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The Political Ecology of Climate Change Adaptation

Livelihoods, agrarian change and the conflicts of development

Marcus Taylor

ROUTLEDGE

The Political Ecology of Climate Change Adaptation

This book provides the first systematic critique of the concept of climate change adaptation within the field of international development. Drawing on a reworked political ecology framework, it argues that climate is not something 'out there' that we adapt to. Instead, it is part of the social and biophysical forces through which our lived environments are actively yet unevenly produced. From this original foundation, the book challenges us to rethink the concepts of climate change, vulnerability, resilience and adaptive capacity in transformed ways. With case studies drawn from Pakistan, India and Mongolia, it demonstrates concretely how climatic change emerges as a dynamic force in the ongoing transformation of contested rural landscapes. In crafting this synthesis, the book recalibrates the frameworks we use to envisage climatic change in the context of contemporary debates over development, livelihoods and poverty.

With its unique theoretical contribution and case study material, this book will appeal to researchers and students in environmental studies, sociology, geography, politics and development studies.

Marcus Taylor is an Associate Professor in the Department of Global Development Studies and the School of Environmental Studies at Queen's University, Canada.

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– Michael Watts, University of California-Berkeley, USA

"This book provides a compelling answer for why it is that, although we know that climate change is a real and pressing issue, precious little real change is taking place. It offers an incisive analysis of adaptation and what might be wrong with it."

– Erik Swyngedouw, University of Manchester, UK

"Over the last two decades, climate change adaptation has increasingly emerged as the lodestar of public policy and development practice. Adapt now is the rallying cry of the moment. Taylor's brilliant and pathbreaking new book explores the genealogy and construction of adaptation as a complex new field of knowledge and practice. Rather than seeing adaptation as necessary and self-evident, Taylor exposes the ways in which the marriage of climate change and development rests upon conceptually untenable lines drawn between climate and society. He powerfully demonstrates how power, political economy and the production of vulnerability must be the foundations upon which new and radically transformative ideas and policies to combat climate change are constructed. A brave and important book."

– Marcus Taylor, University of California-Berkeley, USA

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Preface

The critique of climate change adaptation

This book interrogates the emergence of climate change adaptation as a new and complex field of knowledge production and development practice. With a specific focus on agrarian regions, my entrance point into the issue is through a close analysis of the discourses and policies associated with national governments and international development agencies whose actions are commonly packaged under the rubric of development. Climate change, it is roundly acknowledged, greatly complicates both present practices and future expectations within this field. The United Nations Development Programme, for example, labels climate change as the "defining human development issue of our generation" and one that challenges the enlightenment aspiration of a collective journey of humanity towards a better future (UNDP 2007: 1). Such concerns stem from the overwhelming consensus within scientific and development organisations that global climate change is triggering profound transformations in social and ecological systems that will cause significant dislocations and stress among affected populations (IPCC 2007). The most severe impacts, moreover, are commonly projected to be concentrated among the world's poor and particularly those living in rural areas of the global South (World Bank 2010).

Given the severity and unequal distribution of projected climate change impacts, international institutions and national governments have advanced the pressing need for rapid and far-reaching processes of climate change adaptation. In normative terms, climate change adaptation is described as a process of transformation in social and environmental systems that can safeguard against current and future adverse impacts of climatic change. Simultaneously, it is also envisioned as a process that facilitates societies to take advantage of any new opportunities provided by a changing environment (IPCC 2007; World Bank 2010). In practice, while the goal of adaptation might be realised through the spontaneous and unstructured behavioural alterations by individuals and social groups – such as farmers changing crops, households diversifying livelihoods, families migrating from exposed regions – such 'autonomous adaptation' is imagined to be insufficiently encompassing to deal with the gravity of projected threats. Adaptation, therefore, is viewed predominantly as a process of coordinated transition to meet the demands and challenges of a changing external environment directed by appropriate governmental institutions (United Nations Framework

Convention on Climate Change 2007). It is on this basis that measures to address climate change are argued to require immediate mainstreaming within both national policymaking and international development initiatives. Facilitating climate change adaptation, it seems, has become a litmus test for the project of development.

In response, a burgeoning academic and policy literature has emerged to help meet this aim. This literature is broad and, as is set out in the following chapters, different perspectives within the field debate the appropriate sites and scales of adaptation, the rights and responsibilities of affected and contributor groups and the necessary mechanisms and goals of adjustment (Pelling 2011). Although this body of work is diverse, and occasionally fractious, it is bound together by the shared assumption of a common and collective need to adapt. "Adaptation now!" has become a shared refrain of international institutions, national governments, non-governmental organisations and scholars working in the field (e.g. Adger et al. 2009; Leary et al. 2010). The idea of adaptation, therefore, has become a touchstone concept that provides both a normative goal and a framework within which practical interventions are planned, organised and legitimised. Rapidly incorporated into the governmental lexicon of development, the idea of adaptation circulates as the accepted rubric for conceptualising social transformations under anthropogenic climate change. From the paddy fields of Uttar Pradesh to the growing shantytowns of Ulaanbaatar, the collective threat stemming from climatic change has seemingly propelled us into a common yet uneven world of adaptation.

In this rush to marry climate change adaptation and development, however, there remains relatively little critical enquiry into the idea of adaptation that underpins such governmental energies. In part, this is because adaptation is commonly cast as a natural moment of transformation that reflects a process common to all forms of life. From its roots in evolutionary biology, adaptation projects the necessity for organisms to constantly adjust to changes in their external environment as a means to bring themselves in line with new constraints and opportunities. Extracted from its roots in biology and transposed into the context of contemporary climate change, adaptation is now held to represent an equally innate process of social adjustments to external climatic stimuli. Facing the assuredly grave consequences of global climatic change, the pressing need for immediate and comprehensive adaptation is seemingly self-evident. As Adger, O'Brien and Lorenzoni put it, "we already know that adaptation is necessary" (2010: 2).

Over the following chapters, however, I set out the argument that we should be exceedingly wary of such representations. To this end, the book interrogates climate change adaptation not as a self-evident analytical framework and normative goal but as an array of discursive coordinates and institutional practices that themselves form the object of analysis. To do so, I pay close attention to the ways that the concept of adaptation fashions a relatively cohesive body of ideas around the relationship between climate change and society into which issues of social change, power and environmental flux are placed and solutions drawn.

At its core, the adaptation framework is predicated upon an inherent dichotomy between climate and society in which the former is represented as a cohesive external system that generates threats, stresses and disturbances, and the latter is portrayed as a separate domain of social structures that are unevenly vulnerable to climatic change. Through this representational regime the discourse produces its 'world of adaptation' in which all social units can be understood and acted upon in terms of a universal schematic of exposure to external climatic threats. The idea of adaptation thereby consolidates a social imaginary of individuals, households, communities, regions, economic sectors and nations with different vulnerabilities and adaptive capacities in the face of an external climate that, tipped off balance by the unintended actions of humans, is dangerously off-kilter.

Through this imagery of climate as an external threat that renders regions and people vulnerable to its capricious nature, the adaptation framework is remarkably successful in creating a new object for development interventions. A world of adaptation can be mapped out in terms of a social cartography of vulnerabilities to be ameliorated by building adaptive capacity and forging resilience. This intrinsically biopolitical impetus to make climate change governable, however, comes at the expense of obscuring crucial political questions about power and sustainability within the ongoing production of our lived environments. The idea of adaptation, I argue, intrinsically lends itself to a technocratic politics that seeks to contain the perceived threats posed by climate change within existing institutional parameters. On this basis, I argue that the seeming naturalness of adaptation stands as a considerable barrier to critical thinking about climatic change and social transformation.

There are, of course, a number of contributions to the adaptation literature that are pointedly critical of a technocratic reading of adaptation. Karen O'Brien and collaborators pointedly ask what is at stake in different framings of vulnerability within the adaptation framework (O'Brien et al. 2007). They argue that while scientific framings produce a managerial discourse that privileges technological solutions to adaptation, a human-security framing builds from the question why some groups and regions are more vulnerable than others, therein facilitating a different politics of adaptation. The purpose of such interventions is to make adaptation more attuned to the needs of the poor and marginalised who are faced with the double burden of existing inequalities coupled with greater risks from climatic change (Eriksen and O'Brien 2007; St. Clair 2010; see also, Brown 2011).

There is a considerable amount of important and instructive work undertaken within this approach and the following chapters undeniably demonstrate its keen influence. It is striking, however, that even this critical counterpoint maintains adaptation as a given and self-evident concept. Although such perspectives rightfully emphasise how social marginalisation and inequality unevenly stratify the impacts of climate-related shocks, they continue to operate within adaptation's schematic of external climatic threats and internal social exposures. As such, they maintain the framework of adaptation but seek to leverage policymaking in a progressive and transformative direction (O'Brien, St. Clair and Kristoffersen 2010; Pelling 2011). What they do not offer, however, is a critique that

questions the very notion of 'adaptation' as a prima facie category of analysis and practice. To do so is to de-frame climate change adaptation to render visible its embedded assumptions and contradictions. Instead of accepting adaptation as a self-evident concept, therefore, the present book deconstructs it as a framing device that profoundly limits how we conceptualise climatic change, its impacts and our potential responses.

The analytical core of this intervention is set out in the first three chapters, in which I critique the Cartesian foundations of adaptation that dichotomise climate and society as two separate yet mutually influencing systems or domains. It is this dichotomy, I argue, that leads towards the representation of climate change as a series of external shocks and disturbances to an otherwise coherent society. Through this separation, climate change is parsed out and isolated from the ongoing processes of social and ecological transformation that construct our lived environments. The purpose of such a separation is precisely to make climate change governable as a managed process of adaptation. What is missing in such representations, however, is that humans do not stand outside their environments but are active protagonists in their ongoing production. As the presently fashionable concept of the anthropocene indicates, this intrinsically involves the production of climate. Under such conditions, the adaptation framework of distinct yet interacting natural and social systems seems curiously unsuited to a world in which what we term 'nature' has become increasingly produced through human activities.

From this perspective, the Cartesian dichotomy between climate and society as separate and external domains that undergirds the adaptation framework is rendered problematic. Instead of conceptualising climate and society as bounded entities, wherein one influences, impacts or threatens the other, the book develops the concept of 'material climates' in which social and meteorological dynamics are seen as fundamentally intertwined, co-productive, constantly refashioned and changing. Rethinking the concept of climate impels us to explore climatic change in terms of the shifting couplings of human and meteorological forces through which our lived environments are actively formed. Political ecology is central to this task because its analytical tools help us capture how meteorological processes are embedded within hierarchically ordered social relationships in ways that produce strikingly uneven and often deeply fragile landscapes. From this perspective, we can approach climate change not as a rupture between society and a climate thrown out of balance by human actions but as a series of tensions in the way that meteorological forces are actively worked into the production of our lived environments. On this basis, climate change represents a shift in the socio-ecological relationships through which our lived environments, with all their engrained inequities and forms of power, are actively produced. The political implication is worth highlighting: instead of converging on the imperative to adapt, we must instead focus on producing ourselves differently.

To concretise this intervention, I turn to a close empirical examination of agrarian environments in South and Central Asia. In these contexts, I argue that the framework of climate change adaptation has emerged as a new and

intrinsically political domain of development practice that operates within a wider spectrum of governmental technologies that represent, order and reshape the agrarian world. To understand how adaptation operates as a governmental practice it is necessary to place the contemporary experience of climatic change within a longer historical register of social and environmental transformation in which agrarian spaces have stood at the nexus of conflicting designs and agencies. It is only by situating adaptation within this broader terrain of agrarian transformation that we can come to terms with the political dimensions of what it means to understand climate change through the framework of adaptation. On this basis, the book demonstrates how the rhetoric and practices of adaptation operate within a deeply political terrain that is configured by contested normative visions of agrarian space. The latter emerge in the context of diverse projects aimed at recalibrating rural regions driven by governments, institutions, corporations and social movements. Climate change adaptation, therefore, is intrinsically a political process despite its pretensions otherwise.

To this end, Chapters Four and Five read climatic change through the lens of political ecology to pose questions that are rarely touched upon within the adaptation literature. They ask what it entails to set climate change impacts within agrarian regions in which the production of goods has been relentlessly commodified, drawing both human livelihoods and their socio-ecological foundations into circuits of capital accumulation that operate on scales that far exceed the specific locality of production. Simultaneously, they ask how we should understand the concepts of vulnerability and resilience in the context of ongoing processes in which rural labour forces are being decomposed and recomposed in new and complex forms. To pose these questions is to situate what is termed 'adaptation to climate change' as part of wider historical processes of agrarian transformation and forms of governmentality within rural regions (see, Davis 2002). Although such concerns are anathema to the adaptation discourse, the book stresses the need to understand climate change in the context of the uneven commercialisation of agriculture, changing property relations, forms of capital accumulation, the dynamics of state formation, macro-projects of environmental engineering, migratory flows, technological change and the emergence of new rural subjectivities and political movements.

By bringing such contested trajectories into the heart of our analysis, we can begin to understand how contemporary climatic change interacts with these dynamics in new and complex ways. Through this analysis, climate change emerges as part of ongoing historical processes of socio-ecological transformation predicated upon forms of power operating at varied spatial scales that shape control over land, water, bodies and debt. As I map out in Chapter Four, these socio-ecological relations construct the parameters through which households seek to reproduce themselves by distributing the essential insecurities of agrarian life in a relational and hierarchical manner. To think of vulnerability in relational terms is to uncover the socio-ecological relations through which the security of some and the relative insecurity of others are directly intertwined. Although it falls out of the analytical purview of the adaptation framework, this relational

focus forms a core aspect of my political ecology analysis. It emphasises that what the discourse labels 'adaptation to climate change' is fundamentally rooted in questions of power and production.

This framework is then used to analyse three case studies that situate questions of climatic change and agrarian transformation across distinct socio-ecological settings and historical contexts. The first study historicises the discourse of climate change adaptation arising within the devastating floods of 2010–2011 that impacted much of rural Pakistan. It does so by demonstrating how the localistic and presentist frames that dominate the adaptation literature obscure the longer trajectories of agrarian transformation in the region. In tracing the political ecology of agrarian relations from the colonial period onwards, the chapter explores the long-term construction and reproduction of vulnerability within the changing contours of ecological change and the shifting incorporation of agricultural production into world markets. It demonstrates how repeated attempts to engineer the socio-ecology of the Indus watershed since colonial times are intrinsic to the contradictory dynamics of agrarian transformation occurring in the present. This provides the basis for a close critique of the technocratic and managerial rendering of adaptation adopted by the Pakistani government. Notably, the question of land redistribution emerges as a key strategy for transforming rural Pakistan within the context of climatic change, despite its complete marginalisation in both government approaches to the issue and the adaptation paradigm in general.

Moving to a regional level, the second study examines relationships of debt and vulnerability in the semi-arid Deccan plateau in southern India. In the context of the increasing frequency of drought, the chapter examines the intersection of climate variability, enduring debt relations and uneven access to water in conditions of an agrarian environment transformed by the liberalisation of agricultural policy. The deleterious impacts of climatic change upon agricultural production in this region are situated within the context of an agrarian environment already haunted by unprecedented numbers of farmer suicides. The chapter details how the agrarian dynamics of contemporary semi-arid Andhra Pradesh are strongly determined by the tenacious yet highly tenuous attempt to secure social reproduction undertaken by a large class of marginal and smallholder farmers that precariously struggle to carve out livelihoods. In this context, the control over water and credit form inseparable parts of the socio-ecology of agrarian transformation under complex capitalist dynamics. The uneven access to credit for well drilling became central to gaining control over the irrigation necessary for increasingly specialised commercial agriculture in conditions of liberalisation and new technologies. At the same time, endemic debts drive on the risks of agricultural failure in the context of rapidly depleted shallow aquifers that characterise the Deccan regions of central and southern India. This intersection of climatic change, fickle waters and enduring debts not only configured a new nexus of insecurity for smallholders but also became integral to the dynamics of surplus extraction and the unequal distribution of risk across the agrarian environment. This raises pressing political questions around smallholder agriculture that are entirely marginalised within the confines of the adaptation paradigm.

The third case examines the political ecology of the Mongolian steppe, where pastoral livelihoods are argued to be uniquely vulnerable to climatic change. In this context, there have been repeated calls to improve environmental and cultural conservation and build community resilience as a means to adaptation. Obscured in such narratives, however, is how successive structural adjustment programmes placed immense strain upon the herding economy through deindustrialisation and the imposition of a changing property regime over the grasslands, leading to increased herd sizes and a tendency towards overgrazing. These dynamics led to a crisis of the pastoral economy that was brutally exposed as a succession of extremely cold winter storms (*dzuds*) destroyed herds. Presently, the pastoral economy faces not only these socio-ecological contradictions but also the dramatic expansion of mining. As part of a new frontier of capital accumulation based on intensive resource extraction, Mongolia is estimated to have enough coal to fire every power station in China for the next 50 years. The irony here is that such coal-fired energy production is contributing to the climatic change at both regional and global scales that further undermines pastoral livelihoods. Interrogating these sharp tensions emphasises how the future of Mongolian pastoralism is shaped within global flows of finance, energy, raw materials and pollutants that are largely excluded from the discourse of climate change adaptation.

These cases impel us to address climate change outside the terms of adaptation so as to widen our political horizons. As the book notes, confronting climate change is not about adapting to an external threat. Instead, it is fundamentally about producing ourselves differently. In moving beyond the adaptation paradigm, two central political questions emerge. First, we need to explicitly foreground ways to collectively deleverage a global capitalist order that is predicated upon the unending accumulation of productive forces and consumptive practices that give rise to the deadly metabolisms inherent to climatic change. This requires opening up the fundamental premises of development and its teleology of globalising boundless consumption. Second, it raises the need to reimagine redistribution as a central pillar of future equitable socio-ecological transformation. Within agrarian environments, redistributive strategies – from land and water rights to credit policies and subsidies – historically have been a central aim of many agrarian social movements. Despite their marginalisation within the framework of climate change adaptation, these struggles become ever more important within the context of contemporary climatic change. Indeed, the inherent and widely recognised inequities of climatic change potentially open a pathway towards revitalising the idea of redistribution across spatial scales. Thinking beyond adaptation will be central to turning such possibilities into practice.

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1 Climate change and the frontiers of political ecology

Since the advent of historical capitalism, virtually no part of the planet has remained untouched by humanity's restless compulsion to transform nature. It is now more than a century and a half ago that Marx and Engels wrote effusively about humanity's newly awakened productive powers that cleared "whole continents for cultivation" and simultaneously conjured "entire populations out of the ground" (Marx and Engels 1998). Their arguments reflected the degree to which humans had become prolific agents of environmental change on a world scale, therein anticipating what some authors now term 'the anthropocene' (Crutzen and Steffen 2003). This Promethean project of harnessing nature to anthropogenic designs appeared to be the realisation of modernity's founding premise that humans could collectively create and enact their own future outside of determination by natural laws. Such ethos, however, held a dark underside. The pursuit of rationality, efficiency and accumulation on a global scale travelled hand-in-hand with the historical processes of enclosure, expropriation, domination and enslavement (Wolf 1982). Moreover, while the unleashing of humanity's productive energies created a world of unparalleled – if desperately unequal – consumption, it also left a trail of resource depletion, land degradation, environmental pollution and species extinction (UNEP 2014). Attempting to mediate or reverse such contradictory forces has been the source of intense and bitter social struggles across the history of world capitalism (Gadgil and Guha 1993; Grove 1997; Martínez-Alier 2002).

Contemporary climate change, however, appears to pose a different order of questions. Whereas the use and abuse of nature noted above encountered notable biophysical constraints, these often appeared to be relatively localised and permeable limits to human designs. Within capitalism, as Marx noted, every limit appears as a barrier to be overcome and the ensuing history of capitalism is one of compulsive technological change, the opening of new resource frontiers and the repeated displacement of such 'externalities' onto the human and geographical margins of society (Marx 1973: 408; Moore 2010a; Barbier 2011). The idea of anthropogenic climate change, however, appears to level a much greater challenge to embedded modernist convictions and practices. Here, nature manifests itself not as a passive resource that strains and complains under human demands but as a dynamic historical agent with the potential to dramatically

shape humanity's future on a planetary scale. As David Clark provocatively notes, the current suspicion that humankind has turned the planet's weather systems into a vast experiment has an ominous supplement: the recognition that drastic climatic shifts have experimented with human life across history in ways that have repeatedly put humans through desperate trials and hardships (2010: 32). On these grounds, by collectively releasing vast amounts of sequestered carbon into the atmosphere, humanity's agency is conceived to have awoken a dangerous leviathan from its brief geological slumber with uncertain historic consequences (Fagan 2004).

Under the spectre of rapid and profound climate change, a new social topography of risk has emerged. Humanity's relationship to nature no longer appears as a domain of controlled manipulation. Instead, it opens a fissured terrain of profound vulnerability scoured by the power of capricious climatic forces. Such inversions have inevitably created profound anxieties concerning humanity's ability to shape its own future (Chakrabarty 2009; Hulme 2010). According to the United Nations Development Programme (UNDP), climate change calls into question the very ideas of development and progress to which the project of modernity is tethered. Failure to recognise and deal with the effects of climate change, it estimates, will consign the poorest 40 per cent of the world's population to a future of diminished opportunity and will sharpen the already acute divisions between the 'haves' and 'have-nots' (UNDP 2007). On these grounds, climate represents a powerful agent of anti-development that, left unchecked, will roll back the already uneven achievements of the modern era.

In response, a dominant policy and academic literature has hastily emerged under the banner of climate change adaptation. This body of work builds from the seemingly self-evident proposition that, if the climate is changing in ways that threaten the existing parameters and future well-being of society, humanity must adapt through a process of planned adjustment that can safeguard against such profound and escalating risks (IPCC 2007). The idea of adaptation has therein become a rallying cry intended to catalyse a determined human response to the threats posed by climate change (Adger, Lorenzoni and O'Brien 2010; Leary et al. 2010). Considerable governmental energies are currently leveraged in its pursuit. Noticeably, in the field of international development, the goal of climate change adaptation now acts as a shared rubric for a diversity of planned interventions, drawing international agencies, governments, corporations, non-governmental organisations (NGOs) and social movements into a common and encompassing framework (Ireland 2012).

Notwithstanding a great deal of sympathy with the stated intentions of adaptation as a normative goal, in what follows I argue that its framework should not be considered an exclusive way of conceptualising the acute challenges that climatic change duly raises. On the contrary, despite its current dominance in academic and policy debates, the salience of adaptation within contemporary policymaking rests less on its conceptual integrity and more on its ability to render climatic change legible to the registers of governmental planning. This intrinsically biopolitical impetus, I contend, comes at the expense of obscur-

ing vital political questions surrounding power and sustainability in an era of dynamic global transformations. Rather than proceeding from the foundation of adaptation, this book asks instead how we might read contemporary climate change differently through the lens of political ecology. While I do not provide a systematic reconstruction of political ecology as a field – a task which has been variously undertaken elsewhere (e.g. Peet and Watts 2004; Neumann 2005; Robbins 2012) – I seek here to illustrate its compelling features as an entry point into analysing the narratives and practices through which climate change is both produced and experienced.

To do so, the chapter draws together a series of shared concerns about power, representation and the production of lived environments that bind political ecology together as an analytical framework. First, I take seriously the notion of political ecology as a field that duly combines the concerns of ecology and political economy in a way that "encompasses the constantly shifting dialectic between society and land-based resources, and also between classes and groups within society itself" (Blaikie and Brookfield 1987: 17). I elaborate how this perspective allows us to get to the core of the relational dimensions of a global political ecology in which the couplings of prosperity and marginalisation, security and vulnerability, and abundance and degradation are produced and reproduced together through overlapping structures of power across spatial scales (Blaikie et al. 1994; Peet, Robbins and Watts 2011b). Subsequently, the chapter engages with a second pillar of political ecology analysis that considers how representation forms an inherent dimension of such power relations (Escobar 1995; Peet and Watts 1996; Escobar 1999; Blaikie 2001). Following this trajectory, I chart the ways in which climate change adaptation operates as a discursive apparatus that renders climate change legible in a narrow and constrained fashion. In particular, I critique its grounding notion of climate as an external system that provides exogenous stimulus and shocks to which society must then adapt. The latter dichotomy, I note, appears peculiarly unsuited to a world in which human and meteorological forces have become intrinsically intertwined and co-productive.

To go beyond the imagery of society and climate as separate systems locked into an endless dance of adaptation, I argue that we must push at the frontiers of political ecology by drawing insights from radical geography (Smith 1984; Harvey 1996; Castree 2001), urban political ecology (Swyngedouw and Heynen 2003; Swyngedouw 2004; Kaika 2005), poststructuralist 'more-than-human' ontologies (Latour 1993; Bennett 2010; Head and Gibson 2012) and ecological anthropology (Ingold 2000, 2011). In so doing, the chapter draws out how a reworked political ecology framework can help us grapple with the complex couplings of human and meteorological forces through which our lived environments are actively yet unequally produced. This approach, I contend, provides a means by which we can write questions of power more articulately into our analyses of climate change and social transformation. It, therefore, opens a deeper set of political questions about power, production and environmental change than is possible within the paradigm of climate change adaptation.

Political ecology and the critique of adaptation

For many analysts grounded in the early works of political ecology there likely arises a sense of déjà vu when surveying the current debates on climate change adaptation. A sharp engagement with the paradigm of cultural ecology and its core concepts of adaptation and homeostasis was one of the birthing grounds of political ecology as a field in the 1980s. For cultural ecologists, the concept of adaptation provided an analytical framework by which to situate the relative ability of humans to respond flexibly to shifts in their environment as part of a broader processes of human cultural evolution (Harrison 1993). From climatic shifts to land degradation, humans were seen to react to environmental change by first coping with and then adapting to successive series of external stresses and stimuli. This ongoing process of adaptation, however, required changes not only the way that humans engaged with the natural environment – such as shifts in cropping or migrations to exploit new ecological niches – but also in the belief systems that structured such practices. For cultural ecologists, therefore, the concept of adaptation described a cumulative series of adjustments comprising the interaction of social practices, systems of meaning and technological changes that might enhance the ability of a given community to cope with environmental stresses (Rappaport 1979). The expected result of such adaptive strategies was not simply a process of behavioural change but rather of a broader cultural evolution that could realign human activities and belief systems with the demands of a changing external environment. Successful adaptation, therefore, created the grounds for a new homeostasis or equilibrium in the relationship between communities and their natural environments.

For early political ecologists, both the analytical framework and political conclusions of adaptation analysis appeared to be problematic. In proposing the centrality of engrained belief systems to homeostasis, the explicit functionalism of adaptation analyses easily could be inverted to frame environmental degradation as the outcome of entrenched yet irrational forms of land management resulting from traditional values that were rendered anachronistic in a rapidly changing world (Blaikie 1985; Blaikie and Brookfield 1987; see also, Robbins 2012). As such, although cultural ecologists often celebrated the lifestyles of the farming, hunting and herding groups they studied, the narrative of adaptation could be reworked for quite different purposes. For modernisation theorists, the demands of economic development required a profound transformation in the value orientations of postcolonial agrarian populations to overcome their perceived proclivity for subsistence-orientated and risk-adverse livelihoods. The political stakes were high. Under the lens of modernisation, a failure to crack the nut of traditional agricultural practices and their associated belief systems could leave societies trapped in a stagnant dynamic in which resource use would remain inefficient and prone to depletion under the pressures of population growth. Authors such as Bert Hoselitz, therefore, were remarkably brazen about what must be done:

> Value systems offer special resistances to change, but without wishing to be dogmatic, I believe, it may be stated that their change is facilitated if the