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Review

Making sense of climate change risks and responses at the community level: A cultural-political lens

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ABSTRACT

How to better assess, communicate and respond to risks from climate change at the community level have emerged as key questions within climate risk management. Recent research to address these questions centres largely on psychological factors, exploring how cognition and emotion lead to biases in risk assessment. Yet, making sense of climate change and its responses at the community level demands attention to the cultural and political processes that shape how risk is conceived, prioritized and managed. I review the emergent literature on risk perceptions and responses to climate change using a cultural-political lens. This lens highlights how knowledge, meaning and power are produced and negotiated across multiple stakeholders at the community level. It draws attention to the different ways of constructing climate change risks and suggests an array of responses at the community level. It further illustrates how different constructions of risk intersect with agency and power to shape the capacity for response and collective action. What matters are whose constructions of risk, and whose responses, count in decision-making. I argue for greater engagement with the interpretive social sciences in research, practice and policy. The interpretive social sciences offer theories and tools for capturing and problematising the ways of knowing, sense-making and mobilising around risks from climate change. I also highlight the importance of participatory approaches in incorporating the multiplicity of interests at the community level into climate risk management in fair, transparent and culturally appropriate ways.

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Introduction

> "Climate change is at once a reality, an agenda, a problem, a context, a narrative and a discourse. . .This shifts the attention of scholarly enquiry from the ontology of climate change, in which proof of its existence is the goal, to epistemologies of climate change which prioritise not only what is known but how it is known, remembered, experienced, embodied and practiced" (Geoghegan and Leyson, 2012, p. 57)

In this quote Geoghegan and Leyson (2012), p. 57 argue that analysing the social dimensions of climate change matters as much as scientific analysis. This recognition raises key questions about how we understand, communicate and respond to risks from climate change at the community level within climate risk management. Particularly as policy makers, donors and practitioners show increasing interest in community-oriented approaches recognising that climate impacts are locally experienced, implementation must be tailored to context, and that top-down approaches are unlikely to succeed (Ayers and Forsyth, 2009; Dodman and Mitlin, 2011). Recent research to address these questions centres largely on psychological factors, exploring how cognition and emotion lead to systematic biases in individuals' and groups' appraisals of risks, self-efficacy, and the benefits and costs of action (Grothmann and Patt, 2005; Breakwell, 2010; Reser and Swim, 2011; Swim et al., 2011). This provides only part of the answer however. Cultural and political factors are also critical in understanding why communities perceive and respond to climate change risks in particular ways but remain relatively unexamined (Pidgeon and Butler, 2009; Adger et al., 2012).

I review the growing literature on risk perceptions and responses to climate change at the community level and argue for greater critical engagement with its cultural and political dimensions. I draw on work in the interpretive social sciences, including anthropology, critical geography, political ecology and sociology. The interpretive social sciences offer valuable insights and tools for capturing and problematising the ways of knowing, sense-making and mobilising around the risks posed by climate change (Batterbury, 2008; Brace and Geoghegan, 2011; Jasanoff, 2010; Crate, 2011). I draw especially on social theories of risk (e.g. Douglas and Wildavsky, 1982; Beck, 1992; O'Malley, 2004; Dean, 1999) and environmental change (e.g. Hewitt, 1983; Hannigan, 1995; Castree and Braun, 2001) that illustrate risk as a collective construct. Risk is not just a 'thing' to be calculated based on the likelihood and consequences associated with a future event. As Horlick-Jones (1998), p. 80 argues, "the identification and assessment of risk is both a human and a social activity and, as such, is concerned with the production of meaning and a shared understanding of reality". This conceptualisation necessitates a focus on culture (how shared meanings and boundaries of difference are defined) and politics (how particular actors, ideas and practices gain traction) in understanding how risk is conceived, prioritized and managed.

Applying a cultural-political lens magnifies the need to examine how knowledge, meaning and power are produced and negotiated in relation to climate change risks. Attention must be paid to the ways in which communities define their shared experience, identity, values, and their way of life. The plurality and politics of knowledge involved is also key. There are different ways of knowing and interpreting climate change risks that suggest an array of responses and policies. Different interpretations implicitly empower some as experts while excluding other knowledges and practices (Pidgeon and Butler, 2009; Jasanoff, 2010; Hulme, 2008). What particular knowledge claims, values and strategies dominate risk decisions, why and how these are linked to powerful interests must be taken into account.

Recognising this plurality of meanings and politics of knowledge is particularly crucial in addressing climate change risks at the community level. Climate science and model projections can only offer a rough guide for localised actions at present (Desai et al., 2009; Ensor, 2011). While climate modelling can predict average changes in temperature and sea level rise with reasonable confidence, there is much uncertainty around projections in rainfall, ocean acidification and extreme weather events at specific localities (Desai et al., 2009; Stainforth et al., 2007; Wilby et al., 2009). Different downscaled projections for a locality may even be contradictory. For example, where rainfall is projected to increase in one climate model and to decrease in another. How climate change might impact on the weather and environment, and the best ways of knowing and responding to these risks, is potentially open to greater debate at the community scale than at larger scales where model projections are more robust.

(De)constructing climate change risks at the community level

I explore firstly how climate change risks are constructed through lived experience and symbolic/discursive means at the community level using a cultural-political lens. This approach builds on recent work highlighting climate change and its risks as material and symbolic phenomena (e.g. Adger et al., 2011; Farbotko and Lazrus, 2012; Rebotier, 2012). Climate change presents an opportunity and challenge for communities and their livelihoods through its very real and tangible effects on rainfall, temperature, the timing of seasons, and distribution of biodiversity and ecosystem services. Equally important

though are the different meanings given to risk as a concept. Communities draw on a multitude of imaginaries, narratives and symbolic representations to make sense of climate change and its risks. I discuss first the lived experiences of climate change risks at the community level and then follow this with a discussion of the meanings attached to these risks.

Lived experiences of risk

Climate change presents considerable risks to communities now and into the future. Current and potential impacts vary from loss of land, ecosystem services and displacement to erosion of place-based identity and cultural heritage (Adger et al., 2012; Mimura et al., 2007; Field et al., 2012). This lived experience or embodiment of risk plays a significant role in how climate change is constructed at the community level. Yet, the nature and severity of climate change risks experienced vary considerably.

Within a single community, the realities of climate change risks are quite different due to the variation in livelihoods. Resource-dependent livelihoods, such as farming, fishing, herding and hunting, face quite diverse and distinct climate change risks including directly from heavy rains, high winds, drought, fires, invasive species, glacier retreat, ocean acidification and sea level rise (Salick and Byg, 2007; Cinner et al., 2012). Other livelihoods, for example based on tourism, construction and office work, face mainly indirect risks via impacts to markets, communication networks and infrastructure (Field et al., 2012; World Bank, 2012). Gender, religion and ethnic identity also play a significant role in how climate change risks are experienced and distributed within communities (Carr, 2008; Kuruppu, 2009; Jones and Boyd, 2011).

Hulme (2010), p. 272 further highlights how modern travel and media allow for a "cosmopolitan" experience of multiple climates physically and vicariously shaping our risk perspectives and behaviours. Such cosmopolitanism defines in particular the experiences of scientists, practitioners, policy makers and journalists who operate in an array of communities targeted by their national, regional and global projects or policies. Their experiences of localised risks are often ephemeral, based on field visits of a few days to months, but they matter. They may form the basis of climate change risk communication and other top-down project interventions at the community level and may even be translated into research and policy agendas at higher levels through job functions and professional networks (e.g. Ayers, 2011; Artur and Hilhorst, 2012; Cameron, 2012). Scientists, practitioners and policy makers further have the opportunity to link and compare their lived experiences with historical climate data and future projections that are not often available to other community-level stakeholders.

Such pluralism in experiences, and the knowledges and practices brought to bear on climate change, raises a number of tensions in aligning constructions of risk and enabling responses across multiple stakeholders at the community level. These tensions are most apparent in considering: weather versus climate; natural versus anthropogenic change; disaster versus everyday life; and scales of knowing and experience in relation to space and time. Below I explore these tensions and their significance in coming to terms with climate change risks at the community level.

We cannot directly sense climate or changes to it, which are statistical abstractions based on average weather over a 30 year period. We encounter the climate through the weather. We observe, experience and remember changes in weather via shifting seasons, extreme events, erratic patterns of precipitation, temperature and nutrient cycles, and changes in species' populations and distributions. Often these encounters occur through localised, mundane activities, such as walking, gardening and gathering firewood. Local knowledge systems and rituals for predicting and responding to weather variability are also grounded in such encounters (e.g. Orlove, 2002; Roncoli et al., 2002; Lefale, 2010; Marin, 2010). We are able to make sense of climate change and its risks through memories of past weather, current experience and future imaginaries, which are attached to particular places and practices (Geoghegan and Leyson, 2012; Jasanoff, 2010; Hulme, 2010).

However, these localised encounters contrast significantly with the techno-scientific accounts through which scientists, policy makers and practitioners often conceptualise climate change risks and operationalise responses. Techno-scientific accounts and tools, which once focused on weather patterns and utilised statistical analysis of local weather data, extend now to the global climate system and draw on global circulation models (Jasanoff, 2010; Hulme, 2010; Miller, 2000). Recent research highlights how these globalised, impersonal, techno-scientific accounts of climate change lead to confusion within communities that do not distinguish between weather, climate and their lifeworlds (e.g. Crate, 2008; Heyd and Brooks, 2009; Leonard et al., 2013) and obscure how risk is experienced and interpreted on the ground (e.g. Ayers, 2011; Artur and Hilhorst, 2012; Orlove, 2009a). Although the term climate change itself is now commonly used among the Marshall Islands in the Pacific, for example, Rudiak-Gould, (2012), p. 48 argues that what Marshallese people have in mind is *otak in mejatoto* referring broadly to changes in the cosmos. A range of phenomena, including a solar eclipse, lifestyle changes and accelerating time, are consequently seen as evidence for scientific projections of climate change by the Marshallese people alongside changing meteorological conditions. Such a (mis)translation is problematic. If climate change is everything, then it is difficult to focus attention on specific impacts such as sea level rise and greater rainfall variability. However, it also has positives, positing climate change as not just an environmental risk and requiring not just techno-scientific responses (Rudiak-Gould, 2012).

This fixation with climate, rather than local weather, has further led to the presentation of anthropogenic climate change in media and techno-scientific accounts as a divergence from the 'natural', stable climate and much riskier for communities (Hulme, 2010; Boykoff et al., 2010). Yet, communities have long faced the vagaries of weather and climate on a daily, seasonal and yearly basis. Farmers, fishers and other resource users have practiced, invested in and continue to experiment with a range of techniques to deal with this natural variability (Strauss and Orlove, 2003; Dwyer and Minnegal, 2006; Batterbury and Mortimore, 2013). Where changes are perceived as within the realm of past experience, anthropogenic climate change

may not appear as a significant risk that warrants shifts in practice or knowledge. Only novel or more extreme changes may generate interest and urgency within communities. Disentangling the risks from anthropogenic change and natural variability also remains unclear in theory and practice (Wilby et al., 2009; Hulme, 2010).

Furthermore, the risks and uncertainty associated with natural, climatic variability remain as significant and problematic for communities as those that they face from anthropogenic change. The El Niño Southern Oscillation (ENSO), for example, is a cyclic climatic phenomena arising in the tropical Pacific Ocean that results in periods of drought and flooding across the tropics. Regardless of anthropogenic climate change, ENSO will remain a considerable risk to communities and their livelihoods in tropical regions (Field et al., 2012). Shifting attention to "climate and the ways it may change" and taking into account the hybridity of climatic risks, including natural and anthropogenic change, offer an opportunity for broader dialogue at the community level (Brace and Geoghegan, 2011, p. 285; Hulme, 2010). As Brace and Geoghegan (2011) argue, this broader formulation better encapsulates the diverse understandings and experiences of changing climatic risks within communities.

Attention must also be paid to the framing of climate change as catastrophe, and associated images of apocalyptic and uncertain futures that have come to dominate politics, media and the popular imagination (Hulme, 2008; Boykoff et al., 2009; de Goede and Randalls, 2011). Extreme events, such as tropical cyclones, floods and drought, do overwhelm the capacities of communities to deal with routine climate variability and change. Often the consequences in terms of loss of life, livelihoods and security are devastating. There has consequently been a significant focus on extreme climate events and how to reduce their risks and avoid potential disasters (Field et al., 2012; World Bank, 2012). Yet, this focus on disasters often obscures the non-extreme events affecting everyday life, which may pose as severe a risk (Artur and Hilhorst, 2012; Orlove, 2009a; Eakin and Patt, 2011).

Orlove (2009a) highlights how acute risks, such as flood damage, receive greater attention than chronic risks to water supply. However, the latter may ultimately be of greater importance for Peruvian communities facing glacial retreat and dwindling freshwater supplies. Artur and Hilhorst (2012) note that, while the Mozambique government viewed the 2007 floods as a potential disaster and ordered evacuations, local communities were not especially alarmed at resulting flood levels. Many residents chose not to evacuate and focused on maintaining their property and livestock as the basis of their livelihoods. Communities in disaster-prone areas may even view extreme events as routine, not to be feared but respected (Mimura et al., 2007; Galipaud, 2002). Given the short-term and long-term risks posed by climate change, the definition of disaster becomes problematised. This problematization raises questions about priorities and the allocation of limited resources in addressing multiple risks at the community level.

Ultimately, the notion of climate change and its risks engenders a new scale of knowing and experience. As Jasanoff (2010), p. 237 argues:

> "Climate, moreover, is spatially unbounded. It is everywhere and nowhere, hence not easily accessible to imaginations rooted in specific places. And, unlike the weather, climate change occurs over spans of time that are not easily assimilated to circadian or seasonal rhythms: it is not perceptible nor provable as a day or year of human life shades into the next."

Shifting the scale of the problem in terms of both space and time creates a disjuncture. Localised practices for managing risk based on past, experiential knowledge elide with global discourses and policies based on scientific projections.

Dwyer and Minnegal (2006) illustrate how risk decision-making within fisheries management agencies contrasts with fishers in rural Victoria, Australia where the former focus on techno-scientific approaches to manage future uncertainty while fishers rely on past experience, knowledge and skills. Jennings (2009) notes similarly how understandings of flood and required recovery efforts in Boscastle Harbour, UK differed among Cornish residents, who drew on past knowledge of local hydrology and focused on poor land management, and newcomers and government agencies, who focused on global climate change and climate-proofing infrastructure. The community level becomes a zone of "friction" between local versus global, situated versus scientific knowledges, and past versus future in determining the present course of action (Tsing, 2004, p. xi).

Meanings of risk

Making sense of climate change risks depends not only on lived experiences but a set of imaginaries, narratives and representations at work at the community level (Adger et al., 2012; Jasanoff, 2010; Hulme, 2008). Risk is more than just a matter of physical threat. It is bound up in people's understandings of themselves and their lifeworlds. Risks are, thus, invested with an array of meanings and levels of significance. What exactly is at stake, and how it should be dealt with, presents a rather complex, mutable and contested problem within and across communities. Furthermore, the term, risk, itself exhibits a certain polyvalence in which multiple rationalities, imaginaries and practices can be attached to it (Dean, 1999; Hansson, 2004).

Unpacking the multiple meanings attached to climate change risks may seem a daunting task. At first glance, there appear as many meanings as people involved if we consider the socially contingent and cosmopolitan experiences of weather and climate within and across communities. However, recent research has begun to flesh out key discursive and symbolic dimensions shaping constructions of climate change risk at the community level. This research highlights, in particular, how linguistic framings, narratives of change and vulnerability, place-based attachment and social commitments are bound up in interpretations of risk (Adger et al., 2012; Adger et al., 2011; Rudiak-Gould, 2012; Pam and Henry, 2012).

Below I draw on these findings and outline four ways in which meanings of climate change risks are produced and negotiated at the community level based on: shared values and worldviews, sense of place, justice and accountability, and discourses and power. I focus on these categories as they are deeply enmeshed in the cultural and political processes at work at the community level. Furthermore, they remain relatively unaccounted for in research, practice and policy for climate risk management and warrant greater attention (Adger et al., 2012; Pidgeon and Butler, 2009; O'Brien and Wolf, 2010).

Climate change risks derive meaning and significance from social values, which define what communities think is worth protecting and doing (O'Brien and Wolf, 2010; O'Brien, 2009). Social values and worldviews represent an organised set of standards, including assumptions, beliefs, preferences and interests, that guide people's attitudes, behaviour, judgements and perceptions of themselves and the world (Rokeach, 1979; Kearney, 1984; Rohan, 2000). They work to highlight or hide risks and to promote specific pathways for decision-making. They do so by moralizing particular opportunities and threats and codifying social commitments. As the anthropologist, Mary Douglas, has long argued:

> "The choice of risks and the choice of how to live are taken together. Each form of social life has its own typical risk portfolio. Common values lead to common fears (and, by implication, to a common agreement not to fear other things)" (Douglas and Wildavsky, 1982, p. 8).

Nowhere is this more visible than the attribution of climate change to supernatural forces in several communities worldwide due to their cosmologies and spiritual values and, consequently, limited concern or action (e.g. Orlove, 2009a; Hulme, 2009; Kuruppu and Liverman, 2011). Rather than seeing such interpretations as illogical or uninformed, it is necessary to acknowledge their legitimacy. Recognising that climate change, its potential impacts and the actions required find little traction if irrelevant to or at odds with communities' beliefs, lifestyles and worldviews. Climate change risks and responses must be understood and interpreted in relation to ideas of 'what is a good life' and 'ought to be' (Jasanoff, 2010; O'Brien and Wolf, 2010). Leonard et al. (2013) illustrate that for the Miriwoong people in Northwest Australia, who believe the environment is sentient and affected by their actions, climate change is associated with mismanagement locally, rather than globally, and spiritual retribution due to damming of rivers, mining, pastoralism and removal from their ancestral lands. They note that the Miriwoong are unlikely to accept externally-driven measures on climate change that are based on scientific projections and that ignore their worldview and aspirations for self-determination.

The meanings and values attached to places further shape how climate change risks are perceived at the community level. Places are not only the sites through which weather and climate are encountered but where identity, values and institutions are anchored. They have material and symbolic value for the communities that live and work within them. Adger et al. (2012) highlight loss of places as a significant risk from climate change due not only to the possibility of the physical loss of land and resources but also the associated cultural assets. When settlements are disrupted through coastal inundation, storms, fires or loss of glaciers, there is often no effective recourse for lost cultural artefacts or sites (Crate, 2008; Orlove, 2009a; Garrett, 2010). An elevated sense of risk can occur where such irrevocable loss is possible. Attachment to community, livelihoods and place can further lead to climate risks and the need for relocation being discounted. Despite recognising the risks from sea level rise, for example, many Pacific island communities do not view migration and resettlement as a viable option due to strong attachment to place (Adger et al., 2011; Pam and Henry, 2012; Mortreux and Barnett, 2009).

Climate change may also cause discontinuity of place due to loss or shifts in landscapes and livelihoods. Such discontinuities can have significant impacts on individual and collective place-based identity (Adger et al., 2012; Fresque-Baxter and Armitage, 2012). The sense of belonging and affective ties to a place may be severed, with feelings of loss and despair, or need to be renegotiated with the changing climate. The role of place and landscape, and how these link to identity, agency and risk perception, remains a fertile ground for exploration within the climate change field (Brace and Geoghegan, 2011; Adger et al., 2011; Fresque-Baxter and Armitage, 2012).

Communities' notions of the acceptable level of loss from climate change, and who bears responsibility for action, warrant deeper examination as well. This issue is particularly complex because what is 'just' and where 'accountability lies' varies not only with socio-cultural context but over space and time (Adger et al., 2006; Caney, 2005; Caney, 2010). Furthermore, the issue can be examined from a distributive perspective, focusing on equity and fairness of outcomes, and a procedural perspective, focusing on whether decision-making process is inclusive, deliberative and transparent (Caney, 2005). For example, Jones and Boyd (2011) highlight how women and lower caste *Dalits* in Nepal are at higher risk from drought and flooding due to lack of access to information and survival skills, such as swimming, but there is limited accountability to these marginalized groups due to bias among genders and castes.

Difficult questions similarly arise in considering climate change risks and responsibilities among nations or regions and into the future. Arctic, atoll island and high altitude mountain communities face serious climate change risks, for example, but have contributed little to greenhouse gas emissions and often possess limited response options (Adger et al., 2011; Orlove, 2009b). Although significant levels of climate adaptation funding have been directed to these regions, it is questionable whether this can justifiably compensate for the expected loss of place, identity and associated cultural values (Adger et al., 2011). Future generations are also likely to think it unjust that they are bearing the brunt of impacts and costs for action on climate change, which is driven by past generations' emissions. Current generations, in turn, remain ambivalent about investing heavily to address climate change as its impacts are still modest and future risks uncertain (Caney, 2005; Caney, 2010; Eakin et al., 2009).

Finally, discourses play a significant role in how climate change and its risks are interpreted and made meaningful for communities (Miller, 2000; Boykoff et al., 2009; Rudiak-Gould, 2011). Discourses form a set of concepts and institutions,

which are produced and reproduced through language, constituting objects and subjects as well as physical and social realities (Foucault, 1980; Hajer, 1995). Particular discourses can be linked to particular actors and interests, implicitly empowering some as experts and legitimizing specific responses. Discourses of climate change risks are, thus, a reflection of politics and power dynamics. Discourses serve to frame particular places and lifestyles as inherently risky, and justify intervention or the lack of it. For example, the Pacific islands are typically framed as 'small', 'insular' and 'disaster prone' and especially at risk from climate change (e.g. Mimura et al., 2007; Pelling and Uitto, 2001). Despite evidence that Pacific peoples have faced significant climatic events in the past and proven resourceful in responding (Campbell et al., 2006; Nunn, 2007). This framing works to undermine local agency and justify foreign intervention via aid, technology transfer and climate information provision (Farbotko and Lazrus, 2012; Pam and Henry, 2012; Barnett and Campbell, 2010).

Discourses can further naturalize or obscure climate change risks affecting the form and relative priority of responses. Tschakert and Dietrich (2010), p. 474 illustrate how flood risks in West Africa are significantly underestimated in climate change adaptation policy due to the "lingering desertification discourse" that focuses attention on droughts. (Cameron, 2012) notes that the opening of mines and transcontinental shipping routes with changing sea ice conditions are not often considered among climate change risks to Arctic communities. Climate change research in Arctic is, instead, narrowly framed around weather-specific risks, relegating indigenous communities' input to discussions of local environmental knowledge and practices and obscuring broader resource development issues (Cameron, 2012).

Enabling community-level responses to climate change risks

Given the multiple actors, experiences and meanings at work at the community level, responses to climate change must be understood as an ongoing process of negotiating and aligning different constructions of risk. These constructions of risk determine notions of agency, capacity and, ultimately, the potential for collective action. Community-level responses are therefore about defining a shared vision and purpose to address climate change. They are also highly political. Community-level responses require the adoption of a particular vision of the future and course of action rather than another. With this in mind, I explore firstly the linkages between constructions of climate change risk and capacity to respond in the next section and secondly I discuss how this capacity is translated into collective action.

Capacity for response

A considerable body of research seeks to define and characterise the capacity for response to climate change and its risks (e.g. Yohe and Tol, 2002; Tompkins and Adger, 2005; Engle, 2011). It focuses largely on the objective and easily quantifiable determinants of capacity for response, such as income, literacy, availability of natural resources, access to markets, information and technology, decision-making structures, and quality of infrastructure and public services. These efforts tell us little about the actual process of building capacity or translating it into action however. What matters are whether and how these resources are utilised for effective responses (Burch and Robinson, 2007; Repetto, 2008).

Adopting a process-oriented approach demands greater attention to the cultural and political dimensions that shape capacity for response. There is no motivation to respond, or build capacity to do so, if communities construct risks as either negligible or overwhelmingly high and beyond their scope (Burch and Robinson, 2007). Where risks are seen as demanding a response, notions of agency, obligations and power relations may still limit capacity (Ensor, 2011; Pelling and High, 2005; Matthews and Sydneysmith, 2010). The above situations can occur even if there are sufficient material resources available to the community. Kuruppu (2009) and Kuruppu and Liverman (2011) offer an illustrative example from Kiribati. Kuruppu and Liverman (2011), p. 667 found Kiribati residents were confident in their capacity to address water risks based on past drought experience but felt hopeless about climate change, which they constructed as "a large flood submerging the islands". Kuruppu (2009) highlights though how religious obligations restrict agency as well as the material resources to address water risks in Kiribati. She notes how strict rules about the purpose of church groups, which formed the bulk of organised local groups, limited opportunities to voice non-religious concerns about water shortages and to develop communal water initiatives. She further notes that Kiribati residents had limited finances to address water risks due to financial obligations to the church.

Social ties warrant particular attention in examining capacity to respond to climate change risks at the community level (Ivey et al., 2004; Marshall et al., 2009; Ireland and Thomalla, 2011). Kinship networks, for example, allow communities to respond to climate-related risks through sharing of resources and labour locally and access to remittances externally (Batterbury and Mortimore, 2013; Campbell et al., 2006; Ellis, 2003). However, there has been significant erosion of kinship networks via colonial processes, demographic changes, and global market forces, rendering many communities increasingly at risk to climatic and other environmental changes (Kuruppu, 2009; Campbell et al., 2006; Eriksen and Selboe, 2012). Marshall et al. (2009) further highlight the capacity to learn and re-organise, livelihood flexibility, institutional linkages, and culture of corruption as key in shaping community-level capacity. They argue that community stakeholders must be able to develop shared understandings of problems and potential solutions. They also note that innovation and experimentation facilitate appropriate and flexible planning. Whether there is transparency and trust invested in these processes is, in turn, shaped by local institutions and the culture of corruption (Marshall et al., 2009). Social norms and obligations can, however, constrain capacity for response as highlighted above in the Kiribati example as well as through unequal gender relations and social stratification that hinder access to resources and power (Carr, 2008; Jones and Boyd, 2011; Ensor and Berger, 2009).

Towards collective action

Social ties are not only critical in building capacity but in enabling coordinated action in response to climate change risks at the community level (Pelling and High, 2005; Eriksen and Selboe, 2012; Adger, 2003; Allen, 2006). Pelling and High (2005) highlight how interpersonal relationships, such as kinship networks, social obligations, trust and reciprocity, mobilise capacity directly by enabling material responses to climate hazards or indirectly via institutional modifications. Eriksen and Selboe (2012) go a step further arguing it is insufficient to establish the presence and strength of social ties in understanding climate change responses. Despite the importance of social relations in securing labour and equipment, they note that declining populations place collective practices under pressure in Norway's mountain farming communities. The nature of social relations, how they are produced and modified by processes of change, and whether they can take on innovative forms is what is important (Eriksen and Selboe, 2012).

Enabling open, inclusive and participatory decision-making is particularly important for collective action on climate change. The level of involvement and representation of the multiple stakeholders at the community level determines how risks are interpreted and, in turn, the scope and form of responses (Ensor, 2011; Ayers, 2011; van Aalst et al., 2008). Ayers (2011) illustrates how consultations in preparing Bangladesh's adaptation policy did not engage a wide range of local stakeholders, had preconceived objectives, and occurred late in the planning process. Consequently, there was a disconnection where national policy prioritised physical exposure to risks, while local communities prioritized risks to livelihoods. By fully engaging multiple stakeholders in dialogue and building networks for sharing knowledge and innovations, however, risks and responses can be more appropriately defined (Ensor and Berger, 2009; van Aalst et al., 2008). Shared learning facilitates ongoing negotiation about community needs and priorities as well as improved planning for future risks (Tschakert and Dietrich, 2010; Pahl-Wostl, 2009). Participatory processes can also lead to better implementation through pooling of resources and incentivizing collective action to address climate change risks (Ensor and Berger, 2009; Dumaru, 2010). Dumaru (2010) provides evidence of how collaborative partnerships facilitate access to information, technology and external assistance for implementation of community-based approaches to climate change risks in Fiji.

The politics of participation is particularly important including how authority, legitimacy and power are enacted and linked to particular interests. Politics plays a critical role in the process of negotiating multiple stakeholders' experiences and meanings of climate change risks and enabling collective responses (Dodman and Mitlin, 2011; Ensor, 2011; Few et al., 2007). How and why particular values, knowledge claims and response strategies come to dominate planning and implementation comes to the foreground in examining political dynamics. Furthermore, authority, legitimacy and power are not allocated *a priori* but vested in the interactions among stakeholders. Particular stakeholders may gain authority and dominance within the participatory process due to expertise, financial leverage, socio-cultural status and legal sanctions. However, their risk decisions may lack legitimacy among wider stakeholders and never reach implementation if the process is not transparent or responses are not salient. Participatory processes can also serve to legitimate a pre-determined course of action on climate change rather than enabling meaningful community engagement (Dodman and Mitlin, 2011; Jennings, 2009; Few et al., 2007). Recent research exposes how constructions and responses to climate change risk by stakeholders at higher levels, including scientists, practitioners and policy makers, tend to overshadow or drive community residents' concerns (e.g. Ayers, 2011; Orlove, 2009a; Barnett and Campbell, 2010).

Conclusion

I have sought to demonstrate the diverse and important ways in which cultural and political dimensions shape climate risk management at the community level, and highlighted opportunities for applying a cultural-political lens within research and practice. In doing so I have recast climate risk management as a contestable and dynamic social process involving multiple stakeholders across scales. Once we recognise that there are many legitimate ways of constructing climate change risks that suggest an array of responses, climate risk management becomes an ongoing process of negotiating and aligning different perspectives at the community level. The challenge is how to incorporate this multiplicity of experiences, meanings and interests into risk decision-making for climate change in fair, transparent and culturally appropriate ways.

Addressing this challenge necessitates broader engagement with the interpretive social sciences in climate risk management. With concerns ranging from agency and structure to place, space and scale as well as the material, symbolic and everyday, the interpretive social sciences offer an array of conceptual and methodological tools for examining the realities, meanings and politics of risks in all their complexity. Drawing on this literature I have outlined several tensions and trade-offs in determining climate change risks and responses at the community level that are not often taken into account. A series of ambiguities become apparent as different stakeholders encounter and make sense of climate change and its risks at the community level, particularly in considering weather versus climate, natural versus anthropogenic change, disaster versus everyday life, local versus global and past versus future. The symbolic meanings attached to climate change risks and responses also vary considerably based on discourses, sense of place, social values and worldviews, and notions of justice and accountability. Furthermore, the capacity for response and collective action reflect how different risk constructions intersect and link to agency and power.

The interpretive social sciences further provide a basis for developing and measuring the success of participatory approaches in climate risk management. Participatory approaches are critical in grappling with the multiplicity of perspectives and responses to climate change risks at the community level. Community-based adaptation and community-based

disaster preparedness are two such promising developments for engaging and empowering local people to identify climate risks, capacities and appropriate responses that build on cultural norms and integrate wider development concerns (Ensor and Berger, 2009; van Aalst et al., 2008). However, there is a long history of privileging techno-bureaucratic expertise in risk management related to environmental issues, leading to paternalistic and prescriptive measures (Douglas and Wildavsky, 1982; Hewitt, 1983). Enabling meaningful, multi-stakeholder involvement and dialogue in climate risk management will be difficult. The interpretive social sciences allow us to explore both the process and outcome of participatory approaches through a focus on the knowledge-power interface (Jasanoff, 2010; Crate, 2011). They cast the spotlight on whose constructions, and whose responses, count as well as why and how.

Making sense of climate change risks and responses at the community level requires a more grounded, nuanced and holistic approach to climate risk management that takes into account subjective and social dimensions. The goal becomes more than how to insert climate and other technical expertise into the local context or how to educate local people about climate science. We as scientists, practitioners and policy makers must actively engage with alternative understandings of climate change and its risks, which may be based on different experiences, values and worldviews, and how they can contribute to research, practice and policy. It is in these dialogic spaces that collectively we can find creative ways to manage climate change and its risks at the community level.

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