THE SCALE OF RISK: CONCEPTUALISING AND ANALYSING THE POLITICS OF SACRIFICE SCALES IN THE CASE OF INFORMAL SETTLEMENTS AT URBAN RIVERS IN NAIROBI

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Summary: This paper investigates the importance of scale for power dynamics in the negotiation of risks connected to urban rivers in Nairobi, Kenya. In addition to unequal distribution of wealth, global inequalities in the distribution of risk become increasingly important. Scale as a significant dimension of inequality is discussed in the context of Nairobi's urban rivers, as water scarcity and flooding events are expected to increase and can both be observed within the highly heterogenic city of Nairobi. The paper attempts to answer the overarching question: how do contested definitions of scale influence the distribution of risks in the case of informal settlement along Nairobi's urban rivers? This contains a conceptual, as well as an empirical dimension. Regarding the conceptual part, riskscapes are introduced and subsequently expanded to include an explicitly scalar dimension. At that, riskscapes are understood as a contemporaneous (and often contradictory) plurality of material and ideational relations that connect risks with people and the environment. A relational focus on fluidity and movement interprets scalar levels as contingent and political and thus not inherent to entities but as the product of negotiable relations. This conceptual background interfaces with the methodology of multi-sited ethnography, which inspires the method of following the river through the fragmented city of Nairobi. Applying this conceptual framing to the case of urban slum-dwellers in Nairobi, it is argued that women are discursively and materially framed to the household level, where they face the highest flooding risk. The level of the body is identified as a susceptible but often neglected scalar framing and is therefore placed in the centre of empirical scrutiny. This informs the conclusion to regard the poor female body in the case of Nairobi's urban rivers as a sacrifice-scale where risks produced elsewhere are 'dumped', addressing the empirical dimension of the research question. This paper's main contribution is the conceptual merging of the politics of risk and scale, the substantiation of this argument by a relevant case study and subsequently the spotlighting of dynamics of marginalisation through scalar negotiations of risk.

Zusammenfassung: In diesem Artikel wird das Konzept von Skalarität im Zusammenhang mit sozialen Machtdynamiken, sowie Verhandlungen von Risiken untersucht. Urbane Flüsse in Nairobi (Kenia) dienen dabei als Feldstudie. Neben der Ungleichverteilung von Wohlstand, spielen Ungleichheiten in der Verteilung von Risiken eine zunehmend wichtige Rolle. Im Kontext von Nairobis urbanen Flüssen stellt Skalarität eine besonders wichtige Dimension von Ungleichheit dar, da Klimawandel die Wahrscheinlichkeit von Wasserknappheit und Überflutungen erhöht; Ereignisse, die bereits jetzt in Nairobi auftreten. Die Leitfrage des Artikels lautet: Inwiefern beeinflussen umstrittene Definitionen von Skalen die Verteilung von Risiken im Falle von informellen Siedlungen um Nairobis urbane Flüsse? Die Leitfrage beinhaltet eine konzeptionelle, sowie eine empirische Dimension. In Bezug auf den konzeptionellen Teil wird das Konzept der Riskscape herangezogen und um eine skalare Dimension erweitert. Dabei werden Riskscapes als eine gleichzeitige (und oft widersprüchliche) Mannigfaltigkeit von materiellen und ideelen Verhältnissen verstanden, die Risiken mit Menschen und Umwelt verbinden. In diesem Zusammenhang wird für einen relational-ontologischer Blick auf Fluidität und Bewegung argumentiert, der skalare Ebenen nicht als naturgegeben ansieht, sondern als kontingentes Produkt verhandelbarer Verhältnisse. Darauf aufbauend wird eine auf Multi-Sited Ethnography basierende Methodologie entwickelt. Die darauf basierende Feldstudie wird durch den Ansatz strukturiert, entlang der urbanen Flüsse Nairobis empirisches Material zu sammeln. Auf diese Weise wird herausgearbeitet, wie Frauen in informellen Siedlungen Nairobis sowohl diskursiv, als auch materiell auf die Haushaltsebene beschränkt werden und somit höheren Risiken (vor allem durch Überflutungen und sexueller Gewalt) ausgesetzt sind. Die Ebene des Körpers wird als anfällige jedoch oft vernachlässigte skalare Instanz identifiziert und wird daher in der Fallstudie thematisiert. Die Ebene des Körpers stellt für viele ökonomisch und kulturell marginalisierte Frauen eine sacrifice-scale („Opfer-Ebene") dar, auf der andernorts produzierte Risiken – meist unerkannt – abgeladen werden. Der Beitrag dieses Artikels zur wissenschaftlichen Debatte ist somit die konzeptionelle Verbindung von Risiken und Skalen, sowie die Untermauerung und praktische Anwendung dieser Fusion in einer relevanten Feldstudie. Somit macht diese Studie auf eine bisher unerkannte Dimension der Marginalisierung durch Skalierung von Risiken aufmerksam.

Keywords: risk, relational scale, urban rivers, Nairobi, riskscapes, multi-sited ethnography

1 Introduction

Who is at risk in a "World at Risk" (Beck 2009)*?* The answer to this question will not only depend on the definition of risk and the ways it is measured, it also depends on the scalar assumptions underlying these investigations; if one decides to look for regions at risk, for countries, cities, communities or individual bodies. While much attention has been given to the politics involved in defining and measuring risk, few have studied risk in the context of the politics of scale.

This paper is less about finding the 'true' scale of river related risks in the case of Nairobi, but rather about the political consequences of each scalar framing; the things we describe or round off; things we draw on a map or leave out. Following this notion, the main guiding question of this paper reads: how do contested definitions of scale influence the distribution of risks in the case of informal settlement along Nairobi's urban rivers? I argue that these different ways of framing risks are not uncontested but arise from and produce conflicts and power dynamics. The goal of this paper is therefore twofold:

1. The main goal is the development of a conceptual framework that helps to understand and analyse the scalar dimension of risk
2. Secondly, the conceptual framework is illustrated and tested through investigating the importance of the scalar dimension in the shaping of risks connected to Nairobi's rivers.

2 Conceptual framework

2.1 The relational space of risk

The concept of risk is used in a range of academic fields that may not have much in common otherwise: medicine, engineering, economics, psychology, law, mathematics to name but a few (Althaus 2005, 569). This scholarly universality of the term 'risk' results in a multitude of different definitions, and subsequently different epistemologies under which it is being studied (Lupton 2013, 21). This can cause confusion, wherefore I deem it necessary to demarcate the relational framing of risk used in this paper from conceptualizations used in other academic areas.

What many of the conceptualisations of risk mentioned above have in common is what could be called an essentialist perspective that understands risk as something that can be known in itself and therefore separately from processes within society; as something that can be measured, regulated and subsequently controlled (Lupton 2013, 243). This essentialist perspective is premised on a categorical division of nature and society, as risk is interpreted as descending upon society from outside of it (Müller-Mahn 2007, 5). At that, the epistemological interest lies within the sphere of the 'natural' world (Lupton 2013, 7), whereas the social is regarded as a black box that may interact with the natural world but is not itself an object of investigation (ibid 5 et seq.).

In contrast to these essentialist notions of risk, this study is based on the assumptions that risks can best be understood in relation not only to society, but also to landscapes and other risks. These relations to people and environment should not be imagined as purely abstract, but as a concrete way of engaging with the world (Müller-Mahn 2007, 9), as concrete material practices. In this sense, risk-relations are not merely depending on a spatial stage to take place, but are fundamentally involved in the weaving of relational space itself (Massey 2005, 9), thus acknowledging the "spatiality of risk" (November 2008). To study risk in regard to space is not new in itself and is in fact quite well-established even outside of geography. One of the most influential sociologists of risk, Ulrich Beck (1986, 2007), regards risk-negotiations as a defining feature of modern society – the *risk society*, which he defines by a shift from the logic of wealth distribution towards a logic of risk distribution (ibid, 25). This (uneven) distribution is not only distinguished in social strata but also spatially. As Beck (1992, 41) puts it: "There is a systematic 'attraction' between extreme poverty and extreme risk. In the shunting yard where risks are distributed, stations in 'underdeveloped provincial holes' enjoy special popularity".

However, the interrelation between risk, space and power, as conceptualized here, is more complex than just a simple gravitational force pulling risks towards the nadir of power. One approach that attempts to grasp the mutually constitutive relations between risk and space is the recently introduced concept of riskscapes (Müller-Mahn 2013). The ambition of studying riskscapes goes beyond locating risks on a map and defining geographically unequal distributions of risk. Riskscapes, and related concepts such as hazardscapes (Collins 2009; Mustafa 2005) recognise how the very definition of what constitutes a risk shapes and is shaped by spatial relations. At that, particularly the politics of visibility are crucial: how and why are certain risks regarded as important at some places, while they are discounted or not even registered at others? How does the visibility of risks

shape certain places? I argue that in order to address these questions, a closer scrutiny of the concept of riskscapes is necessary. At that I particularly stress the importance of scale, as elaborated below.

For the purpose of this paper it is important to stress two characteristics of riskscapes: their multiplicity and their fluidity. Riskscapes are characterized by a multiple multiplicity. First, their very ontological composition is multiple, as "[r]isks occupy territories that are made as much of meanings and 'imagined worlds' as they consist of tangible material stuff" (Müller-Mahn and Everts 2013, 35). Second, riskscapes are multiple in so far as there may be several conflicting riskscapes with reference to the same time and area (ibid 24). Third, riskscapes include a multiplicity of places that are related by the risks that connect them. Fourth, these connections can entangle locals into different and competing 'globes', making the riskscape itself multi-scalar (ibid, 22). This simultaneousness of multiple, often contradicting riskscapes suggest a certain contingency or fluidity. According to Müller-Mahn and Everts (2013, 24) riskscapes should not be imagined as fixed territories but rather as "fluid, irregular shapes" (Appadurai 1990, 297), which emerge through (material) practices. The central imperative derived from this is to comprehend the tensions between contingent riskscapes imagined and practiced by different actors, rather than to try defining one 'correct' riskscape. This contingent fluidity means that risks and the way they are scaled are not pre-determined but open for negotiations, creating an arena for the Political (Massey 2005). All features of riskscapes are contingent, but this paper focusses particularly on the under-conceptualised fluid interface between riskscapes and scales, requiring an explicit discussion of that aspect.

2.2 Relational scalarity

Complementary to relational understanding of risk, I suggest a relational understanding of scale analogously. It challenges framings of scale as a natural hierarchy of levels or as synonymous to terms such as size or extent. Often with reference to Actor-Network Theory, proponents of a relational scalar approach assert that the global is not simply large (Law 2004) – in fact, as Bruno Latour points out, when people are talking about the 'global' the accompanying hand gesture "is never bigger than if they were stroking a pumpkin" (Latour 2005, 186). On a more serious note he continues that it is not the size that makes a Wall Street trading room an actor in the global economy, but its connectedness (ibid 2005, 187), the relations it maintains with other places. This suggests a more complex understanding of scale as "a mosaic of unevenly superimposed and densely interlayered scalar geometries" (Brenner 2001, 606), which are characterised by multiple possible meanings depending on the direction of inquiry and the social practices under scrutiny (ibid, 606) – a feature they share with riskscapes. This contingency of scales implies a potential for conflicting claims within this scalar mess, which can be temporarily hidden by "the creation of nested hierarchical structures of organization" (Harvey 1982, 422). The hierarchical element that is so prevalent in many definitions of scale can therefore be regarded as the outcome of scale-negotiations or the politics of scale (Swyngedouw 2004), rather than its fundamental nature. In other words: "Scale is the actor's own achievement" (Latour 2005, 185). This is often referred to as scale-framing or scale-fixing (Ramasar 2014, 37 et seq.), which can produce winners and losers and therefore includes an important power dimension (e.g. Meadowcroft 2002; Ramasar 2014; Rangan and Kull 2009; Swyngedouw 2004). Power in this sense is not understood as an essential quality that is inherent to particular scalar levels, even though the global is often assumed to dominate the local. Jonas (2006) argues that the local is not automatically equivalent to marginalisation and can just as much be a tool of empowerment. Following this, I argue that power lies not in any particular scalar level, but operates relationally through the creation, maintenance and adaptation of the relations that create and change scalar instances in the first place. On a similar note, Della Porta and Tarrow (2005) make the argument that the precondition for success of social movements lies in their ability to be present across scalar levels, in order to be able to utilize opportunities that occur through different scalar framings. Winning in the politics of scale therefore does not mean to occupy the highest possible scalar level, but is rather about the ability to change scalar framings ad libitum.

Implicit in the arguments presented above is a notion of fluid movements or translation between different scalar levels (Ramasar 2014, 36), constituting another bridge to the definition of riskscapes delineated above. Global meaning may be produced at a specific locality, by actors which are in turn connected to global networks, which are rooted in certain places and so on (cf. Weisser 2013). I argue that this process of translation between the local and the

global can be understood as a movement of Hegelian dialectics. Just as the negation of any earlier stage of the dialectic is never wholly superseded (Russell 1945, 732), the negation of the local in the process of globalising does not eliminate locality – the term *glocalisation* expresses a similar notion (Swyngedouw 1997). However, contrary to Hegel, this process does not have a direction towards an Absolute Idea but is rather rhizomatic in structure: a final or fundamental scalar level is never reached. The process can be reversed and similarly the negation of the global through the process of localisation does not supersede the global, suggesting a concept of scalarity similar to Anders Blok's (2010) fractal topology of scale. In effect this means that phenomena cannot be attributed to a particular natural scale, but that every apparently solid scalar instance dissolves into other scalar levels upon closer inspection. The apparently global risk of climate change thus shatters into a multitude of local events, which immediately agglutinate into national risk assessments that feed back into global climate change summits, and so on. What changes are not essential qualities of the things-at-risk (Boholm and Corvellec 2011), but rather their relational embeddedness into multi-scalar riskscapes.

These deliberations result in the following conclusion: There is no 'global' as a distinct entity; it only "emerge[s] through the imaginative abstracting from networked locals" (Lagendijk 2002, 45). When I walk from downtown Nairobi to a slum in the far East of the city I do not actually transmigrate the distinct spheres of the global and the local. A relational scalar perspective is about the material and discursive connections between these and other places that create distinct scalarity in the first place (Blok 2010); connections we can follow and make the object of scrutiny. This allows a look on a much flatter world (Latour 2005, 165 et seq), which however does not imply, as Marston et al. (2005) suggest, that scale is rendered unnecessary. Scale is indeed an important constituent in "the production, reconfiguration or contestation of some aspect of sociospatial organization" (Brenner 2001, 599). Differences in power are real and are expressed and staged in scalar politics (e.g. Swyngedouw 2004, 133). At that, scale is not only "a way of framing political-spatiality that in turn has material effects."(Jones 1998, 27) but also emerges itself from material practices of scaling (Ramasar 2014). Similar to the way riskscapes have been discussed as a concept transcending common distinction between materiality and ideationality, scale too combines these elements. As Brenner (2001, 600, own emphasis) asserts, scale can be understood as a process of hierarchisation "through which processes of sociospatial differentiation unfold *both materially and discursively*". This suggests a conceptual compatibility of scale and riskscapes.

2.3 Scalar politics of risk

Most of the literature covering risk and scale is associated with a practically oriented risk-management approach (e.g. Birkmann 2007; Brown et al. 2012). The scale question is often invoked in regard to what administrative scale is responsible for dealing with a certain hazard (Brown et al. 2012; Zevenbergen et al. 2008); on what scale a certain hazard should be assessed (Garrick and Hall 2014); or in the context of non-spatial scales, deliberating how risks can be organised in a hierarchy (Gardoni and Murphy 2014). This assumes that actors as well as hazards themselves are rooted within a specific 'natural' scale[1]. The purpose of investigation is subsequently to identify these scales and then 'matching' risks with actors on an appropriate level. Eventually, the aim is to answer the "question of the appropriate scale of assessment and decision making" (Garrick and Hall 2014, 620). The ultimate goal is not a just distribution of risk but rather to ensure robustness of statistics and decisions based upon them, in order to achieve a 'tolerable' level of risk (ibid, 620) for an entire system (Daudé et al. 2009).

In this paper I take an explicitly different stance on the relation of risk(-scapes) and scale, implied but not explicitly formulated in Müller-Mahn and Everts (2013), and extensively studied by e.g. Blackburn (2014). Based on the conceptual framework delineated above, I assume that the scale of risks is determined by relations between different risks, society, and the natural environment. This picks up a discussion that is particularly prominent in the environmental justice literature (hence: EJ), which is concerned with the political dimension of the connections between scale and (environmental) risk and its impact on social justice. With reference to EJ-movements in Latin America, Urkidi and Walter (2011, 685) explore the practices in-

[1] For example Garrick and Hall (2014, 620) write: "The river basin scale is the natural unit of assessment from a hydrological perspective […] However, not all issues of water security naturally fit into the river basin scale", implying a 'natural' scalar level of phenomena.

volved in bringing the scale of meaning in accordance with the scale of regulation; a similar argument is made by Della Porta and Tarrow (2005) with reference to global activism in general, and by Darby (2012), who discusses a scalar disjunction between environmental risks originating at the El Paso smelter and their regulation.

While acknowledging that the choice of any scalar framework is a political one, most of these works however assume that risks 'have' or 'are' at a particular, determinable scale, which regulation or governance either fails or manages to match. At that, environmental risks are often imagined as precipitating from the global down unto the local level. For examples Di chiro (2008, 291) argues that climate justice activism "connects global-scale environmental problems with their everyday impacts on people's lives". However, the empirical examples below will show that the scalar politics of risk take up a more fundamental role, as they decide on which scalar level a particular risk is framed in the first place. As a consequence, different riskscapes are created depending on the scalar framing of risk; if one is faced with a "world at risk" (Beck 2009), or a nation, a city, or a person respectively. From this perspective, there is no one correct way to identify and address risks in terms of their scalar level; instead there are competing riskscapes that encompass different scalar framings.

I have argued that differently scaled competing riskscapes cannot be reduced to differing ideas about risk, but are constructed relationally through material practices and the materiality of landscapes. As mentioned before, Ulrich Beck (1992) explains the unequal distribution of risk in terms of a 'shunting yard' of risk-distribution that favours marginalised areas. While his subsequent elaborations do not take into account complex spatial and scalar dynamics of risk distribution (cf. November 2008), the metaphor he utilises is still useful, insofar as it leads a student of the spatiality of risk towards the infrastructure of risk, the literal ways on which it is distributed and that weave the relational web that constitutes risk and scale alike. For the purpose of this paper I regard urban rivers as an example for the ways risks move through space; how material practices create the metaphorical and literal riverbed through which risks flow, and how riskscapes and their competing scalar framings are defined by the course of these flows. This perspective makes material relations and associated practices the focus of empirical inquiry, the basis of which is discussed in the following section.

3 Methodology

One methodological tradition that focusses on relational material practices is *Multi-Sited Ethnography* (hence: MSE), first introduced by George Marcus (1995). Central to this methodology is a relational scalar approach, whereby "[t]he global is collapsed into and made an integral part of parallel related local situations rather than something monolithic or external to them" (Marcus 1995, 102), mirroring the notion of scale I have laid out above (see also: Xiang 2013). MSE does not conceptualise the 'site' as a bounded territory but incorporates the aspects of movement and fluid borders (Marcus 1995, 97). This premise is achieved by "follow[ing] people, connections, associations, and relationships across space" (Falzon 2009, 1), while not predefining, where the site is supposed to end (Marcus 1995). The practical implication for this study was the imperative to follow urban rivers through Nairobi, walking along its banks whenever possible. At that, a focus on fluidity and relatedness helps understanding subjective perspectives not as natural units of difference but rather as hybrids, influenced by intersectional relations (Marcus 2011, 19). MSE therefore interfaces with the conceptual framework introduced above. Its ontological as well as epistemological focus on how things move and relate to other things allows to regard fluid relations that are constituted by material practices, as well as ideational aspects. In terms of studying riskscapes this means to focus on particular relations that constitute the riskscape – in this case urban rivers that relate people and places fluvially – instead of attempting to grasp the totality of riskscapes in a particular area. According to the conceptual framework laid out above, the researcher thus encounters different riskscapes on the way along the river. In terms of scalarity, the epistemological ambition is less about identifying different scalar instances, and focuses more on the way scalarity is produced relationally, and the way that urban rivers are involved in this process of scaling.

Walking across a field, or along with people and topological features is not unique to MSE. In fact, walking is such a common feature in any kind of empirical research that one would be hard-pressed to find a discipline that does not practice it in one form or another. However, MSE offers a unique perspective by focussing on the researcher's mobility and elevating it to a fundamental epistemological strategy, instead of regarding it merely as a way to get to a point of interest. Precisely because being mobile – and walking in particular – is such a common part

of many fieldworks, it is often not even mentioned and much less scrutinised for its potential to generate knowledge. Notable exceptions are discussion of the "Walking Interview" (Evans and Jones 2011; Moles 2008), and perhaps most prominently Tim Ingold and Jo Lee Vergunst, who edited an entire book about different "Ways of Walking" (Ingold and Vergunst 2008).

The empirical body of this paper is constituted by a total of 2 focus group discussions, field-observations (registered in a field note-book), and 44 semi-structured interviews. Most interviews were conducted with residents of slum areas but also with experts, homeless people, and residents of wealthy areas – most of them in immediate vicinity to (and often recorded while walking along) an urban river (cf. Evans and Jones 2011). Scheduled interviews were mostly about 30 to 45 minutes long; spontaneous interviews between five and 30 minutes. Interview partners were selected on the basis of theoretical 'snowball' sampling (Liamputtong 2008, 10) and availability sampling (Daniel 2012, 82), as I approached people whilst walking alongside the river.

4 Case study: sacrifice-scales

> "You sit and then begin to chat; you know what people do…" (Day-labourer in Mukuru village)

In the preceding discussions I may have given the impression of scale being the only determining factor within power relations. This is of course far from the truth. In fact, the case of risk scaling at Nairobi's rivers hints at the importance of trans-scalar intersectionality, which I seek to demonstrate in the following by a discussion of scalar politics of gendered risks. The main aim of this part is to illustrate the concepts explicated in the conceptual framework.

I have already established that levels within scales are culturally charged, which is expressed for example in a perceived hierarchy of scale, wherein the global is framed not only as bigger and 'higher' but consequently also as more important and powerful, compared to the minuscule local level (Herod 2011, 86), which is perceived to be depending on the 'global context' for meaning (Latour 2005, 165 et seq.). This cultural charging interfaces with patriarchal and heteronormative imaginations of gender, whereas the powerful global level is often associated with the masculine and the impotent local with the feminine (Herod 2011, 86). Instead of exclusively using the local-global distinction, in this part I will mostly refer to the female body as a scalar instance. This is in accordance with Andrew Herod's (2011, 59) understanding of scale and is supposed to stress the intersectional character of scale. Too often, I argue, is scale regarded as a simple binary between the local and the global (Tsing 2005, 58) (often conflated with micro/macro distinctions). In contrast, Ramasar (2014) argues the negotiation of scale is not limited to the local-global distinction but includes the definition of various scales (time, institutions, etc.) in the first place.

Above I have discussed how "the invisible risks win the race" (Beck 1992, 45), in the sense that ignorance of certain risks provides the "political soil on which the risks […] grow, bloom and thrive" (ibid, 45). Invisible 'sacrifice zones' have been discussed in different political and academic contexts, for example Klein (2014); Hedges and Sacco (2012) or Endres (2012). Similar to the concept of slow violence/disaster (Nixon 2011), they can only be sustained "as long as the sacrifice zones are kept safely out of view" (Klein 2014, 268). Rob Nixon has discussed the hiding of "violence that occurs gradually and out of sight" (Nixon 2011, 2); Klein argues that all sacrifice-zones have in common that they are "out-of-the-way places" (Klein 2014, 268), situated geographically but also socio-economically at the periphery. Adding to these, I argue for another factor, the existence of *sacrifice-scales*, which are equally invisible when intersected with socio-economic factors and gender. Localised riskscapes, enacted by poor urban female riparian slum-dwellers are 'off the map' of other more dominant riskscapes, too 'small' to be even sketched in. Many risks which originate elsewhere, traverse the space between scalar levels, from national concerns to local 'hiccups', transported, translated and transformed to be eventually 'dumped' at the *sacrifice-scale* constituted by the localised female body. I identified two aspects of the *sacrifice-scale*: First, the limitation of women to the household; secondly, the concomitant invisible-making of the female body in terms of the risk to which it is subjected.

Regarding the first point, one finds that women are comparatively more affected by flood risks in informal settlements than men, which seems to be connected to their traditional role in the household. The executive director of the Institute for Environment and Water Management explains this particularity like this:

> "'There are quite a number of women who have actually lost their livelihood, because if you go to the slums, you find that during the day most of the people who are left there are women so

> the women are the ones who are doing all the small-scale businesses and men are more likely to go for casual labour in other places. So, yes, women are more affected in a sense that they are more the ones who are doing this... more kind of businesses in the slum areas and the slum areas are also the ones which are most affected by floods."

This conjecture is confirmed by accounts of many women living in the slums:

> Interviewee: "You find that [the rain] comes and you are not sure when the floods are going to come […]. Now, you find it is normally challenging to the women; maybe you find the woman is a single parent, she has got kids in that house, she doesn't know where to take them or what to do because it is something which has just happened all of a sudden."
> Interviewer: "Is it more likely that a woman is at home alone?"
> Interviewee: "In most cases, it is normally women with the children in the houses."
> Interviewer: "Why do you think is that?"
> Interviewee: "[…] [M]aybe the men have gone to work, or they are somewhere having fun; the women has been left home alone."

In these quotes it becomes apparent how riskscapes are connected to gendered, spatial and material practices of scaling. The mobility of men and their subsequent higher presence in the public sphere (either working or hanging around) reproduces male dominance in these areas, which are associated with a hierarchical superior level, while confirming the female confinedness to the household. This dynamic shapes the riskscape of river floods in slum areas insofar as it establishes the female body as the main 'recipient' of flood risk, which have their origin in economic disparities and settling patterns on the city-level, as well as regional water-flow regimes and global climate change. This effect is further exacerbated by a division of labour that designates women to labour in direct vicinity to the water: washing plastic bags to resell them later, feed pigs at riparian dumpsites or collecting scrap at the river banks is a common way to earn a living for poor people in general and women in particular.

On a more conceptual note, this shows the importance of material practices in the shaping of relations of scale and risk. The fact that female riparian slum-dwellers stay close to the river despite the associated danger instead of seeking employment in the city can be understood as a powerful scalar framing that in turn has consequences on how they are able to navigate everyday riskscapes. It could be argued, that exactly this scalar framing keeps women in riparian informal settlements in a marginalised position (Collins 2009). This also means that an actor's scalar level cannot simply be determined by the amount and durability of relations the actor maintains, as Bruno Latour contends (2005, 176). To the contrary, the durable relations that urban rivers establish between individual female bodies and the places where toxic materials are dumped into the river system, as well as climate change induced uncertainties in terms of precipitation and flooding are regional and even global relations that paradoxically inscribe a precarious local identity to the people living and working at the riverside.

These initial observations call for an explicitly intersectional understanding of risks and scale, in which marginalization of the "sacrifice scale" is not regarded in isolation to other discriminatory dynamics based on gender or race. Rather, it suggests to regard riskscapes as a meshwork of risk-relations, in which scale, gender, and many other factors form identities in a co-constitutive way: to be a woman in riparian informal settlements that were part of this study often means to be placed at a particular, localised scalar position within the riskscape of urban floods. Gender-based marginalisation expresses itself and is expressed by the confinement of women to the home, understood both as the physical space, as well as a scalar instance. This means that in this case the political dimension of scale does not arise from a mismatch between the scale of urban flooding and the scale of flood governance (Darby 2012; Williams 1999), a notion that would assume an inherent scalar identity of risk. Rather, the concept of the riskscapes helps one clarify how the scalar level of flood-risks and of the women facing them is political in itself. Interviews with several officials have shown that the risk of flooding in riparian slum areas is intentionally not addressed as a risk concerning the nation or even the city of Nairobi. One officer at the Ministry of Environment, Water and Natural Resources (MEWNR) answered a question regarding the possibility of early-warning systems for people facing flood risks in informal settlements as follows:

> "It is very possible but I think in Nairobi the trick is […] we may not really require people to stay at the riverbank so… We would rather have that they are moved off, than encouraging them to stay there."

An employee of the National Environmental Management Authority (NEMA) was even blunter: "We try to make life as dangerous as possible for them", she stated when asked about their position towards informal settlements close to the river. The logic is consistent, at least as long as it considered under a particular scalar framing: Informal settlements allegedly increase the pollution of adjacent rivers significantly for the entire city (MEWNR), and even up to the mouth of Athi River and ecosystems of the coast (NEMA). This example shows a discrepancy of different riskscapes in terms of scale: on the one hand the "object at risk" (Boholm and Corvellec 2011) is the city or the national ecosystem health; on the other hand it is individual people – mostly women – who face most of the flood risks in informal settlements. The fundamental difference between these intersecting but contradictory riskscapes is their scalar framing, with the consequence of absencing and presencing (Bickerstaff and Simmons 2009) certain risks to ecosystems, cities or individual bodies.

This point is directly connected to the invisible-making of risks and their respective potential victims and is connected to the first: Women who stay at home are literally and figuratively out of view. Furthermore, many people perceive the government as detached and uncaring, especially so in the context of sexual violence – "You have to take care of yourself", is a common attitude uttered by many interlocutors. Despite efforts by some organizations to make "private violence [a] public concern" (Erikson and Rastogi 2015, 59), the risk of sexual violence is not yet successfully scaled unto a level beyond the victim's body – it is a private risk, *something you have to take care of yourself*. Furthermore, sexual violence seems to be normalized to a certain degree, something that just happens – "you know what people do", as one interlocutor put it. This is illustrated by a statement from a day labourer in Mukuru Village, an informal settlement close to Nairobi's industrial district south of the city centre.

> Interviewer: "I noticed there is not a single woman sitting here, why not?"
> Man 1: "They are in there [pointing at the next house]."
> Interviewer: "So the women do not like coming here?"
> […]
> Man 2: "No, they can't be here, because here it is a men-point."
> […]
> Interviewer: "Are there women points somewhere at the river?"
> Man 1: "No. I don't see."
> Interviewer: "How come there are men points and no women point?"
> Man 1: "Because they are scared to be on this side of the river. That's the reason. That's why you can't get them. […]"
> Interviewer: "What do they believe could happen? They get robbed or…?"
> Man 1: "Rape cases."
> […]
> Interviewer: "Why do you think it is here and not somewhere else?"
> Man 2: "Because it is cool [temperature]."
> Interviewer: "It is a cool area, so rape happens in cool areas?"
> Man 1: "You sit and then begin to chat, you know what people do."

River sides are generally areas of increased criminality but many women still often have no choice but to use water from the river, either to wash clothes (often understood as 'women's work'), fetch water or for other commercial purposes. Lush vegetation, even though contributing to the river's health and cooler air is therefore an additional risk factor for women, because they often have to intrude into a *men's point*:

> Interviewee: "One day I was going with my slasher, as I was clearing the nini [common interjection literally translating to "what?"]... the bush to work at the river. It was two years ago. So I was wanting to start my work I saw a man... He was sleeping at the river, but he was treating his pants like this [imitates masturbation motion]. He was doing me like this [imitates suggestive gesture], so I had to jump inside the water to rescue myself [...]"
> Interviewer: "Really? Ayayay... So you think it is more dangerous because there are bushes and you can't see it from outside?"
> Interviewee: "Yes."

Spending comparatively more time in houses close to urban rivers and/or working directly at the riverside does not only expose women to higher risks related to flooding and toxic materials in the water. Additionally, benefits on other scales derived from riverine vegetation and other risk-reduction measures turn out to produce risks on the level of the body, where it intersects with female gender and habitation in informal settlements. Similarly, benefits realised on the household level, which are produced by women's work at the river coincide with risk for

women on the level of their bodies, as they face risk of toxic water, sharp objects in the water, or sexual violence. Referring to what has been established in the conceptual framework, the translation of risks across sites and scales reveals the temporal but not scalar concurrency of risks and benefits. At what scales then the risks are realised is a question of power dynamics, which can be revealed by the mode of inquiry developed in this paper.

In a similar context Nixon (2011, 59) maintains that vulnerability is created by a "battery of distancing strategies", disconnecting, localising and subsequently concealing the bodies of economically poor women in Nairobi. By means of these distancing strategies certain actors are disregarded, and disconnected from political access, as well as access to resources – all of which contributing to their presence on an invisible local framing. The often brutal consequence is that the amount of people actually affected is just as irrelevant as the size of the area affected by these risks, as long as the scalar presentation of these risks makes them appear 'local' and thus happen 'somewhere else'. This dynamic creates risk-scales, in which risks rendered invisible and out of the discussion through particular scalar framings, can be unloaded on localised sacrifice-scales.

5 Conclusion

The aim of this paper was to facilitate a theoretical as well as an applied and concrete understanding of the power dimensions in the connection between scales and risk to equal degrees. I hope to have shown the importance of a strong conceptual foundation to detect and analyse injustices in a complex world that may remain opaque if a theoretical foundation does not help discovering where to look and by giving a vocabulary and grammar to describe what has been found. This investigation demonstrated how scalar framings of competing riskscapes can be used to marginalise groups, interests, and ideas by practices of discursive and material dis/connection. By taking the scalar level of risks for granted these tactics remain invisible and subsequently even more effective. On the other hand, the potential for using scalar negotiations of risks as a way to oppose the marginalisation for example of the female body in riparian slum communities cannot be realised unless and until awareness about the emancipatory power of risk-framing is established. This suggests to study potentially emancipatory scalar practices as resistance against environmental injustices.

I argue that the concept of riskscapes is particularly suitable for recognising the power of scale when both are understood in terms of the relations that constitute them. By questioning the scalar level in which riskscapes are framed, it is possible to deconstruct formally opaque ramifications, which respective risk-framings have on the manner in which risks are perceived and acted upon. It remains to be explored, in how far the scalar dimension of riskscapes can be translated into other cases. However, I do see potential for this conceptual framing, particularly in the context of environmental issues such as climate change, as the latest IPCC report's call for "integration across scales" (Burton et al. 2014) in the context of the management of climate change related risks.

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