

Chapter 4

Political Ecology Emerges

- Political Ecology is not a Theory or a Method
- Political Ecology is a Community of Practice
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We have seen that a period of political and environmental dynamism was paralleled by an explosion of theoretical activity in the socio-environmental sciences in the late twentieth and early twenty-first centuries. This introduced a range of concepts and processes that enormously expanded the toolbox of people examining environmental problems. It also put observers on the lookout for certain potentially predictable dynamics (Table 4.1).

Where historically well-adapted agricultural systems turned destructive to the soil, investigators were invited to consider transformations in cash-cropping economies, contracts, or labor systems, rather than immediately blaming peasant ignorance or household size (Watts 1983b). Where crises in a city's water system occurred, observers were directed to the way scarcity is produced through changing arrangements of resource control rather than merely aggregate water demand (Kaika 2005). Where people come to espouse forest

Table 4.1 Concepts and processes in political ecology.

<i>Field/approach</i>	<i>Concepts</i>	<i>Things to watch for</i>
Hazards	Low- and high-risk behavior	Traditional management systems, geared to minimize risk, are altered under political/economic pressure.
Behavioral cultural ecology	Rational land manager	Production decision-making, geared to minimize drudgery, is altered under political/economic pressure.
Common property	Institutions as rules Collective action	Dismantling environmental institutions in political economic change leads to system failure
Marxism/ Materialism	Surplus and accumulation Exploitation and hegemony	Changing production systems and economic crises increase exploitation and degradation of labor and environment.
Peasant studies	Moral economy Everyday resistance	Reconfiguration of environmental management results in political and social crisis and resistance.
Feminist development	Division of labor and power	Reconfiguration of environmental management leveraged on extraction of marginalized labor and resources.
Environmental history	Floating baselines	New ecological systems emerge from competing and subsequent uses of the environment.
Postcolonial/ subaltern studies	Political embeddedness of social science	Accounts of social change used to extend and cement political control over marginal and colonized groups.
Science studies	Social embeddedness of physical science	Accounts of environmental change used to obtain political control of people and resources.
Urban political economy	Urban metabolism Environmental justice	Control over the flow of environmental goods and bads results in uneven exposure, risk, and opportunity.
Environmental subjects	Governmentality Environmentality Interpellation	Environmental values are the results of behaviors rooted in systems of micro-political and institutional control.
New materialism	Actor-networks Distributed agency	Socio-political systems and outcomes are co-constituted by the material characteristics of objects and things.

protection as a goal after generations of destructive behavior, analysts were pointed towards examining changing arrangements of micro-power in local institutions, rather than elusive environmental education (Agrawal 2005). Some political ecologists continue to draw directly on the struggles and questions raised by thinking in peasant studies: How do subsistence producers respond to changing global economics? (Gupta 1998). Others focus on

the imperatives of marginalization raised in postcolonial theory (Jewitt 1995). Some explore the character of landscape morphology under conditions of social and political struggle (Zimmerer 1991), while others investigate the social and political changes that grow from implementation of environmental control (Ribot 1996).

Political Ecology is not a Theory or a Method

This enormous empirical and theoretical heterogeneity challenges the unity of the enterprise as a whole. Indeed, some of the progenitors of the field have gone as far as to suggest that political ecology is effectively incoherent, a mere “cover for anarchic development” (Bryant 1999, p. 148). Senior practitioners have opined that the field has become so far-reaching and inclusive that “it seems easier to say what [political ecology] is, than what it is not” (Blaikie 2008, p. 766). It is certainly true that the proliferation of varieties of traditions and approaches to the politics of the environment have invited a sense that there is no center to political ecology, and that it is a largely eclectic body of work.

Despite this diversity, the central concerns and questions of political ecology continue to revolve around several common conceptual tools and processes (see Table 4.1). As such, it is inviting to imagine that political ecology is a kind of theory, or body of theory. To a degree, and at a very general level, this is true. Political ecologists contributed to the creation of general theories suggesting that capital accumulation necessarily undermines the ecosystems upon which it depends, for example, propelling environmental movements (O’Connor 1996). Similarly, they have demonstrated the difficulties and barriers that environmental variability – both spatial and temporal – presents for capitalists, causing them to surrender or strategically underinvest in some sectors of the economy (e.g., agriculture) (Henderson 1999).

Even so, as it is generally practiced, the eclecticism of political ecological explanation does defy any effort to represent it as anything like a single theory or body of theory. Rather than a specific set of overarching categories or claims, political ecology instead mobilizes concepts from broader schools of thought to explain otherwise confounding socio-environmental outcomes. In many cases, moreover, political ecology focuses heavily on case studies that stress idiosyncrasies, contextual outcomes, and local surprises that precisely fly in the face of general theory-building. Political ecology, therefore, utilizes and supports theory-building to an enormous degree, but it would be grossly misleading to call it a body of theory.

Given this eclecticism, it might be conversely tempting to assert that political ecology is instead a kind of method: something that people *do* (Robbins 2004). Political ecologists typically operate from case studies, often using immersive techniques to understand both values and practices of people, within households, communities, and localities. Participant observation techniques are common, as are survey instruments. This approach reflects the field’s deep roots in development-oriented research in small communities, where anthropological and geographic field techniques were typically ethnographic. These are further analyzed in a comparative fashion, stressing how local knowledges and practices, along with their social networks and ecologies, are impinged upon by political and economic upheaval – commodity price changes, the implementation of conservation reserves, or the introduction of new markets, contracts, or technologies. That analytic, as

a sort of methodological procedure, constitutes some significant slice of political ecological work.

But a more extensive examination of political ecology challenges any such claim. Political ecology includes the use of remote sensing technology and time series analysis of landscape change. It includes modeling efforts to explore patterns of interaction and resource use. It includes extensive archival research in colonial record offices or the basements of NGOs. It includes network analysis of inter-linkages between institutional actors. All of these are analyzed in qualitative and quantitative ways, ranging from interpretive techniques that search for systems of meaning to statistical tests that evaluate the relative influence of specific variables. In short, there are very few techniques, technologies, or analytics not used in political ecology, again suggesting the elusiveness of coherence in the field.

Political Ecology is a Community of Practice

And yet when a conference session is entitled “the political ecology of X,” it is often overflowing with observers and participants. When a call for papers on the “political ecology of Y” is sent on a listserv, it typically receives numerous enthusiastic responses. If political ecology is neither a method nor a theory, it certainly seems to have a lively set of adherents.

In part, this is because political ecology has unquestionably formed a general constituency: a global conversation revolving around a set of specific themes, one that adopts a specific sort of critical attitude. By constituency, I mean a large group of people who come from a yet larger pool who both read and write professionally (like university academics and journalists) as well as those in international agencies (e.g., the Food and Agriculture Organization (FAO)), international non-governmental organizations (e.g., the World Wildlife Fund (WWF)), national state bureaucracies (e.g., the United States Environmental Protection Agency (USEPA)), and local and regional NGOs. Typically, therefore, its constituency operates in the borderlands between analysis and action, and between social practice and environmental impacts, resources, or changes.

More specifically, it is a constituency that holds a deep and abiding skepticism precisely of the institutions within which it operates. It is a community whose members participate in institutions that manage the environment but who are cautious of the implications of environmental management (Robertson 2010). It is a community that teaches courses on environment and development but is woefully concerned that development has been largely environmentally destructive and ethically problematic (Jarosz 2004). It is a community that works in applied circumstances to establish community-based solutions to problems, but which is cognizant that “communities” are often rife with internal conflict, domination, and exploitation (Batterbury and Horowitz 2011, in press). This is a skeptical and ambiguous group, which is in turns hotly politically engaged and coolly dispassionate. As Robertson reflects on his experience doing research both “inside” and “outside” of federal regulatory authority while working and observing at the EPA, for example:

Emerging 32 months later . . . I found I was unsure how to think of my own subjectivity as a researcher. On the one hand I had a clear sense of having immersed myself in the subjectivity of the environmental bureaucrat, following sociologists of science. On the other hand, I forged

personal alliances, engaged in policy advocacy, and did not conceal my own oppositional instincts. (Robertson 2010, p. 7)

The constituency of political ecology is one that simultaneously constructs and deconstructs, criticizes and defends, listens and argues. The population of such a diverse constituency is necessarily large, of course, and by its nature heterogeneous, differentially invested in theory and practice, and divided in its aims and scope, but when a discussion on “political ecology” is assembled, it consistently brings many people to the table. Political ecology is a community of practice, therefore.

Political Ecology is the Quality of a Text

This highly motivated but necessarily ambivalent community is held together by more than its skepticism, however. It is also linked together by an amorphous and ever-changing canon of texts. To be clear, by text, I do not solely mean written and printed articles, though these are most certainly and extensively included. Text here describes symbolic content, images, and media that tell stories. This includes books, of course, but also maps, videos, conference presentations, online PowerPoint slides, audio logs, blogs, and other artifacts of communication.

For a compelling example, consider the work of the Beehive Design Collective who create complex illustrative, instructional, and evocative images of topics including biotechnology, the war on drugs, and the violence of the oil economy (Figure 4.1). More traditionally, the video efforts of Tor Benjaminsen and his colleagues invoke the complex issues surrounding the invention and uses of “desertification” in North Africa (“The Timbuktu Documentaries”). These texts all address, in some basically familiar way, the themes of ecology, environmental knowledge, and power.



Figure 4.1 Section of a Beehive Design Collective Graphic Campaign on the social and ecological horrors associated with the US war on drugs operation: Plan Colombia. A political ecology text. Image courtesy of The Beehive Design Collective.

Political ecology texts are empirical in that they are based on the myriad rigorous methods described above, including participant observation, ecological field study, remote sensing, oral history, and immersive experience. They are theoretical, insofar as the inspiration and interpretation of data and knowledge produced in situ are examined through multiple lenses drawing on the traditions of critical theory described earlier, including Marxist, feminist, and anarchist traditions, but also a range of other categorical and conceptual approaches.

But as noted previously, the enormously eclectic and sometimes contradictory combination of these many techniques and ideas is not what makes political ecology, and its texts, a coherent whole. Instead, it is the overall conventions and orientations of political ecological text that give it a unified effect. These qualities together make political ecology a form of representation, or argument, or literature: like expressionism is a form of painting; gothic is a form of novel; film noir is a form of cinema. Extensive review of articles, books, and other resources in the field suggests that the characteristics of political ecology, as its own form of expression, are (at least) fourfold. Political ecologies:

- track winners and losers to understand the persistent structures of winning and losing;
- are narrated using human–non-human dialectics;
- start from, or end in, a contradiction;
- simultaneously make claims about the state of nature and claims about claims about the state of nature.

Winning and Losing

Political ecology stories are stories of justice and injustice. In such narratives, the transformation of a forest to a pasture, the loss of urban community gardens, or the degradation of a fishery is never an undifferentiated event. Rather, it is understood to have causes and consequences that are uneven between communities, classes, and groups. This is, in part, a reflection of the simple fact that the environmental effects or costs of human action are typically offloaded onto communities, people, or spaces with inadequate political or financial resources to resist. In this sense, foundational political ecology narratives overlap with those of the environmental justice (see Chapter 3), which attends specifically to the dynamics of locating environmental hazards, and the tendency for minority communities to be exposed to toxic dumping, poor air quality, and soiled water resources.

At bottom it is never enough to say that outcomes have winners and losers; it is essential to understand the degree to which such outcomes are non-incidental, persistent, and repetitive: a structure of outcomes that produces losers at the expense of winners. Thus, political ecology narratives typically track the historical processes, legal and institutional infrastructures, and socially implicated assumptions and discourses that typically make unjust outcomes the rule, rather than the exception. Such narratives often challenge long-held assumptions. A traditional assumption, for example, is often made that global food systems produce a “circle of poison,” where there is a prevalence of pesticides on foods imported to wealthy countries from the global periphery. Political ecology on the question, however, demonstrates that in many cases pesticides are more prevalent on food grown by the global poor for domestic consumption, rather than export. It is the global poor who

often receive the brunt of pesticide risks, owing to complex patterns in the global regulatory and commodity system (Galt 2007, 2008a, 2008c, 2008b, 2010). By anticipating and critically evaluating who is put at environmental risk and why, political ecologies pull on threads of the global environmental system, to better explicate how it works.

This notion of justice and injustice can be extended to the environment itself, insofar as ecosystems or species may lose or suffer for the benefit of other actors. Even so, political ecology narratives of such outcomes differ from more straightforward animal or environmental rights accounts insofar as they reveal at the same time the deep structural economic drivers of unjust outcomes and attend to the simultaneous marginalization of disempowered people through the same systems and processes. Political ecology of industrial agriculture in the United States, for example, is rooted in an urgent unveiling of the violence against animals themselves through factory farming (Ufkes 1998). Similarly, Emel's (1995) political ecology of wolf eradication in the United States narrates the violence and malevolence acted against wild animals.

Notably, however, in both cases, these stories stress other key elements. Industrial agriculture is not merely a result of poor ethical choices by consumers, but is instead locked into place by the structural nature of the global food economy, its pricing of commodities, and the decline of small producers. In the case of the American Grey wolf, the narratives and masculinist assumptions that led to its extirpation are those developed and exorcised against native American people during the same period. Political ecology stories, therefore, narrate the uneven and structurally unjust character of socio-natures. Rather than undifferentiated and generic environmental problems, political ecology describes the sloped surfaces and tilting fulcrums of uneven power that control the flow of value from the environment and exact the terrible prices of accumulation, within the shifting systems of political economy that perpetuate both.

Chains of explanation

As a result, placing local and regional environmental problems in a broader context has long been a core of environment–society research. When Humboldt describes the decline of the pearl beds of Cumana, pointing to the increasing rapacity of economics after the Colombian encounter (Chapter 2), he is contextualizing environmental change in political economy. He is, moreover, establishing a chain of explanation, from pearl beds and their reproductive cycles, to producers and their fishing techniques, to markets and their demands, and finally to states and colonial powers, with their propensity for short-term benefits accrued in places distant from the site of extraction.

The result is an effort to trace the contextual forces that constrain and direct more immediate outcomes, and write an explanation of these outcomes that is also, simultaneously, a map for the way value flows out the landscape, through local communities, and towards sites of accumulation far away. When herders conflicted with farmers in Côte d'Ivoire in the 1980s, for example, pioneering political ecologist Tom Bassett (1988) examined the vertical pressures on the system to conclude that these violent *local* outcomes were actually a result of pressures to increase livestock production at the *national* scale, for state-sponsored export to *international* markets. Such an analysis represents what Blaikie and Brookfield called a "chain of explanation." This:

starts with the land managers and their direct relations with the land (crop rotations, fuelwood use, stocking densities, capital investment and so on). The next link concerns their relations with each other, other land users, and groups in the wider society who affect them in any way, which in turn determines land management. The state and the world economy constitute the last links in the chain. Clearly then, explanations will be highly conjectural, although relying on theoretical bases drawn from natural and social science. (Blaikie and Brookfield 1987, p. 27)

Of course, any given political ecological text will rarely include all of these elements, either because the regional context renders them irrelevant or because a single specific link is of greatest importance to the researcher. Research may, for example, focus solely on the way state authorities respond to elites and economic pressures to determine the regulation of specific forms of extraction (e.g., clear-cutting, strip-mining). Other research in the same context, on the other hand, might just as easily focus on the way producer communities respond differently to altered institutional arrangements, mobilizing different resources to adapt their use of the landscape with varying ecological outcomes (Figure 4.2).

The problem in assembling such explanations of winning and losing, therefore, is that selecting a suite of variables and an appropriate scale is difficult and must be driven at least

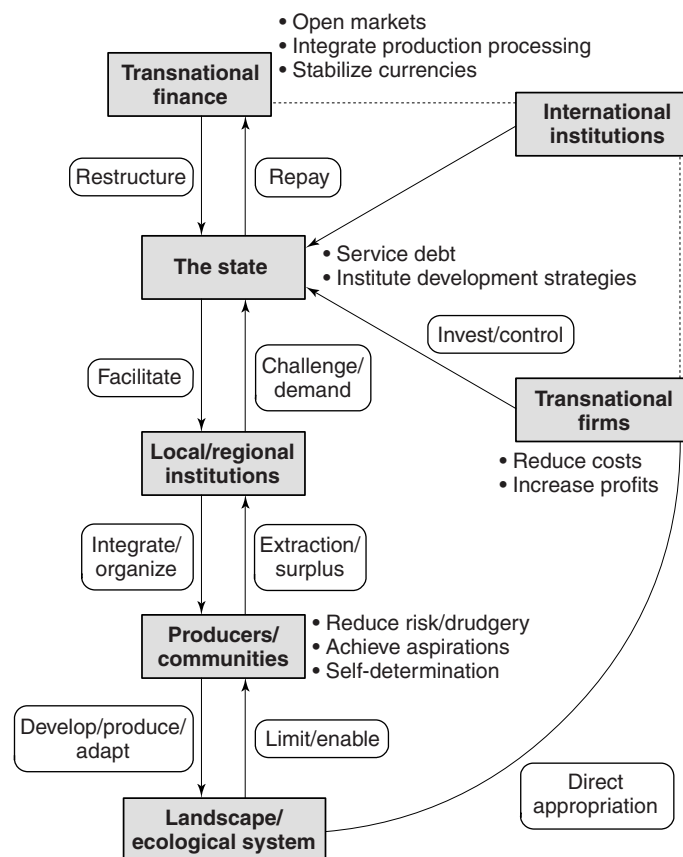


Figure 4.2 The chain of explanation.

Box 4.1 The Reluctant Political Ecologist: Harold Brookfield and *Land Degradation and Society*

Harold Brookfield does not lay claim to the title “political ecologist.” But reflecting over several decades of human–environment work, he admits that he has actually done quite a lot of political ecology after all.

Brookfield began his career squarely in the “Pacific school” of cultural ecology, which was typified by long-term observation of the agrarian cultural practices of the people of Borneo and New Guinea (Brookfield 1962). Even as early as 1963, however, with publication of *Struggle for Land* (Brookfield and Brown 1963), a book exploring the problem of production and territory amongst the Chimbu of Papua, it is clear that Brookfield’s concerns had inherent political dimensions. Later research projects on the effects of colonialism in Melanesia and the urbanization of villages in Malaysia were stamped with the effects of power and political economy in the lives of rural people.

It was not until the publication of *Land Degradation and Society* (Blaikie and Brookfield 1987), however, that these concerns came to be called “political ecology.” Teamed in an unlikely way with Piers Blaikie who co-taught a joint workshop on land degradation with Brookfield in Canberra in 1984, Brookfield explicitly adopted some critical tools and *Land Degradation and Society* became a convenient rallying point for disparate research trajectories centered on the political economy of environmental change. The book had myriad contributors (often forgotten in the shorthand “Blaikie and Brookfield”) including among many others the renowned common property theorist Narpat Jodha; it was in many ways a synthetic volume. Even so, Brookfield’s voice (cautious, inductive, thorough) can be heard throughout.

Like most senior cultural ecologists, however, Brookfield remains wary of the Marxist and structuralist core concepts in political ecology, which were swept into the mainstream with the publication of *Land Degradation and Society*, although in a watered-down form. Like many other researchers, Brookfield fears that the introduction of a political economy approach lures thinking towards oversimple top-down explanation – or “structural determinism” in Brookfield’s own terms.

Even so, the role of political economy is never far from his concerns. As recently as 2002, describing his experiences working in the United Nations University project on People, Land Management and Environmental Change (PLEC) in 12 countries from Peru to China, he concluded,

not without some surprise, that there has been a good deal of political ecology in PLEC, and in the book on “agrodiversity” that I have written in the same period. But it has been a political ecology which focuses strongly on how individual farmers and their communities manage, adapt and innovate within the changing political and economic system, rather than on how the system determines what they do, and what happens to their land.

This suspicion is certainly understandable, since it reflects Brookfield's richly empirical and inductive approach to places, people, and systems. But reluctance to embrace the tools of critical theory was by no means passed along to future researchers. While Brookfield helped to build the doorway into a new mode of explanation, others have passed through it with far less trepidation.

in part by theory. The chain of explanation is as much art as science: "The knack in explanation must lie in the ability to grasp a few strategic variables that both relate closely together in a causal manner, and which are relatively sensitive to change. In that way the most promising policy variables and paths to social change can be identified" (Blaikie and Brookfield 1987, p. 48).

Marginalization

Along with the chain of explanation, the structures of winning and losing are frequently expressed through the concept of *marginalization*. Blending concepts of the margin from neo-classical economics, ecology, and political economy together, marginalization is a process that leads to simultaneous and increasing impoverishment and land degradation in and amongst the global poor. Marginalization is a process whereby politically and socially marginal (disempowered) people are pushed into ecologically marginal (vulnerable and unstable) spaces and economically marginal (dependent and narrowly adaptable) social positions, resulting in their increasing demands on the marginal (increasingly limited) productivity of ecosystems. As a consequence, those individuals and groups will tend to increase their efforts on the landscape, increasingly pushing the limits of its capacity, and achieving lower and lower yields. The result is hypothesized to be a degraded landscape that returns less and less to an increasingly impoverished and desperate community – a cycle of social and environmental degradation (see Chapter 8).

The silent violence of famine in Nigeria

For those trained to think about the adaptive capacity of people and the incredible resilience of communities that live in uncertain environments, this concept of marginalization has proven useful. Notably, as the now-infamous crisis of starvation pervaded the Sahel through the 1970s and 80s, new questions could be raised. Weren't the farmers and the herders that lived in this region already well adapted to the common problem of drought? And if so, why were those adaptations failing in the contemporary period?

An answer came in the exhaustive study of Nigerian famine, *Silent Violence*, by Michael Watts, a critical geographer trained in hazards and cultural ecology, who connected the crisis in the Sahel to a century of economic and social transition. The problem lay, Watts argued, in "the rupture of local systems as they become part of coherent and highly integrated global networks" (Watts 1983b, p. 14). *Silent Violence* reveals the ecological and

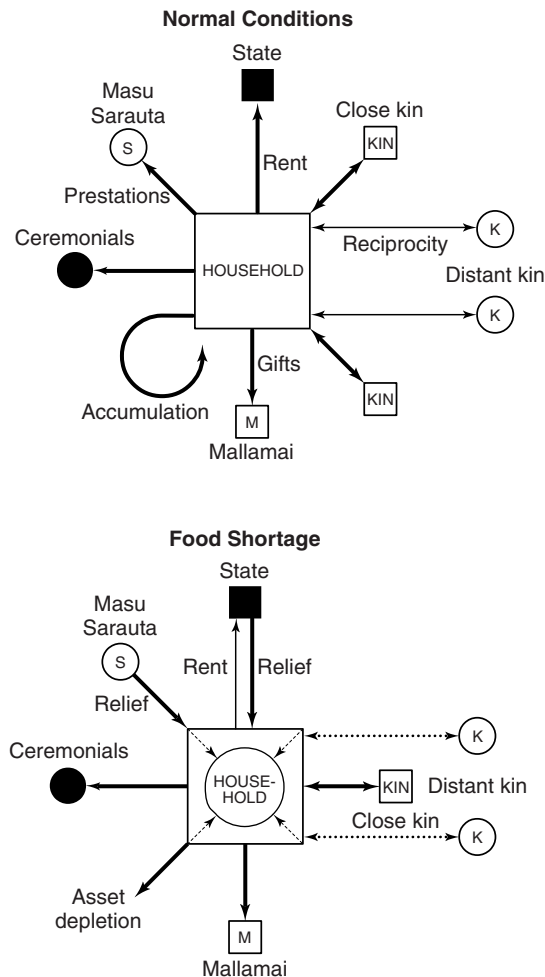


Figure 4.3 Watts' moral economy of famine in Hausaland and Sokoto. *Source:* Reproduced from Watts 1983b, Figure 3.2. © Michael Watts. Reprinted with the kind permission of the author.

economic feedbacks of marginalization, where decreasing social power and resource access leads to depletion of resources, reinforcing social and political subjugation.

While shortages occurred in pre-capitalist economies, access to food in the past was determined by systems of reciprocity and social exchange within the economies of Hausaland and the Sokoto caliphate (Figure 4.3). Here, during normal (rainfall) conditions, households paid rents to the state, exchanged extra grain with kin, and accumulated and paid out small surpluses as a reserve against famine (Watts 1983b). As *Silent Violence* further demonstrates, however, the colonial and postcolonial capitalization of exchange relations transformed that famine ecology. Seeking petroleum receipts and cash-crop exports, the Nigerian state subsidized programs for cheap food imports and industrial development. This led to increased rural debt, the disappearance of the redistributive systems of previous regimes, a turbulent roller-coaster ride of commodity market price

Box 4.2 Revolution's Influence "On the Poverty of Theory"

Michael Watts's 1983 essay "On the Poverty of Theory: Natural Hazards Research in Context" departs from just about everything. By arguing against "naïve empiricism," Watts departs from traditional geographic science. By deconstructing the neo-Darwinism of "adaptation," Watts departs from cultural ecology. By rejecting the "rational agent," Watts departs from the dominant approach to hazards research (Watts 1983a).

All of this departing must have taken a great deal of energy, but as Watts has explained, there was a lot going on at the time to fuel so much schism. Watts had joined with a group of "Nigerian and expatriate Left intellectuals" (in his own words) who were:

working on similar problems rethinking postcolonial Nigeria – working and living in northern Nigeria during the oil boom of the 1970s . . . It had an urgency because of the ruinous famines in the region and because of a certain political energy around Third World revolutionary politics (as it then seemed) which included of course the revolutionary movements and successes of the 1970s (Vietnam, Nicaragua, Zimbabwe and so on).

Specifically, the project was to "denaturalize" things that were inherently social but constantly attributed to climate: famine, destitution, and poverty. The article sought to establish a critique of what Watts viewed as "naturalizing" approaches – empiricism, hazards, and cultural ecology – and the article formed the theoretical foundation of Watts's larger (indeed sprawling) book *Silent Violence* (1983b). This foundation was built on Marxism, peasant studies, and the British New Left historiography of thinkers like E. P. Thompson, whose essay on *The Poverty of Theory* (1978) loaned its title to Watts's piece. But more directly, Watts drew on the thinking of Althusser and his structural account of class society operating like a big machine.

And to be sure, the essay is written in the language of high Marx. Typically, for example, the text urges that "the forces of and social relations of production constitute the unique starting point for human adaptation which is the appropriation and transformation of nature into material means of social reproduction" (p. 242). The often arcane prose (for those less initiated) can be frustrating, though it is crucial to his point.

But digging through the thickness of the language is well worth the effort, since the essay delivers a convincing story about the role of colonialism in shattering traditional responses to drought. It also provides an account of the horrors of famine formed from the paralyzing economic structures of emergent postcolonial states. All this and a critique of positivism in about 30 pages; not bad.

Most important, such structural critiques of famine cannot be mistaken as a fad of the 1970s and 80s. The essay continues to be extremely influential, reflected in recent work on historical as well as contemporary famines (Davis 2001). Watts noted in 2002 that "I am perhaps embarrassed to say that I have not changed my ideas about famine and climate."

changes, and soil mining leading to land degradation. The near-record drought in the 1970s triggered the region-wide famine disaster that followed, whose causes were rooted in the marginalization of producers and landscapes (Watts 1983b). Here, a political ecology of winners and losers becomes a structural analysis of why some perverse outcomes persist.

Human–Non-Human Dialectics

A second characteristic of political ecology accounts is their tendency to narrate causes and effects in a dialectical fashion. This represents a shift of view from more intuitive and straightforward ways of seeing natural processes and things. Typically, we think of objects and things in the world as discrete. A tree as an organism, for example, is intuitively understood as having bounds and distinct characteristics, which interact with other discrete things in the world, by drawing up nutrients from the soil, for example, and pushing its roots through cracks in the pavement.

This is by no means the only way of seeing objects and things in the world around us, however. In many senses, a tree is by no means discrete. Instead it is the momentary fusion and embodiment of complex elements that come to appear (to most of us anyway) as a single environmental phenomenon. So too, its momentary concatenation possesses tendencies and qualities that are more than this sum of parts (e.g., the respiration of oxygen). Finally, it is only part of a larger set of processes that constitute other phenomena around it, and from which it is inseparable (e.g., the climate). So too, the tree is in a state of ongoing becoming, and is never the same thing at any time, from the first shoots of its seedling growth to its senescence, decay, and death. Dialectics, as a method of explanation and analysis descended from Hegel and Marx into contemporary socio-environmental theory, causes us to rethink the tree as momentary, differentiated, and becoming. The tree becomes the way it is through a constant remaking of other things. Similarly, the tree itself is not a discrete element of something larger, but produces its contextual conditions even as it is remade. It is not discrete objects or events that make up socio-environments but relations and processes. Thus from a dialectical position, things are relations. Following Ollman (1993, p. 11), dialectics means:

... replacing the common sense notion of “thing,” as something that has a history and has external connection with other things, with notions of a “process,” which contains its history and possible futures, and “relation,” which contains as part of what it is its ties with other relations.

A reading of the world through dialectics invites a more processual and complex picture of the nature of things. As a result, dialectical stories, as those typically narrated by political ecologists, rarely focus on how individual things or variables cause outcomes or explain other things in a straightforward way, but instead how things and relations change by becoming entangled with one another. In political ecology, this means that non-human objects (elk, ice-makers, fungi), as well as human beings themselves, contain and are constituted by their relations to other things. So too, they are always becoming something else, precisely through their relating.

Writing environmental problems and conditions, therefore, becomes a reading of their collective historical constitution and the momentum of that constitution into the future. It is true that not all (or even most) political ecological work self-consciously states its approach as dialectic, but methodological, historical relationality is stitched into the fabric of most political ecological narratives.

Consider the political ecology of *Nature's Metropolis* (1992), described earlier (see Chapter 3). In that work, William Cronon narrates the rise of the city of Chicago in basically human/non-human dialectical terms. The city comes to be constituted by the grain, meat, and other commodities that are themselves created through the networks of rail, storage, and processing that come to constitute the city itself. In more traditional urban histories, conversely, the city is described as forming around activities internal to itself, growing to demand resources from the hinterland as a discrete organism, and eventually forming a node in a larger web of trade and economy.

For Cronon, the city and the country are simultaneously constituted by the development of commodity economies of production and distribution. In the harvesting, movement, and transformation of each commodity (grain, meat, etc.), a set of geographies, buildings, social interactions, and transportation networks are stitched together to create what we now call "Chicago." The city is, in a sense therefore, nothing more than the ossified sinews along which environmental goods have been made to flow, turned into generic tradable goods, and redistributed outwards to global markets. This is complex, insofar as it shows a self-organized system that makes its own geography. It is historical in that development over time cascades forward in a non-teleological way – non-pre-ordained, and filled with surprise and uncertainty. It is political ecology, however, most notably because it holds at its center a dialectical relationship in which things come to explain one another.

Starting from, or Ending in, a Contradiction

A further element of political ecological texts, and part of their dramatic appeal, is the tendency for their structure to begin or end in a contradictory situation, proposition, or mechanism. The term contradiction is defined loosely here to mean an apparent inconsistency between things or outcomes stemming from the same process, history, or condition. It describes the "incompatible development of different elements within the same relation . . . elements that are also dependent on one another" (Ollman 1993).

Placed at the beginning of a political ecological tale, contradictions compel fascinating mysteries worthy of socio-ecological investigation. The banning of pesticides in the United States has been observed to contrarily lead to increased use and exposure of the same chemicals abroad for foods exported to the United States. Does market integration increase such exposures? (Galt 2010, 2008a). Consumers who apply chemicals to their lawns, for example, are more likely to say that such chemicals are environmentally problematic than people who do not use them. Why? (Robbins 2007). Both these chemical questions are predicted on apparent mismatches between practice and expectation and between "common sense" and complex reality. They propel political ecology narratives to unravel cognitive knots and explain the unexplainable.

On the other hand, placed at the conclusion of a political ecological story, contradictions invite serious scrutiny of the taken-for-granted approaches, techniques, or ideas of

Box 4.3 The Paradoxes of Feel-Good Consumption in Guthman's *Agrarian Dreams*

The idealistic producers that entered American organic farming in the 1960s and 70s imagined a new kind of society: more sustainable, more interconnected, more grounded in ecological and social realities, and altogether more fair. The take-home message from Julie Guthman's *Agrarian Dreams* (2004), however, is that the dynamics of capitalist agriculture paradoxically made organic agriculture contribute to anything but a new kind of society. Indeed, from this paradox stems many more: regulation and certification designed to guarantee sustainability resulted in its opposite; because of cost squeezes in production, an ideologically committed industry became brutally exploitative of labor.

As Guthman explains, "when I began on this research in 1995 . . . the romance about organics was still very much alive, and I was really interested in seeing how the reality matched up to the claims. The first research outing, actually done as part of a class seminar, was pretty mind-blowing in terms of what we found: e.g., farms with hundreds of acres growing salad mix components on contract for grower shippers – far from the way organic farming is imagined."

In simple terms then, *Agrarian Dreams* lays out the history of organic production as a part of, and not separate from, the larger ongoing history of California's capitalist agricultural system. In lucid prose, Guthman shows how ideologically committed practices, directed at producing ecological and social alternatives, were not only subsumed under modern industrial agriculture, they became crucial to maintaining it. She bolsters this argument by exhaustively documenting and evaluating the activities of a large number of growers, by examining the history and success of organic certification outfits, by interviewing producers and processors, and by carefully comparing the character of organic and conventional growers both economically and demographically over time.

The results, she bravely suggests, demonstrate that the success of organics has undermined the progressive goals of its progenitors, precisely because they have (1) allowed an unconvincing and naïve agrarian populism to cloud their view of the inherently industrial history of California agriculture, and (2) assumed that the market logics of commodity production stand in for a more meaningful understanding of how the industry actually works. As she sums up, "it may be the case that the larger organic movement never meant to alter the entire food system systematically, the existing structural conditions of agriculture have limited its reach in surprising and profound ways" (p. 178).

As a result, Guthman has become the self-described "bad girl" of alternative food. "For some," she told me, "I'm a thorn in the side; but . . . I like to see my research as friendly critique. And I really believe it's been effective. Over the past 15 years I've seen major changes in how that alternative food movement frames its social justice concerns. Now, for example, there is growing concern about the whiteness of the movement."

Wielding political ecology's hatchet, in other words, has allowed Guthman to help open doors for seeding and growing new possibilities.

mainstream perspectives, which have produced or overlooked the reverse effects of those assumed or desired. Participatory development techniques designed to bring local ecological knowledges to the decision-making table, for example, result in, and accelerate, their exclusion (Ribot 1996; Agarwal 2001; Goldman 2003; Balint and Mashinya 2006). Slave-holding plantation owners came to depend on the ecological cropping knowledges of those they had enslaved (Carney 2001). Green, progressive, and “alternative” organic agriculture came to be a vanguard industry for labor exploitation and large-scale capitalist development (Guthman 2004). By beginning from often straightforward questions (i.e., what does participation do to management? Where does American rice come from? How did organic farming evolve?), but ending in a contradiction, such political ecologies force us to consider what forces skew, loop, and reverse expected causation to create surprising outcomes. By empirically rooting ironic observation in actually-existing socio-ecological contradictions, such political ecological texts help to identify places to positively untangle the causes of undesirable, unsustainable, and unjust socio-ecological outcomes.

Claims about the State of Nature and Claims about Claims about the State of Nature

Finally, political ecologies are characterized by a stubborn insistence on describing the transformation of the physical world as well as the complex systems of meaning and representation that make it difficult, if not impossible, to know the condition of the physical world. Both such claims are frequently found within the very same essay or book, moreover, presenting an important, if somewhat uncomfortable, juxtaposition of claims. The first kind of claim, common enough in environmental writing, is a realist one, which might describe the characteristics of an ecosystem, the quality of a water supply, or the density of a tree canopy. It is set into motion typically by further assessing changes in conditions, as in the degradation or recovery of resources, the expansion or contraction of forest cover, or the increasing or decreasing prevalence of a species of concern. Core political ecology stories are ones that describe environmental change and explain the conditions that effect that change or are precipitated by it.

The latter kind of claim, conversely, is a constructivist one, which concerns the conditions in which ideas about the environment are formed, about the discursive resources that make certain assumptions about the environment more possible or likely, and about the way political power, social habits, and cultural norms may set human beliefs about the way the world both is, and ought to be.

The epistemological issues raised by this uncomfortable juxtaposition are several (see Chapter 6), but it is immediately clear that the second set of claims might be imagined to undercut the former ones and vice versa. This is a longstanding concern in the field of “science studies” (see Hess 1997), but one that appears to present a contradiction for political ecology. A story that stresses the conditional nature of environmental knowledge on first appraisal seems to fit poorly, after all, with one that stresses empirical evidence for significant environmental change.

And yet some of the most notable and compelling political ecologies work at both ends simultaneously. Canonical work by James Fairhead and Melissa Leach (1995) carefully documents the institutional, colonial, and governmental systems that directed scientific

observers to accept the assumption that forests in many parts of West Africa were declining. Further efforts showed the way successive generations of scholars inherited their baseline estimates of forest cover from yet other scholars who borrowed theirs from yet earlier accounts, leading back to flawed, faulty, or entirely unfounded estimates located deep in the colonial past (Fairhead and Leach 1998, see chapter 6). These accounts, based on rigorous exploration of historical documents, stress the instability and socially conditioned nature of environmental claims. This sort of analysis, rooted in the genealogical approaches to knowledge demonstrated by Michel Foucault (see Chapter 3), point to the fact that certain forms of knowledge, however egregiously problematic, thrive owing to their congruence with the political and institutional forms of organization and practice in which they were established and used.

The Power of Political Ecology: The Hatchet and the Seed

In sum, political ecologies are difficult and troubling sorts of texts, which undercut knowledge while reinforcing it, stress contradictions and paradoxes, and direct attention to relationships, transformation, and instability. Such stories are political precisely because they disrupt normal expectations, undermine inherited assumptions, and do not deny the inevitable political roots of all environmental knowledge. Such narratives form the textual fabric of a diverse community of skeptical researcher practitioners, united in the reading, writing, telling, filming, and conveying of stories we know as political ecology.

For practitioners, curious readers, advanced theorists, or those deeply and directly involved in high-stakes environmental struggles, the assertion that political ecology is a kind of text may at first seem deflating. Merely a text? Just a narrative style? So all of this sound and fury is only paper thin? To this, the answer must consist of an enthusiastic reminder that all of us think in texts, that text is revolutionary, and that radical changes in the terms of a debate, in the images associated with an idea, or in the making intuitive the counter-intuitive, are all the work of text.

But can political ecology be used in action, then? Absolutely. Why not? And more to the point, just because someone is dedicated to writing, filming, blogging, or singing a political ecology (of fuelwood degradation in Mali or nuclear waste disposal in the United States or white fly infestations in French hothouse tomatoes or locust outbreaks in India or wind power installations in China . . .) does not mean that they could not also do a number of other things (collect signatures, organize farmers, block traffic, start a community garden, test water quality, file lawsuits, boycott, teach, live).

Political ecologies, insofar as they are narratives that confound, complicate, and challenge social and environmental practice, are not always perfectly suited on every occasion for making these social, environmental, or political tasks easier. Rather, the power of political ecology, it is hoped by those who produce it, is conversely that it would be difficult to do any of these things the same way after having been immersed in such texts. As such, political ecology is a tradition that aggressively dismantles other accounts (wielding its intellectual hatchet), while making space for, and nurturing, other possibilities (planting intellectual and practical seeds).

The hatchet: Political ecology as critique

As critique, political ecology seeks to expose flaws in dominant approaches to the environment favored by corporate, state, and international authorities, working to demonstrate the undesirable impacts of policies and market conditions, especially from the point of view of local people, marginal groups, and vulnerable populations. It works to “denaturalize” certain social and environmental conditions, showing them to be the contingent outcomes of power, and not inevitable. As critical historiography, deconstruction, and myth-busting research, political ecology is a hatchet, cutting and pruning away the stories, methods, and policies that create pernicious social and environmental outcomes.

These critical efforts have more recently been extended to encompass research that not only demonstrates the way many dominant accounts are wrong, but shows, moreover, how those accounts themselves are instrumental in political and ecological change. To take but one example, “The Pristine Myth” of the Americas, a story which holds that the landscapes of the New World were in an Edenic and “natural” order unaffected by human activity prior to European arrival, has been placed under political ecological scrutiny. As geographer William Denevan has demonstrated (1992, 2001), summarizing 30 years of his own archaeological, field, and historical research, pre-Columbian environments were heavily influenced by native peoples’ cutting, planting, terracing, and building. Political ecology suggests, moreover, that the myth of a “pristine” environment was itself important in the colonial process of marginalizing and disenfranchising native peoples. By writing indigenous people out of the landscape, the business of control was easier to carry out (Sluyter 1999). Political ecology takes a hatchet to such stories.

The seed: Political ecology as equity and sustainability research

This research has another side, which seeks to document the way individuals cope with change, households organize for survival, and groups unite for collective action. In this sense, much political ecology involves the detailed analysis of agrarian practices, social systems for resource distribution, and techniques for cataloging and harvesting non-human nature. Often this means careful attention to “traditional” ways things were done historically, documenting local knowledges and understandings of ecological process.

As Peet and Watts insist, however, this “concern is not simply a salvage operation – recovering disappearing knowledges and management practices – but rather a better understanding both of the regulatory systems in which they inhere . . . and the conditions under which knowledges and practices become part of alternative development strategies” (Peet and Watts 1996a, p. 11). In other words, political ecology seeks not simply to be retrospective or reactive, but to be progressive. A political ecological analysis of the decline of traditional water-harvesting techniques under the increasing influence of state irrigation authorities, for example, is not simply a mournful or romantic call for a lost technological past. By documenting not only the changing economic and bureaucratic pressures under which water management is currently being transformed, but also detailing the way it is managed traditionally and describing techniques of local adaptation and resistance, political ecological research helps to plant the seeds for reclaiming and asserting alternative ways

of managing water (Rosin 1993). The goal of any such effort is preserving and developing specific, manageable, and appropriate ways to make a living. Thus, much political ecology is about evaluating and explaining environmental change as well as explaining and determining the impact of ideas about environmental change. As a result, the field faces several challenges in ecology, in social construction, and in explanation itself.