doi.org/10.1177/0306312706077367>
- 18 Mertens, K., 2022. Landslide risk as assmeblage: towards a more enabling geography. *Belgeo*.
- 19 Mertens, K., Jacobs, L., Maes, J., Kabaseke, C., Maertens, M., Poesen, J., Kervyn, M., Vranken, L., 2016. The
20 direct impact of landslides on household income in tropical regions: A case study from the Rwenzori
21 Mountains in Uganda. Sci. Total Environ. 550, 1032–1043.
22 <https://doi.org/10.1016/j.scitotenv.2016.01.171>
- 23 Michellier, C., Pigeon, P., Paillet, A., Trefon, T., Dewitte, O., Kervyn, F., 2020. The Challenging Place of
24 Natural Hazards in Disaster Risk Reduction Conceptual Models: Insights from Central Africa and the
25 European Alps. Int. J. Disaster Risk Sci. 11, 316–332. <https://doi.org/10.1007/s13753-020-00273-y>
- 26 Mouffe, C., 2013. *Agonistics - Thinking the world politically*.
- 27 Mouffe, C., 2006. *On the political, On the Political*. Routledge, London.
28 <https://doi.org/10.4324/9780203870112>
- 29 Mouffe, C., 2000a. *The democratic paradox*. Verso.
- 30 Mouffe, C., 2000b. Deliberative Democracy or Agonistic Pluralism? Polit. Sci. Ser. 66, 17.
31 <https://doi.org/10.2307/40971349>
- 32 Mustafa, D., 2005. The production of an urban hazardscape in Pakistan: Modernity, vulnerability, and the
33 range of choice. Ann. Assoc. Am. Geogr. 95, 566–586. [https://doi.org/10.1111/j.1467-](https://doi.org/10.1111/j.1467-8306.2005.00475.x)
34 8306.2005.00475.x
- 35 Pennacini, C., 2007. The Rwenzori Ethnic "Puzzle." *Rwenzori Hist. Cult. an African Mt.* 59–97.
- 36 Raffn, J., Lassen, F., 2021. Politics of Nature: The board game. Soc. Stud. Sci. 51, 139–164.
37 <https://doi.org/10.1177/0306312720983907>
- 38 Reuss, A., Titeca, K., 2017. Beyond ethnicity: the violence in Western Uganda and Rwenzori's 99 problems.

- 1 Rev. Afr. Polit. Econ. 44, 131–141. <https://doi.org/10.1080/03056244.2016.1270928>
- 2 Sanghi, A., Ramachandran, S., de la Fuente, A., Tonizzo, M., Sahin, S., Adam, B., 2010. Natural Hazards,
3 UnNatural Disasters. The World Bank. <https://doi.org/10.1596/978-0-8213-8050-5>
- 4 Solinska-Nowak, A., Magnuszewski, P., Curl, M., French, A., Keating, A., Mochizuki, J., Liu, W., Mechler, R.,
5 Kulakowska, M., Jarzabek, L., 2018. An overview of serious games for disaster risk management –
6 Prospects and limitations for informing actions to arrest increasing risk. *Int. J. Disaster Risk Reduct.*
7 31, 1013–1029. <https://doi.org/10.1016/j.ijdr.2018.09.001>
- 8 Squire, K., Jenkins, H., 2003. Harnessing the Power of Games in Education. *InSight* 3, 5–33.
- 9 Sseremba, Y., 2019. The Making and Remaking of “Native Tribes” in Uganda’s Toro Kingdom. *Natl. Ethn.*
10 *Polit.* 25, 311–328. <https://doi.org/10.1080/13537113.2019.1639429>
- 11 Stacey, T., 2003. *Tribe: The Hidden History of the Mountains of the Moon*.
- 12 Stengers, I., 2018. The challenge of ontological politics, in: De La Cadena, M., Blaser, M. (Eds.), *A World of*
13 *Many Worlds*. Duke University Press, pp. 83–111.
- 14 Stengers, I., 2003. *Cosmopolitiques I*, 2nd ed. Editions La Découverte, Paris.
- 15 Stengers, I., 1997. Pour en finir avec la tolérance, in: *Cosmopolitiques II*. La Découverte, Paris, pp. 287–
16 399.
- 17 Swyngedouw, E., 2010. Impossible Sustainability and the Post-political Condition, in: *Making Strategies in*
18 *Spatial Planning*. pp. 185–205. <https://doi.org/10.1007/978-90-481-3106-8>
- 19 Syahuka-muhindo, A., 2007. Migrations and social formation in the Rwenzori region, in: Pennacini, C.,
20 Wittenberg, H. (Eds.), *Rwenzori : Histories and Cultures of an African Mountain*. p. 366.
- 21 Tierney, K., 2012. Disaster governance: Social, political, and economic dimensions. *Annu. Rev. Environ.*
22 *Resour.* 37, 341–363. <https://doi.org/10.1146/annurev-environ-020911-095618>
- 23 Treher, E., 2011. Learning with board games. *Play for performance. Tools for learning and retention*.
- 24 Uganda Radio Network, 2017. Bunyambagu District 2017 [WWW Document]. URL
25 <https://ugandaradionetwork.com/story/mixed-reactions-over-split-of-kabarole-district> (accessed
26 4.23.20).
- 27 UNISDR, 2015. *Sendai Framework for Disaster Risk Reduction 2015-2030*. Geneva.
- 28 Van Poeck, K., Goeminne, G., Vandenabeele, J., 2016. Revisiting the democratic paradox of environmental
29 and sustainability education: sustainability issues as matters of concern. *Environ. Educ. Res.* 22, 806–
30 826. <https://doi.org/10.1080/13504622.2014.966659>
- 31 Venturini, T., 2010. Diving in magma: How to explore controversies with actor-network theory. *Public*
32 *Underst. Sci.* 19, 258–273. <https://doi.org/10.1177/0963662509102694>
- 33 White, D., Rudy, A., Gareau, B., 2015. *Environments, Natures and Social Theory - Towards a Critical*
34 *Hybridity*.
- 35 Wisner, B., Blaikie, P., Cannon, T., Davis, I., 2003. At risk: natural hazards, people’s vulnerability and
36 disasters (Part 1), in: *At Risk: Natural Hazards, People’s Vulnerability and Disasters*. p. 134.

1 Wu, J.S., Lee, J.J., 2015. Climate change games as tools for education and engagement. *Nat. Clim. Chang.*
2 5, 413–418. <https://doi.org/10.1038/nclimate2566>

3 Wynne, B., 2005. Risk as globalizing ‘democratic’ discourse? Framing subjects and citizens, in: Leach, M.,
4 Scoones, I., Wynne, B. (Eds.), *Science and Citizens: Globalization and the Challenge of Engagement*.
5 Zed Books, pp. 66–82.

6 Yamamoto, A.D., 2017. Why agonistic planning? Questioning Chantal Mouffe’s thesis of the ontological
7 primacy of the political. *Plan. Theory* 16, 384–403. <https://doi.org/10.1177/1473095216654941>

8

9 8. Appendix

10 *Table A1. Overview of Players in the different game sessions, with their age, gender, education level and job/position in the region.*
11 *While this information was not used in the analysis, it may be useful background information to assess possible power dynamics*
12 *between the players.*

Game-Player	Age	Gender	Education	Job	Game-Player	Age	Gender	Education	Job
G1P1	35	m	tertiary	LC1	G6P1	44	m	tertiary	Geo-observer
G1P2	45	m	primary	LC1	G6P2	52	m	secondary	Geo-observer
G1P3	36	m	secondary	LC1	G6P3	50	f	secondary	Geo-observer
G1P4	45	m	no data	LC1	G6P4	20	m	secondary	Geo-observer
G1P5	52	m	primary	LC1	G6P5	54	f	tertiary	Geo-observer
G2P1	64	m	secondary	LC1	G7P1	51	m	primary	LC3
G2P2	37	m	secondary	LC1	G7P2	39	m	tertiary	LC3
G2P3	48	m	secondary	LC3	G7P3	34	m	primary	Farmer
G2P4	48	m	primary	LC2	G7P4	69	m	primary	Farmer
G2P5	32	m	secondary	LC3	G7P5	52	m	tertiary	Farmer
G3P1	Unassigned	m	secondary	LC3	G8P1	38	m	tertiary	LC3
G3P2	38	m	tertiary	LC3	G8P2	44	m	secondary	LC3
G3P3	44	m	tertiary	LC3	G8P3	38	m	tertiary	LC3
G3P4	47	m	secondary	LC3	G8P4	42	m	primary	LC3
G3P5	30	m	secondary	LC3	G8P5	43	m	secondary	LC3
G4P1	34	f	tertiary	NGO	G9P1	36	m	tertiary	LC5
G4P2	38	f	tertiary	LC3	G9P2	40	m	secondary	LC3
G4P3	32	m	tertiary	NGO	G9P3	38	f	tertiary	LC5
G4P4	33	m	tertiary	NGO	G9P4	51	m	secondary	LC3
G4P5	25	m	tertiary	NGO	G9P5	52	m	tertiary	LC5
G5P1	39	m	tertiary	LC5	G10P1	38	m	tertiary	LC5
G5P2	49	f	tertiary	LC5	G10P2	48	m	tertiary	NGO
G5P3	Unassigned	m	tertiary	LC5	G10P3	24	m	tertiary	NGO
G5P4	38	m	tertiary	LC5	G10P4	52	m	secondary	NGO

G5P5	50	m	tertiary	LC5	G10P5	37	m	tertiary	LC5
------	----	---	----------	-----	-------	----	---	----------	-----

1

Unpublished work
Kewan Mertens