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Risk perception and culture: implications for vulnerability and adaptation to climate change

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Perceptions of climate change play a critical role in determining the degree to which people are at risk throughout the world. The significance of culture in understanding why people perceive and respond to climate change in particular ways is largely ignored in mainstream climate change adaptation. This paper applies a critical realist approach to examine the sociocultural structures and causal mechanisms for inaction or (in)effective action between at-risk people and the organisations responsible for dealing with climate change. The findings reveal that there are varying context-specific sub-narratives among heterogeneous groups of people at risk and organisations that lead to inaction or (in)effective action in response to climate change, often independent of risk perceptions and with unforeseen consequences for the vulnerabilities of at-risk people. Specifically, sub-narratives may create parallel and/or conflicting climate-related perceptions and respective responses, legitimise unequal resource distribution, and justify the suppression and/or capitalisation of sub-cultural and/or individual risk perceptions.

Keywords: adaptation, climate change, culture, risk perception, vulnerability

Introduction

Climate change is now widely recognised as one of the greatest challenges facing humanity. Perceptions of risk (see Table 1) play a critical role in determining the extent to which people actually are at risk (Frondel, Simora, and Sommer, 2017; Sullivan-Wiley and Short Gianotti, 2017; Brown et al., 2018). This has significant implications for climate change adaptation as perceptions influence peoples' willingness to adopt, modify, or reject adaptive measures (Cannon et al., 2014a; Mase, Gramig, and Prokopy, 2017). It has been increasingly acknowledged that perceptions of risk are not determined solely by the actual climate hazard; rather, they are a complex outcome of inherent biases and cultural, emotional, political, and social factors (Touili et al., 2014; Tschakert et al., 2017; van der Linden, 2017).

While the influence of cultural factors on perceptions of risk is presently being discussed in many fields, such as anthropology and psychology, there is a lack of recognition in the area of climate change adaptation that cultural factors are crucial in understanding why people perceive and respond to climate change risks in particular ways (Adger et al., 2013; Bankoff, 2015; Binder and Baker, 2017; O'Connell et al.,

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Table 1. Key definitions

Risk perception	'The subjective judgment that people make about the characteristics and severity of a risk' (Mach, Planton, and von Stechow, 2014, p. 1772).
Vulnerability	'The state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to [cope and/or] adapt' (Adger, 2006, p. 268).
Adaptation	'The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects' (Mach, Planton, and von Stechow, 2014, p. 118).
Cultures	Socially created contexts, in which cultural factors are embedded, such as 'beliefs, attitudes, values and their associated behaviours, that are shared by a significant number of people in hazard affected places' (Cannon, 2014, p. 14), and which are constantly shaped by their internal social structures and mechanisms as well as their interaction with social structures and mechanisms external to the specific context (Sayer, 1992; Wynn, Jr. and Williams, 2012).

Source: authors.

2017; Melo Zurita et al., 2018). Currently, mainstream work on climate change adaptation in relation to policy and practice still tends to take little account of the different cultural interpretations of risk that many people at the local level use to coexist with climate shocks; consequently, attempts by organisations[1] to support at-risk people are likely to be less effective (Graham et al., 2018). This situation may even increase the extent of loss and damage[2] caused by climate change, especially local cultural and non-material values (Tschakert et al., 2017).

Recent research highlights that scientific, practical, or rational approaches frequently utilised by intervening organisations to comprehend climate risk and implement responses may differ significantly from how risk is experienced and interpreted on the ground (Abbott and Wilson, 2015; Bankoff et al., 2015). Crabtree's (2015) study in Bihar, India, found that people who experienced the devastating flooding in 2008 believed that they were being punished by the goddess Kosi for their bad behaviour. Mortreux and Barnett's (2009) study in Funafuti, Tuvalu, reports that despite its high vulnerability to climate change, most people wish to remain living there owing to spatial identification and attachment to the atoll informed by cultural, familial, historical, and spiritual ties. It may be assumed that if those who are vulnerable to climate change could access and understand scientific and technical accounts of such risk, their risk perceptions and responses would support those of many intervening organisations (Hulme, 2009; Kane et al., 2014). However, despite access to climate data, some organisations do not view climate change as a risk or do not act according to their perceived risks; this may be because they see climate change as an 'act of God', do not feel responsible, or prioritise other non-climate risks (Hulme, 2009; Cannon et al., 2014a). Thus, senses of responsibility and interventions differ considerably among different structures and cultures of organisations, which are composed of heterogeneous groups of people who may also be at risk of climate change (Bankoff et al., 2015). This is because perceptions of risk and responses to climate change are inextricably linked to social and cultural dimensions—beliefs,

customs, identity, norms, religion, social organisation, and values—which for many people who confront risk are often more important than scientific knowledge, if knowingly reflected upon (Adger et al., 2013; Cannon et al., 2014a; Tschakert et al., 2017). Hence, 'there is no simple division between a rational scientific outlook and "strange" beliefs' of at-risk people in other parts of the world' (Cannon, 2014, p. 11).

It is crucial, therefore, to engage actively with alternative understandings of climate change based sometimes on contrasting experiences, values, and worldviews (Granderson, 2014). Why do at-risk people[3] perceive and respond to climate change in particular ways? Why do organisations that set out to achieve adaptation to climate change regularly ignore the cultural settings that influence risk (Cannon, 2014; Bankoff et al., 2015; Binder and Baker, 2017)? Unless much more attention is devoted to local beliefs and priorities, it is highly unlikely that effective adaptation to climate change can be achieved (Jordan, 2019). For that reason, this paper examines (via secondary research) interpretations of and responses to climate risks among at-risk people and the organisations attempting to help them in order to explain the socio-cultural structures and causal mechanisms for inaction or (in)effective action and how to integrate them better into more effective vulnerability reduction strategies. The findings reveal that there are varying context-specific sub-narratives among heterogeneous groups of people at risk and organisations that lead to inaction or (in)effective action in response to climate change, often independent of risk perceptions and with unforeseen consequences for at-risk people's vulnerabilities. Specifically, sub-narratives may (i) create parallel and/or conflicting climate perceptions and respective responses, (ii) legitimise unequal resource distribution, and (iii) justify the suppression and/or capitalisation of sub-cultural and/or individual risk perceptions.

The paper begins by conceptualising risk perception in the context of vulnerability and adaptation to climate change. It goes on to assess the risk perceptions of people who are vulnerable to climate change and the organisations responsible for supporting them, with a particular focus on the ways in which they do or do not fit with each other, and the implications this has for climate change vulnerability and adaptation. Next, it explores several cases where organisations have attempted to integrate at-risk people's cultures into interventions to reduce vulnerability to climate change. The paper concludes that risk perceptions and responses are embedded in cultures, and that more attention needs to be paid to their heterogeneous nature and power to suppress sub-cultural or individual risk perceptions and respective responses.

Risk perceptions as determinants of vulnerability and adaptation

Proceeding from a simplified linear perception–response–vulnerability model (see Figure 1), it is argued that a person needs to be aware of a hazard ('objective' external shock, such as increased sea-level rise) potentially to perceive it as a risk (subjective assessment of probable occurrence of harm owing to a hazard) (Weinstein, 1988;

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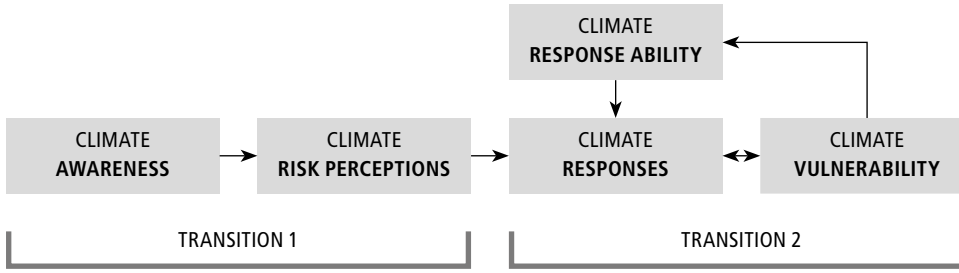
Figure 1. Perception–response–vulnerability model



Source: authors, based on Weinstein (1988) and Smit and Wandel (2006).

Sjöberg, Moen, and Rundmo, 2004). If a hazard is perceived as a risk, then engagement with and a response to the perceived hazard are likely to follow. Yet, a climate response (coping and/or adaptation strategy)—which may reduce, maintain, or even increase a person's vulnerability—requires an ability to respond to the perceived risk, plus the operationalisation of that strategy.[4]

A person's ability to respond depends on the climate risk itself and on a system's social vulnerability, determined by various cultural, demographic, economic, political, and social drivers and barriers as well as their interaction at a multiscale level (Smit and Wandel, 2006; Adger et al., 2013). Here, the first transition is of particular importance in appraising why hazards are or are not perceived as risks and ultimately how to influence perceptions of risk in such a way that effective responses are encouraged.

This paper draws on the meta-theoretical framework of critical realism, given its recognition of the significance of social actors' subjective knowledge and the existence of independent structures that affect their capacity to adopt certain actions in a particular setting (Wynn, Jr. and Williams, 2012). Specifically, it acknowledges the existence of objective realities of both a physical (such as cyclone) and social (such as power relations) nature, independent of individual knowledge or perceptions of them, as well as the existence of multiple interpretations of reality due to varied socially-constructed knowledge, thoughts, and beliefs (Bhaskar, 1975; Fleetwood, 2014). Critical realism was first framed by Bhaskar (1975) to overcome the limitations of positivism and interpretivism by differentiating between epistemology and ontology[5] (Wynn, Jr. and Williams, 2012). An extensive comparison of philosophical approaches are beyond the scope of this paper,[6] but key differences include the stratified ontology of critical realism (see Figure 2), its concept of causality, and the attempt to analyse open rather than closed laboratory systems (Bhaskar, 1975, 1998; Collier, 1994; Danermark et al., 2002). Accordingly, while interpretivists 'fail' to acknowledge independent realities beyond social constructions and positivists' objective reality is limited by what is known or observed, critical realists argue that unobservable entities, such as causal structures, also exist, yet they do so on the basis that they play a causal rather than an observable role in the world (Owens, 2011; Taylor, 2018). Bhaskar (1975, p. 179) suggests therefore 'that scientific research should switch from concentrating on generating explanatory laws which describe observable events to

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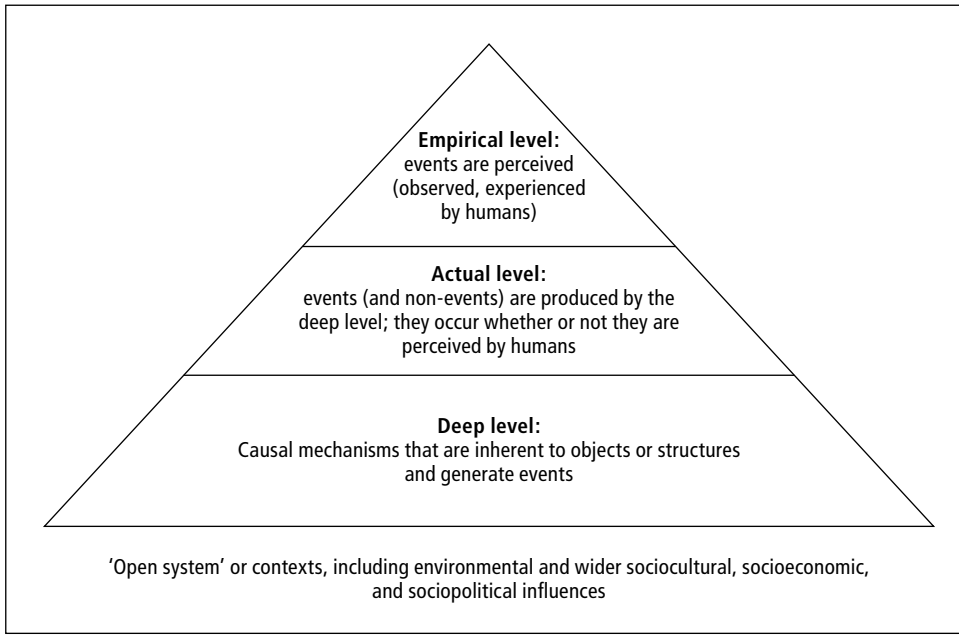
Figure 2. Stratified ontology of critical realism



Source: authors, based on Bhaskar (1978) and Fletcher (2017).

develop a deeper understanding of the mechanisms which cause these events' and accept that humans' knowledge of reality is fallible.

As shown in Figure 2, the stratified ontology of critical realism consists of three interconnected layers, the empirical, the actual, and the deep level of reality, which are all embedded within an open system or contexts (Bhaskar, 1975). Within the empirical level, events, such as the outcomes of hazards, can be directly observed or experienced and perceived via human perspectives and responded to accordingly (Fletcher, 2017). Human beings' experiences and observations are, however, only a component of the actual events (that is, hazards) that occur within the actual level of reality, whether or not they perceive them at the empirical level, such as the full ecological and social impacts of cyclones (Bhaskar, 1975; Danermark et al., 2002; Fletcher, 2017). Those actual and empirical events are generated through causal mechanisms, structures, or powers that exist in the deep level of reality and are inherent to the physical sphere and to the personal, interpersonal, communal, organisational, or societal sphere (Bhaskar, 1975; Sayer, 1992). The ultimate objective of critical realism is the explanation of events, here inaction or (in)effective action, in dealing with hazards across levels, through these causal mechanisms as well as the contexts in which these mechanisms are embedded (Fletcher, 2017; Taylor, 2018).

Hazard awareness and risk perceptions are preconditions and reasons that act as generative mechanisms that cause the outcome in question (that is, risk responses). To understand these mechanisms inherent to individuals, many authors, including Kahneman (2011) and van der Linden (2017), have addressed the psychological factors

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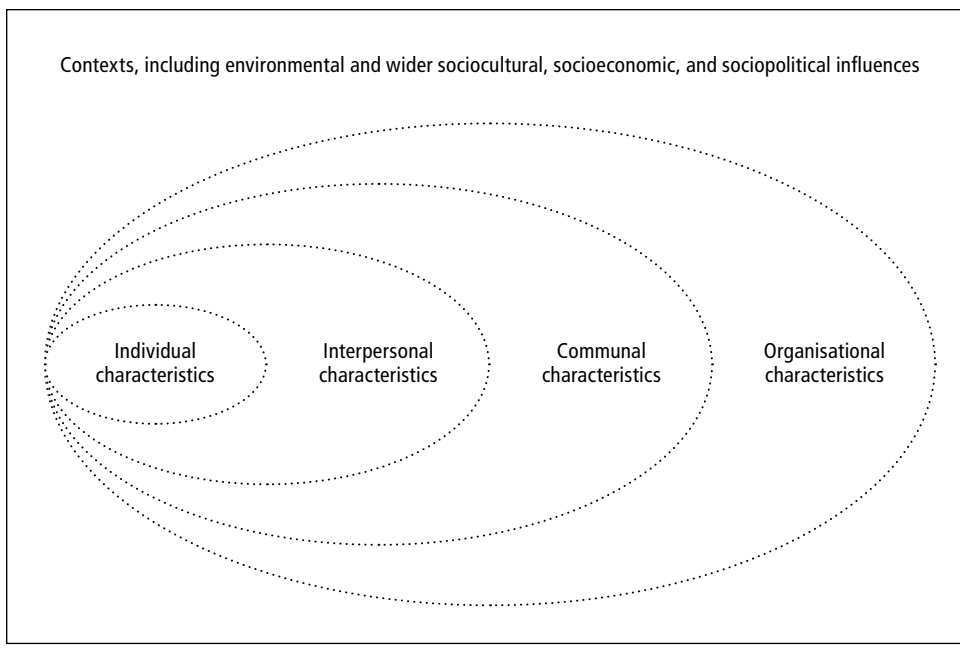
of risk perceptions and found that despite the precondition of being aware of the existence of hazards, individual risk perceptions are likely to be shaped by numerous factors, such as direct experiences[7] (World Bank, 2015; Frondel, Simora, and Sommer, 2017) and information[8] (Orlowski, 2014; Bronfman et al., 2016). For instance, additional information may desensitise people's risk perceptions (and subsequently reduce risk responses) owing to the limited attention that they are able to accord to provided information (Zaval et al., 2014). Weber (2010, p. 126) defines this phenomenon as a 'finite pool of worry' that creates 'inattentional blindness' to other risks. Since this depends on the uncertainty surrounding the risk, temporal delay, and geographical and social distance, climate change, particularly because of its rather uncertain nature, is often discounted (Gattig and Hendrickx, 2007). This may lead to prioritisation of dealing with some non-climate risks affecting the daily existence of individuals, communities, or organisations over uncertain climate risks (Grothmann and Patt, 2005; Tschakert et al., 2017).

In any given context, structures do not consist only of their single components (that is, individuals and their risk perceptions and responses), but also of their interactions and relationships within and across scales (see Figure 3) (Wynn, Jr. and Williams, 2012), including cultural and social aspects along with their properties and power relations (Easton, 2010). While cultural structures and mechanisms in relation to risks were analysed first by Douglas and Wildavsky (1983), their cultural theory of risk with defined worldviews is not applied in this paper due to their generalisation and

Figure 3. Simplified sociocultural structure and its individual components



Source: authors, based on Sayer (1992); Markus and Kitayama (2010); Wynn, Jr. and Williams (2012); Adger et al. (2013).

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static treatment of cultural groups (Wachinger and Renn, 2010) and the failure 'to provide a causal explanation of cultural dynamics which could trace how context-specific practices contributed to generating cultural stability or transformation' (Kashima, 2000, p. 23). Hence, this paper follows Sayer (1992), Markus and Kitayama (2010), and Bankoff et al. (2015), who argue that individual functioning is embedded in and guided by the inherent structures and mechanisms of societies, including a variety of dynamic and context-specific cultures across many social and spatial scales.

Climate risk perceptions are probably in line with culturally-shared norms and values that go beyond individual worries and partly determine what information counts ('finite pool of worry'), is trustworthy (source), and can be anticipated (type), and thus which risks are prioritised or ignored (Kusumi, Hirayama, and Kashima, 2017; van der Linden, 2017). Yet, cultural structures may be modified or transformed owing to internal or external sociocultural dynamics as a result of meanings that are or are not shared within an entity, as well as prevailing physical changes that may require cultural adaptation[9] and therefore new cultural patterns to accommodate perceived and experienced risks and to reduce vulnerabilities (Bankoff, 2003, 2015).

To simplify complex relationships and uncertain events, shared cultural narratives[10] (that is, explanations and stories) regarding those relationships or events are produced through the beliefs and values within and sometimes across cultural contexts (Kearney, 2002). For this reason, cultural narratives, such as the scientifically-produced narrative of climate change, may help in finding 'a pattern to cope with the experience of chaos and confusion' in times of increasingly occurring hazards (Kearney, 2002, p. 129).[11] In light of mounting international and national attention, the climate change narrative has developed as an international public discourse (de Wit, 2015). If organisations and at-risk people in varying cultural contexts are aware of this discourse they are then able to measure their own perceptions and identities against the produced cultural narrative—in this case, climate change—and act or not act according to the options that the narrative offers, or adapt and change the narrative (for their own or the general setting) through internal or external actions (Archer, 1995).

Yet, Flynn (2008, p. 308) argues that established cultural narratives are frequently difficult 'to challenge, even when wisdoms upon which they are based are shown to be untrue'. So, cultural narratives and their inherent structures and mechanisms may spawn legitimation for the creation or denial of climate change based on the interests of the most powerful agents, and thus may constrain the risk perceptions and responses of individuals whose views differ but who are culturally bound and unable to exercise independent agency (Lambin et al., 2001; Abbott and Wilson, 2015; Bankoff et al., 2015; de Wit, 2015).

Furthermore, individual components of a system (individuals, households, communities, and organisations) even if embedded in the same cultural structures are not homogeneous—for instance, the capacity to respond to climate change varies among different households, in part because of unequal power relations (Cannon, Titz, and Krüger, 2014). Consequently, there is a need to assess cultural contexts and their narratives of climate risks across different scales and settings to identify mechanisms

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that may enable or hinder the development of effective responses to reduce vulnerabilities (Binder and Banker, 2017; Graham et al., 2018). This focus is critical given that culturally-created limits to coping and adaptation strategies may be mutable (Archer, 1995; Bankoff, 2003; Adger et al., 2009a; Bankoff et al., 2015).

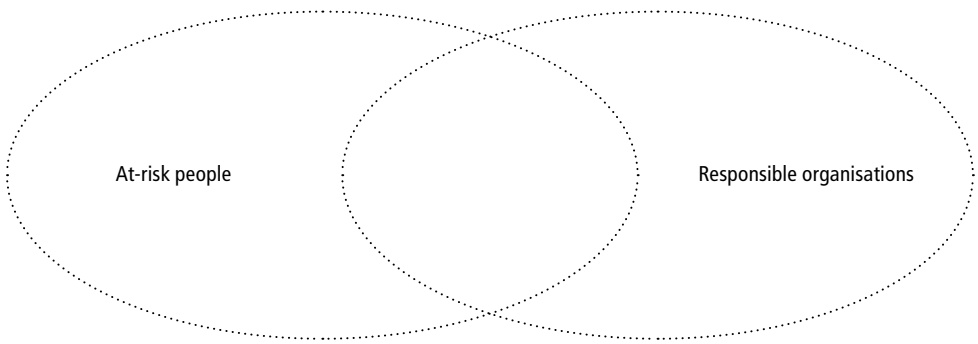
Risk perceptions and cultures: understanding organisational and at-risk people's behaviours and practices in relation to climate change

This section of the paper draws on multiple case studies[12] to explore at-risk people's and organisations' interpretations and perceptions of climate risk and associated behaviours and practices in order to understand the underlying sociocultural structures and causal mechanisms for inaction or (in)effective action in dealing with climate risks and reducing vulnerabilities within varying cultural contexts. The behaviours and practices of at-risk people and organisations, however, cannot be seen in isolation since their cultural contexts overlap, and some organisations responsible for dealing with climate change, particularly local organisations, are often in close proximity to the people most at risk (Measham et al., 2011; Pasquini and Shearing, 2014; Vogel and Henstra, 2015), and may even be made up of people who directly experience climate change themselves (Rojas Blanco, 2006) (see Figure 4). Yet, they are potentially less affected than at-risk people without an organisational network and/or income.

Organisations responsible for supporting adaptation to climate change

While the biophysical nature of climate change is a reality independent of human observations, scientific measurements and interpretations led to the scientific construction of climate change as a global risk, supported by organisations such as environmental lobby groups (Demeritt, 1998; Hulme, 2009). However, partly on

Figure 4. At-risk people–responsible organisations continuum



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account of its uncertain nature as well as its global rather than local or regional focus, this scientific narrative has encountered or (for the benefit of some and a cost to others) 'allowed' both advocates and opponents (Demeritt, 1998; Flynn, 2008). Thus, even though the world's leading politicians adopted the Paris Agreement on 12 December 2015, asserting that climate change is a risk that needs to be tackled, taking action according to this apparently 'global' risk perception is driven and limited by many other sub-structures and their sub-cultures, dependencies, and power relations (Deaton et al., 2006; Fukuyama, 2014).

Some organisations refuse to accept that climate change is happening or they are not fully aware of its progressing characteristics (Hulme, 2009; Dunlap and McCright, 2011). Both ENDS and the Institute for Environmental Studies in the Netherlands conducted stakeholder analysis to understand how adaptation is integrated into sustainable land and water management projects implemented by their partners. They found that even though these community-based organisations and local non-governmental organisations experience risk themselves (that is, they are composed of at-risk people and/or are close to at-risk people), they perceive climate change as a continuation of existing challenges (Rojas Blanco, 2006). Some responsible organisations contend that statistical time frames have been too short to discern patterns (Abbott and Wilson, 2015), that extreme weather events are God's punishment for 'immoral' behaviour (such as Hurricane Katrina in New Orleans, Louisiana, United States, in August 2005) (Stephens et al., 2013), or they prioritise other risks, including financial over climatic ones (Weber, 2010), which may lead to no or low climate risk perceptions. Yet, in some cases, this may indicate strategic political and economic moves, for example, by some conservative governmental organisations, think tanks, and the fossil fuel lobby (Lambin et al., 2001; Dunlap and McCright, 2011). Alternatively, it demonstrates a 'cop out' in taking responsibility for supporting coping or adaptation strategies, as was the case with the failure of the US federal government to maintain levees before Katrina despite warnings of their potential malfunction (Pelling, 2011; Schipper, Merli, and Nunn, 2014).

In contrast, the climate debate may be the perfect discourse for other organisations to justify that at-risk people require more support, and intervention, but for these entities' own purposes or benefit (Flynn, 2008), or to distract from a lack of action on reducing underlying vulnerabilities, in particular when climate variations may potentially be due to economic and political activities (Harwell, 2000). For instance, the Government of Indonesia blamed climate change for prolonged fires in the country in 1997–98, a view supported by aid organisations. The latter concentrated on natural resource assessments rather than on cause appraisals and support for farmers to avoid political confrontation, and thus ignored harmful activities by logging and palm oil plantations as identified by grassroots bodies and farmers left displaced (Harwell, 2000). Since organisations at all levels are also governed by wider cultures and rules, the climate change narrative is likely to be adapted to their cultural contexts so that their risk perceptions may not always translate into effective climate responses. This can be seen in the case of Maasai agro-pastoralists in Tanzania

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who are 'used' by the national government to showcase the effects of climate change within the country to international donors. However, the government also presents the Maasai as climate change and natural conservation perpetrators so as to deny them access to their former habitats, which are now national parks, and to force them into sedentary agricultural activities. This example reveals how the Tanzanian government adapted their agenda to fit with dynamic international public discourses—that is, climate change—rather than addressing the underlying ecological, political, and social changes and causes within the country owing to economic, financial, and political dependencies and interests at the international level (de Wit, 2015). Bankoff (2018) argues that disasters as ecological and social outcomes of hazards are inherently political events, driven by the most powerful.

What is more, each inaction or action in dealing with climate risks may trigger subsequent mechanisms, potentially leading to outcomes contrary to those expected or intended when the step was initiated. In the aftermath of Katrina, for instance, federal recovery funds were delayed and unevenly distributed, with economic expansionist projects prioritised over interventions that targeted the most vulnerable, such as the reconstruction of low-income housing (Weber and Messias, 2012). Moreover, Bolin and Kurtz (2018) claim that external aid from international non-profit and disaster relief charities reinforced racial and class-based inequalities. External interventions following the tsunami in Samoa on 29 September 2009 were viewed as a 'disruption to village hierarchies, social networks and local response efforts' (Binder and Baker, 2017, p. 282). Hence, organisational responses vary hugely, depending on their subject expertise, missions, jurisdictions, and economic and political interests (O'Riordan and Jordan, 1999; Abbott and Wilson, 2015; de Wit, 2015), sometimes to the disadvantage of the most vulnerable people.

Scientific explanations and beliefs may explain adequately a particular action, but they do not necessarily determine its ultimate consequences (Wynn, Jr. and Williams, 2012) and may damage existing structures and mechanisms owing to a lack of respect for existing networks, informal procedures, cultures, and rules tried and tested in the past (Bankoff, 2015; Melo Zurita et al., 2018). For example, many scientists, politicians, and religious leaders (Kempf, 2012; Field et al., 2014) agree that when high vulnerability to climate change seems to be inevitable because of sea-level rise and increasingly occurring and intensifying extreme weather events, resettlement may be the only option for survival. However, organisations may use the urgency of climate change to implement resettlement for political or economic motivations (Kita, 2019). Barnett and O'Neill (2012) also contend that without local decision-making power and the participation of all community members, resettlement can lead to landlessness, homelessness, unemployment, social marginalisation, food insecurity, and reduced access to common property resources. So, while many organisations accept the science on climate change, they may not adopt interventions that address the root causes of vulnerability to climate change, risking maladaptation[13] and greater non-climate vulnerability (Scudder, 2005; Arnall, 2014; McDermott and Gibbons, 2017). As a result, at-risk people may perceive the response itself rather than climate change as

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a threat to their well-being (Abbott and Wilson, 2015; Quinn et al., 2018), underlining that consideration of local cultures and power structures as well as participative awareness-raising measures are indispensable components of interventions (Krüger, Geiselhart, and Schmitz, 2014; Paschen and Ison, 2014).

Yet, with increasing recognition of the necessity of inclusive climate risk and development strategies (Archer et al., 2014; Chu, Anguelovski, and Carmin, 2016; Amundsen et al., 2018), climate change responsibilities and commitments among, within, and outside organisations have started to shift in some regions, either formally or informally. Local governments worldwide are increasingly recognised and used as key respondents to risks, acting as unifiers of local organisations with complementary competencies while entering into close exchanges with organisations at higher levels if necessary (Satterthwaite, Dodman, and Bicknell, 2012; Archer et al., 2014; Melo Zurita et al., 2015). This has the potential to substitute narrowly framed technocratic business-as-usual approaches with more holistic, trustworthy, and transformational approaches based on the cultural and social values of people at risk and their underlying climate and non-climate vulnerabilities through their active involvement (Satterthwaite, Dodman, and Bicknell, 2012; Melo Zurita et al., 2015).

Living with climate change: understanding at-risk people's perceptions, attitudes, and behaviours

Similar to responsible organisations, people who are vulnerable to climate change at the local level have compiled their own observations and explanations of perceived hazards. Explication of the meanings and perceptions associated with such hazards, as well as subsequent response behaviours, also helps to expose the underlying local mechanisms that organisations need to consider when designing, planning, and implementing interventions. Hence, in local contexts, hazards and changes in climate may be described by new unpredictabilities and irregularities of seasonal weather, a seasonal shift in bird migration previously relied on for agricultural activities, or variations in natural and productive resources (Brida, Owiyo, and Sokona, 2013; Aisher, 2016; Raimond, 2016).[14] At-risk people may not know the scientific terminology and the global scope of climate change, but they may be aware of local environmental degradation and transformations that are probably directly linked to or influenced by climate change (Field et al., 2014).

The diversity of local livelihoods and cultural settings, which influence people's varying levels of hazard awareness, also result in different perceptions and explanations of environmental changes, which ultimately define what to respond to and how to respond (Abbott and Wilson, 2015). Commercial and political activities are blamed for increasingly occurring floods by people living in the south of England (Whitmarsh, 2008), as well as in communities along the Volta River in Ghana, where floods are perceived as an 'act of God' and happen also because of the opening of dams (Bempah and Øyhus, 2017). In Bihar, India, the construction of river embankments is believed to disturb the goddess Kosi (Crabtree, 2015). Some Quechua farmers

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in Bolivia believe that observed weather changes are the reaction of Pachamama (maternal creator figure linked to crop production) to inappropriate human behaviour, that she is angry and does not want to provide food to the community owing to some people's practise of witchcraft (Boillat and Berkes, 2013). Others believe that extreme events and disasters are sent by god(s) and spirits who are angry because of some people's insufficient sacrifices and 'immoral' or 'modern' behaviour (Slegers, 2008; Schlehe, 2010; Stephens et al., 2013). Hence, environmental shifts are frequently connected to external causes (rather than people' own individual actions) and to more familiar, visible, and/or certain economic, political, social, and spiritual structures that underpin at-risk people's responses (O'Brien and Wolf, 2010; Cannon, 2014; Bempah and Øyhus, 2017).

These local meanings and perceptions of environmental changes may seem far-fetched in the realm of modern science, but they can lead to low climate risk attention and responses. People who are vulnerable to climate change have different forms of guidance (voluntary or mandatory) administered through sociocultural and spiritual structures that may offer a safety net during times of external shock and fundamentally shape cultural values and vulnerabilities at the local level (Gaillard and Texier, 2010; Schipper, 2015). Hence, at-risk people tend to invest their resources in building social or spiritual networks to enhance social well-being and generating the potential support that networks provide in times of shock (Woolcock and Narayan, 2000; Adger, 2003; Jordan, 2015; Melo Zurita et al., 2018). This support may include food and water provision (Kuruppu, 2009), psychosocial support (Nathan, 2014), and access to information and skills (Osbahr et al., 2010), natural and economic resources (Jordan, 2020), and organisations and programmes (Krishna, 2001), all of which may augment the ability to respond to shocks. Thus, while climate risks are not addressed directly, social networks can provide support to deal with multiple and overlapping local climate and non-climatic risks on a daily basis (Grothmann and Patt, 2005; Jordan, 2012; Sullivan-Wiley and Short Gianotti, 2017).

Social networks and belief systems are intrinsically linked, as beliefs are narratives created through social networks (Paschen and Ison, 2014; Schipper, Merli, and Nunn, 2014), yet belief systems have received little attention in the literature and especially within programmes and policies owing to their sensitive, context-specific, and complex nature (Schipper, 2015). In many cultures it is believed that a god and/or other spirit, such as those of ancestors or nature, cause and/or protect people from climate change, and more broadly environmental change (Schipper, 2006; Boillat and Berkes, 2013). For instance, the study conducted by Slegers (2008) in Tanzania found that the Burunge community believes that the spirits of their ancestors continue to live in sacred trees, and that if those trees are damaged or cut down, their spirits will be dissatisfied, causing droughts (animism). Witch doctors are consulted before ceremonies and sacrifices of black sheep to satisfy ancestors and to bring rain, but if there is still 'no sign of "rain breaking", the dry spell is considered as natural: "the work of God" against which nothing can be done, except to pray' (Slegers, 2008, p. 48).

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Local coping strategies may thus include witchcraft, ceremonies, prayers, and sacrifices to communicate with and/or satisfy spirits, to prevent punishment in the form of climate risks (Falk, 2010; Schipper, 2015). Some argue that such beliefs represent fatalism (Park, 1999) because assigning this responsibility to a higher power may hinder conventional responses to reduce vulnerability to climate change (Schmuck, 2000). However, referring to a god does not necessarily reflect fatalism or inaction (de Silva, 2006); rather, it is a rational way of conceptualising something that seems to be beyond someone's capacity to cope with, or adapt to, in the context of their daily hardship (Gaillard and Texier, 2010). Schmuck (2000, p. 85), therefore, describes beliefs as 'a self-help strategy to overcome crises as quickly as possible and return to daily life'.

Yet, cultural structures and settings with values and norms that create risk perceptions and behaviours at the empirical level of reality are constantly shaped—reproduced or transformed—through interactions of daily life (Bhaskar, 1998; Cleaver, 2012; Bankoff et al., 2015). For instance, people may alter their belief systems to avoid social exclusion and discrimination and to receive potential benefits from social networks, as with many Dalits[15] in India who converted to Christianity or Islam (Cannon, 2014). This is partly because the most vulnerable or adversely affected may not be supported in times of stress because some belief systems interpret this as a punishment for immoral behaviour in current or previous existences (Pratt, 2002; Schipper, Merli, and Nunn, 2014).

Immoral behaviour may include having the 'wrong' faith, as in the case of hundreds of members of the Ahmadi minority religious group (sect of Islam) who were denied humanitarian relief during the floods in Pakistan in 2010 (Malik, 2011). Such behaviour may also include 'wrong' interpretations of the same faith (Merli, 2010), consumption of drugs and alcohol (Stephens et al., 2013), a lack of prayers and sacrifices (Slegers, 2008), inability to provide church membership contributions (Kuruppu, 2009), being homosexual (Gaillard, Fordham, and Sanz, 2015), or being socio-demographically disadvantaged (van der Linden, 2017). Thus, social structures, in which power relations are strongly rooted, may engender cultural adaptation (Bankoff, 2015).

Cultural adaptation, then, probably transforms risk perceptions and responses. For instance, the initial fears of people living in areas at high risk of landslides in La Paz, Bolivia, were overcome by social reassurance of collectively sharing dangerous conditions with friends and neighbours to be closer to the economically flourishing city centre (Nathan, 2014). While their decreased climate risk perception may have led to reduced economic vulnerability, it increased their climate vulnerability, which, with progressing climate change, may outweigh the positive economic and social aspects (Nathan, 2014). Nevertheless, as seen in the outcomes of resettlement schemes, place attachment and social attachment to peers may be so strong that they prevent people from moving to potentially 'climate-safe' locations permanently or temporarily or, in the case of La Paz, encourage people to move to hazardous locations, even if they may be 'forced' to adopt perceptions that are potentially not in line with their individual viewpoint (Adger et al., 2013; Quinn et al., 2018). Concerns tend to

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be higher about potential losses and damages owing to risks experienced frequently or daily (Hamilton-Webb et al., 2017; Tschakert et al., 2017), especially those that threaten the current ability to sustain a livelihood, in comparison to the risk of potential hazards in the future.

Furthermore, local structures not only vary between cultural contexts (Malik, 2011; Brown et al., 2018), but also consist of several sub-structures, such as individuals, groups of individuals, or organisations, which are not homogenous in their perceptions of climate shocks, and their willingness and ability to respond to them, even if the same climate hazard is experienced (Abbott and Wilson, 2015). Different groups of people in the same community or even household are not affected equally, or do not experience the same level of vulnerability, as power serves to create inequalities based on social differences (Wisner et al., 2004; Nightingale, 2017). Multiple, intersecting axes of difference and identity shape how the impacts of climate change will be distributed and experienced by individuals and groups (Osbourne, 2015). For example, Jordan's (2019) study in southwest Bangladesh found that gender and its intersecting power axes of social difference can produce disparate levels of resilience among different groups of women, with elderly poor widows more likely to experience the cumulative effects of climate and non-climate shocks that reinforce or at least maintain the uneven distribution of resources within the household. Structures of power and the reality of social difference and inequities within local structures are important to consider since powerful people may be able to bend the rules while less powerful people may not be able to do so (Cleaver, 2012).

Gotham et al. (2017) and Sullivan-Wiley and Short Gianotti (2017) found that poor, less educated, older people and females tend to have higher risk perceptions than other community members. While Mase, Gramig, and Prokopy (2017) identify risk perceptions as the strongest determinant of responses, a set of cultural narratives and barriers may hinder responses despite high risk perceptions (Lacroix and Gifford, 2017). In times of external stress, cultural inequalities are likely therefore to be intensified and to suppress further the individual risk perceptions of those who are already most disadvantaged within a community, social group, or household, depending on their age, class, ethnicity, gender, religion, and other cultural or social aspects (Debela et al., 2015). This suppression, though, may be perceived as cultural rather than exploitative (Cannon, 2014). Yet, even if culturally-embedded power relations are seen as exploitative, as with other shared cultural practices, it is extremely difficult for the 'oppressed' to change them (Foucault, 1982; Flynn, 2008). For instance, Jones and Boyd's (2011) study in Nepal discovered that community initiatives were in place to ensure relocation to designated safe areas during floods; however, lower castes were often denied access and told to find another refuge, away from the rest of the community and safe areas. It is critical, therefore, that intervening organisations recognise the many tensions, divisions, and inequalities that exist between different groups of at-risk people (Mohan and Stokke, 2000).

Understanding at-risk people's perceptions, behaviours, and heterogeneous structures is essential for inclusive approaches, but more attention needs to be paid to the

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sociocultural relations between and among responsible organisations and at-risk people in times of climate shocks, since shared competencies may be established despite varying cultural contexts (Mohan and Stokke, 2000; Melo Zurita et al., 2018). This shift away from top-down reductionist climate risk understandings and adaptation strategies towards approaches that are based on local social and cultural capital is urgently required, yet progress is slow (Satterthwaite, Dodman, and Bicknell, 2012; Melo Zurita et al., 2018).

Integrating at-risk people's climate perceptions into external interventions

When the internationally-constructed discourse on climate change adaptation travels down to the local level it can encounter incompatible ontologies, discursive formations, and diverging interests (de Wit, 2015). Nevertheless, cultural adaptation may be a leverage point to integrate the explanations of at-risk people and organisations of climate change shocks and cultural norms, complementing knowledge and contexts while leading to more culturally-acceptable, effective, and fair responses (Adger, Lorenzoni, and O'Brien, 2009b; Graham et al., 2018). Consequently, this section examines several cases where organisations have attempted to integrate at-risk people's cultures into interventions to reduce vulnerabilities and inequalities at the local level.[16]

Scotland, which is committed to giving more adaptation responsibility to local governments and people most at risk, introduced a resilience development policy in 2011 that involved long-term residents. Local governments invited them to share their knowledge and effective responses to floods and strong winds, particularly with young and new residents (Connon, 2016). The Scottish Government set out to empower at-risk people by developing strategies that residents' thought were best for their area. However, long-term residents did not engage in the process. They resisted official emergency flood response advice outlined in the resilience development policy and even shared photographs on social media of themselves driving through floods, thereby demonstrating their 'resilience' as Scottish citizens (Connon, 2016). Connon (2016) asserts that this behaviour was due to people feeling misrepresented by the Scottish Government, which is perceived by some as redundant in remote areas and exploitative. Thus, contrary to the government's intention, this policy has potentially increased people's climate and non-climate vulnerability because long-term residents have not only put themselves at greater risk, but also young and new residents may feel uncomfortable asking for help because this may not be perceived as acting Scottish.

The divide between at-risk people and the intervening organisation could possibly have been revealed at an earlier stage and mediated if at-risk people were involved in the planning and implementation of the intended intervention, and if cultural values and structures within the targeted communities and the organisation were reflected upon to avoid misinterpretations (Shaw, 2008; Craig, 2011). Awareness of the relations between engaged stakeholders further establishes trust and understanding

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of their perceptions, interests, and objectives in order to reduce the likelihood that people will perceive such support as political interference and/or as capitalising on local knowledge for organisational benefits (Cannon et al., 2014b; Binder and Baker, 2017).

Interventions are more likely to be accepted by people at the local level if they are developed via participatory practices. The Tuvalu Red Cross Society worked with all of the religious groups on the island, as well as government representatives and other key stakeholders, to integrate at-risk people's concerns into adaptation interventions by combining climate science with religious beliefs. They were able to reach a consensus through a range of activities (such as the King Tides Festival and workshops) that climate change was not God-given as originally perceived by islanders, and that raising awareness of climate change and adaptation activities did not challenge core religious principles. Critically, there was recognition of the importance of protecting the traditional cultural values of Vanua (the land, which gives local people identity, harmony, and solidarity) in the face of climate change (Bamforth, 2014). The Tuvalu Red Cross Society's participatory approach not only convinced at-risk people about the climate change narrative to legitimise external interventions, but also increased the attention paid to global climate change and legitimised global funding and interventions from a wider organisational perspective, serving political or economic interests (Flynn, 2008). This is because 'in seeking to change minds and traditional beliefs about an important issue, the Tuvalu Red Cross Society adopted an effective long-term strategy based on increasing resources, influence, trust and legitimacy as a disaster responder' (Bamforth, 2014, p. 192). However, it is unclear if intra-community and -household inequalities may arise in the case of at-risk people who may not participate in initiatives and alter their beliefs.

Much less international attention has been accorded to the implementation of a locally-accepted warning system for storms on Lake Victoria in Uganda, where the climate risk priorities of both those who face risk at the local level and the organisations attempting to support them were combined through participatory approaches (Cannon et al., 2014b). Despite Lake Victoria being affected by more regular and stronger storms, claiming the lives of approximately 3,000–5,000 people annually, fishers tend to neglect offers to participate in swimming lessons and to wear lifejackets owing to traditions and perceptions of masculinity (Cannon et al., 2014b). The Safe Waters Foundation Africa, the Department of Meteorology in Uganda, the MET Office in the United Kingdom, the World Meteorological Organisation, and myriad other bodies thus developed mobile telephone warnings of storms on the lake. The pilot project provided 1,000 Ugandan men with forecasts and warnings on their telephones. This initiative was able to transform local cultures, in part because of the widespread popularity of mobile telephones among most Africans. As these messages are sent to all fishers, it prevents them from feeling 'weaker' than others by taking lifejackets with them and remaining on land during storms (Cannon et al., 2014b). Since everyone who ignores the warnings is perceived as 'irrational', 'peer pressure now operates in a reverse direction [and] the men now have a good reason

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to behave in a safe way without having to give up their self-esteem and identity' (Cannon et al., 2014b, p. 190).

The most vulnerable people, though, may still be 'forced' to take to the lake during storms because alternative livelihood activities are not provided to offset any income lost if they do not fish, or they may not receive the storm warning due to not owning a telephone. This can lead to further social exclusion, as they will now be perceived as 'irrational' for fishing despite warnings. Any impacts that they experience because of a storm may then be considered to be of 'their own fault', potentially resulting in a lack of social support for fishers and their families (Voss and Funk, 2015; Binder and Baker, 2017). Hence, the intervention neglects the underlying causes of the vulnerability of fishers, which may lead them to go on the lake during storms in the first place. For example, there may be the necessity of a daily catch to meet their family's needs and pressure to make payments on hired equipment. The daily risk of starving is likely to be accorded priority, therefore, in the most vulnerable people's 'finite pool of worry' (Weber, 2010; Ballu et al., 2011).

Integrating local priorities and needs into external interventions in a way that transforms local cultures, as in the cases of Tuvalu and Lake Victoria, may reduce the vulnerability of at-risk people who participate in such initiatives and benefit local and wider acceptance or legitimisation of interventions (Flynn, 2008). However, focusing on homogeneous local cultures and risk perceptions neglects a widespread problem of participatory methods that reinforce or at least maintain the established unequal power relations that are embedded in cultures (Cooke and Kothari, 2001). For instance, residents of Tuvalu who may not accept that their religious beliefs were not incompatible with taking action to deal with climate change, or fishers who may have no choice but to take to Lake Victoria during storms, may experience suppression of individual risk perceptions and therefore increased social exclusion. Hence, interventions that do not deal with these multiple underlying causes of vulnerability may increase the vulnerability of those who are already most at risk vis-à-vis the effects of climate change owing to the inability of the culture to adapt (Bankoff et al., 2015; Bempah and Øyhus, 2017; Binder and Baker, 2017), particularly since social capital is important for coping with climate shocks (Jordan, 2015).

Integrating at-risk people's risk perceptions and local cultures is likely to be challenging, though, as communal and organisational cultures and inequalities are embedded in complex power relations and wider dynamics, such as the cultural narrative of capitalism (Wisner et al., 2004; Cannon et al., 2014b; Oliver-Smith, 2015). Within the climate change field the cultural narrative of capitalism is fostered by neoliberal funding schemes focusing on technical or infrastructural measures and the interests of the most powerful (Bisaro, Roggero, and Villamayor-Tomas, 2018), which may result in interventions that compound rather than address uneven power relations at the local level (Smit and Pilifosova, 2003).

In this context, the capacity of intervening organisations in terms of available funding and time to pursue participatory strategies that fully understand and integrate local cultural narratives may be limited (Cannon et al., 2014b). While transformational

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change is necessary to address the root causes of vulnerability to climate change (Pelling, 2011; Jordan, 2019), it may be difficult and not always appropriate to challenge fundamental cultural narratives (such as religion) in a radical way (Oliver-Smith, 2015). Yet, it may be possible to incorporate more just sub-narratives in fundamental cultural narratives, supporting necessary incremental steps towards a required transformative change (Amundsen et al., 2018). For instance, challenging unjust social and cultural values by encouraging the participation and decision-making power of women and supporting gender-progressive grassroots organisations when confronting climate adaptation to ensure gender-just climate solutions (Agarwal, 2009).

As seen in all three cases, this requires reflection on and potentially a transformation of the cultures of organisations, people at risk, and their overlapping cultural contexts, with a particular focus on the relations between involved stakeholders at multiple levels and increased responsibilities and decision-making power at the local level (Amundsen et al., 2018). In addition, this necessitates the active involvement of those who are most at risk, especially those who may not be able to benefit fully from local social support systems (for example, vulnerable or deprived people) (Voss and Funk, 2015). Cultural approaches to encourage and build the confidence of the most vulnerable and to create awareness among less vulnerable people are considered to be essential in avoiding possible tensions within communities or households (Kindon, Pain, and Kesby, 2007). This may create new dialogues and help to combine climate- and non-climate-related responses to address the multiple vulnerabilities that affect people at the local level simultaneously (Kindon, Pain, and Kesby, 2007).

Potential approaches may include consideration of the interests and cultural contexts of supportive organisations and participatory methods and value-based approaches that recognise the diversity of experiences and perceptions of climate change among vulnerable people when designing, planning, and implementing local, national, and international policies and programmes to achieve inclusive and just approaches while reducing the risk of loss of and damage to local values (Voss and Funk, 2015; Tschakert et al., 2017; Bisaro, Roggero, and Villamayor-Tomas, 2018; Graham et al., 2018). This may also enable the establishment of groups of at-risk people and organisations with different skills and responsibilities to respond to hazards in a flexible manner rather than applying a pre-constructed external solution (Melo Zurita et al., 2018).

Recent studies emphasise the importance of locally-driven adaptation and the role of local organisations (particularly local governments) as potential unifiers of local actions conducted by a variety of organisations and citizens, as actors for transformational change within organisations and as intermediaries for transformation locally (Satterthwaite, Dodman, and Bicknell, 2012; Anguelovski, Chu, and Carmin, 2014; Melo Zurita et al., 2015, 2018; Amundsen et al., 2018). Since local organisations may be more effective in their responses because they are often more flexible in their approaches and either have the same cultural and social norms as people at risk or have access to local cultural contexts and knowledge through working closely with people most at risk, they need to be further supported by organisations at higher levels (Satterthwaite, Dodman, and Bicknell, 2012). It is important, though, that it is

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not assumed that local organisations are always more responsive to the needs of at-risk people, as they can be politicised, bureaucratic, and staffed by local elites (Nyamugasira, 1998; Karim, 1999, cited in Mohan and Stokke, 2000; Jordan, 2012).

Conclusion

This paper set out to examine the sociocultural structures and causal mechanisms for inaction or (in)effective action among at-risk people and responsible organisations that operate at different levels to deal with climate risks. The findings reveal that there are varying context-specific sub-narratives among heterogeneous groups of people at risk and organisations that lead to inaction or (in)effective action in response to climate change, frequently independent of risk perceptions and with unforeseen consequences for at-risk people's vulnerabilities. Thus, sub-narratives may (i) create parallel and/or conflicting climate perceptions and respective responses, (ii) legitimise unequal resource distribution, and (iii) justify the suppression and/or capitalisation of sub-cultural and/or individual risk perceptions.

At-risk people's perceptions of climate change are likely to translate into responses that achieve only short-term gains while maintaining or even amplifying vulnerabilities to future climate and non-climate risks, owing to the multiple types of risks that they experience. While daily non-climate risks and vulnerabilities are predominantly addressed by people at the local level, climate vulnerabilities may decrease as positive side-effects remain unchanged or even increase, such as in the case of landslide risk areas in La Paz, Bolivia. Since existing unequal cultural structures may also prevent the most vulnerable from accessing necessary coping and adaptation strategies, organisational responses are considered to be essential for challenging existing local inequalities and supporting the most at risk. The three cases studies have shown that cultural adaptation can be a leverage point to integrate the explanations of at-risk people and organisations of climate change shocks and cultural norms, complementing knowledge and contexts while leading to more culturally-acceptable responses. Thus, without consideration of at-risk people's perceptions of climate change and local cultures, many interventions attempting to support at-risk people reinforce or at least maintain vulnerability. However, this may also be the case without reflection on organisational cultures and their sociocultural relation to other organisations and at-risk people, such as in the case of Scotland's resilience policy.

Organisations responsible for climate change adaptation and vulnerability reduction, therefore, should first reflect on their own and wider culture(s) and therein, cultural values, recent and past developments, and interactions with other stakeholders in order to be able to identify potential perceptions and acceptance among the different groups of at-risk people that they are intended to support. Second, at-risk people should be involved in the planning, implementation, and monitoring of responses to climate risks. This will help to develop an understanding of local risk perceptions, cultures, and varying risk priorities, which often pay considerable attention

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to non-climate risks that need to be an integral part of responses to climate risks. Third, potential clashes between at-risk people's cultures and organisational cultures should be considered; being aware of the different ideas that people have about climate risk is critical to achieving more locally-acceptable interventions that recognise local knowledge and capacities. Yet, integrating at-risk people's perceptions of climate change into external interventions should not occur uncritically; it is important also to take account of potential tensions or clashes with regard to attitudes and behaviours among at-risk people and the inequities within local power structures. Each inaction or action in dealing with climate risks may trigger subsequent mechanisms, potentially affecting the livelihoods of at-risk people, both those who participate in interventions and those who do not. Since it is challenging to involve all people at risk owing to the variety of risk perceptions and power structures, value-based approaches are likely to help identify appropriate context-specific approaches (Tschakert et al., 2017; Graham et al, 2018). While there has been increasing recognition of the necessity of inclusive climate risk and development strategies and the shifting of responsibilities to the local level, there needs to be more of a focus on the sociocultural structures and relations between and among organisations and at-risk people that lead to inaction or (in)effective action to tackle climate risks.

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Endnotes

[1] The term 'organisation' is used in this paper to refer to the range of entities (and the people that work for them) that are responsible for acting at different levels to support at-risk people.

[2] 'Loss and damage' refers to the impacts of climate change that cannot be avoided by mitigation and adaptation.

[3] 'At-risk people' are defined as individuals at the local level who are vulnerable to climate change. While it is recognised that the use of this term is problematic as it may imply homogeneity, the description is not employed to downplay the multiple, intersecting axes of difference and identity that shape how the impacts of climate change will be distributed and experienced by different groups of people.

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[4] Depending on the response ability (which is subject partly to the hazard itself and partly to resource availability), responses to perceived climate risks may lead to decreased, unchanged, or even increased vulnerabilities to climate and non-climate hazards (Cutter et al., 2008; Eriksen and Brown, 2011). Decreased vulnerabilities are determined by exposure, sensitivity, and ability to respond to a hazard, which in turn may increase a system's ability to respond to future hazards and their consequences (Brooks, 2003; Field et al., 2014). Vulnerabilities thus partly determine responses and vice versa.

[5] The study of ontology addresses the nature of hazards and the world in which they are situated and therefore whether this reality exists independently of human knowledge. This has a strong interconnection with philosophical understanding of 'how do we know what exists' or 'the way knowledge is gained about hazards', which is subject to the study of epistemology (Owens, 2011; Wynn, Jr. and Williams, 2012).

[6] For detailed comparisons of the paradigmatic assumptions of positivism, interpretivism, and critical realism, see Mingers (2004), Wynn, Jr. and Williams (2012), and Fleetwood (2014).

[7] Direct risk experiences are likely to alter risk perceptions (Gotham et al., 2017; Hamilton-Webb et al., 2017), yet their influence is likely to fade over time (Oltedal et al., 2004; Wachinger et al., 2013), particularly if overshadowed by livelihood opportunities (Gaillard, 2008).

[8] The influence of information depends on the level of information (Weber, 2010), trust in the information source (Arbuckle et al., 2015), and information type (Kahneman, 2011).

[9] 'Cultural adaptation' is the adjustment of cultural norms, structures, and values to the local environment and its inherent risks over time as 'an active, creative way of dealing with threats and uncertainties based on ideas and negotiations, communication, social institutions and agency' (Bankoff et al., 2015, p. 5).

[10] 'Cultural narratives' are representations of beliefs and norms in the form of stories, explanations, or regulations pertaining to perceived events or non-events at the empirical level (see Figure 2) (Kearney, 2002).

[11] There are a variety of theories that aim to explain the development and sustained establishment of cultural narratives and their translation into actions, including the concept of social learning (Berger and Luckmann, 1991; Paschen and Ison, 2014), Foucault's (1982) work on power and knowledge, and to be more specific, the influence of organisations such as the World Bank as a 'knowledge bank' and potentially a 'creator of narratives' (Deaton et al., 2006; Rao and Woolcock, 2007).

[12] Case study research was chosen because of its explanatory power and its in-depth, real life context, which is particularly relevant for examining the issues of interest (Dobson, 2001; Ackroyd, 2009; Easton, 2010).

[13] 'Maladaptation refers to a response that does not succeed in reducing vulnerability, but increases it instead' (Nurse et al., 2001, p. 857).

[14] Perceived environmental changes may also be due to climatic variability and local influences, such as the overexploitation of natural resources in the case of Mozambique (Field et al., 2014).

[15] Dalit is the lowest caste in the Hindu social structure.

[16] For further examples of attempts to integrate at-risk people's cultures into organisational responses, see Shaw, Uy, and Baumwoll (2008); Kuruppu (2009); Mercer et al. (2009); Cannon et al. (2014a); and Birkmann, Setiadi, and Fiedler (2015).

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