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Abstract

The reality of anthropogenic climate change has rendered adaptive responses at all scales an imperative. Households are an increasing focus of attention, but more in the developing world than the developed world, because of the presumed lesser vulnerabilities and stronger adaptive capacities of the latter. Critiques of such presumptions, and the quantitative, macro-scale focus of much adaptation research are emergent. How relatively affluent households, as complex social assemblages, may adapt to climate change impacts encountered in their day-to-day functioning remains unclear. There is, however, a sizeable body of research on household environmental sustainability in the developed world. That research has significant implications for climate change adaptation. This paper brings household environmental sustainability research into productive conversation with the climate change adaptation literature. The former shows that sustainability issues are refracted through social relations within households, and the demands of everyday life. This has three implications for how adaptation needs to be re-framed. First, climate change will not be experienced only via climatic stimuli and extreme weather events. It will be entwined in the complexity of everyday life. Second, knowledge of climate change is not a prerequisite for household adaptive capacity. Third, household-scale analyses show that assumed capacities and vulnerabilities may end up being quite different to those imagined or measured at a macro-scale. These insights invite consideration of how householders' adaptive capacities can be better supported.

Keywords

capacities, scale, household, re, thinking, climate, change, adaptation

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Re-thinking climate change adaptation and capacities at the household scale

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Abstract

The reality of anthropogenic climate change has rendered adaptive responses at all scales an imperative. Households are an increasing focus of attention, but more in the developing world than the developed world, because of the presumed lesser vulnerabilities and stronger adaptive capacities of the latter. Critiques of such presumptions, and the quantitative, macro-scale focus of much adaptation research are emergent. How relatively affluent households, as complex social assemblages, may adapt to climate change impacts encountered in their day-to-day functioning remains unclear. There is, however, a sizeable body of research on household environmental sustainability in the developed world. That research has significant implications for climate change adaptation. This paper brings household environmental sustainability research into productive conversation with the climate change adaptation literature. The former shows that sustainability issues are refracted through social relations within households, and the demands of everyday life. This has three implications for how adaptation needs to be re-framed. First, climate change will not be experienced only via climatic stimuli and extreme weather events. It will be entwined in the complexity of everyday life. Second, knowledge of climate change is not a prerequisite for household adaptive capacity. Third, household-scale analyses show that assumed capacities and vulnerabilities may end up being quite different to those imagined or measured at a macro-scale. These insights invite consideration of how householders' adaptive capacities can be better supported.

Key words: adaptation, capacity, climate change, developed nations, households, qualitative research

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1 Introduction

Faced with the reality of anthropogenic climate change, adaptive responses at local socio-spatial scales, including households, are essential. To date, research on climate change adaptation at the household scale has largely focused on developing nations. These households are often identified as being particularly vulnerable to climate change due to their exposure to economic, political and social stressors beyond climate (Eakin et al. 2014), and perceived lack of institutional, financial or technological adaptive capacities (Fankhauser and McDermott 2014). Without detracting from the severe implications of climate change for developing nations, the limited research focus on household-scale adaptation in developed nations is a significant gap.

This essay joins growing calls for further adaptation research in developed nations. Two factors leading to this ‘adjustment in geographic focus’ stand out (Moser 2010: 467). First, developed nations are not immune to climate change impacts. Moser (2010) cited evident vulnerabilities to climatic extremes such as the European heatwave of 2003 and Hurricane Katrina in the US in 2005 as examples. Second, adaptation in developed nations is not a given – ‘adaptive capacity will not necessarily translate into action’ (Adger and Barnett 2009: 2802). Observed adaptation has fallen short of both what is necessary and what is expected given developed nations’ wealth and presumed capacities (Moser 2010). Assumptions of sufficient, inevitable or automatic adaptation may not be well-founded (O’Brien et al. 2006), particularly under four degrees of warming or more (Stafford Smith et al. 2011).

While climate change adaptation is essential, how and to what extent households in developed nations can adapt remains unclear (Porter et al. 2014). Adaptation research in developed nations has largely prioritised broader socio-spatial scales, positioning government and institutional stakeholders (not households) as key adaptive actors. A systematic review of climate change adaptation research in developed nations found few articles documenting household-scale adaptation (Ford et al. 2011). Those studies that did focus on households mostly considered direct climatic stimuli and impacts, such as heatwaves (Wolf et al. 2010; Saman et al. 2013), flooding and sea-level rise (Harvatt et al. 2011; Barnett et al. 2013).

These research trends likely stem from the dominant framing of adaptation in climate change literature: as rational policy interventions or planned responses to actual or expected biophysical changes (Eriksen et al. 2015). This framing of adaptation is restrictive. Recent critiques highlight three limitations relevant to the household-scale. First, conceptualising adaptation as a policy process renders people ‘recipients of adaptation’, rather than active agents (Eriksen et al. 2015: 526). Second, framing adaptation as a response to direct

biophysical climatic impacts causes important but indirect effects, resulting from social and physical interactions, to be neglected (O'Brien et al. 2006). Both of these limitations are likely owing to a third; the complexity of adaptation has arguably been sidelined in pursuit of quantification. Adaptation planning and scholarship have 'isolate[d] climate change impacts and adaptation from the "messiness" of other societal spheres in order to retain' the 'conceptual clarity and analytical purity' necessary for empirical modelling and policy-making (Eriksen et al. 2015: 525). At the household scale, Elrick-Barr et al. (2014) also noted gaps in assessments of adaptive capacity due to a focus on quantifiable assets, resources or capital, rather than underlying social, institutional or individual processes. Together, such critiques highlight growing dissatisfaction with dominant conceptualisations of adaptation, which pay insufficient attention to the complex, non-linear challenges facing everyday life. Households, as diverse social assemblages and sites of active agency, will need to adapt to changes in their day-to-day functioning. How they might do so is poorly understood.

The household environmental sustainability literature is instructive in this regard. This essay brings that research into productive conversation with the climate adaptation literature. We first provide a brief overview of the household sustainability literature, before identifying three particular insights it provides for framing adaptation differently.

2 Household environmental sustainability research

In recent years, households in developed nations have been recognised in cultural environmental research and environmental sustainability studies as foundational social units. They are logical sites for understanding the consumption of energy, water and materials (Head et al. 2013), and are a crucial scale of social organisation for pro-environmental behaviour (Reid et al. 2010; Gibson et al. 2013). Households have been conceived not as discrete and rigidly bounded entities, but as 'connected' social units entangled in the 'social, technological and regulatory networks that make up suburbs, cities, regions and nations' (Head et al. 2013: 2). They are also comprised of their own internal politics and practices. The day-to-day sustainability behaviours of households are thus influenced by a suite of competing demands, above and beyond being 'green' (Gibson et al. 2013).

When households face climate change impacts, it follows that these impacts are also bound up in intrinsic elements of day-to-day household functioning. Like sustainability, adaptation will happen amongst – and in compromise with – complex assemblages of everyday practices, values and routines. Household-scale adaptation is likely to be complicated in ways not explored in quantitative, macro-scale studies. That complexity may not be all bad. The

household environmental sustainability literature offers important insights for how climate change adaptation will be (and is being) practised, as part-and-parcel of everyday life. Below we describe three specific implications of this literature, which challenge dominant understandings of adaptation and demonstrate the significance of the household scale.

2.1 Implication 1: climate change adaptation and everyday life

A household focus, that foregrounds everyday life, shows how adapting to climate change will also involve responding to multiple non-climatic impacts. While inextricably linked to climate change, non-climatic (or ‘more-than-climate’) impacts take expression in aspects of day-to-day household functioning – food, water, energy, transport and health – beyond direct changes in weather or climate.

For example, adaptation to warmer and extreme temperatures will involve adapting to: changes in electricity reliability (as air-conditioning demand stresses electricity networks); damaged transport and telecommunication infrastructure; and changed social behaviour. Heat and drought will necessitate adaptation to changed availability and costs of foods, and thus the composition of familiar household diets, as crops and livestock are impacted. Beyond direct impacts (personal property damage and injury), extreme weather events will necessitate adapting to: impacts on public infrastructure and services that households rely upon (roads, rail, schools, public buildings and electricity and telecommunication services); rising insurance premiums; as well as psychological stress, and changing place and community identities. How households may adapt to such pervasive ‘more-than-climate’ challenges in their daily lives – keeping their houses comfortable; communicating when telecommunication networks fail; commuting when transport infrastructure is damaged or fuel becomes unaffordable/unavailable; or cooking meals when costs or availabilities of foods at the supermarket have changed – remains largely unknown. At the same time, households will also need to adapt to broader scale, more-than-climate stimuli: political discourse, media debates, legislation, financial instruments, market conditions, planning regulations, conflict, fear, migration (Head 2010). The household adaptive actions made necessary by these tangible changes are consistent with a ‘bottom-up’ scale of social transformation as conceived, for example, in the community economies literature (Gibson-Graham 2008). Our ‘more-than-climate’ approach also resonates with emerging critiques of the tendency to conceptualise climate change as an exogenous stimulus to society (Taylor 2015). Such thinking, ‘appears peculiarly unsuited to a world in which human and meteorological forces have become intrinsically intertwined and co-productive’ (Taylor 2015: 3).

2.2 Implication 2: knowledge may not be necessary for household adaptation

The second insight from environmental sustainability studies is that attitudes do not always match actions. Numerous studies have explored the incongruence between environmental knowledge/attitudes and behaviours (Kollmuss and Agyeman 2002), or between climate change awareness and engagement with mitigation (Spence et al. 2011). In two Australian studies, Waite et al. (2012) found that low-income households engaged in sustainable practices despite not identifying as ‘green’; and Klocker et al. (2012) found that older family members in multi-generational households (some of whom were climate change sceptics) valued frugality. They thus used resources more sustainably than their environmentally-concerned children and grandchildren. In the UK, Whitmarsh (2009) found that householders who conserved energy were generally motivated by economic self-interest rather than environmental concern. In all of these studies, lack of environmental knowledge and concern did not hinder sustainable practices.

Existing adaptation research has suggested that successful adaptation requires knowledge of climate change impacts and adaptation options (Marshall et al. 2013). Such conclusions may be poorly suited to the household scale. Because climate change impacts are entangled with elements of day-to-day household functioning, people will likely make adjustments to household life without identifying their actions as ‘climate change adaptation’. Some adaptation will happen haphazardly and unconsciously: as part-and-parcel of getting on with everyday life. This is particularly true of adaptation to the ‘more-than-climate’ stimuli we have discussed. Framed in this way, a focus within adaptation discourse on ‘belief’ in climate change, or knowledge of impacts and adaptations, may prove to be a distraction. Knowledge may not be a prerequisite – or a sufficient instigator – for adaptation at the household scale.

2.3 Implication 3: unheralded capacities

Household sustainability research has revealed that demographic characteristics do not neatly predict environmental concern and sustainable capacities. Several studies have critiqued the traditional assumption that pro-environmental attitudes and/or behaviours are associated with high incomes, high levels of formal education, younger age groups and Anglo-European cultural norms (Waite et al. 2012; Klocker and Head 2013; Stanes et al. 2015). Socio-economically disadvantaged households, older generations and migrant and ethnic minority households *do* engage in sustainable practices. They also possess unheralded capacities. A survey of Australian households found that the least affluent households were most adept at

creatively changing household practices to reduce energy, fuel, water and food consumption (Waite et al. 2012). In other studies, ethnic minority/migrant households were found to engage in sustainable practices, using public transport at above-average rates (Klocker et al. 2015) and saving water (Allon and Sofoulis 2006). In a qualitative study, Strengers and Maller (2012) observed that many migrants were adept at saving water and energy due to pre-migration experiences of resource scarcity, service disruption, and familiarity with manual water collection and treatment practices. Their existing skills – for instance, around capturing and reusing water in showering, laundering and cooking practices – resurfaced in response to present-day challenges, including a period of prolonged drought and water restrictions in south-east Australia (Strengers and Maller 2012).

A number of researchers have proposed that such unheralded everyday environmental capacities provide valuable cultural resources. Instead of the value-action gap, Hinchings et al. (2015) refer to the ‘action-value opportunity’ of *inadvertent* environmentalisms, such as the restrained heating practices of older people. In isolation, such practices have positive sustainability outcomes. Taken together, they point to a range of established practices and skills – informed by frugality, resourcefulness and collectivism – that may prove useful beyond the sustainability debate. As shown by Strengers and Maller (2012), when households need to adjust to changes in day-to-day functioning, these seemingly mundane skills may constitute important adaptive capacities.

The flip side of unheralded capacities, then, is that vulnerability may need to be rethought. The same households that have been assumed to lack environmental knowledge and sustainable capacities (the ‘poor’, the ‘old’ and ethnic minorities) have also been identified as particularly vulnerable to climate change (Sevovan et al. 2013; Arthurson and Baum 2013). Yet, it is plausible that the very attributes that are readily associated with vulnerability, instead constitute sources of adaptive capacity. Discussions of such possibilities remain absent in adaptation discourse, despite the potential to yield encouraging opportunities. If ‘the window of opportunity for adaptation is smaller than previously imagined’ (Adger and Barnett 2009: 2800), household sustainability practices (including the inadvertent ones) may need to be rethought as survival skills (Gibson et al. 2015). Households with strong internal and external social relations, frugal practices and high levels of pedestrian mobility may ultimately prove *less* vulnerable to a range of more-than-climate impacts than isolated but wealthy households, whose everyday lives are dependent on energy-intensive and less flexible modes of operation. Of course, there is the risk of valorising poverty in this debate, but as catastrophic climate scenarios increase in likelihood, these discussions are necessary. The possibilities of such

vulnerability-capacity inversions need to be fleshed out through empirical research into the everyday adaptive capacities of households.

3 Conclusions

This essay has drawn upon three important insights from environmental sustainability research at the household scale, in developed nations. Taken together, they suggest that adaptation is complicated, in ways not explored in quantitative, macro-scale adaptation studies. Some household-scale adaptation will happen haphazardly and unconsciously as part-and-parcel of getting through everyday life amongst ‘more-than-climate’ stimuli. People are likely to undertake adaptive actions without explicitly recognising climatic changes, or prioritising ‘adaptation’ on a cognitive level. In addition, traditionally understood determinants of adaptive capacity at macro-scales may prove limiting and misleading. Adaptation research needs to be open to considering diverse capacities. Under some scenarios, anticipated vulnerabilities and unheralded practices – frugality, resourcefulness, collectivism, flexibility and responsiveness – may emerge as innate coping capacities and survival skills.

Such suggestions have implications for the effectiveness of the policy interventions familiar in adaptation research. Here we briefly highlight two examples of how policy approaches may not have the desired (or necessary) consequences if they fail to recognise the complex and potentially paradoxical ways in which households tick. If policies relating to water and energy security fail to recognise the intricacies of everyday household life, policymakers ‘may inadvertently reduce householders’ adaptive capacity to respond to climate change impacts’ (Strengers and Maller 2012: 755). Attempts to adapt through infrastructure investments, for instance, can have the effect of making resources appear abundant, even in times of scarcity. In south-eastern Australia, desalination plants were constructed in response to prolonged drought. Not only is this approach energy intensive, it may also have the perverse effect of discouraging households from conserving water resources, thus impeding their adaptive capacities (Strengers and Maller 2012). Moy (2012) presented a similar paradox in the case of household rainwater tanks during the aforementioned drought. Government-subsidised rainwater tanks did not necessarily achieve intended water savings because they became entangled with household practices in ways not predicted by policymakers (Gibson et al. 2013). In many households, rainwater was not used to offset or save dam water. Instead, rainwater *supplemented* dam water use. It enabled water-intensive practices to persist, circumventing householders’ need to develop adaptive capacities. Yet, as we have argued in

this essay, households already possess a range of unheralded skills that may prove advantageous in a climate changing world. Further research into these extant capacities is needed to prevent the introduction of policy interventions that undermine them. Encouraging possibilities for such capacities to be recognised, heralded and scaled-up remain.

Sound climate change adaptation policy will depend upon the rich insights generated through qualitative research methods. When it comes to households, depth, complexity and nuance *matter*. Wider application of such methods will help to rethink adaptation in other contexts. Indeed, we argue, a deeper rethink of adaptation is both necessary and possible.

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