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Reassembling disaster risk: towards a more self-reflexive and enabling geography

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¹ Note

Scientific literature tends to be self-referential and sometimes hard to understand for those who are not of the same field. While a specific writing style and technical formulas are relevant to increase clarity within a discipline, it may also limit interdisciplinarity, reduce accessibility and be elitist. Since this paper is meant to contribute to a rapprochement of physical and human geography, I make use of a symbol (ʸ) and footnotes to indicate which elements are not essential to understand my argument and mainly serve to gain legitimacy and to position myself in a certain literature¹. Some crucial concepts, such as 'assemblage' and 'to enact', will nevertheless be foreign to some readers and are therefore introduced in an explanatory box hereunder.

Introduction

- ² Several authors have claimed that the ontological separation between 'the social' and 'the natural', characteristic of modern society (Latour, 1991), is preventing us from properly understanding the challenges posed to us by what has been called the Anthropocene² (Biermann, Kelley & Lave, 2020). It has been argued that the split between the human and physical in geography contributes to this limitation (Biermann, Kelley & Lave, 2020) and that an appreciation of the strong ties between humans and non-humans is necessary to increase the relevance of the discipline

(Swyngedouw, 2010). Such appreciation is possible through the concept of assemblage (Law, 2004).

- 3 Assemblage thinking has been mobilized in various fields of (human) geography to describe how human and non-human entities act on the world (Swyngedouw, 2006). By getting rid of the nature/culture divide and by concentrating on relations, the concept has proven to strengthen the capacity of researchers to identify new sources of agency (e.g. Ranganathan, 2015). McGowran and Donovan (2021) have recently proposed assemblages as a useful way to conceptualize disaster risk management.
- 4 My main argument is that assemblage thinking not only provides new analytical tools to study the world, as argued by authors in human geography and urban studies (Anderson, McFarlane, 2011; Ranganathan, 2015), but that it could also change the way geographers perceive their own work. *Geo-graphy*, without the distinction between human and physical, then appears as a world-building exercise, having the potential to literally draw the surface of the earth. This argument is different from claiming that ‘everything is social’, as in critical physical geography (Lave *et al.*, 2014), or that the physical world cannot be understood without looking at socio-political processes, as in some strands of political ecology (Blaikie, 1985; Escobar, 1999; Latour, 2004). While I do not want to dismiss the usefulness of such approaches, my focus is on the power and agency of scientific research itself. I therefore build on self-reflexive work of feminist geographers (e.g. Rose (1997) as well as research methods originating in Science and Technology Studies (STS)).
- 5 I illustrate my point by investigating how the concept of *landslide risk* has been mobilized in an interdisciplinary research project called ‘Landslides in Equatorial Africa: Identifying culturally, technically and economically feasible resilience strategies’ (AfReSlide). I was one of the three PhD candidates involved in this research project, finalized in 2018, and the current paper is a retrospective reflexion on the work that was realized at that time.

Personal drivers, positionality and objectives

- 6 I am a male post-doctoral researcher who has mainly worked on the socio-economic aspect of landslides in the AfReSlide project. While I am not formally trained in STS or geography, but in bioscience engineering, I have reconverted myself to these fields recently. The current paper stems from a feeling that I did not have the tools, at the time of writing my PhD, to grasp the implications of the work I was doing. I was not aware of my agency, nor of the power dynamics I was reproducing. Blind and in a position of power, I might have been at the same time disabled and disabling.
- 7 My purpose is to stimulate a more enabling geography, a geography that is aware of its capacity to ‘draw the earth’s surface’ and therefore takes the responsibility to make conscious choices about its work. I am aware that some of the statements I make about geography here are quite bold, and may seem arrogant from a young researcher. The purpose of my statements are to stimulate a scientific debate, not to pretend I hold the truth, and I am happy to learn from my mistakes.
- 8 I am also, somewhat, aware of the power relations that enabled us, Belgians, to do research in Uganda and Cameroon. I am only starting to discover the inherently neo-colonial aspects of our research and the domination-reproducing character of our

findings. Yet, denouncing these structural problems is not the objective of the current paper, since it will be the topic of future work. Rather, the critical accounts of my own research, and that of my colleagues, provided here aim at stimulating a broad debate and reflexivity on our own research practice.

- 9 The overall objective of this case study is to illustrate how an analysis of the concepts and practices of research in geography may contribute to the development of a new understanding of our work. I do this by addressing the following research question: what reality has been enacted by the concept of landslide risk in AfReSlide? The purpose is neither to explain the origin of risk – I do not answer the ‘why’ question – nor to denounce some sort of ‘lie of objectivity’, but rather to study landslide risk as an assemblage of human and non-human entities. As I argue here, new questions become possible from assemblage thinking, and a focus on practices rather than truths may make the distinction between human and physical geography redundant.
- 10 In the subsequent sections I first elaborate on some important concepts and then give an overview of the data and methods. The result section illustrates how *landslide risk* can be understood as an assemblage of human and non-human actors. In the discussion I subsequently reflect on the consequences assemblage thinking may have for the discipline: besides generating a greater reflexivity and responsibility among researchers, it may also broaden the range of realities geography can bring into being (see also Law, 2004, p. 39).

Concepts and theory

The concept of **assemblage** is an imperfect translation of Deleuze and Guattari’s ‘*agencement*’ and vehiculates the understanding of scientific objects and concepts as temporary, unfixed arrangements which have a particular capacity to enact the world (Law, 2004, pp. 41–42). Simultaneously material, meaningful and eventful, they are composed of human and non-human actors which are more or less bound together by different (scientific) practices (Whatmore, 2013). The concept makes it possible to study scientific practice without being constrained by a positivist account of science. While a positivist approach would argue that science just observes a pre-existing reality (Latour, 1991), the concept of assemblage considers that a certain reality is shaped while human and non-human actors are assembled during scientific practice**.

To **enact** literally means ‘to make a bill into a law’, or ‘to put into practice an idea’. The concept was mobilized by Annemarie Mol to study how atherosclerosis in a Dutch hospital is constituted into something which is ‘more than one – but less than many’ (Mol, 2002, p. 55). Her work has been valuable to show that meaning in Western medicine can also be understood as diffuse and multi-layered. It highlights that assemblages do not just describe things, but contribute to bringing into being certain realities and thus participate in the ordering of the world (Law, 2004). In the following chapters I will show how landslide risk as a scientific concept was used to create a landslide risk assemblage which enacted landslide risk as a reality in our study area.

Assemblage thinking can be understood as a methodological stance which aims at studying ‘what is being said and done’ (Deleuze, Guattari, 1980, p. 629, my translation) in the process of assembling and de-assembling human and non-human actors. It comes with a whole conceptual toolbox to understand how assemblages are both situated in and generative of a context, while at the same time overflowing it. Assemblages can, for example, *territorialize* in certain contexts or practices, and thereby enact a reality, while at the same time being traversed by process of *deterritorialization* which connect them to other places and assemblages (Deleuze, Guattari, 1980, p. 630).

***Note that I am using these concepts out of methodological and pragmatical considerations. I am not interested here in an ontological question about reality and ontological uses of the assemblage concept (Brenner, Madden & Wachsmuth, 2011). I consider that an understanding of scientific practice as forming assemblages, rather than discovering or revealing truth, could be more enabling and respectful for both researchers and their research objects.

- 11 ^yJust like scientific assemblages, identity is also understood as multi-layered, relational and unfixed (Laclau and Mouffe, 1985, pp. 85-88). Social identities are continually constituted through similarity and difference (Escobar, 1999). The way humans understand themselves and constitute their identity goes through a repeated processes of attachments and exclusions to particular objects or conditions (Grove, 2009; Butler, 2015, pp. 81-96). The meanings ascribed to everyday experiences of the world thus participate in the process of identity construction (Grove, 2009). If we recognize that scientific practice, such as in human and physical geography, does not merely describe the world, but participates in the formation of assemblages which enact a certain reality, then scientific practice necessarily also participates in the shaping of identities.
- 12 ^yIn political philosophy, Ernesto Laclau understands the construction of (political) identities as going through a double process of inclusion and exclusion (Laclau, 2015, pp. 66-69). A chain of equivalence is thereby formed to smoothen out differences between those elements that are included while generating a stark contrast with what is excluded. Empty, or floating, signifiers such as ‘truth’ or ‘justice’ are used to name what holds a certain group together. In fact, the unity of a group results from the empty signifier because this unity is ‘the retroactive effect of naming it’ (Laclau, 2015, p. 102). As such, empty signifiers also enact a certain reality.
- 13 ^yThe parallel I am trying to draw between empty signifiers and scientific assemblages now becomes clear³. Scientific assemblages, through which our world is inscribed with meaning, enact the world in a political way. Indeed, if there are different possible worlds, scientific research participates in defining ‘whose world’ may legitimately be practiced (Escobar, 1998). This observation is not new: feminist scholars, and more recently post-colonial scholars, have extensively criticized the idea of a universal objectivity (e.g. Haraway, 1988). As illustrated for the case of landslide risk in the following sections, this critique may have as for now unacknowledged consequences for research in geography.

Case study: AfReSlide in the Rwenzori region

- 14 The AfReSlide project (2014-2018) was a scientific collaboration between several Belgian universities and institutions, as well as universities in Uganda and Cameroon. It was funded by the Belgian Federal Scientific Policy (Belspo). Most work in AfReSlide has concentrated on the Rwenzori region in South-West Uganda (Figure 1). Three Belgian PhD students were hired to respectively study biophysical hazard, socio-economic impact and resilience at household level, and landslide risk management at policy level. An anthropologist was also hired for a short period of time to study the cultural premises surrounding landslides in the Rwenzori region. Promised outputs consisted of new methodologies to obtain reliable estimations of rainfall-triggered landslide hazards in data-poor environments, methods to identify and value elements at risk of landslides, an identification of institutional sources of vulnerability and ways to improve risk governance, an understanding of cultural perceptions of landslides and, finally, the production of risk maps for some case study areas (Kervyn *et al.*, 2018)⁴.
- 15 In practice, the project led to three PhD's obtained at Belgian universities, several publications and extensive efforts for disseminating the results, including a conference on disaster risk in Kampala. Policy briefs and posters on 'living with landslides' were also distributed in the Rwenzori region. Scientific output consisted of an archive inventory of landslides as well as a landslide susceptibility map of the Rwenzori region, an identification of bottlenecks for the adoption of risk reduction mechanisms at household level, at community level and at the level of policy making, as well as an estimation of the economic losses to smallholder farmers (Kervyn *et al.*, 2018). Finally, a toolbox for the identification of resilience strategies was developed and policy recommendations were made.
- 16 Overall, the AfReSlide project can be considered a successful example of interdisciplinary and inter-institutional research and cooperation. As argued later on, its success crucially hinges on a successful mobilization of the concept of landslide risk, thereby following the research agenda set out by the Sendai Framework for Disaster Risk Reduction (DRR) of the United Nations (UNISDR, 2015).

Figure 1. Overview of the Rwenzori region in South-West Uganda.

Part of the mountain range is situated in the Democratic Republic of Congo. The three different panels in this figure illustrate some of the methods and tools used in AfReSlide. The left panel shows the topography in the region, as well as the study areas delineated for my own research. Each dot in the upper right panel represents the house of a household head who has been interviewed. The lower panel shows the plots cultivated by these households, as mapped by enumerators with a GPS, on top of a landslide susceptibility map generated by Jacobs *et al.* (2018).

Methodology and data: retrospective self-reflexion and assemblage thinking

- 17 Current work is the result of a self-reflexive process that started after the end of the AfReSlide project. It has been made possible by a distance between my current identity as a researcher and my research identity during AfReSlide. This positions me in a messy in-betweenness which is generative because it allows me to acknowledge ‘the gaps in meaning opened up by the recognition of diverse knowledges’ (Rose, 1997). These ‘gaps in meaning’ are necessary to study ‘what is being said and done’ (Deleuze, Guattari, 1980, p. 629, my translation) in the AfReSlide project.
- 18 ^y The shift in my identity as a researcher has been caused by personal encounters as well as exposure to scientific literature. I came to understand scientific knowledge as something that is constructed in scientific practice (Latour, 1989), situated (Haraway, 1988) and generative of specific realities (Mol, 2002; Law, 2004). Post-colonial research thought me how our work may be violently silencing other ways of apprehending the world (Spivak, 2003; Blaser, De La Cadena, 2018). The conceptual toolbox of Actor Network Theory (ANT) has, moreover, helped me to nurture an empirical attention to the actions of human and non-human entities in scientific assemblages (Latour, 2005)⁵. Assemblage thinking provides me with additional conceptual tools to study how the landslide risk assemblage was formed and how it enacted a reality, while at the same time remaining fragile and unstable (Müller, Schurr, 2016).

- 19 Data are collected through a literature review of the 12 scientific articles we published on landslides and DRR in the Rwenzori region, the four internal annual reports of the project and the final report which is public (Kervyn *et al.*, 2018). Also grey literature produced within AfReSlide, such as policy briefs, newsletters and short reports of workshops, has been analysed. While reading this literature I have focused on two concepts, i.e. 'disaster risk' and 'landslide', which are recurrent in these documents and remain unquestioned throughout the project. A detailed analysis of the texts has allowed me to investigate how these concepts have been understood in AfReSlide, what human and non-human actors they have mobilized and how they have been deployed, i.e. *territorialized*, in the study area. Since I have not been in the Rwenzori region before the start of the research project, the observations I make about the situation before AfReSlide are based on archival material and informal conversations, and should therefore be considered with care.
- 20 To distinguish what is being said around the central concepts in AfReSlide from what they actually do (Deleuze and Guattari, 1980, p. 629), I have confronted 'disaster risk' and 'landslide' with three sources of alternative knowledge. First, the unpublished anthropological accounts in the annual reports, which indicate that the phenomenon we have called landslide may be understood differently by indigenous people. Secondly, I have complemented this information by means of several conversations with Bosco Bwambale, a researcher originating from the Rwenzori region who has started as a local research assistant in AfReSlide and recently finalized a Phd on indigenous DRR knowledge. I also carefully read his recent work (Bwambale *et al.*, 2020, 2021). Third, a non-systematic search in Google Scholar, with search terms '*science and technology stud**' AND '*risk*', complemented with snowball sampling, has allowed me to identify some critical accounts of the concept of risk. The purpose of these additional data is not to produce an exhaustive overview of critiques and alternative accounts of the concepts, but rather to bring forth the proximity and distance that is needed to study their mobilization in AfReSlide.
- 21 Preliminary findings have been discussed with three colleagues who were involved in AfReSlide: the project head, Bosco Bwambale and a fellow PhD candidate in the project. Since these persons have not been exposed to the same assemblage literature as I have, I asked them whether my understanding of our work made sense to them, whether my analysis brought something new to their perspective and whether such understanding could change the way we do research in geography. Their answers to the first two questions have allowed me to triangulate my findings, while the answers to the latter question have been used to discuss the implications for our field.
- 22 The results section is structured around several actors involved in the landslide risk assemblage. It starts with scientific literature on disaster risk, as well as some critical accounts from STS. I subsequently look at what we have called landslides in the Rwenzori region. Then I zoom in on the concept of landslide risk and how it has been mobilized in the AfReSlide project. The final sections investigate who benefits from the concept of landslide risk and why landslide risk may therefore be called 'a political technology'⁶. While I have certainly not exhausted the list of actors in the assemblage of landslide risk, I think the analysis provided here is sufficient to illustrate the potential of this kind of work for the field of geography. I elaborate on this in the discussion.

Results

Literature on disaster risk

Disaster risk reduction

- 23 The Sendai Framework for DRR of the United Nations portrays risk as the product of hazard, exposure and vulnerability (UNISDR, 2015). Biophysical processes are assumed to cause a 'natural' hazard, while 'underlying societal causes' determine who or what is exposed and vulnerable to the hazard (Wisner *et al.*, 2003). The following risk equation was used in AfReSlide and will therefore be used to guide my analysis⁷:

$$\text{Risk} = \text{Hazard} \cdot \text{Exposure} \cdot \text{Vulnerability}$$

$$\text{With Hazard} = \text{Susceptibility} \cdot \text{Frequency}$$

- 24 ^y In this risk equation, landslides are mobilized as a hazard. A landslide hazard is the outcome of a certain susceptibility to sliding, and the frequency of triggering events. Landslide susceptibility can depend on the topography of a terrain, as well as the underlying subsoil and parent rock. The slope is a defining factor because it determines the force exerted by a certain amount of soil (the shear load) on a potential sliding surface. A landslide occurs when this force exceeds the shear strength, i.e. the resistance against sliding, of the underlying material. Earthquakes are assumed to cause fractures in the soil which reduce its shear strength. Water increases the weight of the soil while at the same time increasing the slipperiness of the underlying material. Vegetation may hold soil together, while also increasing water infiltration. Earthquakes and heavy rainfall are considered crucial triggers for landslide occurrence. The frequency of earthquakes or rainfall events with a certain magnitude is therefore frequently used to estimate the frequency of landslide events. Soil type, soil cover and topography can also be included as mediating factors.
- 25 While landslide hazard can be changed by human actions, such as slope undercutting, land use change, or water harvesting ditches, the hazard is most often conceived as the biophysical side of the equation (Michellier *et al.*, 2020). It represents a state of the environment, often through a number which can be increased or reduced through technical interventions, such as tree planting or other measures to stabilize the slope.
- 26 Humans in the risk equation, as well as non-humans, such as public and private property and the environment, are mobilized as elements that are exposed and vulnerable to landslides. Exposure is measured by mapping or counting elements in a landslide-prone region. The availability of landslide susceptibility or hazard maps is therefore a prerequisite to measure exposure. Exposure enters the risk equation as a number, such as the number of people, or houses, or the economic value of the activities or elements exposed to landslides. It can only be reduced by moving elements and people outside hazardous areas. Vulnerability, sometimes considered as the 'negative' counterpart of resilience (Manyena, 2006; Miller *et al.*, 2010), represents the expected consequences in case an exposed element is affected by a hazard. It can be measured in both quantitative and qualitative terms, but should ultimately result in a number which can feed the risk equation.

Critical accounts of risk

- 27 ^yThe risk equation has been criticized for its tendency to facilitate technocratic solutions to the issue of disasters (Maes *et al.*, 2018; Mertens *et al.*, 2022; Tierney, 2012). According to these authors, the dominant approach to DRR undergoes a process similar to what critical scholars call the depoliticization of environmental issues, a process whereby contingency, power relations and exclusions are occluded (Kenis, Lievens, 2014; Maes *et al.*, 2018; Mouffe, 2006; Swyngedouw, 2010). Since this criticism is on the political outcomes of the risk equation, rather than the construction process itself, I will not elaborate further on it here, but rather highlight what scholars in STS have said about the concept itself.
- 28 The concept of risk assumes calculability. In the words of Callon *et al.* (2009) it 'designates a well-identified danger associated with a perfectly describable event or series of events'. It is an exceptional situation in which all the possible states of the world are known with a certain probability. Such situation, which is needed for rational, calculative decision making, is rarely achieved (Callon, Lascoumes & Barthe, 2009). Instead, most decisions have to be taken under conditions of uncertainty or ignorance. The concepts of uncertainty and ignorance acknowledge that the possible states of the world cannot all be known and that any model of the future rests on past observations, which by definition occurred in circumstances different from the future (Callon, Lascoumes and Barthe, 2009).
- 29 In Western societies risk is nevertheless 'automatically imposed as the natural and universal objective representation of public issues. [...] The typical expert belief is that the public craves certainty [...] and mistakenly expects science to deliver it' (Wynne, 2005). It is, moreover, sometimes assumed that scientific risk assessments are 'objective, natural and universal representations' of an issue (Wynne, 2005). Unexpected responses to presumed risk issues are then attributed to institutional failure (Maes *et al.*, 2018), erroneous risk perceptions (Wynne, 2001; Hobson-West, 2003), lack of trust (Wynne, 2001), or unrealistic expectations from science (Weir, Neale & Clarke, 2021).
- 30 Research on resistance to GMO's in France has illustrated what happens when something experts qualify as a risk issue is reframed as a matter of culture and way of life. This reframing is accompanied by a change in the definition of expertise and a renewed legitimacy of previously disqualified voices (Heller, 2002). Similarly, a study on vaccine resistance has highlighted that risk is just one possible way to understand this resistance (Hobson-West, 2003). These studies show that riskification is thus not a neutral practice, but shapes what is conceivable and legitimate in certain struggles (Heller, 2002).

Landslides in the Rwenzori region

- 31 Landslides in the Rwenzori region, as conceptualized by AfReSlide researchers, are relatively small, but frequent events which cause a significant impact on the livelihoods of the people (Mertens *et al.*, 2016). AfReSlide's members and stakeholders have nevertheless put a lot of emphasis on 'raising awareness about landslides'. During the opening workshops, for example, local leaders stressed that any action should be supported by awareness raising and education to gain community-support (Kervyn *et*

al., 2015). This may be surprising, given that landslides are so frequent and widespread in the region. In the following three paragraphs I argue that this awareness-raising was necessary because landslides, as conceptualized by the AfReSlide project, were relatively absent in the region.

- 32 Before AfReSlide, a big landslide at the other side of the country had raised some concerns about landslides at the national level (Kitutu *et al.*, 2011), but there was very little national and international concern about landslides in the Rwenzori region. National and international databases had few instances of landslides and the reported consequences were generally small (Jacobs *et al.*, 2016). While this could have indicated a lack of landslides in the region, it was understood within AfReSlide as a sign of limited reporting capacity, poor connectivity and little political power in the region. One of the first publications of the AfReSlide project therefore explicitly addressed the question whether landslides were present in the Rwenzori mountains at all (Jacobs *et al.*, 2016). One could argue that this publication literally put the Rwenzori region on the world landslide map.
- 33 During field visits and stakeholder workshops in the Rwenzori region it became clear that events associated with the movement of soil were regular. Yet, discussions during workshops illustrated that people in the region had diverse representations of landslides, ranging from what the AfReSlide researchers would call rock falls, mudflows and gully erosion, to the ‘proper’ translational and rotational earth slides we call landslides (Kervyn *et al.*, 2015). Not everyone seemed to attribute the same importance as AfReSlide researchers to a distinction between different forms of earth movements. Indeed, from a perspective of some stakeholders it might be questionable whether ‘landslide’ is a more useful category than ‘soil movement’.
- 34 It is quite likely that communities in the mountains have been living with what we call landslides for a very long time. Yet, this does not mean that they have been conceptualizing the events as we did. The indigenous etymology of *esya ngwangwa* [the landslides] goes beyond naming. It includes all process prior to it, as well as cosmological attachments the indigenous people have to their environment. Many practices and rituals exist to avoid all sorts of calamities, including hail storms, landslides, mudflows, heavy winds and wild animals. These practices include special codes and requirements to handle plants and to decide where to build a house (Bwambale *et al.*, 2021). The rituals do not aim at preventing landslides though, but rather at supplicating ancestral spirits and deities who may cause landslides or other calamities when they are disturbed (Kervyn *et al.*, 2018, p. 71). It is a matter of maintaining the pact between the deities of the mountain and the humans who are served by it (Bwambale *et al.*, 2021).
- 35 What we have conceptualized as landslide thus took on different forms which were parts of wider structures in the region. ‘The landslide’, a specific type of earth movement worth studying as such because it is a natural hazard potentially causing risk, might thus have been relatively absent in the Rwenzori region before AfReSlide. While my observation that AfReSlide introduced landslides in the Rwenzori region may sound weird, the argument is likely easier to grasp for landslide *risk*. This is what I turn to next.

Landslide risk in AfReSlide

- 36 Landslide *risk* supposes a well-identified and measured hazard, proper maps of elements that are exposed, as well as estimations of vulnerability or resilience. This risk, as a predictable and calculable condition for which rational resilience measures can be taken, has arguably never existed, and most likely still does not exist, in the Rwenzori region.
- 37 It has nevertheless been a central element in AfReSlide's design and implementation: the ultimate goal of the project was to produce risk maps for specific case study areas; possible resilience strategies were essentially conceived as strategies for Disaster Risk Reduction (DRR), at either the household level or the institutional level; and landslide hazard was measured as a component of the risk equation. The concept of landslide risk has thus been guiding the research in the AfReSlide project, simultaneously as a goal and as an assumption. As a goal, landslide risk has incited the researchers in AfReSlide to measure hazard, exposure and vulnerability. As an assumption, it has led to the search for DRR measures, as well as attempts to measure risk perceptions and risk preferences.

Risk as a goal

- 38 The risk equation has guided the researchers and has contributed to mobilize human and non-human actors in specific ways. I will discuss some of these actors to illustrate the point, without being exhaustive. Since the study areas of AfReSlide have been characterised as data-poor (Kervyn *et al.*, 2015), a major challenge of AfReSlide was to collect sufficient data to feed models that could estimate landslide risk. Hazard and impact had to be estimated through statistical inferences based on past events, while exposure was a matter of properly mapping elements at risk.
- 39 To measure the hazard component of the risk equation, at least five elements had to be brought together: (1) observations of past landslide events, preferably with the date of their occurrence. For this, a large number of landslides had to be mapped with GPS. The PhD student who concentrated on landslide hazard travelled a lot across the Rwenzori region and visited sites which villagers indicated as *esya ngwangwa*. The combination of local expertise and own judgments to assess whether the land formation was indeed a landslide and not something else, such as a gully, led to the construction of a database of past landslides in the region. This was then combined with (2) digital elevation models provided by satellite imagery to estimate topography, as well as (3) lithological maps of the region to have an idea of the parent material. These three sources of information were combined through statistical techniques, the fourth (4) component, in order to produce susceptibility maps. Since information on actual dates of landslides was unreliable, and data on past rainfall events (5) were also missing, hazard maps, which need a measure of landslide frequency, could not be made. The AfReSlide project therefore only produced susceptibility maps of the Rwenzori region (Jacobs *et al.*, 2018).
- 40 Landslide susceptibility maps were produced with the data that could be assembled. Of course, many elements contributing to landslide susceptibility had to be disregarded. Land cover, the presence of water harvesting ditches, terracing and slope undercutting, leaking water pipes,... had to be excluded from the susceptibility model. Despite awareness of human-induced hazards, and the resulting appreciation of the difficulty

to measure hazard, the imperative to come up with statistical predictions, the lack of data on human activities, and the epistemological possibility to study nature as something outside and anterior to humans has led to susceptibility maps which were based on past landslides, slope models and underlying lithology. Statistics has been a crucial tool to make this possible. Variables, such as 'tree cover' which did not significantly contribute to the model's fit, possibly because of a low data quality, were dropped in further analyses (Jacobs *et al.*, 2018). Statistics thus allowed to make abstraction of those actors which our data and ourself considered to be neglectable or insignificant.

- 41 A similar process was followed for the estimation of vulnerability. A household survey of 400 farmers allowed to compare the income of people who mentioned to be recently affected by landslides with those who had not been affected. Statistical estimations were subsequently used to estimate income losses due to past landslides. Agricultural income was taken as the relevant measure because it is measurable and easily fractionable. The average income difference between 'affected' and 'unaffected' households thus became a measure of the potential impact of future landslides in the region.
- 42 Despite significant efforts to study landslide risk, the researchers in AfReSlide were aware of the fact that their accounts of landslide hazard, exposure and vulnerability were only partial and fragmentary, and that landslide risk maps as originally conceived in the project design would not be reached. This is apparent in some of the recommendations formulated at the end of the project: besides reminding the reader of what landslides are, the policy brief starts by stressing the importance of proper reporting of landslide events, including date and time, as well as landslide impact (Mertens *et al.*, 2018).

Risk as an assumption

- 43 While landslide risk was still 'under construction' in the Rwenzori region during the project, many different strategies for disaster risk reduction (DRR) have been discussed and elaborated in AfReSlide. Actually, the concept of landslide risk has been mobilized for both the study of disaster governance and the study of individual farmers' decisions.
- 44 At the level of governance, landslide risk was assumed to be a given, natural fact. A lack of mechanisms for preparedness and response to landslide risks was therefore attributed to dysfunctional administrations, corruption and blame deflection (Maes *et al.*, 2017). We argued that DRR was not sufficiently prioritized in the attribution of budgets and that an excessively technocratic approach to DRR prevented the tackling of underlying causes for disasters in the region. Different methods were therefore tested for the prioritization of DRR strategies. A social multi-criteria analysis was used to identify DRR measures which were feasible, effective, acceptable and affordable (Maes *et al.*, 2018). At first sight one could question the capacity of administrations to rationally prioritize for DRR while disaster risk as a measurable entity does not (yet) exist. Yet, the argument goes that the concept of landslide risk may nevertheless reinforce preparedness for disasters in the region and that one could anticipate that some overall statistical estimation of disaster risk in the region would soon exist.

Landslide risk therefore functioned as a useful guide for the elaboration of preparedness and response strategies in the nearby future.

- 45 At the household level, however, the probability of having a landslide with a certain magnitude and impact on a certain plot is not something that can be calculated by individual farmers. It is also not something that could be envisioned in the nearby future. Yet, a large chunk of my research aimed at studying and explaining the behaviour of farmers in the presence of such landslide risk. I measured risk perception through Likert scale questions, as well as risk preferences. I developed a theoretical model for land transactions in the presence of landslide risk and confirmed that model through the statistical analyses of the data I collected in a household survey. And, according to my research, people were indeed behaving as if the presence of landslide risk influenced their choices. Landslide risk, after having been an objective and an assumption, thus became an explanation for individual behaviour. Since landslide risk was real, it had to be a factor in household decision making. One could wonder whether I would have found a same reality if my research was framed around the, equally Western, concept of uncertainty, or if I had listened to the cosmologies surrounding *esya ngwangwa*⁸.
- 46 While landslide risk as a quantifiable series of events is not yet a reality in the Rwenzori region, progress towards its realization has thus been made. What the analysis until here has aimed to show is that the landslide risk we might currently be observing in the Rwenzori region is constructed and partial. This has not prevented it from being very productive, mobilizing a variety of actors around a single concept and providing explanations for human behaviour. Landslide risk has oscillated between a lack to be resolved, an unquestionable reality to be tackled and an explanation for other phenomena. Before moving to the consequences of landslide risk, it is worth stressing that other concepts or events, such as one specific landslide event (rather than a general risk), landslide uncertainty, or *esya ngwangwa*, might have fulfilled a similar, productive role. Those concepts would have mobilized actors in a different assemblage, thereby enacting a different reality.

The audience of landslide risk

- 47 Studying landslide risk has consequences. It has proven to be a useful concept to bring together different actors around the discussion table, to mobilize resources for further research, to publish scientific papers and to formulate recommendations. I will now elaborate on who might actually benefit from landslide risk.

Risk benefits the researchers

- 48 Landslide risk has been very beneficial for the researchers involved. Since the concept fits well in international literature and policy, it has been relatively easy to publish scientific articles in high-impact journals. Of the three PhD students involved in AfReSlide, two are still in academia four years after the end of the project. The successful enactment of landslide risk as a problem in the Rwenzori region has moreover legitimized our presence towards the scientific community and made necessary our expertise. More data are currently being collected: a citizen science network is monitoring hazard and impact (Jacobs *et al.*, 2019), while rainfall stations are producing detailed and long-term accounts of precipitation. Professors have thus been

able to attract new sources of funding to continue working on the (never ending?) task of creating landslide risk in the study areas.

- 49 Based on the recent presence of researchers in the region, two academic disciplines seem to be benefiting most from landslide risk in our case study. First, physical geography, for the obvious reason that the field of disasters has historically been dominated by the natural sciences (Cannon, 2008; Bassett and Fogelman, 2013). Second, quantitative economics stands out as the preferred way to look at ‘the social aspect’ of disasters. Indeed, economics has a long-standing history of studying the presumed rational behaviour of individuals in the presence of hypothesized risks. The strong focus on data in physical geography, moreover make it possible to reach the levels of abstraction that are necessary for economization (Callon and Muniesa, 2005; Fredriksen, 2017). Of course, this is not to say that any project on landslide disasters in the Rwenzori would necessarily have led to further studies in the domains of physical geography or economics. Current situation is likely strongly driven by contingent encounters, personal affinities and initiatives from individual researchers.

Risk is a tool for governance

- 50 The concept of landslide risk and risk maps are tools for those who can access and make use of them. These are tools, in some way, to act ‘from above’, *i.e.* to govern the land and populations (in a Foucauldian understanding of governance). The risk equation is made of three components, hazard, exposure and vulnerability, because these are actionable elements. The inclusion of both ‘vulnerability’ and ‘exposure’, for example, might seem redundant at first sight: it is only relevant to speak of vulnerability if someone is exposed. Yet, by including ‘exposure’ as a separate component, the equation highlights this as a potential leverage point: it is easier to move things and people than landslide hazard. Likewise, the inclusion of ‘vulnerability’ equally highlights that this is something that can be acted upon.
- 51 Depending on the Ugandan government, one can expect landslide risk to either be a useful tool to reduce the impact and suffering from disasters, or alternatively to increase inequality between those who have access to safety and stability and those who do not. In other regions, it has been shown that risk zoning maps can lead to the exclusion of people from state support after a landslide because their affected settlements are considered ‘illegal’ (Maes *et al.*, 2019). Additionally, citizen who can make use of landslide risk maps are generally more likely the most powerful, best informed citizen who can pay for land in non-exposed areas.
- 52 Researchers in the AfReSlide project were aware of these tensions between different possible uses of landslide risk. While this has led to careful recommendations to the Ugandan government, as well as international and local NGO’s, it has not put into question the concept of landslide risk itself. This is what I will turn to now.

Silenced actors

- 53 From the observations above, one can argue that landslide risk is a powerful concept. Its mere potentiality has mobilized many actors and resources. In doing so, it has silenced others. While I can impossibly think of all those that have been silenced, three examples are shown here.

- 54 First, it is clear that ancestors, deities and their human representers, such as cultural leaders, could not be heard, or speak, through the concept of disaster risk in AfReSlide. For example, during a workshop on landslides in Bundibugyo town a cultural leader stood up and gave a long speech about how whites always come and cause problems. While he spoke about the loss of local culture and traditions, I remember we all kept silent and waited for his speech to pass. Once he sat down, we moved on with the next step in the identification of landslide hotspots in the region. Following the work of Spivak on representing the subaltern, one can understand the work we have been doing in AfReSlide as *representing* the phenomenon we call landslides (Spivak, 2003; Kapoor, 2004). Spivak understands *representation* in two different ways: by ‘speaking about’ the phenomenon we have been ‘re-presenting’ it as landslide risk; by ‘speaking for’ the phenomenon in workshops and at conferences we have also been representing it in a more political sense. In doing so we have silenced other realities, while side-lining their traditional representors.
- 55 Related to this, while *esya ngwangwa* may have a place in the Rwenzori region, landslides do not (yet). During our fieldwork we frequently observed that farmers did often not remember, or were not even aware of, recent landslide events on their plots. For us, Westerners, who conceive agricultural production as a purely economic activity, it seems obvious that landslides are a nuisance and constitute a risk. Yet, landslides on agricultural plots only become destabilizing and dangerous in a world where they have no place. *Esya ngwangwa* on agricultural land might just be a normal part of life in a cosmology that is not centred around a maximization of income or production (see also anthropological accounts in Kervyn *et al.* (2018)). In some way our work has been pushing away the phenomenon at the very same time as we have been re-presenting it as landslides.
- 56 Second, the risk equation in AfReSlide was approached in a quantitative way, with a strong focus on statistics and numbers to identify hazard, vulnerability and exposure. This approach does not leave space for the exception, for that element which does not occur frequently enough to be of statistical significance, *i.e.* the outlier in normal regressions. How to account for the leaking water pipe, or for the neighbour who is not exposed to landslides but cares about it and will be there for others when a landslide occurs? Why do policy makers or NGO’s appear as external to the risk equation, as mitigating agents acting on the different components, but not being part of it, since they are neither hazard, nor exposed, nor vulnerable? If landslides had been mobilized in a different way, with different concepts or at other scales, the various actors that are attached to it would have received different levels of agency. For example, if instead of a source of risk, landslides were assumed to be a source of social uprising, spiritual awakening or hybrid forums for societal reflection on sustainability, different actors would likely have been mobilized along the way.
- 57 Third, humans in the Rwenzori region have only entered the risk equation as vulnerable or exposed. To be relevant assemblages have to be locally actionable and should have the capacity to be re-assembled into locally situated knowledges (Haraway, 1988; Akrich, 1992). This is a challenging task. It remains to be seen whether the assemblage of landslide risk is enabling farmers to improve their way of living with the phenomenon, as was hoped for in AfReSlide. Recent initiatives of citizen science for landslide mapping (Jacobs *et al.*, 2019), indigenous knowledge around landslide risk

(Bwambale *et al.*, 2020), and board games for landslide policy (Delima *et al.*, 2021), could be signs of attempts at re-assembling the work done in AfReSlide.

- 58 To conclude, when humans engage in controversies around an issue, they ‘do not go into conflicts with their perspectives on things, [but] they go into them along with the nonhuman things that make them act’ (Blaser, 2016). In AfReSlide there have not been controversies, or rather, the researchers of AfReSlide have not been able to hear them. While there are very different conceptualizations of the phenomenon in the Rwenzori region, the concept of landslide risk has been so strong and central in our research that it has been obnubilating other ways of raising the issue. This likely has (negative) consequences for the relevance of the research for Ugandan society.

Politics by other means

- 59 It should be clear by now that the landslide risk that is enacted in AfReSlide is fragmentary, unfinished, and will probably never form the totalizing unity that was (formally) ambitioned in the project proposal. The different realities, composed of topography, statistics, rainfall events, exposed people, monetary impacts and elements of what farmers identify as *esya ngwangwa*, are, in the words of John Law, ‘created and mutually adjusted so that they can be related’ (Law, 2004, p. 55), albeit with some difficulties.
- 60 Landslide risk in AfReSlide has, however, never been treated as an unstable assemblage, but rather as a singularity, as something that is present out there waiting to be measured. Different, fragmentary accounts have been interpreted as different perspectives or approaches, without acknowledging that they are jointly mobilized to compose what we have called landslide risk. This insistence on singularity is productive, but tends to hide the fact that we could have chosen to enact different realities: it hides the fact that each technical choice we made along the way has effectively been a choice and ultimately led to enacting landslide risk the way we did⁹.
- 61 ⁹ The concept of landslide risk is the coordinating mechanism, bringing together into one single reality the diverse realities surrounding the earth’s surface in the region. As such, it functions as an empty signifier that reinforces the hegemony of a certain reality¹⁰. This is a recurrent practice in science. It has been argued that our current world, the one that has been hegemonized by western culture and colonisation, does not leave any space to other worlds (Stengers, 2018).
- 62 If my analysis has been somewhat effective, it should become clear now that other worlds could have been possible and that our understanding of the phenomenon as landslide risk is contingent on the current distribution of knowledge and power¹¹. Our scientific work in AfReSlide has thus been political. Just like economics contributes to the work of sociotechnical mechanisms that reorganize how people live, the political claims they can make, and the assets they can control (Mitchell, 2007), the AfReSlide project has contributed to shape the world we, or rather, Ugandans live in¹².

Discussion

Assemblages and constructed concepts

- 63 What my previous analysis has shown, is that the concept of risk mobilizes a network of actors in a specific way, which together enact a certain world. The purpose of this analysis has not been to argue that the concept of risk is problematic, or more so than other concepts, but rather to illustrate that 'qualification is a co-productive process whereby things and human identities are enacted' as they are being conceptualized (Çalışkan and Callon, 2009). The point is that other mobilizing assemblages could have existed as well, and would potentially have led to different realities.
- 64 Power, in this analysis, is an outcome of scientific practice, as well as a cause. AfReSlide has contributed to establishing landslide risk as the reference way to address the phenomenon in the region. Besides silencing other realities, this might contribute to the disciplining power of the Ugandan state and also confers more power and legitimacy to physical geographers and economists, as well as NGO's, working in the region. As a cause, power imbalances have likely prevented controversies around the concept of landslide risk to unfold¹³.

Geo-graphy

- 65 Disaster risk is a domain where physical and human geography have a long history of collaboration. It is my contention that the application of assemblage thinking, as illustrated by the analysis presented here, could further stimulate a mutual interest between human and physical geographers, while transforming the disciplines along the way.
- 66 First, I argue that human geographers could show more interest in the work of physical geography. We should study the technical because that is where power and politics (also) happens! Human geographers could be studying how geography contributes to shaping our modern world. Like in current paper, the purpose would not necessarily be to explain, but rather make to visible the controversies that may have been missed and the actors that have been silenced.
- 67 Second, this is also an invitation to physical geographers to be more reflexive about their worlding work. Our work is political, not because under everything there is 'the social' and 'the political', but because we are giving shape to the world. We are literally drawing the earth's surface and the identities that go with it. I believe it is actually very empowering to realize that we have some agency to enact worlds¹⁴. Being aware of this agency may be a motivation to more consciously choose which actions to take.
- 68 Third, if we step away from the nature/culture divide and do not consider anymore that there is an immanent nature out there, waiting for us to be discovered, then we, researchers, might have to fundamentally change the way we look at our own work. Rather than showing the truth nobody has been able to unravel before, our work might be to act as diplomats of all the human and non-human actors which could potentially be taken into account (Stengers, 2018). This does not mean that we cannot base our work on existing theories in human or physical geography, or that we should always have an holistic approach, but rather that we need to be aware of the fact that we mobilize certain actors into our assemblages at the expense of others. Human and

physical geographers thus equally engage in the political work of constructing fragile, situated knowledges, enacting a certain world and bringing new actors to the table.

Conclusion

69 The AfReSlide project aimed to answer the self-asked question ‘how can people in Equatorial Africa learn to live with landslide risk?’. By adopting assemblage thinking the current study self-reflexively investigates the scientific production of landslide risk in this project. Landslide risk is understood as an assemblage of human and non-human actors.

70 I have started by showing that the risk equation is a crucial actor which introduces assumptions on calculability and divides events into a mechanistic process combining ‘natural’ and ‘societal’ factors. The equation can be seen as the vehicle through which the dominant approach to disasters is territorialized in AfReSlide and into our local landslide risk assemblage. I have subsequently shown how the concept of landslide itself equally comes with a normativity on what is relevant knowledge for the phenomenon to be studied. The concept of landslide risk is then identified as a driving force in AfReSlide, oscillating between a lack to be resolved, an existing reality to be tackled and an explanation for human behaviour. I show how, in the end, the landslide risk produced in AfReSlide remains fragmentary, unfinished, and will probably never form a totalizing unity. This has not prevented it from being a useful tool for researchers and governance actors, thereby potentially silencing other actors and realities. I therefore argue that landslide risk in AfReSlide is a political technology whose worlding capacity partially rests on its denial of alternative conceptualizations of the phenomenon. This strong, but implicit, denial of alternatives is disabling, both for researchers and other actors in the region.

71 I consider this paper to be an illustration of the potential of assemblage thinking for changing the field of geography. The particularity of this kind of analyses is not to stress that reality is different than what researchers think, but rather that, as researchers, we may have some choice. While ‘reality used to be a standard to live up to, [...] the question that now needs asking is ‘what reality should we live in’ (Mol, 2002, p. 165). Following Stengers (2018), I argue that a full appreciation of this question entails that we might have to change the way we perceive our own work as researchers. If scientific practices are worlding, *i.e.* enacting certain realities, then geographers might have to question which worlds they want to shape. Our task may be to open up the possibility of a world where many worlds fit (Blaser and De La Cadena, 2018). For this, we should learn to differentiate between those assemblages that are silencing other beings and those that are enabling them (Blaser and De La Cadena, 2018). In AfReSlide this differentiation has not been made. The question a future interdisciplinary project in geography may ask is ‘how can we learn to live with multiplicity, choice, and thus, crucially, doubt?’.

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NOTES

1. ʔ is pronounced as 'la' in Arabic and means 'no', as in 'no need to read if you don't want to'.
2. I am aware of the critical literature saying that the work of Latour pays too little attention to power, as well as similar observations on the concept of Anthropocene (Swyngedouw, 2010, 2021; Swyngedouw, Ernstson, 2018). I partially agree with these critiques and will come back to the first point.
3. While I do not elaborate on this here, I think this parallel deserves further reflection. An expansion of the semiotical foundations of Laclau to the material-semiotics of Harraway, Latour, Stengers, Mol,... could productively be mobilized for an analysis of the political (see Blaser (2014) and Mertens *et al.* (2022) for attempts).
4. I will refer to the general project report and not to individual publications. For publications on the biophysical aspects of landslides, see the work of Lies Jacobs. For publications on the governance and institutional resilience mechanisms, see Jan Maes. For work on the impact and resilience mechanisms at household level, see Kewan Mertens. The anthropologist who has worked for the AfReSlide project is Astrid de Hontheim.
5. It is hard to speak of assemblages and enactment without mentioning Actor-Network Theory (ANT). ANT is best defined as an empirical research approach which originated in STS but has been widely applied in other disciplines (Law, 2009). It investigates how actors, without distinction between natural, technical and human, are co-produced and performed in and by their continuous relational interplay (Latour, 2005). Its concepts and tools are distinct of, but complementary to, those provided by assemblage thinking (Müller and Schurr, 2016). ANT has been criticized for not being equipped to account for underlying power relations and inequality in society (Swyngedouw, 2010). Latour has defended his position by arguing that underlying processes have too often been used to *explain-away* phenomena in social sciences, just like the idea of an underlying, eternal nature has been used to universalize observations in natural sciences (Latour, 2004, pp. 291-300). He recommends a focus on controversies, since that is where actors speak for themselves (Venturini, 2010). I only partially follow this critique and counter-argument, in the sense that I will try to avoid explaining-away my findings, but remain equally aware of a major weakness of Latour's focus on controversies. Such controversies only arise when the opposing parties respectively have a voice and ears. In situations of large power imbalances this is not the case and a representation of the different actors necessitates careful and skilful attention (Spivak, 2003; Kapoor, 2004).
6. I borrow the term from Liliana Doganova who has not used it for the concept of risk, but to describe economic discounting (Doganova, 2018).
7. The risk equation can still be found on the website of the project: <http://afreslide.africamuseum.be/context> (accessed on September 2021). A different approach to landslides and landslide resilience was present in the anthropological part of AfReSlide.
8. In my research the farmers I surveyed have never been invited to provide their own account of the situation and to identify their concerns. Their task, just as for the identification of landslide hazard and impact, was to provide raw data for my predefined research questions. For a powerful critique of Africa as a source of raw data for academic knowledge production, and of local informants as "hunter-gatherers" of these data, see Ndlovu-Gatsheni (2018).
9. It is important to note that I am not arguing that there are different perspectives, or different representations of landslide risk, but rather that landslide risk itself is enacting a certain reality. It is constituted through the joint work of human and non-human actors and processes that produce what is understood as landslide risk. There is no landslide risk before the capacity of the earth to move is mapped by the researcher, such as there cannot be an *esya ngwangwa* as long as the farmer remembers to plant the trees that appease the spirits.

10. This concept likely manages to impose itself as hegemonic because it is backed by the largest amount of money, i.e. the AfReSlide budget, and the most powerful groups, i.e. the Ugandan policy on DRR, the Sendai Framework for DRR and the AfReSlide researchers.

11. 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, pp. 93-97). An awareness of the contingency of a particular state of the world makes it possible, but not necessary, to question that state of the world.

12. The reasoning presented here could contribute to pushing the interesting work on 'depoliticization' to another level. Whereas depoliticization has been considered to be a discursive strategy that mobilizes science to hide political decisions in our social world (Kenis and Lievens, 2014), it is now the scientific practice itself which hides multiplicity and thus does the (political work of) depoliticizing. This adds another dimension to the observation that 'what enters the domain of politics is the coded and symbolised versions of nature mobilised by scientists, activists, industrialists and the like' (Swyngedouw, 2010).

13. Massive imbalances in resources between AfReSlide researchers and local stakeholders, and a colonial legacy portraying western science as the only valid way of appreciating the world (Ndlovu-Gatsheni, 2018), have likely silenced potential opposition from the start. This has not been the topic of my research, though, and while it is crucial to be aware of this power to understand our actions, I believe there is no use in 'explaining away' the observations in this study with power and history without duly studying them. In this sense I follow the argument of Latour that such 'explaining away' is likely more paralysing than enabling (Latour, 2004).

14. Of course this agency is somehow limited by all the work and institutions that precede us, i.e. the hinterland that guides us into specific scientific fields, literally scientific disciplines (Law, 2004).

ABSTRACTS

Physical and human geographers tend to look at the world as something that needs to be discovered and explained. Finding bits of nature or society, they further drive a wedge between their disciplines. By means of a case study I investigate how assemblage thinking, which does not hold the separation between nature and society, may be useful to make more conscious choices about which world we want to live in. I look back at a research project on landslide risk in Equatorial Africa in which I participated from 2014 till 2018. In this project, landslide risk as a scientific concept was used to productively enact a landslide risk assemblage in the case study area. It thereby unintentionally silenced other realities and identities. I show how the productive strength of the concept partially rests on its denial of alternative possibilities. By the end of the project the landslide risk assemblage nevertheless remained fragmentary and unfinished. This observation, I argue, is encouraging since it highlights that we may always maintain some agency regarding the world we want to live in. Towards the end of the manuscript I therefore make some, rather bold, statements about the way geographers could conceive their work.

Les chercheurs et chercheuses en géographie physique et humaine ont tendance à considérer le monde comme un objet à découvrir et expliquer. En trouvant alternativement des éléments naturels ou sociétaux, ils et elles creusent davantage le fossé entre leurs disciplines respectives. Au moyen d'une étude de cas, j'examine comment la pensée d'agencement, qui ne maintient pas

la séparation entre nature et société, pourrait permettre des choix plus conscients sur le monde dans lequel nous voulons vivre. Je reviens sur un projet de recherche sur le risque de glissement de terrain en Afrique équatoriale auquel j'ai participé de 2014 à 2018. Dans ce projet, le risque de glissement de terrain en tant que concept scientifique a été utilisé pour mettre en œuvre de manière productive un agencement de ce même risque dans la région que nous avons étudiée. Ce risque de glissement de terrain a ainsi involontairement réduit au silence d'autres réalités et identités dans la région. Je montre comment la force productive du concept repose en partie sur son déni des possibilités alternatives. Pourtant, à la fin du projet, l'assemblage des risques de glissement de terrain reste fragmentaire et inachevé. Cette observation est, selon moi, encourageante car elle souligne que nous pouvons toujours conserver une certaine capacité d'action sur le monde dans lequel nous voulons vivre. Vers la fin du manuscrit, je formule donc quelques arguments, peut-être quelque peu audacieux, sur la façon dont les géographes pourraient concevoir leur travail.

Onderzoek(st)ers in fysische en humane geografie beschouwen de wereld regelmatig als een fenomeen dat ontdekt en verklaard moet worden. Door respectievelijk elementen te vinden die toebehoren aan de natuur of de maatschappij, drijven ze een wig tussen hun disciplines. Assemblagedenken probeert komaf te maken met een dergelijke scheiding tussen natuur en maatschappij. Aan de hand van een casestudy onderzoek ik hoe assemblagedenken nuttig kan zijn om bewustere keuzes te maken over de wereld waarin we willen leven. Ik blik terug op een onderzoeksproject naar landverschuivingsrisico's in Equatoriaal Afrika waaraan ik van 2014 tot 2018 heb deelgenomen. In dit project werd het concept "landslide risk" gebruikt om een assemblage van aardverschuivingsrisico's in het casestudygebied tot stand te brengen. Daardoor werden onbedoeld andere realiteiten en identiteiten tot zwijgen gebracht. Ik laat zien hoe de productieve kracht van het concept gedeeltelijk berust op de ontkenning van alternatieve mogelijkheden. Aan het eind van het project blijft de assemblage van "landslide risk" niettemin fragmentarisch en onvoltooid. Deze vaststelling is volgens mij bemoedigend omdat ze aantoonst dat we altijd enige zeggenschap kunnen behouden over de wereld waarin we willen leven. Tegen het einde van het manuscript doe ik daarom een aantal nogal gewaagde uitspraken over de manier waarop geografen hun werk zouden kunnen opvatten.

INDEX

Keywords: landslides, science and technology studies, political, power, post-colonial, Rwenzori

Mots-clés: glissement de terrain, STS, politique, pouvoir, post-colonial, Rwenzori

Trefwoorden: grondverschuiving, STS, politiek, macht, post-koloniaalen, Rwenzori

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