SOCIAL PRACTICES OF FLOOD (RISK) MANAGEMENT – A VISUAL GEOGRAPHIC APPROACH TO THE ANALYSIS OF SOCIAL PRACTICES IN AN EMPIRICAL CASE IN CHIAPAS, MEXICO

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Summary: When discussion of risks takes place, whether in political debates or in scientific discourses, flood-related hazards are among the most frequently mentioned events in many world regions. Scientific explanations of the risk present in any geographical region are generally based on the hydro-physical process of flooding, and the specific vulnerabilities of the local population in respect of this process. This paper follows a different pathway, arguing that this perspective is limited in explaining the existence of specific patterns of socio-spatial activity which lead to inequalities in flood risk management. Using social practice theory and applying the concept of riskscapes allows for a more differentiated perspective on the presence and evolution of risks in spatial entities. By using the specific conceptual delineation of social practices elaborated by social theorist Theodore Schatzki the focus is put on materially and spatially relevant performances that are involved in social constructions of risk. Moreover, a specific empirical method of in-depth research into socially and spatially relevant practices is presented. This visual geographic approach, developed in empirical research in Mexico as part of a recently finalised dissertation project, involves a participatory photography workshop as a method to trigger reflection on social practices, and analyses the photographs produced in order to identify relevant material aspects of social practices relating to flood management. The empirical findings present specific social flood management practices along the river Usumacinta in Chiapas. It is shown that participatory visual methods contribute to the identification of relevant social dynamics of flood management, and that they allow in-depth analysis of the interlinkages between different social practices, identifying synergies and conflicts between practices related to flood management. The tool developed based on the riskscapes concept is promoted here as a relevant step towards more thorough analysis of social practices, with the aim of identifying politically relevant inequalities in processes of flood management in the south of Mexico, and hopefully beyond.

Zusammenfassung: In politischen Debatten sowie wissenschaftlichen Diskursen zum Thema Risiko gehören weltweit Hochwasserereignisse zu den am häufigsten angeführten Beispielen. Dabei machen hydro-physische Prozesse von Hochwasser und spezifische Vulnerabilitäten von Bevölkerungsgruppen einen Großteil der wissenschaftlichen Erklärungsansätze für Risiko in geographischen Regionen aus. Dieser Beitrag verfolgt einen anderen Erklärungsweg und zeigt auf, dass solche Ansätze insofern begrenzt sind, dass sie vorhandene sozialräumliche Aktivitäten, die zu Ungleichheiten im Hochwasserrisikomanagement führen, nur unzureichend berücksichtigen. Eine explizite Bezugnahme auf Praxistheorie und die Anwendung des Riskscapes-Konzeptes verspricht einen differenzierten Blick auf die Präsenz und Entwicklung von Risiken in geographischen Räumen. Dieser Artikel bezieht sich auf die spezifischen konzeptuellen Ansätze einer Praxistheorie des Sozialtheoretikers Theodore Schatzki und legt dabei einen Fokus auf Materialität und Räumlichkeit relevanter performativer Prozesse, die konstitutiver Teil der sozialen Konstruktion von Risiko sind. Dabei wird ein spezifischer empirischer Ansatz zur detaillierten Erforschung sozial und räumlich relevanter Praktiken vorgestellt. Dieser visuelle geographische Ansatz, der als Teil eines kürzlich abgeschlossenen Dissertationsprojektes in empirischer Feldforschung in Mexiko entwickelt wurde, umfasst u.a. einen partizipativen Fotoworkshop, der zur Anregung eines mehrstufigen Reflektionsprozesses über soziale Praktiken dient. Weiterer Teil des visuellen Ansatzes ist die Analyse ausgewählter Fotografien des Workshops zur Identifikation relevanter materieller Aspekte, die Teil der sozialen Praktiken des Hochwassermanagements sind. Empirische Ergebnisse erlauben die Identifikation eines Sets spezifischer sozialer Praktiken des Hochwassermanagements, die entlang des Flusses Usumacinta in Chiapas ihre Relevanz zeigen. Dabei zeigt die Analyse auf, dass partizipative visuelle Methoden einen wichtigen Beitrag zur Identifikation relevanter sozialräumlicher Dynamiken des Hochwassermanagements leisten können. Darüber hinaus tragen sie auch zu einer komplexeren Analyse der Wechselwirkungen zwischen verschiedenen sozialen Praktiken bei, sodass beispielsweise Synergien und Konflikte zwischen verschiedenen Praktiken des Hochwassermanagements aufgezeigt werden können. Der methodologische Ansatz, der basierend auf dem Riskscapes-Konzept erarbeitet wird, kann dabei als relevanter Schritt hin zu einer präziseren Analyse der Dynamiken sozialer Praktiken verstanden werden, der das Ziel verfolgt, politisch relevante Ungleichheiten im Prozess des Hochwassermanagements im Süden Mexikos und hoffentlich darüber hinaus sichtbar zu machen.

Keywords: flood, risk, riskscapes, social practices, visual methods

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1 Introduction

Flooding in rural communities is a topic addressed in innumerable scientific publications that make reference to different case studies and local contexts. In international discourses at a science-policy interface, the focus of attention when talking about flood risk is increasingly being placed on the idea of resilience (e.g. UNISDR 2007; Zevenbergen et al. 2012). Within this process, the question of how to make communities more resilient is dominant, and leads to new frameworks, strategies and methods (IPCC 2012; Szoenyi et al. 2016; UNISDR 2015). However, this push towards hands-on strategies in disaster risk management often lacks a critical reflection on the concepts of risk, vulnerability and resilience. Consequently, international strategies like the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015 - 2030 put emphasis on "understanding risk" (UNISDR 2015, 14). Critical reflection on key terms has been demanded by a range of authors (e.g. Cannon and Müller-Mahn 2010; Evans and Reid 2014; Weichselgartner and Kelman 2015). The terms are regularly used, although in a variety of manners depending on the different disciplinary paradigms and foci, shaping research, policies, and, most importantly, mindsets (Joseph 2013, 43; Bankoff 2001; Fekete et al. 2014). As Bankoff (2001, 27) highlights, it is problematic to transfer a "Western" concept like vulnerability into global discourse on risk. As dominant conceptualisations have contributed to "rendering the world unsafe" (ibid., 19), the broadening of conceptual horizons is regarded as necessary for socially adequate and sustainable risk management for the future.

Studies in geography on flood phenomena and flood risk have generated a good number of different conceptual and methodological approaches. Among them, to mention only a few, are hydrological and geomorphological models (Bormann and Diekkrüger 2004), analysis of risks in socio-ecological systems (Allison 2015; Gardner and Dekens 2007), the elaboration of indicators for social vulnerability (Fekete 2010), and approaches that underline the social construction of risk (Weichselgartner 2001; Egner and Pott 2010). While the large spectrum of studies reflects the importance of flood phenomena for societies around the globe, the different approaches underline the need for transparent reflection on the paradigms each research contribution is based on. In this paper, a contribution to social geography is aimed at that is inspired by social practice theory, and that develops a methodology for studying relevant aspects of the materiality of practices related to flooding. Part of the methodology is a specific visual geographic approach that uses participatory photography and video projects as research methods to stimulate reflection on flooding, risk, local conceptualisations, materiality and concepts of space.

The objective of this article is to present a novel contribution to research on flood phenomena from a social geographic perspective. The novelty of this contribution lies, on the one hand, in the theoretical interests and conceptual openness towards flood phenomena. The relevant dynamics analysed here in order to understand flood phenomena are social practices, which are approached using the theoretical ideas of social theorist Theodore Schatzki (e.g. 2001a; 2003). This allows a discussion of concepts of risk and their spatial implications on the basis of social practice theory. On the other hand, the author develops a new methodological approach to the social and spatial practices related to flood phenomena. A visual geographic approach is presented that demonstrates the specific value of producing and analysing visual material in geographic research. Integrating visual methods into the general ethnographic approach of this investigation helps to broaden empirical and conceptual insights into the social practices of flood management in the case study region and beyond.

The empirical material used in this paper was generated during in-depth field research carried out in several small villages in the municipalities of Catazajá and Palenque in the state of Chiapas (Fig. 1) in 2014 and 2015. The empirical research, involving (audio-)visual methods, generated a large set of data that allows us to identify and analyse relevant social practices. While this paper mainly addresses the issue of visual geographic approaches, it is part of a larger set of methods developed and applied in the dissertation project of the author that was finalised in 2017.

In the following section, the empirical case is described briefly to give an idea of the research context. This allows identification of the research problem, and the formulation of guiding questions for the empirical research. At the same time, this context forms the basis for the design of a specific methodological approach. The subsequent section describes the main theoretical basis of this study. Based on the research problem, three theoretical pillars are described briefly, in order to give a broad overview of possible theoretical entry points for a

Fig. 1: Location of case study municipalities in Chiapas along the Lower Usumacinta River

discussion of challenges in flood management in the case study region. This section is followed by a section on the methodology applied and developed in this study, focusing mainly on (audio-)visual methods as one method cluster designed by the author. Selected results arising from the application of visual methods are presented, and exemplified in the analysis and interpretation of a research process involving a photography workshop with students in one case study village. Specific challenges arising from this visual geographic approach, including methodological and conceptual challenges such as questions of ownership and authorship, are discussed in the last section of this paper. Linking selected findings from field research with the conceptual perspectives provided by social practice theory, the paper concludes with a critical reflection on the contribution of visual geographic approaches to the analysis of social practices of flood management and risk-making.

2 Empirical case – problem description

The case study area presented in this paper lies in the state of Chiapas in the south of Mexico. It belongs to the wetland zone of the lower Usumacinta River, which also extends to parts of the states of Tabasco and Campeche. The river Usumacinta is one of the largest water systems in the country, originating in the highlands of Guatemala, and making up around 30% of the freshwater volume in Mexico (Gandin 2012, 240). Before describing the flood dynamics of the case study region, the historic importance of the region and its population dynamics are briefly described. The river having been an important trade route during Mayan times, archaeological work has identified settlements and important religious sites in the region (Solís-Castillo et al. 2013, 272; Canter 2007, 23). With the systematic exploitation of natural resources during colonial times, new population groups came to the region, among them colonial officials, traders or forced labourers from other parts of the country, as well as from other continents (such as Africa) (Ruz 2010, 9). In the decade from 1950 to 1960, new populations arrived as part of planned immigration schemes for the south of Mexico, which served to increase agricultural production and to provide a remedy for over-population in other parts of the country (Stevens 1968, 81). Struggles for land by former workers in agricultural schemes gave marginalised groups access to land under community land titles called "*ejido*" (personal communication, Mexico City, 10.10.2014). Today, villages along the river Usumacinta and the lagoon of Catazajá, located in the municipalities of Catazajá and Palenque, manifest a poor infrastructure system, including a thin road network in bad condition, as well as an unstable supply of electricity and drinking water.

The area experiences regular floods, which typically occur in the months between July and October, linked to the seasonal character of rainfall in the south of Mexico (Reyes Barrón 2012). In recent decades, the seasonality of flooding has changed, however, and there is increasing variability of the magnitude and frequency of flooding. Processes of climate change, as well as the ENSO (El Niño Southern Oscillation) phenomenon, are said to be directly related to the changes in flood dynamics (Landa et al. 2008, 13). The execution of measures for flood protection by regional and local staff of the Mexican civil protection system is a constant challenge (personal communication, Palenque, 10.06.2015), given the great geographical dispersion of settlements that is characteristic of the Usumacinta river basin (March Mifsut and Castro 2010, 193). Poor flood protection, as well as prevention measures by the authorities, linked with high levels of economic and political marginalisation, has resulted in greater vulnerability of the local people to floods. Civil protection authorities and government officials emphasise the need for resettlement measures. However, the local people largely oppose the resettlement initiatives promoted by government agencies, due to the fear of losing access to land and to the lagoon systems, which are the material basis of their livelihood activities (personal communication, case study village 1, 06.09.2014). Flood protection measures and self-help activities developed by the villagers themselves are of a rudimentary and low-tech type. Notwithstanding, in recent decades they have helped to prevent the loss of material property, and at the same time are part of a set of social practices that strengthen social cohesion on the local level.

The context information on the case study region allows the identification of problematic dynamics related to flood management. Poor performance by municipal and regional civil protection authorities can be contrasted with locally developed flood protection measures. One challenge identified is that it is different understandings of flooding and related risks that inform the activities and the development of different short- or medium-term strategies. The problematic situation regarding flood management in the case study region leads to the formulation of the first research question addressed in this paper: *How is flood (risk) management performed in Palenque and Catazajá municipalities in Chiapas, Mexico?* The term "risk" is put in brackets in the research question, underlining that risk is not the only term used to conceptualise flood phenomena in the case study region. In order to understand which social and spatial dynamics are involved in the interplay of activities performed by different actor groups, an approach is chosen that analyses flood management as a nexus of social practices. A further interest of the author is to highlight the material aspects of these social practices. It is believed that through an empirical approach that involves visual methods, material patterns of social practices can be identified and used to generate novel information to be integrated into geographic research. For this paper, this interest results in the second research question: *How can a visual geographic approach inform and support research on flood-related practices?* The following section briefly introduces the theoretical basis of the research. This allows the identification of specific theoretical interests and underlines the need for a concerted empirical approach.

3 Theoretical entry points for studying flood (risk) management

The theoretical basis on which practices of flood (risk) management can be approximated is the version of **social practice theory** developed by Theodore Schatzki, a social theorist and philosopher (2001a; 2001b; 2002; 2003). Highlighting neither the individual (person), nor overall social structures, he points out that it is the "doings and sayings" of groups of people that are important in understanding social phenomena. These doings and sayings, according to him, are performed by bodies in space and are at the same time organised in the minds of people (Schatzki 2001b, 58). They are, as he says, "materially mediated nexuses of activity" (Schatzki 2001a, 20). While he proposes the relevance of materiality and emphasises that social relations among humans involve non-humans (Schatzki 2002, 40f), he objects to post-humanist accounts that conceptualise non-human entities as guiding action on the same level as humans (Schatzki 2001a, 20). Working with Schatzki´s ideas concerning social practice in this research case, we need to consider how to operationalise aspects of the materiality of social practices in an empirical approach. As will be discussed below, visual methods promise to be useful for the empirical study of the materiality of practices. But it is more than his detailed description of what a practice is, and how it matters materially, that informs this paper conceptually. In his presentation of *site ontology*, Schatzki argues that adequate analysis of social life requires an examination of "the sites where human coexistence transpires" (Schatzki 2003, 176). He explicitly demarcates his conceptualisation of site from a purely spatial understanding, but describes spatial aspects among other aspects (e.g. time and teleology) in his threefold description of site (ibid.). What seems to be his main point is expressed as follows: "Something´s site is […] that realm or set of phenomena (if any) of which it is *intrinsically* a part" (ibid., 177, emphasis in original). This notion of sites, in which practices take place socially, shows that the spatial dimensions of dynamics such as those related to "flood risk" are connected to a larger context, which is not purely spatial but which also includes aspects of time and teleoaffectivity, namely, "orientation[s] toward ends and […] how things matter" (Schatzki 2001b, 55). Including this perspective in the analysis allows us to connect flood-related practices in space to the larger context in which practices are produced and carried out in society.

Applying the above ideas to the present empirical case means drawing into focus the whole realm of phenomena of which flood-related practices are a part. From Schatzki we learn that it is important to understand that the *site* of risk-related and risk-producing practices is more than something spatial. We also learn that practices related to a flood event involve a mental process in addition to a materially and spatially relevant performance. A detailed analysis, not only of the practices themselves but of the larger set of practices they are connected to, allows us to identify relevant patterns of flood (risk) management in the case study region, and, more broadly, in the south of Mexico.

This paper addresses phenomena that are often discussed by scientists and policy makers using terms like risk, hazard, vulnerability or resilience. While different scholars in the field of **risk research** emphasise the need to conceptualise risk as the interplay between the exposure of populations to a hazard and the vulnerability of the population (for an overview, see Birkmann 2013), the Pressure and Release Model developed by authors writing from a political ecology perspective (Wisner et al. 2004; Blaikie et al. 1994) emphasises the dynamic development of vulnerabilities based on "root causes" that reflect the wider political, economic and social conditions that influence populations. The emphasis these authors give to larger societal contexts in connection with risk development is certainly a highly important contribution. However, in this paper, I use concepts like risk and vulnerability in a cautious manner, underlining the social construction of risks (Weichselgartner 2001) and the exertion of power in processes of risk attribution (Ewald 1991; Dean 1998; Mythen and Walklate 2006, 83). I consider alternative conceptualisations related to flood phenomena originating in the local context of the case study region, as I believe that these local conceptualisations provide important entry points for an understanding of flood-related practices.

Flood-related social practices are linked to, and produce, specific **spaces** and places. While it is not within the scope of this paper to elaborate in detail on conceptualisations of space, it must be said that spatiality is highly important when analysing social practices and the dynamics of risk construction in society. A valuable concept for analysing social phenomena related to flooding is the triadic concept of space developed by Henri Lefebvre (1991). He argues that space exists as the result of a production process, which allows us to go beyond the analysis of space itself and turn towards an analysis

of the production process in which space is created (Schmid 2005, 203). Conceptualising the production of space through *espace perçu* (the material production of space), *espace conçu* (representations of space) and *espace vécu* (spaces of representation) (Lefebvre 1991, 38f; Schmid 2005, 208ff) allows the analysis of different social practices and their contribution to spatiality.

Keeping in mind the above-mentioned conceptualisations of social practices, risk and spatiality, the remainder of this section briefly connects them with a recent concept that has been developed in geographic risk research: the **riskscapes** concept (Müller-Mahn and Everts 2013) which makes it possible to identify and analyse the spatial dimensions of practices related to risk. Starting from a constructivist perspective, the concept makes tangible the different processes, actors and perspectives present when risks are being constructed, negotiated or transformed. As a contribution from social geography, it underlines that the ways in which risk is defined has not only social, but also spatial consequences (November 2004, 274). Empirical cases are described which show that specific practices aimed towards the reduction of a risk can result in the increase of other risks for local people (Müller-Mahn and Everts 2013, 29). The concept makes use of Appadurai´s five scapes or imagined worlds, in which humans locate themselves (Appadurai 1990, 296ff). In this conceptualisation, a (land-)scape is not purely a physical space but a social process (Müller-Mahn and Everts 2013, 25). In the study presented here, the riskscapes concept was adapted to create an analytical tool for analysing complex patterns of social practice. In contrast to the ideas of the authors of the concept, this study focuses not primarily on risk but on the different social practices related to flood management, including other conceptualisations of flooding besides concepts of risk. Thus, the concept was transformed into a tool for dealing with many different social practices and identifying and analysing interlinkages between them. In a recent contribution to practice theory, Niccolini (2017, 105) presents the work of other authors who describe similar ways of dealing with a large amount of data concerning social practices and their specific interrelations. As this paper lays a focus on working with visual methods, the analysis of interrelations between social practices is presented only briefly. However, the empirical examples are selected in a way that shows how information generated through visual methods enhances the overall analysis of complex patterns of social practice.

4 A visual geographic approach to analysing social practices and materiality

When designing the methodological set-up of an empirical field study, various aspects need to be considered. The research from which empirical material has been drawn for this paper is based on a grounded theory approach closely linked to the work of Strauss and Corbin (1999). It is important to emphasise that choosing methods is not a random act throughout the research process, but has to be carried out in a concerted manner, paying credit to the paradigmatic outline, as well as to the specific qualities of different methods. In order to approach flood-related practices empirically, a methodology was developed that laid a focus on the identification of different social practices. Additionally, methods were developed that made it easier to gain access to the materiality of practices. This mainly involved specific visual and audio-visual methods. This section offers a glimpse of the visual methods used and the challenges they presented.

When we look at conceptual and empirical work in the realm of practice theory, no direct link to visual methods has been made so far. It is not intended to argue that visual methods are of exclusive value for analysing social practices. However, I want to make the point that specific research questions concerning the spatial and the material aspects of practices can best be addressed by including visual methods. What is it, then, that we can learn about practices through the visual? The visual is understood as a language in itself, demarcated from spoken or written words. While a written text is regarded as the typical form to represent verbal expressions and thoughts, the conventional form of visual representation is the picture, whether a drawing or a photograph. Written texts and pictures have in common their polysemy, or multitude of meanings. The ambiguous character of a picture is highlighted by the philosopher Ludwig Wittgenstein, who says that a picture depicts ["*abbilden*"] reality by representing ["*darstellen*"] states of affairs (Wittgenstein 1984 [1921], 2201). While a discussion of the possible assumptions to be made concerning reality through its representations is far beyond the scope of this paper, I point to the fact that a visual representation of reality in a picture has different characteristics from a textual representation. These differences are closely linked to (1) the different possibilities for interaction with knowledge and reality, (2) the formats of spoken and written language, and (3) the formats of the visual media involved and their specific ways of production. By ac-

cessing visual material in the form of photographs, it is possible to analyse social practices from a specific angle and to discover qualities different from those that can be discovered using other methods. This can enrich and complement the empirical approach to social practices and allow for new epistemological viewpoints.

The "iconic turn" postulated for various disciplines in the early 21st century has had its repercussions in geography, leading to the production and interpretation of pictures (Thornes 2004, 787). The relevance of the visual in the discipline of geography is emphasised by various authors within and beyond the scientific discipline (Pink 2013, 26ff; Rose 2003; Thornes 2004). Schlottmann and Miggelbrink point to a mismatch between a "progressive habitualization to the use of visual materials and the paucity of related critical reflection" (2009, 1) and call the visual the "blind spot" (ibid.) of the discipline. I agree with these authors in that it is indispensable to develop conceptual approaches and adequate methods in order to take into account the specific characteristics of the visual (ibid., 2). In addition, I argue that this should be done from a two-sided approach, namely by confronting the challenges of the visual through in-depth empirical work and by reflecting on the processes of production and analysis against the theoretical basis laid by practice theory, and, more broadly, by social constructivism. It is especially the reflective power involved in visual methods which is of great value to a research process that involves different conceptualisations of spatiality, materiality and embodiment. As the development of new visual methods is still in its infancy in social geography, emphasis is put here on the ability of these methods to complement more established methods through the generation of significant information for geographic research. At the same time, it must be considered that geographical representations are "active, constitutive elements in shaping social and spatial practices and the environments we occupy" (Cosgrove 2008, 15). Visual media are part of discourse, just as other forms of expression, like spoken or written words. Visual media are never objective, never separate from the context in which they are produced, never independent from the person who generates them. In the following sections, selected visual methods are described that permit the identification of specific material social practices related to flooding, and give specific information about people´s relations to spaces. These methods need to be seen as part of a larger methodology developed by the author during her doctoral research. This includes different qualitative research methods and approaches, such as participant observation, narrative interviews, group discussions, participatory video and photography workshops, participatory mapping activities, an exhibition, and others. Moreover, a concerted set of methods for the analysis and interpretation of data and information was applied.

Visual empirical data was generated throughout two phases of field research in 2014 and 2015, with a total duration of nine months. While field research was generally carried out in a range of rural settlements in the municipalities of Catazajá and Palenque in the state of Chiapas, visual methods were applied in one selected village only. This participatory visual research process required a high level of trust and long-term engagement, motivation and responsibility on the part of all the research partners. One method used for the generation of visual empirical data was a three-day participatory photography workshop. The workshop was embedded in a phase of several weeks of cohabitation and participant observation in that village carried out by the researcher in 2014. Fifteen students aged 15 to 18 from the local secondary school, their teacher and the researcher were involved in the workshop. The students were divided into groups of two or three by their teacher. Each of the seven groups received a single-use camera and was asked to take photographs of places and objects in their community which they liked most and those which were regularly affected by the floods. On the second day of the workshop, the researcher gave the developed photographs to the students and initiated a group discussion in the classroom. Each group of students selected 3-5 photographs for an exhibition which was organised in the community hall in the following week, all village members being invited to attend.

This step of the empirical research triggered a fruitful process of reflection on conceptualisations of flooding, livelihoods, imaginations of the future, and social practices performed before, during and after flooding, as well as throughout the year. Additionally, the photographs were analysed to complement information on the performance of social practices and in order to identify specific material social practices related to flooding. The analysis of seven selected photographs was accomplished by the author through the application of the documentary method developed by Karl Mannheim (1964), and adapted more recently by Bohnsack (2009). The documentary method was developed in order to overcome the dichotomy reiterated by objectivist perspectives in quantitative social research, on the one

hand, and phenomenological approaches with subjectivist perspectives, on the other hand (Bohnsack et al. 2013, 10f.). In a praxeologic tradition developed by Mannheim (1964) in sociology of knowledge during the 1920s, a change of perspective from "what" (what is the actors´ perspective of reality?) to "how" (how is reality produced in a practical manner?) is presented (ibid., 13). The documentary method allows for the interpretation of an image in a two-step process, referring to the work of the art historians Erwin Panofsky (e.g. 1964, 1975) and Max Imdahl (e.g. 1979, 1996a, 1996b). In a first step, called *formulating interpretation*, what can be seen in the picture is described (pre-iconographic and iconographic analysis, following Panofsky 1975). This is followed by an interpretation on an iconographic level, the description of visible actions (Bohnsack 2009, 960). This description of actions is a crucial step, because the contextual knowledge of the person interpreting the picture must be largely suspended. Only commonsense knowledge about an activity shown in a picture should be included in this step of interpretation. This can be knowledge of the "history of types" (ibid., translated by the author) displayed in a picture (e.g. generalised knowledge concerning a scene displayed in a picture representing a family meal), or of the "history of styles" (ibid., translated by the author) to be interpreted (e.g. generalised knowledge that the clothing of persons in a picture is typical of hip-hop culture). In the second step, the *reflecting interpretation*, the results of step one are reflected on by the researcher and documented in a transparent way (iconic interpretation and iconological-iconic interpretation, following Imdahl 1996a, 1996b) (Bohnsack et al. 2013, 15). This structured process of formal interpretation achieves a distance between the researcher and the data she or he has produced or accessed through empirical research. The process of interpretation is enhanced and improved by this alienation from the data and subsequent reflective approximation. My empirical work with visual methods in the case study region in Chiapas generated a large set of visual data. The photography workshop generated 191 photographs, of which only a few were selected for analysis. The selection process was partly guided by the workshop participants (3-4 photographs per group for the exhibition), while the following selection of one photograph from each group, and finally the selection of three photographs for this paper, was made by the researcher. This selection was guided by my interest in analysing those pictures that depicted material objects and situations closely related to the topic of flooding. I was partly guided by my subjective ideas concerning flood-related social practices; but my choice was also informed by how the workshop participants described the photographs and how they related the depicted scenes to flooding. Moreover, I also selected pictures that I found aesthetically appealing and which involved a visual narrative that could be easily made accessible to readers. These selection criteria are highly subjective and can be criticised, as aesthetic criteria cannot be equated with scientific criteria. However, as all photographs taken by the students and selected for the exhibition can be regarded as having relevance for them, the final selection does not alter the original selection. Besides the process of selection, critical remarks need to be made on the process of interpretation. This will be done at the end of the next section, following a presentation of the visual examples and their interpretation. Three photographs are analysed and discussed in the following section.

5 Results

The analysis of selected photographs (generated by students from Chiapas in a participatory manner) using the documentary method allows the identification of certain dynamics in the social practices of local people with regard to flooding on the Usumacinta river. While the identification of these dynamics involves a detailed analytical procedure, the dynamics are summarised by giving each of the pictures a short title. In this section, the procedure of the documentary method is exemplified in detail for the first selected photograph, followed by a short summary of my interpretation in the light of the overall research question. For the other two photographs, only the final interpretations are given, based on a foregoing in-depth analysis using the documentary method.

5.1 Changes of distance and proximity

The central topic of photo 1 is "distance". The way the picture has been taken allows the assumption that the muddy pathway, which is a general material asset to be found in the case study region, creates an obstacle on the way to someone´s house. The photograph triggers reflection on the links between the social construction of space, which is guided partly by perceptions of distance and proximity on the social level, and material aspects which are made use of in the production of space. The producer of

Photo 1: First selected photograph from participatory workshop. Source: Student group 1 from case study village

the photograph creates an impression of distance and obstacles in the material world, represented by the pathway filled with water. However, it is argued here that distance does not involve the material world alone, but also the social world. Social practices in the rainy season show that core social relations in families grow in importance. This includes the provision of food for family members, visits to each others´ houses using horses that can pass muddy pathways, or small fishing boats in times of severe flooding. Moreover, family members whose houses get flooded move to relatives in unaffected parts of the villages. It can be argued thus that, in times of flood, social proximity is performed and underpinned increasingly through spatial proximity. Reconfiguration of social practices includes a reconfiguration of spaces. This is generally a slow process which does not happen from one day to the next, but which develops as the water levels rise.

The interpretation of the photograph using the documentary method (see Tab. 1) lays the basis for an analysis as part of geographic research on flood-related social practices. Especially the iconic interpretation, which analyses how the scene in the photograph is composed technically and the effects it creates, provides information that is not often used in geographic research but which is common in art history. As Jahnke and Nöthen (2017, 231) underline, a challenge in working with visual material can arise from the fact that geography refers to a "material reality", while art history refers mainly to historic traditions and technical styles of depicting landscapes. Of interest in interpretations that use the documentary method is not material reality, but how a visual narrative is created. Thus, the above interpretation is not an arbitrary or subjective process. The focus on formal iconic aspects in a photograph guides the interpretation. Building on *how* a photograph is composed technically, further interpretation can address questions relating to symbols, meanings and performances. It is through the process of formal interpretation that the pathway depicted in the above photograph is put into focus, and the topics of "distance and proximity" – in both a material and a social sense – are identified as important aspects of flood-related social practices. This example of the interpretation of visual material shows how a specific visual method can contribute to the research results (Schlottmann and Miggelbrink 2015, 22). Here, the question of how a picture is composed leads to the identification of specific narratives and performances that are linked to social practices. Identifying narratives and their reference to materiality allows us to complement information on how social practices are set up and perpetuated. It is important to underline that various narratives can be "seen" or "read" in a photograph: the producer(s), a researcher interpreting it for her research, and a reader of a paper like the present one will not all see it in the same way. For this reason, it must be emphasised that the photographs presented in this paper do not serve as proof for a hypothesis, or as a proof of the "realness" of a problem identified through research (ibid., 23). Rather, as shown above, the visual material generated as part of a visually oriented research process identifies narratives and allows to reflect on their significance in the performance of social practices. While the interpretation presented in this paper was made exclusively by the author, in the larger research process the photographs were used in various research settings (group discussions, narrative interviews and an exhibition), which triggered different processes of reflection and interpretation by the producers of the photographs, other local research partners and the researcher. This opened up a field for subsequent stages of interpretation and provided a rich set of information for the study. However, as this process involved different research partners with varying understandings of representation and reality in visual material, an analysis of this part of the study needs to be carried out at a level of detail which is beyond the scope of this paper. It is, however, an important part of the study, and permits in-depth reflection on the paradigms of the research partners and researchers. This issue needs to be more broadly discussed in geography and other disciplines, while positive examples show the way ahead, for instance in studies with a postcolonial perspective, like that by Schröder (2017).

Tab. 1: Exemplary analysis using documentary method (photo 1)

1 Formulating interpretation

1.1 Pre-iconographic interpretation

A muddy pathway surrounded by green grass and vegetation. The mud path is very wet, has some small holes filled with water. The path leads to a house made of bricks in the upper part of the picture/in the background of the picture. Beside the house there is a palm tree.

1.2 Iconographic interpretation

The picture was taken in a tropical area. This is clear from the dense vegetation and the palm trees. The one-storey house made of bricks (concrete) and with an aluminium roof suggests that the people who live here do not have a lot of money. However, they are also not poor people, because then they would not be able to afford an aluminium roof and concrete bricks, but would live in a house made of wood or bamboo.

2 Reflecting interpretation

2.1 Iconic interpretation

2.1.1 Planimetric composition

The main line in the picture goes from the right front of the picture to the centre and then turns right. It points towards the house in the upper middle part of the picture. The centres of attention are the house and the water holes in the mud.

2.1.2 Perspective projection

Long-shot. Picture taken from a standing position. The view is directed slightly to the ground. The focus of the picture lies on the water hole in the pathway in the centre of the photograph.

2.1.3 Scenic choreography

The picture is divided by the pathway into a left part and a right part. Both parts are dominated by green vegetation. In the left part, there is more grass in the foreground, while in the right part there is more grass in the centre of the picture with some shrubs towards the right. The house is in the background but located in the middle of the upper part of the picture. A palm tree stands to the left of the house. Other trees are found left and right of the house, whose tops are beyond the picture. Above the house, the sky can be seen and it is largely covered with clouds.

2.1.4 Relation of sharpness/blurriness

The foreground of the picture is sharp, especially the green grass on the lower left and the holes filled with water in the right front and in the centre of the picture. The left and the right sides of the picture are blurry. The house and the palm tree and the sky are blurry, too. The brightest parts of the picture are the sky and the house, as well as the water holes, in which the white of the clouds is reflected. The upper right and upper left parts of the picture are dark green, due to the leaves of the trees and the shadow they cast on the grass. The foreground and centre grass is a brighter green.

2.2 Iconological-iconic interpretation (Identification of habitus/meaning)

The picture is dark as the sky is covered with clouds. The mud and the water are very important topics in the picture. The house is an important topic in the picture, too. One imagines that the producer of the picture shows the activity of walking towards the house and having to pass through the mud. The house is quite far away from the producer of the picture, he/she has to walk up the muddy path, but he/she wants to reach that house. It is a distant position and at the same time a challenging position, as the path clearly leads to the house but it is not an easy path to walk along.

5.2 Changing dynamics on the river and anticipation of floods

While the process of analysis of photo 2 using the documentary method is not described here at length, some key aspects of the iconic interpretation of the picture are presented, as they provide important formal-aesthetic information for further analysis of the photograph. The picture is divided by two parallel horizontal lines, one being the border between soil and water in the foreground, while the other is the line of the horizon on the other side of the water body. Two vertical lines divide the picture into two areas of tree vegetation on the right and on the left of the picture, with the water body in the middle. Thus, a rectangular form is formed in the centre of the picture, which is the centre of attention: a water body, a boat and people. While large parts of the picture are in the shadow, the water body and the people in the boat appear bright through their exposure to direct sunlight. Taking the information from an aesthetic analysis of the photograph to an interpretation on an epistemic level, it can be said that the main activity seen in this photograph is the arrival of people at a village in a small motor boat on the river Usumacinta. The focus in this picture is on the driver of the boat who is looking at the water. His action represents a key social practice in the case study villages: close observation of the water. As interviews confirm, it is mainly fishermen, farmers and the drivers of motor boats who are best able to recognise the characteristics of the water. The photograph is taken from a position that is distant from the people. The shady ground in the front of the photograph makes up almost one third of the picture. It appears to be an empty, unused space. Interpreting the composition of the photograph in respect of the topic of flooding, it can be assumed that this ground is not empty space but that it is part of the land which regularly gets flooded. By displaying this space, the producer of the photograph anticipates the flood which is expected by the people in the village. The flood interacts with the material *lifeworld* of the village in such a way that a specific spatiality is created. This spatiality is created not by the water and the land alone, but in direct interaction with the people. While in this photograph the boat is relatively distant, during the flood, which is anticipated here, the boat is a central object seen and used by all villagers. In this process of taking a photograph, the future situation of the flood is anticipated. This is in line with other social practices of anticipation to be found in the villages, especially discursive practices in which people say that they are used to the flood and that they expect it every year (Interview_2015_C_20).

Photo 2: Second selected photo from participatory photography workshop. Source: Student group 2 from case study village

The above interpretation of the photograph allows to follow the different steps of analysis, which gradually move from formal-aesthetic information to epistemic information (see also Jahnke and Nöthen 2017, 244). The iconic interpretation of the photograph (focus on formal aesthetic aspects) shows how the producer of the photograph composes the scene. This information is used to identify the focus and central objects in the photograph. The focus created technically (through a contrast of sharpness and blurriness or light and shadow) is here directly related to the focus of attention in an epistemic sense. A gradual movement in interpretation towards the positions of objects and actions of people provides information about social practices and their materiality. As the interpretation proceeds, the researcher's suspended knowledge of the context is reactivated and integrated into the process of interpretation. Other data from the research process influences the interpretation. Moreover, the researcher's experience of seeing and interpreting pictures (e.g. viewing patterns developed as part of socialisation and use of media) influences the interpretation. This is a critical point in the process, as it involves ruptures in the procedures and epistemological backgrounds of interpretation. While the iconic interpretation is oriented towards visible objects in the picture, the iconological-iconic interpretation relates what is seen in the picture to the "not-seen". This "not-seen" is context information that attributes meaning to the "seen" and thereby integrates the picture into a larger context of materially mediated social practices. This rupture brings up questions about the appropriateness of including a highly formalised process (iconic interpretation) in the documentary method when it

is used in ethnographic research. Ethnographic research with its interpretative approaches and dense descriptions does not demand a strictly formalised approach. The quality of ethnographic research is not measured by objectivity and repeatability, but at the same time interpretation is not an arbitrary undertaking as it is guided by conceptual frames. It is in this area of conflict between different paradigmatic and epistemological orientations that the interpretation of visual material in geographic research needs to be further tested and refined. The limitations of the documentary method need to be further explored in order to develop an epistemologically sound approach.

Photo 3: Third selected photo from participatory photography workshop. Source: Student group 4 from case study village.

5.3 Finding one´s way in a social network

As in the interpretation of photo 2, the following interpretation of photo 3 briefly presents a formal-aesthetic analysis before moving on to a context-informed iconological-iconic interpretation. The central lines in this photograph are provided by a pathway that takes up a large part of the picture. The producer of the photograph is in a standing position. Between him (male participant) and the young people in the picture there is some distance. There is a dominance of water and mud in the foreground. In the centre, there is a group of ten young people. There is one girl in the centre who is jumping in the middle of the pathway. The other young people are walking along the side of the muddy pathway. The girl attracts the attention of the spectator due to her central position (golden ratio), her movement, and due to the fact that the front of her body is directed towards the camera. The other people in the picture can only be seen from the back or the side. The water holes reflect the white colour of the sky and are the brightest parts of the photograph. The shirts of the youths are also among the brightest parts of the picture. The main activity to be seen is a group of young people walking together along a muddy path. The young generation of the case study village is represented in a situation of dynamic movement, cheerfulness and communication All people in the picture are walking in the same direction, but the ways in which they walk are different. All of them are wearing the same school T-shirt. Some of them are active and expressing their high spirits by jumping with extended arms. This bodily performance can be interpreted as representing a positive orientation. Others are walking more carefully and looking at the ground. Still others are walking in the common direction but turning their heads towards the girl who is jumping, which can be interpreted as curiosity, taking notice of and caring for the girl. From the movement in the picture, the impression is created that these people are used to walking on muddy ground. Moreover, the practice of walking together is perceived as a joyful moment. The photograph is created in a way that emphasises the process of finding one´s own way, of belonging to a group, and at the same time being an individual. Processes of decision-making and of finding one´s own way and identity are crucial for any young man or woman at this age (15 to 18). In the case study villages, finding one´s own way also involves the question whether to leave the village after finishing secondary school, in order to continue one's education, or whether to stay in the village, work in agriculture and start a family. The spatial separation and different behaviour of the young people in the photograph can be related to the decisions they need to make about the social and spatial setting of the village and each one´s own life in the near future.

For the interpretation of this photograph, a rich set of context data from the field research was used. Suspending context information in the first step, a formal interpretation shows that the muddy pathway is a central material object in the picture. It also shows that the producer of the picture has put some people in the focus of the picture and some outside the focus. Further steps of interpretation contextualise the scene through information about other moments in the social life of the young people. The muddy pathway can be interpreted as an indication of rainy weather and the start of the flood season, including the narrative that walking in the village becomes more difficult. However, the pathway also lays a basis for additional narratives, which can only be identified by using context information on the village and on the young people in the photograph. The selection of this photograph for the exhibition in the village indicates that

the different narratives in the picture are important for the producer. The researcher interprets the photograph using the context information she has gained and identified as relevant to this study, including the question whether the young generation in the village plans to stay in the village or to leave after finishing school. While this question is not primarily related to practices of flood management in the village, it relates to other social practices, like livelihood practices and practices of identity and family. My research results show that these social practices are currently undergoing transformation. Since we know that social practices are highly interdependent, this photograph provides additional information for a study of flood management. Moreover, the interpretation of visual material helps to identify relevant local narratives and social practices that are part of the social contexts in which flood management takes place.

The analysis and interpretation of these three photographs generates relevant results for the study of flood management along the Usumacinta river. Summarising the interpretation of the photographs presented above, several findings can be underlined: spatiality and the performance of social practices change during flood events in the case study village. This change is a dynamic process which happens gradually in direct interaction with land, water and other objects located in physical space. The observation of water dynamics at the local level is a key activity at the onset of the rainy season, which allows specific village members, such as the boat drivers, to anticipate the specific development of a flood. The various obstacles people face in the villages makes it necessary for the coming generations to decide whether to continue living in the village or to move to a city. Spatial configurations, like a settlement along the river, are temporal configurations which change when nexuses of social practices change. This underlines the fact that social and spatial transformation does not occur when one social practice changes but only when many interlinked practices change (arguments put forward by Theodore Schatzki during a presentation at Heinrich Neisser Lecture, June 19, 2017 in Vienna). The visual research process and its results demonstrate several features of a visual geographic approach. The specific approach developed in this study has given access to important information about the materiality of social practices and the larger social context in which they are performed. The narrative power that is characteristic of photographs helps in identifying key topics and paradigms of relevance in the larger context of the research case. We can identify key social practices relating to flood management and the material, mental, performative and spatial contexts in which these social practices take place and which they are part of.

Integrating this information into the analysis of interacting social practices of flood management is of great empirical value. It allows the identification of specific points where one practice enters into conflict with another practice, or where synergies exist between social practices. These interlinkages can have repercussions in the larger social and spatial dynamics of flood management, and can create new possibilities or new challenges for population groups. Feeding detailed information on single social practices or smaller "practice-arrangement bundles" (Schatzki 2011, 2) into the analytical tool developed from the riskscapes concept allows us to refine the analysis of the social and spatial dynamics of flood management. The visual geographic approach as used in this study is thus valuable for the analysis of social and spatial dynamics related to flood phenomena, risk concepts and social transformation. I believe that this approach can be valuable for other research projects in geography, as well as in other disciplines, if the specific characteristics of visual media and visual language are taken into account. Taking into consideration the constraints involved in the specific approach to producing and interpreting visual information chosen here, it seems that more research is needed that explicitly takes up the empirical and epistemological challenges linked to visual methods and specific approaches to interpretation, like the documentary method. The epistemological paths followed in the interpretation of visual material in geographic research need to be addressed more explicitly, and approaches from other disciplines like art history, image studies and visual culture (Rimmele et al. 2014, 9) need to be integrated more thoroughly. Orientation for a way ahead can be found in the book "Räume visualisieren" by Jahnke et al. (2017), which may help to improve the integration of visual methods within various areas of social geographic research and teaching.

6 Discussion of results and outlook

In this paper, flood dynamics along the Usumacinta river in the south of Mexico are addressed by adopting a social practice perspective based on the work of Schatzki (2001a; 2001b; 2002; 2003). Moreover, the paper analyses social practices with a tool developed on the basis of the riskscapes concept (Müller-Mahn and Everts 2013). The empirical material allows identification of a large range

of social practices involved in flood risk management, of which a few examples have been presented here. Flood (risk) management involves different social practices by different actors. This paper lays emphasis on local actors and their practices. Notwithstanding, many different actors on different spatial levels are involved as they perform different social practices relevant to flood management. The visual geographic approach, including participatory work using visual methods and the analysis of photographs using the documentary method, provides a large set of data on social practices performed by the members of one case study village. The practices identified involve specific conceptualisations of flooding, for instance as a regular process taking place every year which has positive as well as negative effects for local people. The concept of risk, as formulated in academia, scarcely plays any role in the performances of members of the case study village. Rather, social practices related to flooding underline the fact that planning and preparing for flooding is part of everyday life, closely linked to the social (bodily) routines of the people. Moreover, productions of space take place on the local level as part of everyday practices. Local conceptualisations of space and flooding are closely linked to the material entities people have produced in the past and continue to produce. The boats used as part of everyday life in the case study village are an example. The river and the land – two entities in the material world which are subject to regular change due to flooding – are made accessible through boats. The boat can be understood as a material object that is used by people to access and thereby produce spatiality. While in interviews and other dominantly verbal forms of interaction, boats were not given special attention, the visual research process reveals their great importance. Local practices that involve boats suggest abstract conceptualisations of time, space and different geographical characteristics in the region; they involve the (re)shaping of physical space through the use of material objects and one's own body, as well as a (re)shaping of the social space through bodily and verbal expressions that produce meaning in different social groups at different scales. The use of boats, which is isolated for analysis here, is linked to various other social practices that have repercussions in the material world and which together contribute to the production of a complex lived space.

The results of this visual approach complement empirical information won through other methods used in this study, such as participatory observation, narrative interviews, and others. But more than complementing existing information, the visual methods also amplify the conceptual horizon and bring new insights into the material aspects of social practices related to flooding. Consequently, acts of seeing (and of producing visual material like photographs) can be understood as processes that involve an appropriation of space. Social space is produced and changed through practices, among them "doings and sayings", as Schatzki (2001b: 58) puts it, but also "seeings" (Strüver 2015, 60). This idea is closely related to the arguments of Strüver (2015, 59), who translates ideas from de Certau´s "acts of speech" and "acts of walking" to acts of seeing and walking. The photographs presented and analysed in this paper exemplify processes of seeing and walking, and finally of producing and representing material and social aspects of spatial practices. Beyond the verbal representation of doings and sayings, visual methods offer visual representations of social practices, and, more explicitly, they trigger a visualisation of acts of seeing that are intrinsically part of the performance of social practices. "Seeing" the water in the river Usumacinta (understood here as a repeated activity) is a visual process that is indispensable in practices of flood management. Observing the water level in the case study village is not an exclusively visual process but also includes other senses. However, at this point I want to underline the fact that seeing is not a passive process of the human eye, but a social process that is part of social practices. Seeing the changing water levels involves giving meaning to and interacting with visual impressions. Producing visual material like photographs involves attempts to (re)present and (re)perform acts of seeing related to flooding. It should be emphasised that these acts of seeing are part of the social practice of flood management. This might raise the question of how exactly a photograph can represent a social practice. It is clear here that "seeings" are regular components of everyday social practices. A visual method like photography can help to trigger repeated performances of seeing, involving a device like a camera. I do not believe that the camera itself can "capture" a social practice and record it on photo-sensitive material. Rather, I believe that practical engagement with the camera and focusing on the visual can stimulate new performances of seeing, which can – in part – be analysed through the photographs. The visual analysis of the performances of seeing then give insights into one or several social practices as part of larger social practice patterns and practice-arrangement bundles.

The in-depth analysis of social practices at the local level, which is possible with this visual geographic approach, provides rich information concerning the

interlinkages between different social practices. The visual geographic approach helps to identify specific problematic patterns in the performance of flood (risk) management in two municipalities in Chiapas. While it is not possible in this paper to address all the complex interactions between social practices, it is possible to show briefly how the analysis of material aspects of social practices contributes to gaining new insights into interrelated practices. A material pattern identified through the visual geographic approach is the use of different measurement devices for the water level. While people in the villages along the Usumacinta mainly use their bodies or parts of their bodies, like the hand (locally called "un cuarto"), to measure the water level, civil protection staff use metric scales, which they take along when going to villages or which they paint on public buildings in villages. A metric system stands in contrast to a human body-based measuring system, a contrast which reflects different conceptualisations and perceptions of flooding and which results in difficulties when communicating about the height of a flood. Far from arguing in favour of a generalisation of measurement procedures and materials, I wish to point out that practices in which metric measurements alone are used for decision-making could easily mean that relevant and well-adapted local processes of flood management are overlooked or deliberately ignored. Applying a social practice perspective enables us to make visible inequalities that are produced in the performance of specific social practices. The riskscapes approach can support the analysis and visualisation of interactions between social practices (and the actors who perform them), making visible otherwise invisible relations, dependencies and even material constraints. By combining a riskscapes approach with visual methods, the development of new inequalities and new risks can be identified using visual tools. The visual process of empirical research provides access to materially mediated practices which otherwise might not have been identified or understood. Going beyond the academic sector, it is important to develop practice theory approaches in a way that will allow in-depth reflection on current decision-making practices, and communication of these findings to policy makers, whether concerning flood (risk) management, climate change or other social and spatial transformations.

Beyond their direct benefits for research, participatory visual methods have indirect effects on the research situation which give them the potential to positively influence the capacities of people engaged as local research participants. Interacting in a team and learning to use a camera, to choose a site for taking a photograph and preparing a photography exhibition are activities that give all participants technical, as well as intellectual and social, skills. Moreover, confronting villagers with visual representations of (1) the performances and local concepts they apply in respect of the flood, and (2) the larger context in which everyday life takes place, will have various repercussions in the village. This includes the emotions and reactions that are triggered by processes of self-reflection in connection with visual representations. Processes of reflection have the potential to stimulate people to rethink their own situation, to identify positive and negative dynamics, and to encourage visions of the future (Appadurai 2013).

However, as the example of reflection processes shows, the integration of participatory visual methods into research also comes with a range of challenges that must be considered and addressed transparently during the research and communication of the results. Promoting self-reflection involves an increase in the responsibility of a researcher to follow-up on the subsequent dynamics in the social groups involved. Another challenge concerns questions of ownership of the material generated in a participatory process. In the study presented in this paper, it was agreed upon by the research participants that the legal rights to the visual and audio-visual material generated in a participatory manner belonged to the village community. Permission was granted to the researcher to make use of these data for purposes of research. It must be remarked self-critically, though, that it is mainly the author of this paper whose name appears on publications using the visual material generated. If ethical principles for participatory research are to be taken seriously, members of the scientific community need to create new options for labelling collectively generated knowledge as such and for sharing authorship, at the same time protecting sensitive information and vulnerable participants. Another challenge arises from the introduction of audio-visual and visual media into the methodology and presentation of results in human geography. In order to interpret the visual for academic purposes, researchers are still mainly confined to written text. Different disciplines in the social sciences have not been able to communicate interpretations of the visual in ways other than text. I believe that knowledge and exchange of knowledge includes essentially visual aspects that cannot be communicated through any other media than the visual. Initiatives like exhibitions or other formats that give an independent role to the visual are in their infancy in geography

(Garrett 2011; Hall 2016; Pink 2013). It is an indispensable task for geography to reflect more intensely on the different methods and media the discipline has at its disposal and is capable of using. At the same time, further conceptualisation of the visual is necessary in order to get access to highly relevant information on knowledge, meaning, emotions and other aspects that are part of social practices. Another task for the future will be to develop approaches in geography that more directly link social practice theory with questions of space/spatiality and power distribution. A promising approach is to connect social practice theory, which in empirical work allows us to generate detailed information on social processes on the micro-level, with concepts that focus on power distribution and inequalities, integrating various geographic scales. This requires discussing more extensively the challenges and options of using a flat ontology as presented in Schatzki´s version of practice theory, and linking it with concepts that focus more on processes of constructing and ordering spaces and places, emphasising power relations and social order (see also Schröder 2017, 186). Moreover, linking postcolonial narratives (e.g. Tolia-Kelly 2011) with a social practice perspective may inspire a whole set of new projects involving visual media that will contribute to academic and activist research and keep track of processes of social transformation. To conclude, I argue that the aim of a visually oriented social geography should be to make use of visual media and methods deliberately and transparently in the future, thereby (1) accessing and sharing different types of information and knowledge (beyond those accessible through verbal communication), (2) passing on research capacities and skills to those involved, and (3) representing research results and new questions in ways that are accessible and understandable to different groups of people within and beyond academia.

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