Political Ecology in Development Research

An Introductory Overview and Annotated Bibliography

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1 Introduction

Concerns about the environment have been increasing steadily since the 1970s, when a larger Western public became aware of the threats posed by environmental degradation and pollution. The growing importance of environmental issues on political agendas and in the media has been accompanied by a dramatic increase in research on the environment in developing and Western countries. Scholars writing development studies, security studies and conflict studies have focused on the environment, trying to understand and conceptualise its effects on human life and vice versa. But how should one assess environmental changes and their effects on society? This preoccupation with human–nature interaction has resulted in a variety of new approaches within different disciplines, each producing very different research results and, ultimately, policy recommendations. Even though environmental change has been discussed in academic and policy circles for about thirty years, there is as yet nothing close to a theoretical consensus. The multitude of different and often contradictory theories on human–environment interactions call for a critical review of the current state of the art in order to facilitate future research on sustainable development, natural resource management and resource conflicts. Among the approaches that have emerged as most promising is political ecology, which is at the centre of the present review.

Political ecology is a relatively new field of research that has been widely discussed and applied in recent analyses of interactions between humans and the environment. However, despite its prominence, key concepts of political ecology remain ambiguous. It is an area of research where social scientists with ecological concerns and natural scientists looking at the 'human factor' take into account ideas of social and political economy. Among the questions that political ecology deals with are: (i) how both nature and societal structures determine each other and shape access to natural resources, (ii) how constructed concepts of society and nature determine human–environment interactions, (iii) the connections between access to, and control over, resources and environmental change, and (iv) the social outcomes of environmental change.

One of the characteristics of political ecology is that it is not a coherent 'grand' theory, but rather a specific lens through which one can examine the interactions between the environment and society. Scholars do this from different viewpoints and rely on very different disciplinary backgrounds (geography, anthropology, sociology, political science, economics, history and management). Very often diametrically opposed paradigms and theories (for instance, neo-liberal vs. neo-Marxist) are advanced by researchers who deal with a similar field of scientific inquiry, i.e. human–nature interactions and the mutual effects engendered. Political ecology, seemingly, provides conceptual tools for analysis rather than an encompassing theory of human–environment relations. Moreover, as most studies in the field of political ecology are distinct case studies of different, local real-life problems, it is difficult to identify specific and coherent theories of political ecology on which scholars base their research. Despite the growing importance of political ecology as an analytical and practical approach to how environmental changes impact on the behaviour of people affected by

them, 'the theoretical work has just begun' (Peet and Watts 1996, 39). There is still much work to be done to shape a comprehensive theory of political ecology that will be able to serve as a solid foundation for scientific research.

The aim of the present paper is thus to provide an overview of major theories, discussions and contributions in the diverse field of political ecology. It is hoped that this critical review and the annotated bibliography will be useful for future research on human–environment interactions. The first section of the paper will provide a short introduction to the conceptual foundations of political ecology and the core ideas and concepts that shaped it. It begins with an overview of different schools and disciplinary backgrounds that have contributed to the field of political ecology. A number of major perspectives of political ecology will be discussed in the second section of the paper. The main current debates and "opposing poles" of political ecology are reiterated in the subsequent chapter. In conclusion, there is an attempt to briefly summarise the different intellectual orientations that prevail in current scientific discourse. The second part of the paper consists of an annotated bibliography on political ecology in development research. The bibliography is supplemented by a thematic and a regional index of authors and their works. The abstracts introduced with 'abstract:' in the annotated bibliography are liable to copyrights by the authors and/or publishers of the respective works.

2 Foundations of Political Ecology

The theoretical approaches of political ecology are marked by a plurality of disciplinary backgrounds. Nonetheless, some generalisations can be drawn about a number of approaches from which individual studies in political ecology have emerged. This section of the paper examines the precursors or what Paulson et al. (2003) call 'the intellectual genealogy' of political ecology. Furthermore, the altercations that political ecology scholars had with other research traditions will be briefly summarised, since these discussions were hugely influential in shaping political ecology as a theoretical body. In retracing the intellectual origins of political ecology the intention is to demonstrate how and why political ecology has become what it is today.

2.1 Antecedents of political ecology

As conventional modernisation theories came to be increasingly regarded as outdated at the end of the 1980s, political ecology began to emerge as a new approach to human–environment interactions in development discourse in the 1990s. However, in actual fact political ecology – without being defined and named as such – already had its origins in the 1970s. On the one hand natural scientists such as agronomists, geologists, etc., had begun to consider human actions as a factor when looking at nature. On the other hand, social scientists such as anthropologists, sociologists and geographers started to look more closely at the political role of nature in societies. This interest was a reaction to what was perceived as a neglect of the political dimensions in human–environment interaction. Historically, the role of nature itself had been deemphasised in the constitution of the social sciences. When sociology emerged as a scientific discipline at the beginning of the 20th century, nature was completely excluded, the focus being solely on society, i.e. human–human interactions. The motivation for this was, of course, to distinguish the newly established social sciences from the then dominant physical and natural sciences (Goldman and Schurman 2000, 564).

Prior to the 1970s the term "political ecology" had appeared in a number of studies on land use and political economy, but had not thus far engendered a 'new' discipline or approach (Peet and Watts, 1996, 4). In the 1970s, the focus of development studies was mostly on modernisation and dependency theories (Greenberg and Park 1994, 6). Another school of thought that emerged earlier and drew on anthropology was "cultural ecology". Cultural ecology focused mostly on cultural adaptations to the environment (Bryant and Bailey, 1997, 16f) including cultural practices (religious rituals or similar), specific (subsistence) patterns of behaviour, and social practises either shaped by environmental circumstances or operating as regulators of environmental stability (Forsyth 2003, 8). Furthermore, cultural ecology focused on so-called 'ethnoscientific knowledge', i.e. traditional, time-tested resource use strategies of isolated, indigenous subsistence communities without agro-scientific knowledge (Peet and Watts 1996, 4). This approach has encountered substantial critique from social anthropologists who have dismissed cultural ecology as too simplistic, technical and ahistorical and accused

it of portraying societies as a product of environmental circumstances rather than adopting a more sociological viewpoint.

However, in the wake of phenomena such as acid rain famines and other man-made environmental disasters dramatised by the media, and the value changes taking place, the idea of sustainability experienced a resurgence. Preoccupation with environmental issues could be found in many a discipline. There was the emergence of Green Politics and sustainable development discourse, perpetuated and popularised in the media following the Brundtland Report in 1987 (Peet and Watts 1996, 3). On the other hand an increasingly important body of work on environmental security dealing with questions of conflict and resource scarcity appeared in the 1980s. But from the 1990s onward, scholars started to frame environmental problems as a manifestation of broader political and economic forces, arguing that the deep-rooted, complex sources of these problems needed to be addressed through far-reaching changes in local, regional and global political and economic processes (Bryant and Bailey 1997, 3).

In a first phase many scholars resorted to neo-Marxist theories to overcome the perceived apoliticism of cultural ecology and its limitation to isolated rural communities. To achieve this, they started to incorporate the impacts of international markets, social inequalities, and larger-scale political conflicts into their analyses (Paulson et al. 2003, 208). From the mid-1980s on, scholars started to broaden their scope by allowing a wider range of theoretic influences to guide their observations of specific environmental problems (Bryant and Bailey 1997, 13). This newly emerging discipline of political ecology was marked off against cultural ecology, being less functionalist and ahistorical and taking the existing, historically shaped social structures as the starting point for analysis. It also differed from human behavioural ecology (HBE), another then prevailing approach, insofar as HBE is strongly rooted in economics and relied on simple formal models, game theory and a more qualitative approach (Winterhalder 2002, 4). Most importantly, these new trends in research dissociated itself from population pressure theories or neo-Malthusian approaches.

2.2 People and degradation – Neo–Malthusian narratives

By the end of the 1980s and even before, the conventional approach to looking at environmental questions had its base in a neo-Malthusian framework. Therefore, political ecology studies reflecting this research tradition are often termed 'neo-Malthusian'. The original theory of Malthus stated that while food production levels grow at a linear rate, human population grows at a geometric rate if unchecked. Therefore, Malthus predicted a decrease of available food per capita with ensuing famines and the eventual extinction of the human race. This general idea of ecological determinism was taken up and broadened to include resources other than food, namely arable land. The assumption was made that population pressure on resources (PPR) leads to resource scarcity. As Ostrom (1990) explains, in classical models of common resource theories much emphasis is placed on individual actions and egoism, as in the old, well-known and often-cited political-economic parables of the 'tragedy of the commons' or the 'prisoner's dilemma' game model. In the mainstream environmental conflict and security stud-

ies published since the beginning of the 1990s, a great number of scholars analyse conflict or war as a result of resource scarcity.

One of the best-known neo-Malthusian scholars who links resource scarcity to conflict is Homer-Dixon (1994; 1996; 1998). In his writings he advances the hypothesis that there are resource scarcity-induced conflicts that are driven by political and economic factors (Dalby, 2002a, 126). While scarcity of renewable resources does indeed lead to violent conflicts, these are said not to be inter-state wars, but take the form of 'subnational, persistent and diffuse' violence (Homer-Dixon, 1994, 6). To explain why some people can cope with environmental scarcity and will not engage in armed conflict, Homer-Dixon uses the term social and technical 'ingenuity' (16). Even though environmental scarcity 'by itself is neither a necessary nor a sufficient cause' for violence (Homer-Dixon, 1999, 7), many violent conflicts must be explained by considering resource scarcity as a decisive factor. He acknowledges that for a good number of situations scarcity need not necessarily result in violent conflict, when societies are more 'ingenuous' but somehow fails to further elucidate this mystery. This rather unconvincing conclusion, his neo-Malthusian mindset, methodological shortcomings, the simplicity of the models employed and various findings that indicate contrary outcomes have led to widespread criticism of his work by scholars, making Homer-Dixon one of the most-cited, but most-criticised scholars in the field of environmental conflict research and subsequently, in political ecology (Tiffen et al. 1994, Barnett 2000, Wisborg 2002, Leach et al. 1999, Hagmann 2005).

As we shall also see, criticism of neo-Malthusian theories appears as a decisive element in the shaping of contemporary political ecology. Works with telling titles like 'More People, Less Erosion' (Tiffen et al. 1994) refute the assumption that high PPR will automatically lead to soil degradation and/or conflict. This disaccord with Malthus' theorem, combined with a localised and contextualised approach to environmental problems, was taken up in further studies by political ecologists. Such approaches have often been coined as 'neo-Marxist' because they stress social stratification and often focus on class and social movements as a unit of analysis for analysing resource conflicts (Peet and Watts, 1996, 30f). Furthermore, some of these scholars are in a sense precursors of today's critics of globalisation, because they link local and regional processes of environmental degradation and marginalisation with global dynamics.

2.3   Regional political ecology – a neo–Marxist approach

One of the most influential studies and arguably one of the first to really work with, and make use of, the term political ecology was the groundbreaking 'Land Degradation and Society' by Blaikie and Brookfield (1987). The authors describe the intertwined and reciprocal relations between land use and the environment in the case of soil erosion not, as had often been the case previously, as just a result of human action, but as caused by, and resulting in, very distinct forms of societal structure (Peet and Watts, 1996, 6).

Their theoretical approach to 'regional political ecology' is based on the concept of 'marginality' (Blaikie and Brookfield, 1987). Their analysis of soil degradation amal-

gamates the following concepts of marginality: The idea of the marginal unit used in land rent theory, the ecological concept of marginal zones where population pressure on flora or fauna is high, and the concept of marginality where the population of raw material-producing zones do not get their due share of the revenues (19ff). Blaikie and Brookfield originally had set out to write their study from a Marxist and a behavioural perspective, but soon found that their search for practical solutions required a 'plurality of purpose and flexibility of explanation' (25). Thus they developed a new conceptual framework to analyse land degradation on the basis of causal chains between the 'land managers' and their land, other land users, groups in the wider society who affect them, the state and, ultimately, the global economy (27).

As mentioned before, the most widespread analytical frameworks examining environmental change and its societal effects had their origins in evolutionist or Malthusian conceptions. One of these – from the perspective of political ecologists – simplifying, yet popular 'environmental orthodoxies' (Forsyth 2003, 36) known as the IPAT equation became increasingly influential in development discourse: Impact [human] = Population x Affluence x Technology (44). Political ecologists like Blaikie and Brookfield (1987) questioned and refuted most of the neo-Malthusian assumptions, asserting that there cannot be such a thing as a 'critical population density' for a certain strip of land, if at the same time the carrying capacity of the land changes whenever new technology is introduced or even within a year, for instance when an especially rich harvest occurs (29). As Painter and Durham (1995) put it, the IPAT concept suggests that:

'[O]ne need not bother with the internal structure of human populations (including ethnicity, gender, class, power relations, etc.), with internal cultural differences in resource use and technology, or with the surrounding world system of interpopulational relations. In effect, the message is that anthropological concerns – not to mention those of other social sciences – can be left out of the analysis. Not surprisingly, this is precisely what happens'. (Painter and Durham 1995, 251)

Blaikie and Brookfield underpin their approach with an important body of research, mainly analysing different forms of land use in various countries in a historical perspective. They then illustrate their theories with an in-depth case study of land degradation and soil erosion in Nepal.

The study of local environmental problems in their social context, often drawing on participant observation, arguably represents the foundation of today's political ecology. Another early example of this kind of 'local political ecology' is Bassett's (1988) case study on farmer–herder conflicts in northern Ivory Coast He identifies the key factors that determine a political ecology approach: the contextualisation of human–environment interaction, a historical analysis, the examining of state interventions that determine land use at local rural level and the sensitivity to regional variability (454). With an almost classical anthropological approach, Mortimore (1989) observes local practices of land use in Nigeria's Hausaland and questions the technology-focused analyses of the causes of famine by experts that are often contemptuous of traditional land use patterns. Subsequently, this local focus of analysis was taken up by a multi-

tude of scholars such as Peters on Botswana (1987), Park on the Senegal and Nile River basins (1992) or Sheridan on Arizona (1995).

2.4 Case studies in the 1990s – Whither political ecology?

From the end of the 1980s to the mid-1990s, political ecology visibly gained popularity as a new field of research. In most of the contributions to the field, political ecology served as an analytical lens used to document and analyse specific case studies, where the look at the broader social circumstances proved helpful and effective in analysing environmental change and conflict situations. Bryant and Bailey (1997), firmly rooted in the tradition of Blaikie and Brookfield (1987), focused on analysing the actors that hold stakes in the environment. Their book is divided into chapters that examine the different actors involved in land use (state, business, multilateral institutions, NGOs, grassroots actors) separately, as well as their motivations, agency, and the limitations on their actions. Case studies such as the one by Ilahiane (1996) describe local land use patterns in their historical and social context. In the case of Ziz Valley, Morocco, small-scale irrigation functions through labour exploitation of the low-status ethnic Haratine by the traditionally high-status Berbers and Arabs (89). Here tradition and religious beliefs are instrumentalised to coerce the Haratine into maintaining the dam system, while giving them only secondary access to the water (102). Le Billon (2002) explains how the tension between different parties in Cambodia leads to illegal logging. In this case disorder and violence are instrumentalised to gain access to timber. Other case studies of political ecology focus on the role of NGOs, such as Igoe (2000) or Vayda and Walter's 'event analysis' of mangrove forest use in the Philippines (1999). Furthermore, a great number of scholars focus especially on the activities and struggles of grassroots actors. Recent studies in this field include Escobar on concepts of biodiversity and indigenous knowledge (1998), Igoe on pastoralists in Tanzania (2000) and Obi on Nigeria and Kenya (2005).

In contrast to neo-Malthusian theories of resource scarcity and conflict, a recent stream of resource conflict analysis has emerged, largely pursued by Le Billon (2001), de Soysa (2002) and Ross (2004a). Their resource-centred political economy approach argues that it is the abundance of resources, rather than their scarcity that causes conflict and that the characteristics of natural resources are intimately connected to characteristics of conflicts. Their assumption is that resources are not automatically contested because of their ubiquity, but that contested use, and the social 'institutions that shape the rules and rights of resource use' should be the focus of analysis (Hagmann 2005, 21). Their point is that it is 'greed, not grievance' that will lead to conflicts over the control over, or struggle for more equal distribution of, natural resource wealth (de Soysa 2002). Especially le Billon's description of conflict patterns is captivating and very fruitful. Depending on whether a resource is close or remote to central state authority, and whether it is diffuse or concentrated in a certain point, conflict might appear in differentiated forms such as, a coup d'état, warlordism or secession, respectively (Le Billon, 2001, 573). This hypothesis is illustrated by a listing of various conflicts all over the world where the correlation between the form of the conflict and the resources at stake is pointed out.

The predominant approach to analysing these 'greed-motivated' resource conflicts is the concept of rational choice that has its roots in utilitarian individualism. Here the assumption is made that individuals will respond rationally to resource availability and act accordingly (e.g. Collier and Hoeffler 2000). Advocates of the rational choice approach explain conflict by a rent-seeking behaviour among social actors who weigh risks and gains before taking action (Smith et al. 2000). However, people's decisions to resort to violence in order to gain access to scarce resources cannot always, or only insufficiently, be explained by theories of rational choice. There are indeed enough cases where the costs and risks of violent conflict outweigh the possible benefits by far, but nonetheless violent conflict arises. More recent approaches to natural resource conflicts include psychological explanations such as those brought forward by Williams (2003b), who draws new insights from prospect theory.

But most political ecology scholars do not have this primary focus on violent conflict only, as they tend to see conflicts and conflicting interests inherent to social relations as well as human–nature interactions. Therefore, their focus is on the social structures and constructions that shape access to, and control over, natural resources. In the next section, selected political ecology perspectives that are crucial to understanding current political ecology scholarship are presented and discussed in more detail.

3 Perspectives of Political Ecology

Even though much research was carried out under the heading of political ecology throughout the 1990s, there are still very few works that summarise and integrate these various contributions into one coherent body of political ecology. Among the few recent works that have tried to provide a coherent overview of the above-mentioned different streams and contributions of political ecology are Bryant and Bailey (1997), Peet and Watts (1996), Scott and Sullivan (2000) and Forsyth (2003). I have chosen to focus on three major current approaches of political ecology that are central to questions concerning environmental change and its political implications. They concern

- a post-structuralist, mostly deconstructivist approach that questions the predominant discourses of environmental change and policies;

- the analysis of concepts of 'people' and 'nature', mainly the analysis of gender as a constructed category defining human–environment interactions and

- a more rights-based body of research concerned with questions of access, rights, entitlements and environmental justice.

These three exemplary approaches in political ecology were chosen for different reasons. The deconstructivist approach was selected because of its overall importance in research, evident in the sheer number of papers and publications on the subject as well as because of its theoretical contributions. For analysis of constructed social categories, gender was chosen because it has produced a distinct academic discourse on the basis of a feminist background (compared to 'class' coming from Marxism, for example). And lastly, the entitlements approach is a relatively new approach that merits closer examination, as it brings into play issues of human rights and social justice.

Clearly, the different vantage points of these approaches and the diversity of disciplinary backgrounds of the scholars in these various fields make it far too difficult to elaborate a comprehensive new theory of political ecology that would give equal consideration to each of these different schools of thought. Additionally, it is seldom possible to clearly separate these different approaches from one another since they are closely related and mutually beneficial, for example, when discourse analysis is used to examine gender relations.

3.1 Deconstructing nature: Discourse analysis

Discourse analysis of environmental concepts, hazards and conflicts has become the most influential branch within the recent political ecology literature. It is admittedly difficult to separate discourse analysis from analysis of different stakeholders and their motivations, interests and agency, since discourses and agendas are often inextricably linked together (Keeley and Scoones 2000). Indeed, the different (hidden) agendas produce very distinct discourses or, as Paulson et al. have put it, 'one person's profit may be another's toxic dump' (2003, 271) – in their perception and in their actions and statements.

Following Blaikie and Brookfield (1987) studies inspired by neo-Marxist conceptions were considerably broadened by new methods and concepts. One groundbreaking contribution in this field of environmental research and one of the first to examine discourse is Peluso's study of forest use conflicts in Java (1992). In her study she describes the struggle between local inhabitants and the government over the use of the rainforest. Not only does she analyse this local conflict in a broader historical perspective, which includes the description of traditional patterns of access to, and use of, forest resources; she also recounts how the government's methods of criminalising traditional forest use practices through new property rights are subverted by 'illegal behaviour' of the local population. Local communities redefined their legitimate right to use the forest by producing a counter-discourse. Peluso's work has paved the ground for much of the following political ecology work based on discourse analysis.

Yet deconstructivist approaches do not rely on discourse analysis only. Post-structuralist analysis is the 'analysis of the production of social reality which includes the analysis of representations as social facts inseparable from what is commonly thought of as "material reality"' (Escobar 1996, 46). The idea that language is not a reflection of reality, but constitutive of it (cf. Stott 1999) is the basis of the post-structuralist approach. Hence, discourses about the environment occupy a prominent role in post-structuralist political ecology. Escobar, perhaps the most prominent representative of this school of thought, questions the idea of 'managing' the earth (Escobar 1996, 49f). He argues that today's sustainable development discourse, which had its origins in the Club of Rome report and gained broader recognition after the Brundtland Report, through the permanent stressing of the management of resources, conceives the Earth as a 'giant market /utility company' (Escobar 1996, 53; Parajuli 1998). This 'semiotic conquest of nature' by the sustainable development movement is seen as 'an attempt at resignifying nature, resources, the Earth, human life itself on a scale perhaps not witnessed since the rise of empirical sciences and their reconstruction of nature' (Escobar 1996, 59).

Another element stressed by post-structuralist political ecologists is the construction of environmental realities by scientific discourse. Whether an area will be classified as endangered or should be protected is often defined or at least influenced by scientific and institutional discourses. Whether the public perceives environmental risks as imminent and their own actions as having consequences for nature mostly depends on political agendas and media coverage when, for instance, nature is pictured as an 'innocent victim of man's greed' (Harrison and Burgess 1994, 295f). Subsequently, scholars also started to question popular discourses on globalisation and sustainable development, stating that 'since global discourses are often based on shared myths or blueprints of the world, the political prescriptions flowing from them are often inappropriate for local realities' (Adger et al. 2001, 683). Furthermore, they criticise the sustainable development discourse as being constituted in neo-liberalism. 'Discursive attempts to shroud SD [sustainable development] in science also imbue it with the linguistic and ideological power of economics and ecology' writes Logan (2004), while arguing against the inherited 'truisms' in globalisation discourse. Often concepts of land degradation or health issues and water safety are institutionalised in supranational organisa-

tions and canonised in the scientific discourse concerned with what is viewed as the most pressing problems.

According to post-structuralist political ecologists this resignifying of nature has subsequently been taken up not only by the scientific community, but by the media and the broader public as well (Leach and Mearns 1996, 2; Thomas and Middleton 1994). Sustainability discourse in the mid-1990s primarily criticised local rural land users for their 'irrationality [of land use] and lack of environmental consciousness', overlooking the fact that it was mostly global development processes (such as structural adjustment programmes, for example) that 'displaced indigenous communities, disrupted people's habitats [… and] forced many rural societies to increase their pressures on the environment' (Escobar 1996, 51). Furthermore, biodiversity was more and more conceived of as a form of capital. Thus, even though indigenous communities in the rainforests are now granted land rights, they are at the same time forced to become responsible for the management of these resources and become forcibly more integrated into the world economy (57).

In what has become one of the classical studies on prevailing environmental discourses, Thomas and Middleton (1994) thoroughly dismantle contemporary perceptions and analyses of desertification and the measures adopted to counter it. They argue that widely accepted statements about desertification and nightmarish perceptions of a voracious, ever-advancing desert margin, as popularised by UNEP's 1977 conference on desertification (UNCOD), are seldom backed by sound, unambiguous data and 'in fact little more than hollow political statements used to drum up concern; they are guesstimates or, at best, estimates' (59). Even more so, the very idea of desertification remains a vague phrase that, to the broader public, immediately conjures images of drought, famine and distress. In the fight against desertification, traditional land use forms are vilified, pastoral nomads turned into scapegoats for desertification, which often leads to socially disruptive, disastrous sedentarisation programmes (32). The chain of evidence the authors present suggests that the UN has created 'desertification, the institutionalised myth' (161). Nonetheless the authors acknowledge the positive role that the UN played in raising awareness and putting desertifidction high on the environmental agenda. To conclude, they argue that instead of focusing on biophysical change in drylands, that are much more adaptive to climatic change than commonly assumed, analysis should aim at understanding social processes and patterns of land use that jeopardise the food security of local populations.

Another classical example of this kind of critical study is 'the lie of the land' (Leach and Mearns 1996) where 'received wisdoms', i.e. the global discourses on, and the Western imagination of, buzzwords such as 'land degradation', 'desertification' and 'woodfuel crisis' are questioned. According to this critical perspective most prevailing ideas in the sustainable development discourse have built upon conceptions of land use such as IFAD's 'small farmer concept' to analyse a situation and implement top-down development strategies (Woodhouse, 2002, 3). The 'orthodox' view of land degradation is one of a downward spiral (a perception notably propagated by the Brundtland Report), where poverty and land degradation mutually reinforce each other. Often, indeed, these concepts do not correspond with local realities and predominant discours-

es thus must be questioned and reviewed. Even more so overly simplistic 'environmental orthodoxies' often do not address the deeper causes of biophysical changes and may thus unnecessarily interfere with livelihood strategies, sometimes even aggravating environmental degradation and hardship (Forsyth 2003, 24). Forsyth subsequently deconstructs these 'environmental orthodoxies' as Western ideals of 'unspoiled paradises' affected by unsustainable land use (36ff). Such thinking leads some authors to adopt a perspective according to which rural land users are seen as victims rather than agents of land degradation (Iftikhar 2003, ix). An example of such a challenge to commonly held concepts of land degradation is Ribot's (1999) historical analysis and deconstruction of imaginations of deforestation and desertification ('the fear') in West Africa. Fairhead and Leach (1998) also address such 'orthodoxies' by questioning the stigmatising of West African farmers as agents of deforestation and highlighting their often neglected land-enriching practices. Other works include Swift on the history of the concept of desertification (1996), Bassett and Bì Zueli on policy-making in Côte d'Ivoire (2000), and Moseley and Logan on livelihood activities and environmental issues (2004).

As political ecology still lacks a consistent overarching theoretical framework, one could base further research on post-structuralism, and its new insights into human–environmental relations might provide an important contribution for theory-building. This is an idea shared and elaborated in more detail by Peet and Watts (1996) as well as the contributors to their edited volume. While this seems a worthy undertaking, it may also – in the eyes of their critics – be the Achilles' heel of their project. Vayda and Walters (1999) criticise that by reconceptualising literally everything, deconstructivists tend to see reality as constructed only and thus neglect the physical realities of nature[1]. Although discourse analysis provides highly critical and captivating contributions to political ecology, to the more positivist critics of discourse analysis it has its limitations when it comes to assessing and improving real-life situations and environmental degradation.

3.2   Socially constructed categories: Gender

Another way of looking at the environment and society is to examine power relations within and between different social actors. Besides examining and describing historical patterns and traditions of land use and ownership (Blaikie and Brookfield 1987; Peluso 1992), political ecology scholars have often resorted to analytical categories such as class (Park 1992), ethnicity (Parajuli 1998; Hansis 1998) or gender in order to describe unequal patterns of power and resource access. Gender has been a theme of especially great importance for political ecology researchers. Gender and environment scholars argue that gender above all shapes society–nature relations and is therefore 'fundamental to understanding resource access, use and degradation around the world' (Goldman and Schurman 2000, 572).

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[1] On this point the reader is referred to the debate between positivists and post-positivists elaborated in chapter 4.1.

The gendered approach to the environment draws on two different streams of thought; the 'gender and environment' concept and eco-feminism (Steinmann 1998, 84). The first had its origins in practical development work and represented an approach that aimed at integrating and promoting women as key actors within environmental development programmes (called 'women in development', WID or, lately 'women, environment, development', WED). The motivation was to reduce women's specific vulnerability with respect to degrading natural environments. However, this approach had its limitations. While giving women an active role in conservation programmes, the WED approach neglected existing fundamental inequities between the sexes in the local societies concerned. Ecofeminism on the other hand, was motivated by a much more ideological agenda and saw women as a 'transcultural and transhistorical category of humanity' (Jackson 1998, 314). Eco-feminists thought that the attitudes of women towards preservation of Creation are inherent to their very nature, i.e. mothers who protect life instinctively and gather food for survival rather than for economic gain, while men tend towards domineering and exploiting nature, the same way men dominate and exploit women. The WED approach was characterised by the ecofeminist belief in women's 'natural and spiritual closeness' to nature, but it focused on women's productivity and service provision rather than their actual needs (Locke 1999, 268). A more recent approach variant is the gender and development (GAD) concept that rejects primordialist notions of women's specific relations to nature by reason of biology. Rather the GAD concept conceptualises the role of women and men within their environment as being 'established and maintained through power and authority, and therefore intrinsically contested and dynamic' (269).

Feminist political ecology tries to overcome the rigidness and essentialism of the aforementioned concepts of gender and 'builds on analyses of identity and difference' (Rocheleau et al. 1996, 288). A convincing argument for the importance and purpose of feminist political ecology is provided by Reed and Mitchell (2003), while Leach (2003) offers a comprehensive overview of the antecedents of feminist political ecology. Feminist political ecologists look at environmental change through the lens of gender. Their aim is to identify 'the constraints and opportunities that shape gendered land use behaviour […to assure] a more accurate assessment of environmental change at the scale where decisions are made' (Steinmann 1998, 81). The emphasis is less on generalisations about women and nature, and more on the level of local realities where a precise 'set of questions' is developed to guide the analysis (Jackson 1998, 315). Feminist political ecologists do not conceive of gender as just another dependent variable like class and ethnicity, but try to disaggregate gender from class. Gender is conceptualised and proved to be a critical factor in shaping access to, and control over, resources, environmental decisions and technologies.

To examine this relation in greater detail, Rocheleau et al. (1996) pursue three main lines of inquiry (4f); (i) gendered knowledge, i.e. the 'science of survival' that is ascribed to and used by women to maintain and protect healthy environments, (ii) gendered environmental rights and responsibilities, i.e. property, resources, space, legal and customary rights that are 'gendered' and (iii) gendered grassroots activism and environmental politics. Especially the first point leads the authors to the conclusion that

scientific discourse is 'gendered' because gender inequities in science deny women the knowledge necessary to address environmental problems. Rocheleau et al. thus deconstruct the 'myth of value-free objectivity and universality in science' (9). Their book purposely contains case studies from third world and developed countries demonstrating examples of successful environmental grassroots activism initiated by women. Even though the importance of addressing women in mitigating environmental problems is now widely recognised and 'green' issues are on the political agenda of most parties, organisations and companies, pro environment rhetoric is often limited to lip service rather than concrete action (Wastl-Walter 1996, 100). Furthermore, as Bradshaw correctly points out, the more commonplace involvement of women in development projects does not necessarily mean that 'their participation in this project, or that their needs, both practical and strategic, are met' (Bradshaw 2002, 875). Hence, the scope for research on women and the environment as well as a gendered approached to the environment remains grand.

Existing case studies analyse gender policies in environment management programmes and the impact they have on women's livelihoods (Locke 1999). Hodgson (2001) analyses the impact of state development programmes on changing family structures and gender roles of the Maasai in Tanzania. By combining a historical narrative and an ethnographic approach, she sets out to study both the 'institutions' and 'the people' – i.e. the development discourse on 'pastoralists' such as 'the Maasai' (6) and the 'interconstruction of gender and ethnicity' among the Maasai (14). Carney (1993) looks at the distribution of labour rather than land in her case study from The Gambia. She describes the unintended (?) effects of a shift to year-round cultivation on women. Postcolonial Gambia experienced a drastic economic downturn when the market price for its main export product, groundnut, dropped. Subsequently, a shift from equally distributed labour rights on common lands to unevenly distributed property rights took place. This led to the economic marginalisation of women by heightening the burden of labour imposed on them when at the same time the responsibility over household income was placed under the control of men (329). To help, foreign donors advocated year-round rice cropping by implementing 'green revolution' technologies. However, this intervention only further aggravated the problem (334f). 'By placing men in charge of technologically improved rice production, the donors hoped to encourage male participation; instead, they unwittingly legitimised male control over the surpluses gained from double-cropping (337). Bradshaw (2002) draws similar conclusions in her case study about post-hurricane reconstruction activities in Honduras, noting that the reconstructing of houses farther away from the river made women feel safer, but at a loss for work or opportunities to grow their own food She concludes that 'while physical vulnerability may have declined, economic vulnerability may have been increased. Policies designed to reduce the vulnerability of the poor to disasters therefore may not necessarily be pro-poor in the long run' (877). Other gendered political ecology studies include Bezon on Madagascar (1997), Schroeder on the Gambia (1999) and Laurie on Bolivia (2005).

Critics of the gender approach point out that other social categories such as class, age or ethnicity are just as important as gender and should thus not be neglected. In addi-

tion, the criticism that biophysical ecology is not taken appropriately into account by authors like Schroeder has been voiced by Walker (2005, 76). Furthermore, the 'focus on particular groups may tend to reduce the representation of social diversity to reified and stereotypical categories' (Forsyth 2003, 84) and not take account of the dynamic nature of these constructed categories, thus perpetuating their inherent inequities.

3.3   The right to land: Environmental entitlements

A final important perspective in political ecology is the entitlements approach adopted by Leach, Mearns and Scoones (1997, 1999), and Wisborg (2002). Entitlement theories call into question the widespread orthodoxy of a downward spiral of poverty and land degradation, which tends to see poor rural dwellers more as victims than as agents of soil erosion. They also refute traditional (neo-Malthusian, 'tragedy of the commons') assumptions of increasing aggregate population pressure on limited resources of common property. Thereby, the entitlements approach sets out to examine 'the role of different institutions in mediating the relationships between different social actors, and different components of local ecologies' (Leach et al. 1999, 226). According to this logic the 'disaggregating' of the environment into its different components is necessary to fully understand the complexities of environmental dynamics. Indeed, there are enough examples where, even when there is enough of an aggregate resource (food, land, e.g.), people in a particular social situation might not have access to, or control over it, thus facing deprivation and loss as in the case of famine (232). (cf. Table 1)

The entitlements approach draws on Amartya Sen's (1981) seminal study which highlighted that access to food rather than the lack of food production causes famine (Iftikhar 2003, 6). To make his point Sen draws a comparison with civil rights in the United States where every citizen has the constitutional right to vote. However, it is the capability to make use of one's right to vote that determines whether or not citizens actually vote. Similarly, when it comes to land and other resource access, it is not the availability of, but command over the resource that leads to sudden changes in intergroup distribution patterns (Sen 1981, 433). Analysing three major famines (Bengal 1943, Ethiopia 1978, Bangladesh 1979), Sen asks whether there (i) was a measurable decrease of available food; (ii) what occupational and social status famine victims possess; and (iii) whether or not famine victims suffer a sharp decrease in their entitlements to food – and if so, why (440f). Sen demonstrates that in all three famines shortage of food was not the primary factor in the famine. Rather a marginalised segment of the population had suffered a collapse of their means of command over food, thus turning them into famine victims.

In the political ecology context, it is important to realise that natural resources are not simply limited goods whose access is unrestricted and open to everyone, but that they are 'governed by rules of common property' (Johnson 2004, 408). These institutionalised property and user rights are called entitlements. People can gain them through their 'endowments' (labour, land, capital, skills, etc.), which in turn can be transformed into entitlements. Endowments are defined as socially 'legitimate[ed] effective command over alternative commodity bundles', i.e. the use of the utilities, services and goods that

a certain resource can provide (Leach et al. 1999, 233). The sources of this social legit-imacy are various and they are often contested by the different actors that compete over a certain resource. Therefore, rather than being fixed by customary laws, entitlements are the result of a negotiation process among social actors and institutions (235). Institutions are the key to understanding the attribution of entitlements, 'the rules of the game in society' and intermediaries that legitimate one's claims over a certain resource (237f). Sheridan (2004) argues that traditional entitlements have often been contested by both colonial and independent governments in Africa. Yet the breakdown of these traditional forms of resource management most often resulted in ambiguous property rights (85).

In the empirical part of their contribution Leach et al. (1999) then question the various assumptions held by advocates of community-based natural resource management (CBNRM) such as the IUCN, the WWF or the UNEP. These organisations are criti-cised for maintaining an 'oversimplified' concept based on both the ideas of a homoge-nous indigenous population group and a relatively stable natural environment (assump-tions not only made in CBNRM concepts). Leach et al. (1999) demonstrate that social stratification and unequal distribution of property and user rights make it impossible to impose a single resource management strategy on a local community (Leach et al. 1999, 228). Rather, political ecologists conceive the natural environment as a setting for hu-man action, which – at the same time – is modified by such action (239). Leach et al. illustrate the theoretical part of their paper by a case study of the local use of Mara-canteae leaves in rural Ghana. This plant is used for various purposes and is sold on the local market, thus improving women's household income. Traditionally, women had the right to and control over the collection of these leaves. With the introduction of formal laws meant to protect woodlands on which the leaves were located, women lost the opportunity to collect leaves and thus a means of income (235ff). Here the authors provide a telling example of how both formal and informal institutions determine the distribution of ever-changing the entitlements that social actors possess.

Another exemplary use of the entitlement has been provided by Wisborg (2002) who studied the distribution of entitlements, the diversity of stakeholders and related power relations in Namaqualand, South Africa. In his analysis Wisborg includes the historic dimension to analyse the different local perceptions of and discourses on the 'rightful' use of land (12). The entitlements approach takes into account the dynamic nature of local communities' user rights. It thus does not succumb to the danger of conceiving of resource access as being static. Rather, the approach acknowledges the shifting identi-ties of actors in a highly socialised negotiation process over entitlements. While the entitlements approach has been lauded for its ability to improve our understanding of how people gain access to and control over resources, critics argues that it is too much concerned with the local level and fails to incorporate larger economic trends into the analysis. The challenge is thus to provide an entitlements analysis above the case study level or as Cramer (2000) puts it, which does not fail to 'see the macro wood for the micro trees'(4).

Table 1: Tragedy of the Commons vs. Entitlements.

Common Property Theory	Entitlement Theory
Efficiency and health of the commons as main concern.	Socio-economic equality and poverty reduction as major concern.
Rules restrict access to the commons.	Rules enhance access to the commons.
History serves as background to general and predictive propositions about social behaviour.	Structural-historical approach: property rights depend on contextually-specific forms of social change.

(Adapted from Johnson 2004, 415f).

4 Opposing Poles in Political Ecology

As the previous section demonstrates, authors writing about political ecology provide innovative perspectives on human–environment interactions that take into account the discursive, gendered and unequal processes shaping resource access, control and management. If political ecology as a research field remains riddled with controversy, one of the reasons for this is the contested foundations authors base their work on. These opposing theoretical and epistemological poles are discussed in this section. A first and major area of dissent in political ecology is between positivist and post-positivist approaches to nature. Second, some scholars focus on, or start from, human agency, whereas others, more eco-centric, take nature and its realities as the vantage point for analysis. Lastly, the answer to the question about how research and analysis are shaped by different perspectives and agendas of 'developed' countries (the global North) versus 'developing' countries (the global South) is heavily contested.

4.1 Positivism and post–positivism – what is reality?

Debates between positivists and post-positivists are heavily polarised and it is doubtful whether their positions will ever be reconciled. In general terms, positivists or 'realists', mainly – but not exclusively – coming from the natural sciences pursue a materialist philosophy of science and view nature 'as it is'. The post-positivists or constructivists see reality as socially constructed (Forsyth 2003, 14). Fundamentally, both differ on the question whether only the material biophysical and social reality or whether discourse and symbolic representation should be taken into account. Positivists often argue on the assumption that there is a 'natural equilibrium' within ecosystems that is disrupted by human agency and that the (natural) sciences provide for a value-free, neutral and objective assessment of environmental issues. In contrast, a more post-positivist stance stresses issues of scale, social and environmental changes, and non-equilibrium in its historical context, and upholds that different perspectives in science reflect different values and are thus never completely unbiased (270).

Many post-positivist scholars who are firmly rooted in discourse analysis portray neo-Malthusian scarcity scenarios as discourses to promote agendas of specific actor networks (Leach and Mearns 1996, 23; Keeley and Scoones 2000, 96). Their critique of neo-Malthusian theories of environmental scarcity has been essential to the development of political ecology. An example of this debate is found in Keeley and Scoones (2000). In their article about environmental policy-making in Ethiopia, they examine both the actor networks that shape the discourse about resource management and environmental rehabilitation and the discourse itself. Describing the mainstreams of the environmental debate in Ethiopia, they uncover a 'generalised Malthusian narrative' of accelerating resource depletion leading to environmental decline and, ultimately, to poverty and starvation (96). This discourse, so they argue, and the resulting call for more soil productivity, are backed by an actor network that is heavily influenced by multinational agribusiness companies (101).

In a critical rejoinder to this article, Nyssen et al. (2004) state that Keeley and Scoones apparently underestimate soil degradation and reject the current conservation techniques and policies (137, 139). To Nyssen et al. the very environmental circumstances of Ethiopia – i.e. rainfall, drought, lack of agricultural intensification – are responsible for the degradation of the land. 'The environmental disaster in Ethiopia is real', they conclude (140). Throughout the rest of their paper, they make strong arguments for SWC (Soil and Water Conservation) policies carried out in Ethiopia today. At the core of their argument is the physical reality of environmental degradation and the appropriate measures to counteract it.

In their reply Keeley and Scoones (2004) assert that Nyssen et al. misinterpreted their key arguments. In their original paper they had criticised the widespread assumption that increasing land degradation is basically due to farmer and pastoralist mismanagement of the land, and the one-size-fits-all conservation techniques hailed as a panacea (149). Keeley and Scoones maintain that policy-making processes are highly contextualised and thus their aim is to analyse how 'stories about policy-making are made by different people and how, in turn, they often reflect institutionalised assumptions and positioned interests' (149). Their conclusion is that 'not that all scientific analyses of the urgent problem of land degradation are wrong, or the technologies suggested as solutions inappropriate', but that a 'more circumspect, critical and analytical stance may help us in the longer term' to find solutions (152). This kind of debate between positivist and post-positivist scholars can be found in various discussions about the aims and methods of political ecology.

4.2   Eco-centrism & anthropocentrism – who makes reality?

The other antagonism in contemporary political ecology, closely linked to the debate between positivists and post-positivists, is whether the starting point of analysis should be humans and human agency or nature and biophysical dynamics. A few points deserve mention here. Peterson (2000), for instance, argues that 'rather than being called political ecology, these [i.e. 'neo-Marxist'] approaches should be called political economy of natural resources, for they do not consider ecosystems to be active agents' (324). Lately, scholars rooted in the ecological sciences have criticised political ecology for being too focused on the social and political dimensions of resource access and neglecting the biophysical and ecological realities of the natural environment. Even though they focus on human–environment interactions as well, these scholars insist on viewing the environment 'not only simply as a stage or arena in which struggles over resource access and control take place' (Zimmerer and Bassett 2003, 3). They call into question many political ecology studies that deny environmental agency and the capability to influence human behaviour. This critique partly draws on the paradigmatic concept of 'deep ecology' that de-emphasises the dichotomy between humans and the environment. Deep ecology views them both as a part of nature and attributes intrinsic values and rights to non-human entities (de Haan 200, 360). Similarly, Vayda and Walters (1999) argue that most political ecology today is 'politics without ecology', that it should rather be labelled 'political anthropology' or plainly 'political science' (168).

Criticism on this point comes as no surprise since it is issued mostly by physical geographers and environmental scientists. Indeed, environmental flexibility, adaptability, and non-human-induced changes are ofen understated in anthropocentric studies. On the other hand, the question of what research should be aiming at persists. When examining the impact humans and the environment have on each other and the problems that marginalised societies face, a more anthropocentric view of the environment seems adequate and justified. But again, as Paulson et al. (2003) rightly point out, studies in political ecology that analyse land erosion or land tenure policies are 'both political in nature, insofar as they use categories and questions grounded in certain visions and interests, and […] both ecological, insofar as they seek to understand the interrelationships between organisms and their environments' (211). Other recent works such as Bassett and Crummey (2003) seem to confirm a trend towards reconciliation between ecocentric and anthropocentric views. The following comparison (Table 2.), which summarises the antagonistic tenets of ecocentric and anthropocentric approaches to human–nature interactions, might thus overemphasise the differences between the two.

Table 2: Eco-centric vs. Anthropocentric.

Eco-centric approach	Anthropocentric approach
Natural Sciences background	Social Sciences background
Positivist: Biophysical reality of nature determines human agency	Post-Positivist: Discourse and power structures construct realities
Reality (nature) is analysed and represented as it is	Reality is socially constructed and must therefore always be interpreted
Environmental history shapes today's problems and forms of land use	Socio-cultural history shapes structures and discourses of current land use
Policies (should) respond to environmental realities and are analysed accordingly	Policies reflect institutionalised assumptions held by different actor groups and should be examined critically
Authors include: Nyssen et al. 2004 Vadya and Walters 1999 Peterson 2000 Zimmerer and Bassett 2003	Authors include: Escobar 1996 Forsyth 2003 Moseley and Logan 2004 Leach and Mearns 1996

(Schubert 2005)

4.3   The North & the South – who owns reality?

A fina and very important aspect that needs to be taken into account concerns the disparities and tensions between perspectives of and on the global North and South. As we have seen, the bulk of political ecology studies have focused on development issues and thus mostly concern the 'underdeveloped' countries of the southern hemisphere. At the same time many political ecology scholars come from 'Western', 'developed' countries have an academic background moulded by European or American research institutions. This raises a number of questions such as who holds interpretive predominance over definitions and truths? What is the legitimacy of foreign scientific expertise? Why the predominant focus on third world rural communities? And what are the consequences of this kind of research for different political agendas?

These problems are, of course, of great concern to analysts of development discourse. But they equally deserve to be taken seriously in the context of Western countries. As McCarthy (2002) argues, the political ecology approach should be applied with the same rigour to analysis of environmental conflicts in developed countries of the North. He offers the example of small, local, agricultural communities facing deprivation of their land by governmental conservation agencies and other actors. In such situations communities often resort to civil disobedience tactics such as breaching the laws, or setting forests on fire in order to disrupt government strategies. They justify such actions with their superior knowledge of their local surroundings and traditional user rights. Very often indeed such movements in the third world are portrayed sympathetically by a vast majority of 'Western' scholars and NGOs as composed of 'good' or 'innocent' people whose livelihoods are threatened by evil, bureaucratic regulations (1281). A similar movement in the American West, the 'Wise Use' movement, is, according to McCarthy, persistently described as hostile to progress or, even more as a 'corporate front' (1282). Apparently, comparable situations of competition over natural resources are conceptualised and analysed differently, depending on where they are located.

While the argument for consistency in research perspectives is certainly justified, the example of the 'Wise Use' movement is rather problematic due to its ambiguous nature (on the Wise Use movement, cf. Sanchez 1996, Helvarg 2004), a point to which McCarthy unfortunately makes very few references. Nonetheless, McCarthy makes his point clear when he adds that very often studies in the third world are sympathetic towards local movements while being extremely sceptical of international or governmental actors. To counter this appreciation he points out that 'local agendas are not inherently more legitimate than state or environmentalist agendas and that centralised state resource management is not always a bad thing' 1298). Consequently, he calls for a more sceptical approach to the motives and backgrounds of local actors and for a similar degree of scrutiny of grassroots movements independent of their location. Furthermore, he rightly calls for an expansion of political ecology research to other areas of investigation. '[T]he transformation of nature by, or in the service of, multinational corporations, rapid urban growth, and affluent consumption in capitalist countries would seem to have at least as much causal power in contemporary ecological and political economic dynamics as the struggles of agrarian peasant societies' (McCarthy 2002, 1297). Indeed, contributions in works like Rocheleau et al. (1996) or Zimmerer and Bassett (2003) extend their focus to environmental hazards, the distribution of risks, and environmental justice, thereby bridging the mental gap between rural Third World and urban First World activism in their analysis.

However, this is only one side of the coin. More important is the fact that scientific discourse itself reflects a certain North–South bias. While discourse analyses usually carefully examine which agendas are promoted through specific discourses, other areas in the field of research may be (un-)intentionally reinforcing them. In his harsh critique of the environmental security and conflict literature, Barnett (2000) argues that authors focus on violent conflicts resulting from environmental degradation and that since much of this research informs (US) security policy discourse, it must be viewed criti-

cally. He agues that 'the environment–conflict thesis is theoretically rather than empirically driven, and is both a product and a legitimation of the North's security agenda' (271). The ethnocentric and deterministic assumption that 'people in the South will resort to violence in times of resource scarcity' (274) is misleading and to him a clear case of 'civilised' Europeans constructing 'a barbaric Other' (277). Environmental challenges such as water sharing are framed in a language of conflict and war rather than being discussed by reference to successful examples of transboundary water cooperation. Barnett criticises the literature for conceptualising environmental problems as a threat to international security, but in truth the security of the First World. He concludes that the environment-conflict literature 'reflects the intermingling of neorealist and liberal theories in North American security discourse, a confluence which excludes alternative critical perspectives and which […] serves to marginalize the insights of a Green theory' (284). Escobar's (1998) criticism points in the same direction as he questions the predominant biodiversity discourse. Through the 'biodiversity network' of 'international institutions, Northern NGOs, botanical gardens, universities and research institutes in the First and Third worlds, pharmaceutical companies and the great variety of experts located in each of these fields' truths are 'transformed and re-inscribed into other knowledge–power constellations' (56). Furthermore, these mostly Northern discourses engender a counter-discourse of 'bioimperialism' and biodemocracy originated by local social movements (60).

More recent works have also started to examine transnational, North–South environmental histories, to analyse flows of trade and knowledge and to question discourses and myths of a pristine, edenic nature, indeed culturally very different conceptions of nature and conservation. Stott's (1999) harsh critique of Northern concerns about the 'fragile, million-year old tropical rainforest' deconstructs the uncritical, neo-colonialist 'hegemonic myths' of Western, 'green' conservationists (3). These discourses shaped by mythological 'metawords' 'load' texts about the rainforest with the deep contrast of 'pure, unsullied, forest', whose equilibrium is threatened by 'human folly, greed and sin' (26). But, as he points out 'there is not one single shred of scientific evidence to support the powerful historic and mythic language employed here. Its roots lie entirely in the European and North American construction of the "tropical rain forest" as a linguistic entity in the late-19th and early-20th Century' (26). Other studies scrutinise the role of science from colonial times on and the changing values and norms of the North that often impose massive changes on societies in the South. Amongst the themes raised are the symbolic production of nature, such as European colonial imaginations of Africa that inform the conceptions of natural parks (Zimmerer and Bassett 2003). Another example is the concept of 'alternative' consumption (Bryant and Goodman 2004). Lupu (2004) demonstrates how US-backed, forced coca eradication programmes in Peru are fuelled by a hegemonic security discourse that has disastrous effects on the livelihoods of rural land users

5   Conclusions

Political ecology is an interdisciplinary approach that is still in its formative phase. The concepts of scholars vary greatly and their respective perspectives on political ecology are often subject to harsh criticism by their peers. To this day most political ecology research consists of analyses of local environmental changes related to broader social and political structures. For policy-orientated political ecologists the challenge is to circumvent the 'ideographic trap' – i.e. to avoid research findings valid only for a specific and spatially limited area. There is a need to elevate research results from their original unit of analysis onto a more general level if one seeks to help mitigate syndromes of global environmental change. But more often, and arguably rightly so, the goal of regional political ecology is to explicitly avoid generalisations and to do justice to local realities.

Whereas political ecology continues to be under-theorised, it has proven that it can provide a conceptual lens for describing and analysing environmental change. One type of local level study relates to protected areas such as national parks, world heritage sites, etc. where restrictions on land use ('coercive conservation') and the conflicts of interest of the various stakeholders produce specific patterns of resource management   Zimmerer and Bassett 2003, 5; Twyman 2000, Kaltenborn et al. 2002). The sheer number of case studies that have – or at least claim to have – a political ecology focus on land degradation, resource use or resource conflict are proof of the fact that political ecology thinking provides the necessary tools for thorough, differentiated and comprehensive research.

Central to political ecology is the in-depth examination of social structures in their global and historical contexts to explain environmental change and analysis of the various involved actors, their interests, actions and discourses. Two main branches of research stand out in this regard. There is the more conflict-orientated approach that looks at environmentally induced conflicts, political conflicts between stakeholders at different levels of administration, and violent conflicts. As previously alluded to, the environmental conflict literature focusing on inter-group violence has been subjected to much criticism and has been denounced as deterministic, ethnocentric and neither environmentalist nor open-minded enough (Barnett 2000). The other influential line of argument concerns reflection on resource access, use and power – mainly viewed through the lens of gender. Many of these analyses continue to be influenced by a neo-Marxist framework that has lastingly shaped political ecology. This critical approach to widespread 'orthodoxies' (Forsyth 2003) and the sustainability policies resulting from them is, in my opinion, one of the strongest arguments for a deconstructivist political ecology. The different theoretical approaches, which can never be clearly separated,, need not necessarily be viewed as a problem but rather make for a rich pool of ideas on which further research can draw.

Besides theory-building another task that remains is to reconcile the more ecocentric and positivist with the more anthropocentric and post-positivist views. Moreo-

ver, political ecology scholars now face the dilemma of defining the social relevance and policy implications of their research. On the one hand there is, due to the discipline's concern with equality and social justice, a 'call for action', i.e. finding the practical implications of political ecology research results. On the other hand, political ecology scholars need to situate themselves in the field of research by questioning their own role in the production of specific scientific discourses (Paulson et al. 2003, 215).

Future analyses must take into account the North–South dimensions and disparities of environmental discourse and problems and, ultimately, come up with a more differentiated approach. Neither are local rural land users intrinsically good and governmental (NGO/supranational) actors per se evil, as the many case studies on local struggles and resistance to international and state-sponsored environmental uses and their rhetoric seem to suggest. Nor are local communities inherently non-sustainable resource users and automatically a threat to global environmental security and welfare. To conclude, in both cases the motivations, agendas and legitimacy of different actors – as well as of scholars and thus of oneself – must be scrutinised.

The theoretical base of political ecology remains facetted and multi-angular. The most important stream of scholarly theorising in this field stems from constructivists' discourse analysis. They provide a fruitful way of analysing the construction of conflict objectives, relations between conflicting parties and environmental hazards. The most important critique levelled against constructivism concerns the fact that environmental realities and the role of nature are neglected or at least understated. This is a point that cannot completely be dismissed. Nonetheless, a few promising attempts to shape a theory of political ecology have been made lately (Peet and Watts 1996, Bryant and Bailey 1997, Forsyth 2003). Nonetheless, scholars obviously and in accordance with their disciplinary background and theoretical orientation favour one approach over the other. The formulation of an overarching theory of political ecology remains an outstanding and ambitious challenge to be tackled by future scholars.

At the same time the apparent 'diversity of approach' (as postulated by Blaikie and Brookfield 1987) of different theoretical backgrounds need not necessarily be seen as a problem. Far from it, this flexibility marks the strength of political ecology. The combination of more ecological, eco-centric, positivist ideas with the risk/costs assessments of political economists and the permanent questioning of generally accepted truths by post-positivist discourse analysts improves our understanding of the interaction of natural and social realities. To conclude, one might argue that the lack of a coherent theoretical base for political ecology is its major weakness. The diversity of theoretical backgrounds, though, is its greatest strength. As the editors of the Journal of Political Ecology have put it in their foreword to the first edition: '…we feel it would be ill-advised to define 'political ecology' and maintain rather that all forms of political ecology will have some family resemblances but need not share a common core' (Greenberg and Park 1994, 8).

6   Annotated Bibliography

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Abstract: Nature conservation in the UK comprises not only a response to the perceived impacts of rationalisation of nature but is itself a dimension of that process of rationalisation. The paper describes the development of conservation institutions and ideologies in the UK and considers the ways in which ecology (and particularly ideas of nature as equilibrium) has provided the intellectual framework for conservation. Ecology underpinned the establishment of government conservation institutions, provided intellectual strategies for classifying and objectifying nature, and provided the knowledge base for the control and management of nature. The paper discusses the implications of non-equilibrial ideas in ecology for theory and practice in conservation and the implications of responses to them in the form of re-rationalisation.

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Abstract: Green Development analyses the evolution of the concept of 'sustainable development', and assesses how this can be applied in the real world. William Adams questions the established understanding of the problems of environment and development, stressing the inadequacy of a narrow view of environmental impacts and a limited response based on traditional conservation measures. He bridges the gap between environmentalism and development studies and argues that the central focus of 'green development' should be on the needs of the poor, and their capacity for control, power, and self-determination.

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Abstract: The management of indigenous irrigation systems has received increasing attention both from social science researchers and from those development agents who seek to change them, or to find in them a model for organising newly developed irrigation schemes. This article discusses how water is allocated within one such irrigation system, the hill furrow irrigation of the Marakwet escarpment in Kenya. It describes the 'formal rules' of water rights, giving particular attention to the issue of gender with respect to water rights. It then discusses the 'working rules' relevant to water allocation, involving various informal practices of sharing, buying and stealing.

The implications of this complexity for understanding the operation of indigenous farmer-managed irrigation systems are examined.

Adger WN et al. 2001. Advancing a political ecology of global environmental discourses. *Development and Change* 32:681–715.

Abstract: In this article, we identify the major discourses associated with four global environmental issues: deforestation, desertification, biodiversity and climate change. These discourses are analysed in terms of their messages, narrative structures and policy prescriptions. We find striking parallels in the nature and structure of the discourses and their illegibility at the local scale. [...] The research shows that policy-making institutions are distanced from resource users and that local scale environmental management moves with a distinct dynamic and experiences alternative manifestations of environmental change and livelihood imperatives.

Affeltranger B, Lasserre F. 2003. La gestion par bassin versant: du principe écologique à la contrainte politique – le cas du Mékong. *VertigO* 4(3): 24– 38.

http://www.vertigo.uqam.ca/vol4no3/art9vol4no3/bastien_affeltranger_frederic_lasserre.html

Abstract: Basin-wide management for water-related projects and land use planning is a principle of sustainable development. In the Mekong basin, governments, aid agencies and non-governmental organisations rely on this principle to justify their claims. Yet, most stakeholders see basin-scale institutional development as a constraint, and are not willing to support it. This paper analyses the reasons for this reluctance.

Agarwal B. 1995. *A Field of One's Own: Gender and Land Rights in South Asia*. Cambridge: Cambridge University Press.

Abstract: In this comprehensive analysis of gender and property throughout South Asia, Bina Agarwal argues that the most important economic factor affecting women is the gender gap in command over property. In rural South Asia, few women own land and even fewer control it. Drawing on a wide range of sources, including field research, the author addresses the reasons for this imbalance, and asks how the barriers to ownership can be overcome. The book offers original insights into the current theoretical and policy debates on land reform and women's status.

Barnett J. 2000. Destabilizing the environment-conflict thesis. *Review of International Studies* 26(2):271–288.

Abstract: The argument that environmental degradation will lead to conflict is a well established concern of international studies, and it dominates the literature on environmental security. This article critically examines theories about wars fought over scarce 'environmental' resources, 'water wars', and the argument that population growth may induce conflict. One significant research programme— the Project on Environment, Population and Security— is also discussed. The article ends with an evaluation of the theoretical merits and practical effects of the environment-conflict thesis. It argues

that the environment-conflict thesis is theoretically rather than empirically driven, and is both a product and legitimation of the Northern security agenda.

Bassett TJ. 1988. The political ecology of peasant-herder conflicts in the Northern Ivory Coast. *Annals of the Association of American Geographers* 78(3):453–472.

Abstract: Following the great Sahelian drought of the early 1970s, an unprecedented number of Fulani pastoralists immigrated to the Ivory Coast with their cattle. Although welcomed by the Ivorian government for their contribution to national beef production, the Fulani's presence has been bitterly opposed by Senufo peasants in the savanna region over the problem of uncompensated crop damage. I examine the nature of peasant-herder conflicts in northern Ivory Coast from a 'political ecology' perspective and argue that it is at the intersection of Ivorian political economy and the human ecology of agricultural systems in the savanna region that one can begin to identify the key processes and decision-making conditions behind the current conflict. The case study seeks to contribute to the growing literature on peasant-herder interactions in sub-Saharan Africa by viewing peasant-herder conflicts as 'responses in context.' The political ecology approach provides a framework for human ecologists interested in examining the interrelationships between local patterns of resource use and the larger political economy.

Bassett TJ, Crummey D, editors. 2003. *African Savannas. Gobal Narratives and Local Knowledge of Environmental Change.* Oxford: James Currey.

Abstract. Images of degradation and chaos predominate many scholarly and popular conceptions of the African environment. This interdisciplinary collection uses collaborative research from the major savanna regions that stretch across Africa to challenge these notions. It argues that the interpretation of landscapes requires a consideration of the unique political and ecological practices in Africa. The image of environment and society in African savannas cultivated by this book is one of innovation, resilience, and spatial and temporal variability. It is an image that stresses the vitality and importance of local African knowledge for understanding environmental change. Accessibly written, this collection will appeal to general readers concerned about ecological issues in Africa.

Bassett TJ, Bi Zueli K. 2000. Environmental discourses and the Ivoirian Savanna. *Annals of the Association of American Geographers* 90(1):67–95.

http://www.ingentaconnect.com/content/bpl/anna/2000/00000090/00000001/art00004

Abstract: Taking the West African case study of Côte d'Ivoire, this paper argues that the planning process, specifically the identification of environmental problems, is based on a poor understanding of the nature and direction of environmental change. We confront this data problem by contrasting the image of a deforested savanna

landscape found in the Côte d'Ivoire NEAP with the more wooded landscape experienced by farmers and herders and confirmed by our analysis of aerial photographs. Our second objective is to address the policy implications of two geographical issues rising from this paper: the disjointed scale problem between local/regional environmental change patterns and global environmental discourses, and the human-environmental consequences of ignoring actual versus imagined environmental problems. A third goal is to contribute to the growing convergence in cultural and political ecology around the use of multiple research methods to explain environmental change dynamics. Our discussion of environmental change is informed by intensive data collection in two rural communities in the Korhogo region of northern Côte d'Ivoire.

Berkes F, Folke C, editors. 2000. *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience.* Cambridge: Cambridge University Press.

Abstract: It is usually the case that scientists examine either ecological systems or social systems, yet the need for an interdisciplinary approach to the problems of environmental management and sustainable development is becoming increasingly obvious. Developed under the auspices of the Beijer Institute in Stockholm, this new book analyses social and ecological linkages in selected ecosystems using an international and interdisciplinary case study approach. The chapters provide detailed information on a variety of management practices for dealing with environmental change. Taken as a whole, the book will contribute to a greater understanding of essential social responses to changes in ecosystems, including the generation, accumulation and transmission of ecological knowledge, structure and dynamics of institutions, and the cultural values underlying these responses. A set of new (or rediscovered) principles for sustainable ecosystem management is also presented. Linking Social and Ecological Systems will be of value to natural and social scientists interested in sustainability.

Bezon LL. 1997. Political ecology and conflict in Ankarana, Madagascar. *Ethnology* 36(2):85–100.

Abstract: Conflict over issues of land use in northern Madagascar reveals that political control is situational & rights to resources are ambiguous. Here, two cases derived from 1991–1993 fieldwork reveal that local farmers, the regional royal indigenous leader, & international conservationists struggled to establish & maintain the ability to use & manage the forested land to the west of the Ankarana massif. Political ecology provides a theoretical framework for exploring the complex political negotiations that are an integral part of all ecological interactions, focusing on disparate sources of rights & authority for involved parties. In recognising the complexity of such interactions, applied attempts to address issues of environmental degradation & disenfranchisement may also become more effective.

Blakie P, Brookfield H. 1987. *Land Degradation and Society.* London: Methuen & Co.

One of the key works that helped to shape the field of research political ecology, this groundbreaking book was one of the first studies to describe land degradation and soil erosion not only as human-induced natural processes, but as a social process affecting, and caused by, the prevailing social circumstances.

Bradshaw S. 2002. Exploring the gender dimensions of reconstruction processes post-hurricane Mitch. *Journal of International Development* 14(6):871 – 879.

Abstract: The paper will consider the reconstruction process in Nicaragua, post hurricane Mitch. First, the success of civil society co-ordinations at promoting common people-centred agendas will be highlighted and contrasted with the difficulties they have faced in becoming gender inclusive spaces. Second, the extent to which the official rhetoric they helped to promote has been translated into reality is examined, suggesting that on the ground projects remain at best 'women-centred'.

Bryant RL. 1991. Putting politics first: The political ecology of sustainable development. *Global Ecology and Biogeography Letters* 1(6):164–166.

http://links.jstor.org/sici?sici=0960-7447%281991111%291%3A6%3C164%3APPFTPE%3E2.0.CO%3B2-O

This article argues against the – then predominant – depoliticising of ecology in the sustainable development debates. It depicts various consequences of this depoliticisation and promotes a political ecology approach that analyses the politics of ecological change.

Bryant RL, Bailey S. 1997. *Third World Political Ecology.* London: Routledge.

Abstract: An effective response to contemporary environmental problems demands an approach that integrates political, economic and ecological issues. Third World Political Ecology provides an introduction to an exciting new research field that aims to develop an integrated understanding of the political economy of environmental change in the Third World. The authors review the historical development of the field, explain what is distinctive about Third World political ecology, and suggest areas for future development. Exploring the role of various actors – states, multilateral institutions, businesses, non-governmental organisations, poverty-stricken farmers and other "grassroots" actors, Third World Political Ecology is the first major attempt to explain the development and characteristics of environmental problems that plague parts of Asia, Africa and Latin America.

Bryant RL, Goodman MC. 2004. Consuming narratives: the political ecology of 'alternative' consumption. *Transactions of the Institute of British Geographers* 29(3):344-366.

Abstract: This paper examines how political ecology themes of tropical conservation and social justice become representational practices underpinning 'alternative' consumption in the North. The notion of commodity culture is adopted to understand the ambiguous rationalities

and ethical assumptions of two sets of consumption practices. The first case considers Edenic myth-making used to assimilate concerns over tropical deforestation in the South to consumption-intensive if conservation-minded lifestyles in the North. The second case looks at fair trade and how concern about social injustice and unfair labour practices in the South is harnessed to solidarity-seeking consumption constitutive of 'radical' lifestyles. The paper suggests these contrasting commodity cultures broadly conform to divergent positions in red-green debates. It argues that both are weakened as a form of social and political 'caring at a distance' due to an uncritical acceptance of consumption as the primary basis of action.

Carney J. 1993. Converting the wetlands, engendering the environment: the intersection of gender with agrarian change in the Gambia. *Economic Geography* 69(4):329–348.
http://links.jstor.org/sici?sici=0013-0095%281993310%2969%3A4%3C329%3ACTWETE%3E2.0.CO%3B2-H
Abstract: In this paper, I examine how agricultural diversification and food security are transforming wetland environments in The Gambia. With irrigation schemes being implemented in lowland swamps to encourage year-round cultivation, agrarian relations are rife with conflict between men and women over the distribution of work and benefits of increased household earnings. Economic change gives rise to new claims over the communal tenure systems prevalent in lowland environments and allows male household heads to enclose wetlands and thereby control female family labour for consolidating their strategies of accumulation. The forms of female resistance are detailed in this paper.

Collier P, Hoeffler A. 2000. *Greed and Grievance in Civil War.* Washington D.C.: The World Bank.
Abstract: We investigate the causes of civil war, using a new data set of wars during 1960-99. Rebellion may be explained by atypically severe grievances, such as high inequality, a lack of political rights, or ethnic and religious divisions in society. Alternatively, it might be explained by atypical opportunities for building a rebel organization. Opportunity may be determined by access to finance, such as the scope for exploitation of natural resources, and for donations from a diaspora population. Opportunity may also depend upon factors such as geography: mountains and forests may be needed to incubate rebellion. We test these explanations and find that opportunity provides considerably more explanatory power than grievance. Economic viability appears to be the predominant systematic explanation of rebellion. The results are robust to correction for outliers, alternative variable definition, and variations in estimation method.

Conklin BA, Graham LR. 1995. The shifting middle ground: Amazonian Indians and eco-politics. *American Anthropologist, New Series* 97(4):695–710.
http://links.jstor.org/sici?sici=0002-7294%28199512%292%3A97%3A4%3C695%3ATSMGAI%3E2.0.CO%3B2-Q
Abstract: Over the past decade in Brazil, the convergence between international environmentalism and indigenous cultural survival concerns

led to an unprecedented internationalisation of local native struggles. The Indian–environmentalist alliance has benefited both parties, but recent events suggest that it may be unstable and may pose political risks for native people. The limitations of transnational symbolic politics as a vehicle for indigenous activism reflect tensions and contradictions in outsiders' symbolic constructions of Indian identity.

Cramer C. 2000. *War, Famine and the Limits of Economics.* Paper presented at the Conference on Local and Global Dimensions of Food Security: Threats, Challenges and Responses. University College, Cork, April 13–15 2000.

Abstract: Economists have sought to identify the mechanisms by which war affects people's well-being, including their command over food, and to assess the scale of this economic impact of war. Analyses of the origins of conflict have also identified causal factors closely related to food insecurity, including rural poverty, land inequality, and population pressure on land (André and Platteau, 1996; Luckham et al, 1999). However, another kind of link concerns the analytical issues which studies of food insecurity or famine and conflict have in common, particularly from the perspective of economics. This paper focuses on this last link, progressing from a brief discussion of the economics of famine to a critical discussion of the mainstream economics of conflict. In particular, I show what can be done with neo–classical economic concepts to analyse the causes of war. However, there is a range of criticisms of economic analyses of the causes of conflict that merit more debate. Some of these relate to a charge of "economism": that these analyses of violence and war reduce causal explanations exclusively to "laws" of economic behaviour. Others concern the argument that, while economics is central to the origins of conflict, an economic analysis that explains such phenomena from the starting point of microeconomics and methodological individualism is questionable.

Dalby S. 2002a. Conflict, ecology and the politics of environmental security. Book Review Essay. *Global Environment Politics* 2(4):125–130.

In this article, Dalby reiterates the current debate about the relationships between environment and conflict. By juxtaposing recent works by Homer–Dixon (1999) Diehl and Gleditsch (2001) and Hastings (2000), the article contrast the diverging views and addresses the methodological (and ideological) controversies.

Dalby S. 2002b. *Environmental Security.* Minneapolis: University of Minnesota Press.

Abstract: Since the end of the Cold War, environmental matters – especially the international implications of environmental degradation – have figured prominently in debates about rethinking security. But do the assumptions underlying such discussions hold up under close scrutiny? In this first treatment of environmental security from a truly critical perspective, Simon Dalby shows how attempts to explain contemporary insecurity falter over unexamined notions of both environment and security. Adding environmental history, aboriginal perspectives, and geopolitics to the analysis explicitly suggests that the growing dis-

ruptions caused by a carbon-fueled and expanding modernity are at the root of contemporary difficulties. Environmental Security argues that rethinking security means revisiting the question of how we conceive identities as endangered and how we perceive threats to these identities. The book clearly demonstrates that the conceptual basis for critical security studies requires an extended engagement with political theory and with the assumptions of the modern subject as progressive political agent.

De Haan LJ. 2000. The question of development and environment in geography in the era of globalisation. *GeoJournal* 50:359–367.

Abstract: This paper focuses on how livelihood and the question of development and environment in a globalising era should be examined. It discusses various views in geography on the question of environment and development, and it explores the concept of sustainable livelihood. It concludes that a geographical conceptualisation of 'development and environment' may profit from discussions of sustainable livelihood, provided they do not become entangled in an actor-cum-local bias. Moreover, the diffusion of non-equilibrium concepts may broaden the analysis of man-land relations and open the way to an analysis of globalisation effects.

De Soysa I. 2002. Paradise is a bazaar? Greed, creed and governance in civil war 1989–99. *Journal of Peace Research* 39(4):395–416. http://jpr.sagepub.com/cgi/reprint/39/4/395?maxtoshow=&HITS=10 &hits=10&RESULTFORMAT=1&author1=soysa&andorexacttitle=and&an dorexacttitle-abs=and&andorexactfulltext=and&searchid=1109340471917_2&store d_search=&FIRSTINDEX=0&sortspec=relevance&journalcode=spjpr

Abstract: Some prominent recent studies of civil war argue that greed, not grievance, is the primary motivating factor behind violence, basing their conclusions on a strong empirical association between primary commodity exports and civil war. This study contrasts alternative propositions that see need-, creed-, and governance-based explanations that are intimately related to the question of primary commodity dependence and conflict. Maximum likelihood analysis on approximately 138 countries over the entire post-Cold War period shows little support for neo-Malthusian claims. Abundant mineral wealth makes countries highly unstable, whereas scarcity of renewable resources is largely unrelated to civil conflict. A positive effect of population density on conflict does not seem to be conditioned by renewable resource scarcity. Ethnicity is related to conflict when society is moderately homogenous; a highly plural society faces less risk. Very slight political liberalisation leads to conflict, but larger increases reduce the danger considerably, supporting the view that conflict is driven by opportunistic behaviour rather than by grievance.

Diehl PF, Gleditsch NP, editors. 2001. *Environmental Conflict.* Boulder CO: Westview Press.
Abstract: This book is a collection of articles that deal with different aspects of the role of environmental factors in interstate and intrastate conflict. Specifically, the book considers the role of environmental change and degradation in promotion of violent conflict, but also how cooperative efforts might forestall such undesirable consequences. In doing so, the chapters encompass much of the cutting-edge research in the area of the environmental security. All chapters have a strong empirical base and build upon the most recent research in the field of international conflict. Although there is heterogeneity in approach and scope, all the chapters are broadly concerned with theoretical issues and generally form a coherent whole around the theme that environmental factors may influence group and state decisions to employ violence.

Escobar A. 1996. Constructing nature. Elements for a poststructural political ecology. *In:* Richard P, Watts M, editors. *Liberation Ecologies – Environment, development, Social movements.* London: Routledge.

Escobar A. 1998. Whose knowledge, whose nature? Biodiversity, conservation and the political ecology of social movements. *Journal of Political Ecology 5:53–82.*
Abstract: This paper lays down the rudiments of a framework for rethinking the appropriation and conservation of biological diversity from the perspective of social movements, particularly those that have emerged recently in biodiversity-rich regions such as tropical rainforests. It is not the only, or even privileged, framework for examining this biologically, culturally, and politically complex issue, but one that, it is argued, is necessary if the claims on biodiversity by social movements are to be taken seriously. Discussions of the economic, technological, and managerial mechanisms for actualising and distributing the benefits of biodiversity have occupied most of the attention in national and international circles. At the same time, these discussions have been accompanied by a parallel process, namely, the appearance of new social actors, including progressive NGOs in many countries and local social movements engaged in the redefinition of cultural and ethnic identities. The political strategies of these actors constitute an important intervention in what is already a highly transnationalised nature/culture field.

Escobar A. 1999. After nature: steps to an antiessentialist political ecology. *Current Anthropology* 40(1):1–30.
http://links.jstor.org/sici?sici=0011-3204%28199902%2940%3A1%3C1%3AANSTAA%3E2.0.CO%3B2-P
Abstract: This paper presents the outline of an anthropological political ecology that fully acknowledges the constructedness of nature while suggesting steps to weave together the cultural and the biological on constructivist grounds. [...] The paper proposes an antiessentialist framework for investigating the manifold forms that the natural takes in today's world. This proposal builds on current trends in ecological anthropology, political ecology and cultural studies of science and technology.

Fairhead J, Leach M. 1996. *Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic.* Cambridge: Cambridge University Press.

Abstract: West African landscapes are generally considered degraded, especially on the forest edge. This unique study shows how wrong that view can be, by revealing how inhabitants have enriched their land when scientists believe they have degraded it. Historical and anthropological methods demonstrate how intelligent African farmers' own land management can be, while scientists and policy makers have misunderstood the African environment. The book provides a new framework for ecological anthropology, and a challenge to old assumptions about the African landscape.

Fairhead J, Leach M. 1998. *Reframing Deforestation: Global Analysis and Local Realities: Studies in West Africa.* London: Routledge.

Abstract: *Reframing Deforestation* suggests that the scale of deforestation wrought by West African farmers during the twentieth century has been vastly exaggerated and global analyses have unfairly stigmatised them and obscured their more sustainable, even landscape-enriching practices. The book begins by reviewing how West African deforestation is represented and the types of evidence which inform deforestation orthodoxy. On a country by country basis (covering Sierra Leone, Liberia, Cote D'Ivoire, Ghana, Togo and Benin), and using historical and social anthropological evidence, subsequent chapters evaluate this orthodox critically. Together, the cases build up a variety of arguments which serve to reframe history and question how and why deforestation has been exaggerated throughout West Africa, setting the analysis in its institutional and social context. Stessing that dominant policy approaches in forestry and conservation require major rethinking worldwide, *Reframing Deforestation* illustrates that more realistic assessments of forest cover change, and more respectful attention to local knowledge and practices, are necessary bases for effective and appropriate environmental policies.

Forsyth T. 2003. *Critical political ecology: The politics of environmental science.* London and New York: Routledge.

Abstract: *Critical Political Ecology* brings political debate to the science of ecology. As political controversies multiply over the science underlying environmental debates, there is an increasing need to understand the relationship between environmental science and politics. In this timely and wide-ranging volume, Tim Forsyth provides innovative approaches to applying political analysis to ecology, and shows how more politicised approaches to science can be used in environmental decision making.

Goldman M, Schurman RA. 2000. Closing the 'Great Divide': New social theory on society and nature. *Annual Reviews of Sociology* 26:563-584.

Abstract: Twenty years ago, two environmental sociologists made a bold call for a paradigmatic shift in the discipline of sociology – namely, one that would bring nature into the centre of sociological inquiry and recognise the inseparability of nature and society. In this essay, we re-

view recent scholarship that seeks to meet this challenge. The respective strands of this literature come from the margins of environmental sociology and border on other arenas of social theory production, including neo-Marxism, political ecology, materialist feminism, and social studies of science. Bringing together scholars from sociology, anthropology, geography, and history, each of these strands offers what we consider the most innovative new work trying to move sociology beyond the nature/society divide.

Greenberg JB, Park TK. 1994. Political ecology. *Journal of Political Ecology* 1(1):1–12.
http://dizzy.library.arizona.edu/ej/jpe/volume_1/FOREWARD.PDF
In the foreword to the first issue of the newly founded *Journal of Political Ecology*, the editors give a brief overview of the field and formulate the hopes that they have for bringing researchers from a multitude of disciplines together in this journal.

Grossmann LS. 1997. Soil conservation, political ecology, and technological change on Saint Vincent. *Geographical Review* 87(3):353–374.
http://links.jstor.org/sici?sici=0016-
7428%28199707%2987%3A3%3C353%3ASCPEAT%3E2.0.CO%3B2-G
Abstract: A political-ecological perspective is used to analyse soil erosion, conservation, and the peasantry on Saint Vincent in the Eastern Caribbean. Peasants farm areas most susceptible to erosion because of the historical development of property relationships. A soil conservation effort begun in the late 1930s was part of a broader, British Empire-wide program. Local political-economic conditions and the environmental and technical characteristics of the cropping systems influenced the nature of soil conservation on Saint Vincent. Official colonial discourse about erosion reflected a complex mixture of blaming peasants and recognising their political-economic constraints.

Hagmann T. 2005. Confronting the concept of environmentally induced conflict. *Peace, Conflict and Development* 6:1–22.
www.peacestudiesjournal.co.uk
Abstract: The article takes stock of the contradictory body of literature on the environmental causes of violent inter-group conflict in developing countries. It reviews key scholarly works in the field of environmental conflict and points out their main shortcomings in the realms of research design, theory, and normative foundation. I argue that the concept of environmental conflict is fundamentally flawed, as it relies on preconceived causalities, intermingles eco-centric with anthropocentric philosophies, and neglects the motivations and subjective perceptions of local actors. In addition, a number of theoretical and heuristic questions are raised in order to challenge core assumptions on the ecological causes of violent conflict. The article concludes with a plea for peace and conflict researchers to call into question the concept of environmental conflict, as it represents an inappropriate research strategy in our quest to understand human-nature interactions.

Hansis R. 1998. A political ecology of picking: Non-timber forest products in the Pacific Northwest. *Human Ecology* 26(1):67–86.

Abstract: Using a political ecology framework, this research analyses the recent entry of recent Latino and Southeast Asian immigrants into the harvesting of non-timber forest products in the Pacific Northwest. Using both permit data and interviewing, it suggests that a world market for these products, government policy, and environmental conditions have the potential for driving harvests to unsustainable levels and exacerbating incipient conflicts.

Harrison CM. Burgess J. 1994. Social constructions of nature: A case study of conflicts over the development of the Rainham Marshes. *Transactions of the Institute of British Geographers* 19(3):291-310.

Abstract: This paper analyses social constructions of nature in different discursive contexts and the ways in which particular representations of nature are used to legitimate specific institutional policies and practices. The proposal to create a commercial and entertainment development on the Rainham Marshes Site of Special Scientific Interest (SSSI) in east London provides the case study. Drawing on arguments from media sociology and the sociology of risk, the paper explores the identification of distinctive myths of nature associated with particular socio-political formations within the discourses of developers, conservationists, the media and the public. Detailed ethnographic research reveals how the developers and conservationists employed different constructions of nature to justify their respective positions and how different local audiences made sense of competing claims about the relative worth of the 'nature' on their doorsteps.

Helvarg D. 2004. *The War Against the Greens: The "Wise-Use" Movement, the New Right, and the Browning of America.* Revised edition. Boulder CO: Johnson Books.

Abstract: A reign of violence and intimidation, including arson, bombings, rape, assault and even murder, was unleashed against environmental activists and government employees by proponents of the so-called "Wise Use" movement. David Helvarg, in *The War Against the Greens*, ripped the veneer of legitimacy off this right-wing backlash that stretched from armed militias to the halls of Congress, exposing the public lands corporations, political operatives and fringe groups who set out to destroy American environmental protection by any means necessary. First published by Sierra Club Books in 1994, the book had an immediate impact on public policy and law enforcement, helping to curb the extremists and their allies. But ten years later, Helvarg finds that George W. Bush has opened wide the doors of his administration to these same individuals and industries, who are now getting rich off the looting of our public lands. In a wide-ranging, hard-hitting new chapter, Helvarg exposes the Wise Use veterans, lawyers, and lobbyists who have been put in charge of our public resources, and the public-be-damned policies they are pursuing.

Hodgson DL. 2001. *Once Intrepid Warriors: Gender, Ethnicity and the Cultural Politics of Maasai Development.* Bloomington IN: Indiana University Press.

Abstract: Hodgson presents us with a complex, interactive picture of change over time, one dominated neither by the Maasai nor the state and development apparatus. . . . The Maasai emerge not simply as the 'intrepid warriors' envisioned by government and development officials, or even sometimes by themselves, but as active agents in the construction of their own history. This history, however, is often contradictory, contested, and varied.

Homer–Dixon T. 1994. Environment scarcities and violent conflict: Evidence from cases. *International Security* 19(1):5–40. http://links.jstor.org/sici?sici=0162–2889%281994422%2919%3A1%3C5%3AESAVCE%3E2.0.CO%3B2–7

Abstract: Within the next fifty years, the planet's human population will probably pass nine billion, and global economic output may quintuple. Largely as a result, scarcities of renewable resources will increase sharply. The total area of high-quality agricultural land will drop, as will the extent of forests and the number of species they sustain. Coming generations will also see the widespread depletion and degradation of aquifers, rivers, and other water resources; the decline of many fisheries; and perhaps significant climate change. If such "environmental scarcities" become severe, could they precipitate violent civil or international conflict? I have previously surveyed the issues and evidence surrounding this question and proposed an agenda for further research.[1] Here I report the results of an international research project guided by this agenda.[2] Following a brief review of my original hypotheses and the project's research design, I present several general findings of this research that led me to revise the original hypotheses. The article continues with an account of empirical evidence for and against the revised hypotheses, and it concludes with an assessment of the implications of environmentally induced conflict for international security.

Homer–Dixon T. 1999. *Environment Scarcity and Violence.* Princeton NJ: Princeton University Press.

Abstract: Homer–Dixon synthesises work from a wide range of international research projects to develop a detailed model of the sources of environmental scarcity. He refers to water shortages in China, population growth in sub-Saharan Africa, and land distribution in Mexico, for example, to show that scarcities stem from the degradation and depletion of renewable resources, the increased demand for these resources, and/or their unequal distribution. He shows that these scarcities can lead to deepened poverty, large-scale migrations, sharpened social cleavages, and weakened institutions. And he describes the kinds of violence that can result from these social effects, arguing that conflicts in Chiapas, Mexico and ongoing turmoil in many African and Asian countries, for instance, are already partly a consequence of scarcity.

Iftikhar UA. 2003. *NASSD Background Paper: Population, Poverty and Environment.* Gilgit: IUCN Pakistan, Northern Areas Programme.

In this paper, the entitlements approach is used to examine Pakistan's Northern Areas and the environmental change taking place there. After a review of the literature and the theories of entitlements and environ-

mental change, the author then outlines possible guidelines for sustainable development policies in this specific area of research.

Igoe J. 2000. *Ethnicity, Civil Society and the Tanzanian Pastoral NGO Movement: The Continuities and Discontinuities of Liberalized Development.* [PhD Dissertation]. Boston: Department of Anthropology, Boston University.

Ilahiane H. 1996. Small-scale irrigation in a multi-ethnic oasis environment: The case of Zaouit Amelkis Village, Southeast Morocco. *Journal of Political Ecology* 3:89–106.
http://www.library.arizona.edu/ej/jpe/volume_3/8HSAIN.PDF
Abstract: This paper describes a locally managed and maintained small-scale irrigation system in the middle Ziz Valley oasis with particular focus on the village of Zaouit Amelkis. The village of Zaouit Amelkis is one of the sites where the author conducted dissertation fieldwork on the relationship between ethnicity and agricultural intensification in 1994 and 1995. This paper argues that the village of Zaouit Amelkis provides a case study where small-scale irrigation maintenance has been based on exploitation of labour among the low-status Haratine by the high-status Berbers and Arabs. This paper describes: (1) the environment of the Ziz Valley, (2) the Ziz Valley's society of rank, (3) the irrigation system of the village of Zaouit Amelkis, and (4) the social organisation of the Zaouit Amelkis' irrigation system.

Jackson C. 1998. Gender, irrigation, and environment: Arguing for agency. *Agriculture and Human Values* 15(4):313–324.
http://www.springerlink.com/app/home/contribution.asp?wasp=c957fc a175964c5cb72c037c64733618&referrer=parent&backto=issue,4,12;j ournal,26,33;linkingpublicationresults,1:102841,1
Abstract: This paper is not a critique of water policies, or an advocacy of alternatives, but rather suggests a shift of emphasis in the ways in which gender analysis is applied to water, development, and environmental issues. It argues that feminist political ecology provides a generally stronger framework for understanding these issues than ecofeminism, but cautions against a reversion to materialist approaches in reactions to ecofeminism that, like ecofeminism, can be static and ignore the agency of women and men. The paper draws attention to the subjectivities of women and their embodied livelihoods as a more useful approach to understanding the ways in which women relate to water in both irrigated agriculture and domestic provisioning.

Johnson C. 2004. Uncommon ground: The 'Poverty of History' in common property discourse. *Development and Change* 35(3):407–433.
Abstract: This article argues that the literature on common property has become divided between a body of scholarship that uses deductive models of individual decision-making and rational choice to explain the ways in which different types of property rights arrangements emerge and change over time, and one whose questions, aims and methods are more modest, and historically specific. It then aims to understand this evolution by situating the mainstream common property discourse in the wider intellectual trend of positivism, methodological

individualism and formal modelling that has come to dominate social science in the United States. In so doing, it attempts to unravel the political and ideological foundations of what has come to be a dominant mode of understanding environmental problems and solutions to these problems.

Kaltenborn BP, Vistad OI, Stanaitis S. 2002. National Parks in Lithuania: Old environment in a new democracy. *Norsk Geografisk Tidsskrift* 56(1):32–40.
Abstract: Despite a long tradition of nature and forestry management, conservation of nature has a relatively short history in Lithuania. Most aspects of environmental management are facing considerable challenges since Lithuania's recent freedom from the 50-year Soviet regime. New democracies tend to develop new and often unpredictable ramifications for environmental management, and there is an urgent need for developing national park concepts and planning models that are responsive to the local context. This paper discusses some of the challenges encountered in developing and adjusting national park concepts. Lithuanian parks, like protected areas in other parts of the world, are characterised by the interaction of diverse natural and socio-cultural factors. This more or less unique complexity is the essence of national park identity. Sustainable management of integrated protected area resources demands a change from the former expert-based top-down Soviet management. New models of collaborative, adaptive management will need to consider multiple values and goals and be able to function within rapidly changing political and administrative contexts.

Keeley J, Scoones I. 2000. Knowledge, power and politics: The environmental policy-making process in Ethiopia. *The Journal of Modern African Studies* 38(1):89–120.
In this much-discussed article (see below and in the text), the authors analyse the actor networks that shape discourse about resource management and environmental rehabilitation in Ethiopia and the discourse itself. From the analysis of the actors and the implemented top-down soil conservation strategies, they infer that the discourse about, and the measures against, soil degradation are heavily backed by multinational agrochemical industries.

Keeley J, Scoones I. 2004. Understanding policy processes in Ethiopia: a response. *The Journal of Modern African Studies* 42(1):149–153.
The response to the cited critique by Nyssen et al. (2004) of their above-mentioned 2000 article.

*Kalipeni E, Oppong J.*1998. The refugee crisis in Africa and implications for health and disease: a political ecology approach. *Social Science & Medicine* 46(12):1637–1653.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9672401
Abstract: Political violence in civil war and ethnic conflicts have generated millions of refugees across the African continent with unbelievable pictures of suffering and unnecessary death. Using a political ecology framework, this paper examines the geographies of exile and refugee

movements and the associated implications for re-emerging and newly emerging infectious diseases in great detail. It examines how the political and ecological circumstances underlying the refugee crisis influence health services delivery and the problems of disease and health in refugee camps.

Laurie N. 2005. Establishing development orthodoxy: negotiating masculinities in the water sector. *Development and Change* 36(3):527–549.
Abstract: Despite important work in development studies on the 'male bias in the development process', it is generally recognised that gender and development analyses have been slow to engage with masculinities. Focusing attention on the nexus between identity and globalising development discourses, this article explores the relationship between masculinities and development through an analysis of the gendering of water paradigms. By analysing the example of the recent Cochabamba water wars in Bolivia, and placing them in historical context, the author explores how gendered representations and language are used to downplay and upgrade particular understandings of modernity as they relate to water management, and examines the mechanisms through which specific gendered identities become associated with the most successful versions of 'modern' development.

Leach M. 2003. *Gender Myths and Feminist Fables: Repositioning Gender in Development Policy and Practice.* Paper prepared for the International Workshop Feminist Fables and Gender Myths: Repositioning Gender in Development Policy and Practice. Institute of Development Studies, Sussex, 2–4 July 2003
Abstract: The notion that women are closer to nature, naturally caring for land, water, forests and other aspects of the environment, has held powerful sway in certain development circles since the 1980s. This has led to problematic programmes which gave women responsibility for protecting the environment without the resources or power to do so. Since the 1990s such "ecofeminist" fables and their effects have been thoroughly critiqued by feminist scholars and activists. A review of current donor, NGO and other policy documents shows that these myths are far less prominent than a decade ago. This is not because they were successfully critiqued, but rather because the flawed arguments served a time-bound purpose which diminished as broader environment and development concerns have altered. Older concerns about women and environment have now been recast in terms of property rights, resource access, and control. While welcome in some respects, there is a danger that the baby has been thrown out with the bathwater. Gender-blind environment and development work seems on the rise, and a more politicised gender relations perspective on the environment remains rare in policy and in practice.

Leach M, Mearns R, editors. 1996. *The Lie of the Land: Challenging Received Wisdom on the African Environment.* Oxford: James Currey and Portsmouth NH: Heinemann.
Abstract: Images of children starving because of environmental destruction have become an integral part of the way that Africa is per-

ceived in the West, a typical signpost to "the lie of the land." The driving force behind much environmental policy in Africa is a set of similar images and powerful assumptions about environmental crises. We read about overgrazing and the spread of deserts, the overuse of woodfuels and decline of forests, soil erosion, and the over-mining of natural resources. Yet the newer research reported in this book shows that many of the "crisis" images are deeply misleading. If the assumptions behind these apparent crises are incorrect, then many of the policies created to "solve" them are misguided. This book questions the reasoning behind such images and brings us critical current information about environmental change

Leach M, Mearns R, Scoones I. 1997. *Environmental Entitlements: A Conceptual Framework for Understanding the Institutional Dynamics of Environmental Change.* IDS Discussion Paper, 369. Brighton: Institute of Development Studies.

Abstract: This overview paper seeks to complement and add to emerging critiques of 'community-based sustainable development' by focusing on the implications of intra-community dynamics and ecological heterogeneity. It offers a conceptual framework which highlights the central role of institutions in mediating the relationships between environment and society, using an 'extended' form of entitlement analysis to explore how different social actors command environmental goods and services. The theoretical argument is illustrated with recent empirical research in India, South Africa and Ghana.

Leach M, Mearns R, Scoones I. 1999. Environmental entitlements: Dynamics and institutions in community-based natural resource management. *World Development* 27(4):225–247.

One of the cornerstones of the 'environmental entitlements concept', this paper adds new perspectives to Amartya Sen's entitlement studies of famine. A strong critique of the widespread Community-Based Natural Resource Management strategies is underpinned by a case study of local rights to use *maracanteae* leaves in rural Ghana.

Le Billon N. 2001. The political ecology of war: natural resources and armed conflicts. *Political Geography* 20(5):561–584.

In this paper, the author describes how armed conflicts are fuelled and shaped by natural resources. He sees resource conflicts rooted in the history of capitalist resources extraction and thus draws a line from mercantilism, to colonial capitalism, to present-day state kleptocracy. He then moves on to describe how scarcity of renewable resources engenders need, but abundance of non-renewable resources makes a country's economy much more prone to clientelism and patronage and to market fluctuations. Furthermore, he provides a very useful comparison between the nature of resources and the nature of conflicts (573) and in the last section, mentions the difficulties external peace initiatives face because of the stakes that international actors have in resource exploitation.

Le Billon P. 2002. Logging in muddy waters: the politics of forest exploitation in Cambodia. *Critical Asian Studies* 34(4):563–586.

Abstract: 'Logging in Muddy Waters' analyses the boom in forest exploitation that characterised the 1990s in Cambodia, focusing on the instrumentalisation of disorder and violence as a mode of control of forest access and timber-trading channels. The article examines tensions existing between the aspirations of Cambodians for a better life, the power politics of elites, and the hope of some in the international community for a green and democratic peace. These tensions have produced both an interlocking pattern of 'illegal logging' from the highest levels of the state to self-demobilised soldiers and peasants and sustained criticism that was only temporarily resolved through a legalisation of the forest sector that benefited large-scale companies to the prejudice of the poor.

Locke C. 1999. Constructing a gender policy for joint forest management in India. *Development and Change* 30:265-285.
http://www.blackwell-synergy.com/links/doi/10.1111/1467-7660.00117/abs/
Abstract: Policy makers and advocates of joint forest management (JFM) agree that women should be full participants and that their involvement is especially important because of the nature of women's work. This article examines how JFM policy has addressed gender in India. It argues that policy has been informed by instrumentalist positions in the debate over women's relationship to the environment. Consequently, gender planning in JFM has focused on two issues: formal representation for women in local institutions, and identifying women's 'special' values, knowledge and uses of forest resources. The scant evidence suggests that the impact of JFM on women has generally been negative. Finally, the article suggests that gender policy in JFM needs to be based on a more sophisticated understanding of gender relations and a wider examination of the gendered context of JFM processes.

Logan BI, Moseley WG. 2002. The political ecology of poverty alleviation in Zimbabwe's Communal Areas Management Program for Indigenous Resources (CAMPFIRE). *Geoforum* 33:1-14.
http://www.nhh.no/geo/302/reading/campfire.pdf
Abstract: The CAMPFIRE program in Zimbabwe is one of a `new breed' of strategies designed to tackle environmental management at the grassroots level. CAMPFIRE aims to help rural communities manage their resources, especially wildlife, for their own local development. The program's central objective is to alleviate rural poverty by giving rural communities autonomy over resource management and to demonstrate to them that wildlife is not necessarily a hindrance to arable agriculture, 'but a resource that could be managed and 'cultivated' to provide income and food'. In this paper, we assess two important elements of CAMPFIRE: poverty alleviation and local empowerment and comment on the program's performance in achieving these highly interconnected objectives. We analyse the program's achievements in poverty alleviation by exploring tenurial patterns, resource ownership and the allocation of proceeds from resource exploitation; and its progress in local empowerment by examining its administrative and decision-making

structures. We conclude that the program cannot effectively achieve the goal of poverty alleviation without first addressing the administrative and legal structures that underlie the country's political ecology.

Logan BJ. 2004. Ideology and power in resource management. *In:* Moseley W, Logan BJ, editors. 2004. *African Environment and Development: Rhetoric, Programs, Realities.* Aldershot and Burlington VT: Ashgate.

Lupu N. 2004. Towards a new articulation of alternative development: Lessons from coca supply reductions in Bolivia. *Development Policy Review* 22(4):405–421.
Abstract: Once heralded as the success story of coca supply reduction, Bolivia is now witnessing an increase in coca cultivation. Even as coca fields in Bolivia were forcibly destroyed in the past decade, new fields were being planted elsewhere, leaving coca production in the Andean region at a roughly constant level. This begs a rethinking of alternative development programmes, the policies being rendered ineffectual by the increasing use of force. This article seeks renewed momentum for alternative development by gleaning lessons from its earlier failures. Moreover, it suggests a new articulation of alternative development that emphasises the socio-economic cause of coca cultivation –the demand by the rural poor of Bolivia for income and food security.

Matthew R, Gaulin T. 2001. The social and political impact of resource scarcity on small islands. *Global Environmental Politics.* 1(2):48–70. http://www.ingentaconnect.com/search/expand?pub=infobike://mitpress/glep/2001/00000001/00000002/art00008
Abstract: This paper examines the social and political consequences of natural resource scarcity on three Pacific island territories: Easter Island, Nauru and Solomon Islands. In contrast to prominent theories in the environmental security literature, the case studies in this paper indicate that resource scarcity does not perforce lead to violent conflict. The authors explain differential outcomes on the basis of four variables: extent of scarcity; level of democracy; degree of economic openness; and involvement in regional regimes.

McCarthy J. 2002. First World political ecology: lessons from the Wise Use movement. *Environment and Planning A* 34:1281–1302.
Abstract: The Author demonstrates, through a case study of the Wise Use movement, that the insights and tools of political ecology have much to offer in the study of First World resource conflicts. He uses theories and methods drawn from the literature concerning political ecology and moral economies to argue that many assumptions regarding state capacity, individual and collective identities and motivations, and economic and historical relations in relation to advanced capitalist countries are mistaken or incomplete in ways that have led to important dimensions of environmental conflcts in such locales being overlooked.

Mortimore M. 1989. *Adapting to Drought: Farmers, Famines and Desertification in West Africa.* New York: Cambridge University Press.
Abstract: The traditional image of contemporary Africa is of a continent dogged by poverty, drought, degradation and famine. This study,

drawing on the best work of the past decade and based on researched case studies from East and West Africa, rejects the notion of runaway desertification, driven by population growth and inappropriate land use. It suggests a more optimistic model of sustainable land use and an appropriate set of policy priorities to support dryland peoples in their efforts to sustain land and livelihoods.

Morrow BH, Peacock WG, Gladwin H, editors. 1997. *Hurricane Andrew. Ethnicity, Gender and the Sociology of Disasters.* London: Routledge. Abstract: Hurricane Andrew has proved to be the most costly natural disaster in US history. This book documents how Miami prepared, coped and responded to the hurricanes which slammed into one of the largest and most ethnically diverse metropolitan areas of the US and explores how social, economic and political factors set the stage for Hurricane Andrew by influencing who was prepared, who was hit the hardest, and who was most likely to recover.

Moseley W, Logan BJ, editors. 2004. *African Environment and Development: Rhetoric, Programs, Realities.* Aldershot and Burlington VT: Ashgate. Abstract: This edited volume explores the connections between African rural livelihoods, environmental integrity and broader scale political economy. The book is organised under three main themes relating to this goal: the influence of global environmental narratives in the African context; the implications of regional political economy for rural African livelihoods; and the empirical manifestations of contemporary conservation and development principles through policy and programs at the community, national, regional and global levels. Including case studies from Southern, West and East Africa, the book examines a wide range of livelihood activities (pastoralism, farming, gardening and hunting) and environmental issues (e.g., dam projects, cash cropping, burning practices, civil war, pesticide use, oil exploitation, community-based natural resources management and transnational parks). The studies demonstrate the necessity of grounding environment and development policy discussions within a broader understanding of the economy, history, politics and power.

Muldavin JSS. 1997. Environmental degradation in Heilongjiang: policy reform and agrarian dynamics in China's new hybrid economy. *Annals of the American Association of Geographers* 87(4):579–613. Abstract: This paper analyses environmental degradation in rural China as structurally embedded in China's rapid economic growth in the post-Mao era. The theoretical discussion focuses on changes in the organisation of production, resource use, and regional development. A critical assessment of the Chinese hybrid economy challenges standard views of the reforms. The overall environmental problems of state socialist agriculture in China have been aggravated following the agrarian reforms of the current regime. Rather than mitigating negative trends, marketisation and privatisation have brought new, qualitatively different, environmental problems. Resource decline and its attendant social problems are not limited to aspects of transitional economy but are a fundamental part of the new hybrid system.

Myers GA. 1999. Political ecology and urbanisation: Zanzibar's construction materials industry. *The Journal of Modern African Studies* 37(1):83–108. Abstract: In the 1990s, there was a marked upsurge in scholarly and practical interest in the relationships between urban development and environmental protection in Africa. It is apparent that analyses which take simultaneous account of economic, political and environmental aspects of urban development issues are an essential and yet under-represented facet of this upsurge. This article argues for a regional political ecology approach to African urban environmental issues, as a means of addressing the intertwined impacts of neo-liberalism, democratisation and environmentalism in African cities. The construction and materials supply industry in Zanzibar city serves as an empirical referent.

Nygren A. 2000. Development discourses and peasant-forest relations: Natural resource utilization as social process. *Development and Change* 31(1):11-34.
http://www.blackwell-synergy.com/links/doi/10.1111/1467-7660.00145/abs
Abstract: This article analyses the changing role of forests and the practices of peasants relating to forests in a Costa Rican rural community, drawing on an analytical perspective of political ecology, combined with cultural interpretations. The study underlines the complex articulation of local processes and global forces in tropical forest struggles. Deforestation is seen as a process of development and power involving multiple social actors, from politicians and development experts to a heterogeneous group of local peasants. The local people are not passive victims of global challenges, but are instead directly involved in the changes concerning their production systems and livelihood strategies. In the light of historical changes in natural resource utilisation, the article underlines the multiplicity of the causes of tropical deforestation, and the intricate links between global discourses on environment and development and local forest relations.

Nyssen J, Haile M, Moeyersons J, Poesen J, Deckers J. 2004. Environmental policy in Ethiopia: A rejoinder to Keeley and Scoones. *The Journal of Modern African Studies* 38(1):137–147.
A critical reply to the above-mentioned article by Keeley and Scoones (2000).

Obi CI. 2005. *Environmental Movements in Sub-Saharan Africa. A Political Ecology of Power and Conflict.* Civil Society and Social Movements Programme Paper Number 15. Geneva: UNRISD.
http://www.unrisd.org/unrisd/website/document.nsf/8b18431d756b708580256b6400399775/8f344d7b26c12a79c1256dd600575d33/$FILE/Obi.pdf
Abstract: This paper critically examines environmental movements in sub-Saharan Africa by drawing on two prominent cases: the Movement for the Survival of the Ogoni People of Nigeria's Niger Delta and the Green Belt Movement of Kenya. Its thesis is that environmental movements in Africa operate within a transformative logic in which struggles for power over environmental resources connect broader popular social struggles for empowerment and democracy.

Ostrom E. 1990. *Governing the Commons. The Evolution of Institutions for Collective Action.* Cambridge: Cambridge University Press.
Abstract: The governance of natural resources used by many individuals in common is an issue of increasing concern to policy analysts. Both state control and privatisation of resources have been advocated, but neither the state nor the market has been uniformly successful in solving common pool resource problems. Offering a critique of the foundations of policy analysis as applied to natural resources, Elinor Ostrom here provides a unique body of empirical data to explore conditions under which common pool resource problems have been satisfactorily or unsatisfactorily solved. In contrast to the proposition of the tragedy of the commons argument, common pool problems sometimes are solved by voluntary organisations rather than by a coercive state. Among the cases considered are communal tenure in meadows and forests, irrigation communities and other water rights, and fisheries.

Painter M, Durham WH, editors. 1995. *The Social Causes of Environmental Destruction in Latin America.* Ann Arbor: The University of Michigan Press.
As the editors put it, this volume compiles 'a kaleidoscopic image of the social causes of environmental destruction in Latin America [...] [and brings] inequality in all its guises – race, class, gender, ethnicity – into the picture (262f).

Parajuli P. 1998. Beyond capitalized nature: Ecological ethnicity as an area of conflict in the regime of globalization. *Ecumene* 5(2):186–217.
Abstract: With the globalization of the economy, the world has entered an 'ecological phase' in which capital is naturalised, while simultaneously nature is capitalised. In this phase, whatever was previously considered as 'external' or off-limits to the market is included as 'internal'. Put simply, if capital is nature, nature is capital too. Saving nature becomes equivalent to ensuring the reproduction of capital. As expressed in the post-Rio environmental discourse, 'the planet as a whole is our capital which must be sustainably managed'. Today, the relationship of capital to nature and humans has acquired a qualitatively different dimension.

Park TK. 1992. Early trends toward class stratification: Chaos, common property and flood recession agriculture. *American Anthropologist* 94(1):90–117.
links.jstor.org/sici?sici=0002-7294%28199203%292%3A94%3A1%3C90%3AETTCSC%3E2.0.CO%3B2-0
Abstract: In societies based on flood recession agriculture in arid regions, economic stratification, institutionalised ways of sloughing off population, and common property are particularly valuable risk management options. Using ethnographic data from the Senegal River Basin and historical data from the Nile Valley, I argue that tendencies toward stratification were inherent in riverine societies practicing flood recession agriculture. Thus, early stratification occurred long before population pressure reached significant levels and well before regional trade, extensive storage capacity, or elaborate water management infrastructure became economically significant. The article is intended to help explain why a number of civilisations developed in arid riverine contexts.

Paulson S, Gezon L, Watts M. 2003. Introduction to special Issue: Locating the political in political ecology. *Human Organisation* 62(3):205–219.
Abstract: Recent debates within political ecology have motivated serious reflection about key concepts and methods in this relatively new field. In the introduction to this special issue, we briefly chart the intellectual genealogy of political ecology, identify vital challenges faced today, and present a new set of studies that respond to these concerns. We conceptualise power as a social relation built on the asymmetrical distribution of resources and risks and locate power in the interactions among, and the processes that constitute, people, places, and resources. Politics, then, are found in the practices and mechanisms through which such power is circulated. The focus here is on politics related to the environment, understood as biophysical phenomena, together with human knowledge and practice.

Peet R, Watts M, editors. 1996. *Liberation Ecologies – Environment, Development, Social Movements.* London: Routledge.
Abstract: In *Liberation Ecologies*, some of the most exciting theorists in the field explore the impact of political ecology in today's developing world, question what we understand by development, and raise questions about change on a global scale.

Peluso NL. 1992. *Rich Forests, Poor People. Resource Control and Resistance in Java.* Berkeley CA, Los Angeles and Oxford: University of California Press.
Abstract: Millions of Javanese peasants live alongside state-controlled forest lands in one of the world's most densely populated agricultural regions. Because their legal access and customary rights to the forest have been severely limited, these peasants have been pushed toward illegal use of forest resources. *Rich Forests, Poor People* untangles the complex of peasant and state politics that has developed in Java over three centuries. Drawing on historical materials and intensive field research, including two contemporary case studies, Peluso presents the

story of the forest and its people. Without major changes in forest policy, Peluso contends, the situation is portentous. Economic, social, and political costs to the government will increase. Development efforts will by stymied and forest destruction will continue. Mindful that a dramatic shift is unlikely, Peluso suggests how tension between foresters and villagers can be alleviated while giving peasants a greater stake in local forest management.

Peluso, NL, Watts M, editors. 2001. *Violent Environments.* Ithaca NY: Cornell University Press.

Abstract: Do environmental problems and processes produce violence? Current U.S. policy about environmental conflict and scholarly work on environmental security assume direct causal links between population growth, resource scarcity, and violence. The conventional understanding of environmental security, and its assumptions about the relation between violence and the environment, are challenged and refuted in Violent Environments. Chapters by geographers, historians, anthropologists, and sociologists include accounts of ethnic war in Indonesia, petro-violence in Nigeria and Ecuador, wildlife conservation in Tanzania, and "friendly fire" at Russia's nuclear weapons sites. *Violent Environments* portrays violence as a site-specific phenomenon rooted in local histories and societies, yet connected to larger processes of material transformation and power relations. The authors argue that specific resource environments, including tropical forests and oil reserves, and environmental processes (such as deforestation, conservation, or resource abundance) are constituted by and in part constitute the political economy of access to and control over resources.

Peters P. 1987. Embedded systems and rooted models: The grazing systems of Botswana and the commons debate. *In:* McKay B, Acheson J, editors. *The Question of the Commons.* Tucson: The University of Arizona Press.

Peterson G. 2000. Political ecology and ecological resilience: An integration of human and ecological dynamics. *Ecological Economics* 35:323–336.

Abstract: The biosphere is increasingly dominated by human action. Consequently, ecology must incorporate human behaviour. Political ecology, as long as it includes ecology, is a powerful framework for integrating natural and social dynamics. In this paper I present a resilience-oriented approach to political ecology that integrates system dynamics, scale, and cross-scale interactions in both human and natural systems. This approach suggests that understanding the coupled dynamics of human-ecological systems allows assessment of when systems are most vulnerable and most open to transformation. I use this framework to examine the political ecology of salmon in the Columbia River Basin.

Reed MG, Mitchell B. 2003. Gendering environmental geography. *The Canadian Geographer/Le Géographe canadien* 43(3):318–337.

This article addresses the problems geographers face today when it comes to analysing gender and environment. The authors argue that, instead of remaining entrenched in their respective approaches, feminist and environmentalist geographers should draw new insights from

combining their fields of research. To this purpose, they suggest using the methodological approaches of political ecology and environmental justice; thus, they provide a good first overview of these ideas and make a strong argument for interdisciplinary flexibility.

Reuveny R, Maxwell JW. 2001. Conflict and renewable resources. *The Journal of Conflict Resolution* 45(6):719–742.
http://links.jstor.org/sici?sici=00220027%28200112%2945%3A6%3C719%3ACARR%3E2.0.CO%3B2-Q

Abstract: The economic literature on conflict employs a static, game-theoretic framework developed by Jack Hirshleifer. The authors introduce conflict dynamics into a model with two rival groups, each dependent on a single contested renewable resource. The model is based on two stylised facts: conflict often arises over scarce renewable resources, and those resources often lack well-defined and/or enforceable property rights. In each period, groups allocate their members between resource harvesting and resource appropriation (or conflict) to maximise their income. This leads to a complex nonlinear dynamic interaction between conflict, the two populations, and the resource. As developed, the model relates most closely to conflict over renewable resources in primitive societies. The system's global dynamics are investigated in simulations calibrated for the historical society of Easter Island. The model's implications for contemporary less developed societies are examined.

Ribot JC. 1999. A history of fear: imagining deforestation in the West African dryland forests. *Global Ecology & Biogeography* 8(3-4):291-300.
http://www.blackwell-synergy.com/links/doi/10.1046/j.1365-2699.1999.00146.x/full

Abstract: Urban demand for woodfuels in Sudanian and Sahelian West Africa has long been assumed to contribute to permanent deforestation in dryland forests and wooded savannas. Deforestation has also long been assumed to be progressing such that these woodlands will no longer be able to provide the region's cities with fuel. Available studies of regeneration do not support the first assumption. Further, woodfuel shortages projected in the 1980s for the 1990s or early 2000s are nowhere near, while more recent projections predict supply shortages another 25 years hence. While there is deforestation from many causes, the data do not support crisis scenarios concerning woodfuels. Nonetheless, crisis scenarios and policies persist. While there may yet be deforestation due to urban woodfuel extraction, and shortages may be lurking on the horizon, the article explores some possible alternative origins of these woodfuel related deforestation and shortage fears.

Rocheleau D et al. 2001. Complex communities and emergent ecologies in the regional agroforest of Zambrana-Chacuey, Dominican Republic. *Ecumene* 8(4):465-492.
http://www.ingentaconnect.com/search/expand?pub=infobike://arn/ecu/2001/00000008/00000004/art00005

Abstract: The paper illustrates how the social and ecological co-construction of forests in the Zambrana-Chacuey region in the Domini-

can Republic has material consequences for distinct groups of people and for other species in rural landscapes. The introduction of the *Acacia mangium* – a fast growing tree – as a timber cash crop for smallholder farmers in the region between 1984 and 1994 had major social, economic and ecological consequences. A rural federation collaborated with ENDA-Caribe, an international non-governmental organisation, in a ten-year social forestry experiment to develop and promote economically and environmentally viable timber cash cropping systems for smallholder farmers. The experience of the federation members provides a window on the workings of gender, class and popular organisation in the making of forest ecologies, and demonstrates the influence of transnational sustainable development models and organisations in the social and biological transformation of rural life.

Rocheleau D, Thomas-Slayter B, Wangari E. 1996. *Feminist Political Ecology – Global Issues and Local Experiences.* London: Routledge.

Abstract: This book bridges the gap between the academic and rural orientation of political ecology and the largely activist and urban focus of environmental justice movements. It aims to bring together the theoretical frameworks of feminist analysis with the specificities of women's activism and experiences around the world.

Ross ML. 1999. The political economy of the resource curse. *World Politics* 51(2):297-322.

Abstract: In this article I review efforts by both economists and political scientists to explain how the export of minimally processed natural resources, including hard rock minerals, petroleum, timber, and agricultural commodities, influences economic growth. I [...] summarise the evidence for a resource curse and review new research on the four most prominent economic explanations for the curse: a decline in the terms of trade for primary commodities, the instability of international commodity markets, the poor economic linkages between resource and nonresource sectors, and an ailment commonly known as the "Dutch Disease".

Ross ML. 2004a. How do natural resources influence civil war? Evidence from thirteen cases. *International Organisation* 54(1):35-67.
http://www.polisci.ucla.edu/faculty/ross/HowDoesNat3.pdf

Abstract: Recent studies have found that natural resources and civil war are highly correlated. Yet the causal mechanisms behind the correlation are not well understood, in part because data on civil wars are scarce and of poor quality. In this article I examine thirteen recent civil wars to explore the mechanisms behind the resource-conflict correlation. I describe seven hypotheses about how resources may influence a conflict, specify the observable implications of each, and report which mechanisms can be observed in a sample of thirteen civil wars in which natural resources were 'most likely' to have played a role. I find that two of the most widely cited causal mechanisms do not appear to be valid; that oil, nonfuel minerals, and drugs are causally linked to conflict, but legal agricultural commodities are not; and that resource wealth and

civil war are linked by a variety of mechanisms, including several that others had not identified.

Ross ML. 2004b. What do we know about natural resources and civil war? *Journal of Peace Research* 41(3):337–356.
http://jpr.sagepub.com/cgi/reprint/41/3/337.pdf
Abstract: Since the late 1990s, there has been a flood of research on natural resources and civil war. This article reviews 14 recent cross-national econometric studies, and many qualitative studies, that cast light on the relationship between natural resources and civil war. It suggests that collectively they imply four underlying regularities: first, oil increases the likelihood of conflict, particularly separatist conflict; second, 'lootable' commodities like gemstones and drugs do not make conflict more likely to begin, but they tend to lengthen existing conflicts; third, there is no apparent link between legal agricultural commodities and civil war; and finally, the association between primary commodities – a broad category that includes both oil and agricultural goods – and the onset of civil war is not robust. The first section discusses the evidence for these four regularities and examines some theoretical arguments that could explain them. The second section suggests that some of the remaining inconsistencies among the econometric studies may be caused by differences in the ways they code civil wars and cope with missing data. The third section highlights some further aspects of the resource–civil war relationship that remain poorly understood.

Sanchez S. 1996. How the West is won: Astroturf lobbying and the 'Wise Use' movement. *The American Prospect* 7(25):37–42.
Abstract: the term "wise use" comes from Gifford Pinchot, the first head of the U.S. Forest Service, who used it to describe the conservation movement. Pinchot chose words that implied balance, not to mention a fundamental concern for the well-being of the environment. Today Pinchot's term has been turned on its head, appropriated by a corporate-sponsored campaign to roll back environmental protection in the West, where billions of dollars ride on decisions about the use of government-regulated property. This is the story of how the "wise use" movement – a coalition of timber, mining, oil, and grazing interests – has skewed the debate over land use. It is a tale of political contributions, well-connected lobbyists, and, most important, corporate-financed grassroots organising that has become a model for kindred political operatives around the country. This is also the story of how environmentalists in the state of Washington fended off development activists in one key battle, providing some hope that real strength at the grass roots may still be better than "astroturf" substitutes.

Schroeder RA. 1999. *Shady Practices: Agroforestry and Gender Politics in the Gambia.* Berkeley CA: University of California Press.
Abstract: *Shady Practices* is a revealing analysis of the gendered political ecology brought about by conflicting local interests and changing developmental initiatives in a West African village. Between 1975 and 1985, while much of Africa suffered devastating drought conditions,

Gambian women farmers succeeded in establishing hundreds of lucrative communal market gardens. In less than a decade, the women's incomes began outstripping their husbands' in many areas, until a shift in development policy away from gender equity and toward environmental concerns threatened to do away with the social and economic gains of the garden boom. This carefully documented microhistory draws on field experience spanning more than two decades and the insights of disciplines ranging from critical human geography to development studies. Schroeder shows that questions of power and social justice at the community level need to enter the debates of policymakers and specialists in environment and development planning.

Schmidt M. 2003. *The Impact of the Transition Process on Human-Environmental Interactions in Southern Kyrgyzstan.* Presented at 'The Commons in Transition: Property on Natural Resources in Central and Eastern Europe and the Former Soviet Union,' a Regional Conference of the International Association for the Study of Common Property. Prague, April 11–13 2003.
http://dlc.dlib.indiana.edu/archive/00001064/00/CT_Schmidt.pdf
Abstract: The project sets out to explore the effects of the transition process on human-environmental interrelationships in the Jalal-Abad region in southern Kyrgyzstan. Using a political ecology approach as a conceptual framework, the project aims to investigate the nexus of socio-economic and environmental change, focusing on changing forest utilisation, its political, social and economic root causes, and its ecological consequences. Globally unique walnut fruit forests in the region, characterised by remarkably high biodiversity, are of considerable importance for sustaining the livelihoods of the local population. These forests are now in a critical condition. The region's status as biodiversity hotspot of international significance and maintenance of its manifold landscape-ecological functions is seriously threatened. Forest utilisation appears to reflect the intensified pressure on natural resources under the conditions of the transition process.

Scoones I. 1999. New ecology and the social sciences: What prospects for a fruitful engagement. *Annual Review of Anthropology* 28:479–507.
http://arjournals.annualreviews.org/doi/pdf/10.1146/annurev.anthro.28.1.479?cookieSet=1
Abstract: This review asks the question: What new avenues of social science enquiry are suggested by new ecological thinking, with its focus on nonequilibrium dynamics, spatial and temporal variation, complexity, and uncertainty? Following a review of the emergence of the 'new ecology' and the highlighting of contrasts with earlier 'balance of nature' perspectives, work emerging from ecological anthropology, political ecology, environmental and ecological economics, and debates about nature and culture is examined. This review turns to three areas where a more dynamic perspective has emerged. Each has the potential to take central elements of new ecological thinking seriously, sometimes with major practical consequences for planning, intervention design, and management. First is the concern with spatial and temporal

dynamics developed in detailed and situated analyses of 'people in places,' using, in particular, historical analysis as a way of explaining environmental change across time and space. Second is the growing understanding of environment as both the product of and the setting for human interactions, which link dynamic structural analyses of environmental processes with an appreciation of human agency in environmental transformation, as part of a 'structuration' approach. Third is the appreciation of complexity and uncertainty in social–ecological systems and, with this, the recognition that prediction, management, and control are unlikely, if not impossible.

Sen AK. 1981. Ingredients of famine analysis: Availability and entitlements. *the Economic Quarterly* 96(3):433–464.

The first outline of Sen's entitlements theory laid the ground for further research on environmental entitlements. This study asks why people can starve amidst abundant supplies of food and, drawing from three twentieth century famines, analyses the decline of entitlements that the affected segments of the population had suffered.

Sheridan MJ. 2004. The environmental consequences of independence and socialism in North Pare, Tanzania 1961–88. *Journal of African History* 45:81–102.

http://journals.cambridge.org/bin/bladerunner?30REQEVENT=&REQAUTH=0&500001REQSUB=&REQSTR1=S0021853703008521

Abstract: This article draws on archival sources and oral histories to describe changing post-colonial land management in the North Pare Mountains of Tanzania. The independent state transformed colonial institutions but did not maintain colonial common property regimes for water source, irrigation and forest management. Farmers responded by encroaching upon and dividing the commons. After 1967, Tanzania's socialist policies affected environmental conditions in North Pare indirectly by increasing the ambiguity and negotiability of resource entitlements. The material, social and cultural legacies of these processes include environmental change, declining management capacity, and persistent doubt about the value of 'conservation'.

Sheridan TE. 1995. Arizona: the political ecology of a desert state. *Journal of Political Ecology* 2:41–57.

http://dizzy.library.arizona.edu/ej/jpe/volume_2/SHERIDAN.PDF

Abstract: In this paper, I argue that the emerging research strategy of political ecology needs to incorporate an active nature into its analysis of the commodification of natural resources and the politics of resource control. I make reference to earlier work among small rancher-farmers in Cucurpe, Sonora, where the nature of the crucial resources themselves – arable land, grazing land, and irrigation water – determined local agrarian politics as much or more as transnational market demand and Mexican federal agrarian policies. Then I examine water control in Arizona during the past century. I contend that one of the best ways to pursue political ecology is to focus on the historical dialectic that determines how and why certain natural resources are converted into commodities at particular places and times and how com-

modity production transforms, and is transformed by, local ecosystems and local societies.

Smith K, Barrett BC, Box PW. 1999. *Not Necessarily In the Same Boat: Heterogeneous Risk Assessment Among East African Pastoralists.* Social Science Research Network Paper Collection. New York et al.: Social Science Research Network [SSRN].
http://ssrn.com/abstract=185368
Abstract: This paper studies variation in risk assessment by pastoralists in the arid and semi-arid lands of southern Ethiopia and northern Kenya. Despite superficial homogeneity among east African pastoralists, we show that there exists considerable within-group heterogeneity in their assessment of various risks. We conceptualise risk as comprised of four distinct components: objective exposure, subjective perception, ex ante mitigation capacity, and ex post coping capacity. This conceptualisation provides an effective framework for understanding the observed heterogeneity as the natural consequence of (sometimes modest) structural differences in economic activity patterns, agroclimatic conditions, proximity to towns, wealth, and gender roles. It therefore provides a useful tool for drawing out the policy implications of subjects' expressed concerns about prospective livelihood hazards.

Steinberg MK. 2002. The globalization of a ceremonial tree: The case of cacao (Theobroma Cacao) among the Mopan Maya. *Economic Botany* 56(1):58–65
http://www.bioone.org/bioone/?request=get-document&issn=0013-0001&volume=056&issue=01&page=0058
Abstract: The uses, perceptions, and economic significance of cacao have radically changed in the past 25 years among the Mopan Maya in southern Belize. Cacao was once perceived as a ceremonial crop with little cash value. Over the past 25 years though, cacao has become the most important cash crop grown by the Mopan Maya. The Mopan Maya grow organic cacao that has allowed them to tap into a specialised, high-end chocolate market. However, the emergence of cacao as an important cash crop has altered traditional uses and created conflicts in villages where increasing acreage of reservation lands are planted with cacao, thereby assigning a commercial value to previously communal lands.

Steinmann SH. 1998. Gender, pastoralism and intensification: Changing environmental resource use in Morocco. *In:* Albert J et al, editors. 1998. *Transformation of Middle Eastern Natural Environments: Legacies and Lessons.* Yale F&ES Bulletin No.103. New Haven CT: Yale School of Forestry and Environmental Studies
http://www.yale.edu/environment/publications/bulletin/103pdfs/103steinmann.pdf
Abstract: Through a study of the sedentarisation of the Beni Guil pastoral nomads of eastern Morocco, this paper examines how gender interacts with environmental and socio-economic change. Based on extensive fieldwork with the Beni Guil, this paper demonstrates how gendered resource exploitation – in particular, the collection of mush-

rooms, medicinal plants, and fuelwood – is recast through sedentarisation, urbanisation, and commercialisation. The case of the Beni Guil suggests that certain accepted theories of the consequences of settlement for nomad women and their local environments should be re-examined in order to understand better the past and present, and to plan for the future.

Stott P. 1999. *Tropical Rain Forest: A Political Ecology of Hegemonic Myth Making.* London: Institute of Economic Affairs.

Abstract: Our attachment to the tropical rain forest has grown over the past hundred years from a minority colonial pursuit to mainstream environmental obsession. The tropical rain forest has variously been assumed to be the world's most important repository of biological diversity and 'the lungs of the planet'. As Philip Stott shows in this magnificent monograph, neither claim has any basis in fact. The myth of the tropical rain forest suits the purposes of Northern environmentalists, who are able to justify demands for restrictions on the conversion of 'virgin forest' to other uses. Yet the history of the world has been one of evolutionary change. If we attempt to maintain stasis, we risk limiting our ability to adapt to change when it inevitably comes. Calls for the tropical rain forest to be preserved are founded on the implied presumption that the people living in tropical regions are merely there to protect a Western construct. This denigrates their rights and dehumanises them. Philip Stott provides an eloquent deconstruction of the ideas that have led to the mythical Western idea of the tropical rain forest, which has constrained our ability to understand the environments of developing countries and has enabled the eco-imperialist vision to flourish.

Stott P, Sullivan S, editors. 2000. *Political Ecology: Science, Myth and Power.* London: Arnold Publishers.

Abstract: Political ecology has developed as an academic discipline in reaction to the increased concern of nations and individuals about humanity's adverse impact on the environment and the ways international bodies have moved to counter this impact. This new text draws together international experts at the cutting edge of this new field to focus on real world examples of problems and the tension between developed and developing states.

Swift J. 1996. Desertification: Narratives, winners and losers. *In:* Leach M, Mearns R, editors. *The Lie of the Land.* Oxford: James Currey.

Thomas DSG, Middleton NI. 1994. *Desertification. Exploding the Myth.* Chichester New York: Wiley.

Abstract: [the authors] examine the origin of the 'desertification myth', how it spawned multi-million dollar research and became to be regarded as a leading environmental issue. With the aid of recent research findings […] they demonstrate that this much vaunted problem is very much smaller and less locally significant than previously accepted, and that the 'global process of desertification' is simply chimerical. The book explores the political and institutional factors that created the myth, sustained it and now protect it against scientific criticism.

Tiffen M, Mortimore M, Gichuki F. 1994. *More People, Less Erosion: Environmental Recovery in Kenya.* Chichester. John Wiley & Sons.
Based on a case study in the Machakos region of Kenya, this important study challenges conventional theories about population growth and development. Indeed, the authors show that in this case, colonial policies had caused land degradation, but that now, even though the number of land tenants had increased a manifold, soil quality has been enhanced through investments in terracing and better technologies. Although these results might not be repeatable elsewhere, the authors can nonetheless draw important insights and lessons from the Machakos case.

Trawick P. 2003. *The Struggle for Water in Peru. Comedy and Tragedy in the Andean Commons.* Stanford: Stanford University Press.
Abstract: This ecological history of peasant society in the Peruvian Andes focuses on the politics of irrigation and water management in three villages whose terraces and canal systems date back to Inca times. Set in a remote valley, the book tells a story of domination and resulting social decline, showing how basic changes in the use of land, water, and labor have been pivotal in transforming the indigenous way of life. Strikingly diverse patterns appear in local practice, which prove to be the key to unraveling the area's history. The book concludes by describing the recent intensification of a water conflict. This struggle between peasants and former landlords ultimately led villagers to rise up against the national government. The story culminates in the violent intrusion of the revolutionary group known as Shining Path.

Twyman C. 2000. Livelihood opportunity and diversity in Kalahari wildlife management areas, Botswana: Rethinking community resource management. *Journal of Southern African Studies* 26(4):783–806. http://links.jstor.org/sici?sici=0305-7070%28200012%2926%3A4%3C783%3ALOADIK%3E2.0.CO%3B2-H
Abstract: This paper draws on research conducted in western Botswana, which examined community development and wildlife management in a Kalahari Wildlife Management Area. It focuses on the livelihood dynamics of residents living in two remote settlements in the Wildlife Management Area. These livelihood dynamics are closely linked with the complex history of resource use and conflict in the area. Hunting and gathering, two key livelihood activities, are examined in detail. The paper argues that, although the natural resource base has changed, and use of natural resources has in many cases dwindled, livelihoods based on these resources remain important in terms of cultural identity, symbolic significance and as a real and perceived safety net in times of stress. The dynamics of people's livelihoods are not always recognised by those implementing the changes. Community-based natural resource management projects have the potential to embrace social justice and ecological sustainability. However they also have the potential to undermine rural populations' individual and collective actions to manage their resources base and maintain viable livelihood strategies at a range of levels.

Unruh JD, Heynen NC, Hossler P. 2003. The political ecology of recovery from armed conflict: The case of landmines in Mozambique. *Political Geography* 20:841–861.
http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6VG2-49JX8JG-5-7&_cdi=6026&_orig=browse&_coverDate=11%2F30%2F2003&_sk=999779991&view=c&wchp=dGLbVlb-zSkWW&_acct=C000050221&_version=1&_userid=10&md5=9820ac5aff8ae4342682a9278a2af706&ie=f.pdf

Abstract: The devastation wrought by landmines on local populations is well known. However, the broader effects of mine presence on postwar recovery, and the progress of a 'peace process', remain largely unexamined. Both the academic and the practitioner literature regarding landmines lack a framework within which the mix of economic, political, social, agricultural, and ecological repercussions of mine presence in a context of postwar recovery can be investigated. Here, we consider the utility of political ecology to examine the influence of landmine presence on the socioecological relations important to postwar recovery in Mozambique. Landmines constitute the primary obstacle to reconstruction and development in Mozambique. Because mine presence influences different aspects of recovery differently, we have selected three cases in the country where mine presence has impacted important components of recovery: agriculture, transportation corridors, and international investment. Peace process and recovery efforts by the international community do not presently address the broader, non-medical influences of landmine presence on recovery, and it is the intention of this article to contribute to an initial examination of these issues

Vayda AP, Walters BB. 1999. Against political ecology. *Human Ecology* 27(1):167–179.

Abstract: Starting with *a priori* judgements, theories, or biases about the importance or even primacy of certain kinds of political factors in the explanation of environmental changes, self-styled political ecologists have focused their research on environmental or natural resource politics and have missed or scanted the complex and contingent interactions of factors whereby actual environmental changes are often produced. As an alternative to the present plethora of programmatic statements on behalf of political ecology, a proposal is presented here for what may be called evenemental or event ecology. Our own experience in applying an evenemental approach to research on mangrove forests of the Philippines will be drawn on for the purpose of illustration.

Walker PA. 2005. Political ecology: Where is the ecology? *Progress in Human Geography* 29(1):73–82.

Abstract: While political ecology has thrived, its coherence as a field of study and its central intellectual contributions remain the subject of sometimes contentious debate. One of the recurrent, and unresolved, questions has been 'Where is the ecology in political ecology?' Indeed, controversy has emerged about whether, in fact, the field has become

'politics without ecology' (Bassett and ZImmerer 2004:103). This brief review examines this question and argues that, despite the claims of critics, there is a great deal of research in political ecology that engages biophysical ecology as a central concern.

Warren A, Batterbury S, Osbahr H. 2001. Soil erosion in the West African Sahel: A review and application of a "local political ecology" in South West Niger. *Global Environmental Change* 11:79–95.

Abstract: A review of soil erosion research in the West African Sahel finds that there are insufficient data on which to base policy. This is largely because of the difficulties of measuring erosion and the other components of `soil life', and because of the highly spatially and temporarily variable natural and social environment of the Sahel. However, a `local political ecology' of soil erosion and new methodologies offer some hope of overcoming these problems. Nonetheless, a major knowledge gap will remain concerning how rates of erosion are accommodated and appraised in highly variable social and economic conditions. An example from recent field work in Niger shows that erosion is correlated with factors such as male migration, suggesting, in this case, that households with access to non-farm income adopt a risk-avoidance strategy in which soil erosion is accelerated incidentally. It is concluded that there needs to be more research into the relations between erosion and socio-economic factors, and clearer thinking about the meaning of sustainability as it refers to soil erosion in the Sahel.

Wastl–Walter D. 1996. Protecting the environment against state policy in Austria. From women's participation in protest to new voices in parliament. *In:* Rocheleau D et al. *Feminist Political Ecologies.* London: Routledge.

Williams PA. 2003a. The common and uncommon political economies of water and oil 'wars'. *The Review of International Affairs* 3(1):13–28.

Abstract: This article compares the political economies of water and oil conflicts. It suggests that the 'common pool resource' (CPR) framework only partially explains the prototypically 'upstream-downstream' disputes over flowing water and oil 'flows', as CPR rivalry stems from users' inability to exclude each other, while water and oil conflicts stem from certain users' ability to exclude others. Yet it also argues that key differences, related to the exclusivity of upstream sovereignty over resources, the ecological or economic nature of 'downstream' flow benefits, the practicality of 'upstream' flow control, and the size of the political benefits of gaining and exerting 'upstream' control relative to its high economic costs, make 'water war' much less significant in terms of political economy than oil conflict.

Williams PA. 2003b. *The Security Politics of Enclosing Transboundary River Water Resources.* Paper presented at the International Conference on Resource Politics and Security in a Global Age. University of Sheffield, UK, June 2003. http://www.shef.ac.uk/uni/academic/N-Q/perc/resourcepol/papers/williams.pdf .

Abstract: This paper first evaluates a trend towards using the 'common pool resource' (CPR) concept to frame explanations of international water-sharing conflicts. It holds that the CPR literature's dominant focus on rivalry being exacerbated, and the 'tragedy of the commons' being hastened, by non-exclusivity of physical access to the relevant natural resource is relevant to explicating the salient 'upstream-downstream' dimension of the most notably contentious water sharing issues, but only up to a point. [...] The second part [... incorporates] insights from deterrence theory (viz., the 'security dilemma') and prospect theory ('loss aversion') within the conceptual ambit of a version of Polanyi's (1944) 'double movement' idea.

Winterhalder B. 2002. Behavioral and other human ecologies: Critique, response and progress through criticism. *Journal of Ecological Anthropology* 6:4–23.
http://www.fiu.edu/~jea/wintr.pdf
Abstract: This paper has three goals: (1) to define and characterise the anthropological subfield of human behavioural ecology (HBE) and characterise recent progress in this field research tradition; (2) to address Joseph's (2000) critique of HBE from the perspective of an advocate of that field; and (3) to suggest features that make for effective criticism of research traditions.

Wisborg P. 2002. *Re-Constructing Rights to Land. From Discourse to Entitlement.* Noragric Working Paper No. 25. Noragric: Agricultural University of Norway.
http://www.nlh.no/noragric/publications/workingpapers/noragric-wp-25.pdf
Abstract: The social re-construction of land may be seen as a multilevel struggle over meaning that affects how people gain and convert rights into entitlements. This essay reviews selected literature and glimpses of field situations in Namaqualand, in order to i) place the land reform – human rights issue in a policy and development studies context, and ii) suggest two theoretical entry points: the 'environmental entitlements framework' and 'discourse theory' as framed within a political ecology of people-environment relations.

Woo-Cummings M. 2002. *The Political Ecology of Famine: The North Korean Catastrophe and its Lessons.* ADB Institute Research Paper Series, No. 31. Tokyo: Asian Development Bank Institute.
http://www.adbi.org/files/2002.01.rp31.ecology.famine.northkorea.pdf
Abstract: This paper critically examines the influential argument by Amartya Sen on the relationship between famine and political regime theory and exposes its limitations, particularly in the case of the Great Leap Famine. Using the little studied but tragic North Korea famine, the author explores its root causes in the context of food availability decline and complex ecological disruptions and interactions, including the El Nino Southern Oscillation in weather patterns.

Woodhouse P. 2002. *Natural Resource Management and Chronic Poverty in Sub-Saharan Africa: An Overview.* CRPC Working Paper 14. Manchester:

Institute for Development Policy and Management, University of Manchester

http://www.chronicpoverty.org/pdfs/naturalresources.pdf

Abstract: This paper briefly identifies some underlying premises of the 'small farmer' model that inform much rural development policy designed to address poverty. The paper then reviews recent work on processes governing the use of, and access to, natural resources. It argues that the small farmer model does not correspond to many of the processes of change that are observed in rural areas of sub-Saharan Africa. Differentiating between two scenarios, those of 'boom' and 'stagnant' rural economies, the paper explores the relationship these may have with concepts of 'remoteness' in rural areas and traces the different dynamics of agricultural production strategies and of evolving access to land in the two scenarios. It emphasises the operation of markets in influencing competition for land, and the importance of farmers' investment in productivity-enhancing technology in building their claims to land. The paper then considers the implications of these patterns of land use and access for policy, seeking to improve conditions for the chronic poor.

Zimmerer KS, Bassett TI, editors. 2003. *Political Ecology: An Integrative Approach to Geography and Environment-Development Studies.* New York: The Guilford Press.

Abstract: This volume offers a unique, integrative perspective on the political and ecological processes shaping landscapes and resource use across the global North and South. Twelve carefully selected case studies demonstrate how contemporary geographical theories and methods can contribute to understanding key environment-and-development issues and working toward effective policies. Topics addressed include water and biodiversity resources, urban and national resource planning, scientific concepts of resource management, and ideas of nature and conservation in the context of globalisation. Giving particular attention to evolving conceptions of nature-society interaction and geographical scale, an introduction and conclusion by the editors provide a clear analytical focus for the volume and summarise important developments and debates in the field.

Abbreviations

CBNRM   Community-Based Natural Resource Management

GAD   Gender and Development

HBE   Human Behavioural Ecology

IFAD   International Fund for Agricultural Development

IPAT   Impact = Population x Affluence x Technology

IUCN   The World Conservation Union

PPR   Population Pressure on Resources

SAP   Structural Adjustment Programme

SWC   Soil and Water Conservation

UNEP   United Nations Environmental Programme

UNCOD   United Nations Conference on Desertification

WID   Women in Development

WED   Women, Environment, Development

WWF   World Wild Life Fund

Index of Authors by Theme and Region

Thematical Index of Authors: **with local focus on:**

Theories, overviews:

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Greenberg & Park 1994
Moseley & Logan 2004
Painter & Durham 1995   Latin America
Paulson et al. 2003
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Scoones 1999
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Stott 1999

Land degradation, desertification, land use:

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Blaikie & Brookfield 1987   Nepal
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Iftikhar 2003   Pakistan
Igoe 2000   Tanzania
Keeley & Scoones 2000   Ethiopia
Leach & Mearns 1996   Africa
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Mortimore 1989   East & West Africa

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Wisborg 2002	South Africa, Namaqualand
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Woodhouse 2002	Sub-Saharan Africa

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Affeltranger & Lasserre 2003	Mekong Delta
Ilahiane 1996	Morocco
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Park 1992	Senegal & Nile River basins
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Biodiversity, forest management, commodities:

Conklin & Graham 1995	Brazil
Escobar 1998	
Hansis 1998	USA, Northwest
Le Billon 2002	Cambodia
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Jackson 1998	India
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Locke 1999	USA, Miami
Morrow et al. 1997	
Reed & Mitchell 2003	
Rocheleau et al. 1996	Various
Schroeder 1999	The Gambia
Steinmann 1998	Morocco

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10 *Livelihood Strategies in North-West Pakistan.* Bernd Steimann. 2005[1], rev. 2007[2]

11 *The Critical Issue of Land Ownership: Violent Conflict, Somali Region of Ethiopia.* Ayele Gebre-Mariam. 2005[1], rev. 2007[2]

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This paper summarises the trends and debates of the past 20 years or so in the field of Political Ecology (PE). A critical review of the different existing strands of research provides a summary of the relatively diverse and sometimes competing theoretical approaches in this area. Researchers and practitioners engaged in the analysis of human-nature interactions will find this overview useful when selecting comparable case studies and identifying adequate theoretical tools for their work. The paper is complemented by an extensive annotated bibliography and an index of authors by geographical and thematic topics.

dialogue

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