A geographical perspective on poverty–environment interactions

LESLIE C GRAY* AND WILLIAM G MOSELEY†
*Environmental Studies Institute, Santa Clara University, Santa Clara, CA 95053, USA
E-mail: lgray@scu.edu
†Department of Geography, Macalester College, 1600 Grand Avenue, St Paul, MN 55105-1899, USA
E-mail: moseley@macalester.edu
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This paper examines prevailing wisdoms on the topic of poverty–environmental interactions, problematizes some standard assumptions and interrogates the geographical literature on the subject. Dominant development discourse has tended to blame the poor for environmental degradation, ignoring the role of other processes and actors at various scales in causing environmental degradation. We examine how definitions of poverty, institutional arrangements, conventional economic models and assumed feedback loops may influence our understanding of poverty–environment interactions. The article gives particular attention to the political ecology approach as a lens through which this dynamic may be understood. Recent work in political ecology has broadened views of poverty–environment interactions by focusing on issues of power, scale and discourse in influencing outcomes and policies.

KEY WORDS: environmental degradation, political ecology, poverty, environmental discourse

The labouring poor, to use a vulgar expression, seem always to live from hand to mouth. Their present wants employ their whole attention, and they seldom think of the future.

Thomas Malthus 1798

Degradation of these [environmental] resources reduces the productivity of the poor – who most rely on them – and makes the poor even more susceptible to extreme events . . . Poverty is also a factor in accelerating environmental degradation, since the poor, with shorter time horizons . . . are unable and often unwilling to invest in natural resource management . . .

World Bank 1996

Introducing poverty and environment: prevailing wisdoms and new interpretations

The notion that there is a relationship between poverty and environmental degradation is long-standing, yet constantly being re-discovered and re-invented. Thomas Malthus indirectly suggested that the poor are more likely to engage in environmentally deleterious behaviour because they are incapable of thinking beyond the next meal. This idea was further embraced by the colonial powers in Africa and Asia who frequently identified poor local peasants as key causes of soil degradation, wasteful burning practices and deforestation (see, for example, Baker 1983; Fairhead and Leach 1996). Poverty, in the early twentieth century, was often bundled in with ignorance, race and tradition – all factors that contributed to poor resource management in the eyes of colonial administrators.

The poverty–environmental degradation idea has taken on renewed vigour since the rise of the sustainable development concept in the late 1980s (Lele 1991; Bryant 1997). Within the context of this discourse, poverty and environmental degradation has been described as a two-way interactive process. According to the Brundtland Report, a document that popularized the sustainable development concept, ‘[m]any parts of the world are caught in a vicious downward spiral: poor people are forced to overuse environmental resources to...
survive from day to day, and their impoverishment of their environment further impoverishes them, making their survival ever more uncertain and difficult’ (WCED 1987, 27). A series of UN sponsored conferences since the early 1990s (Rio, Cairo, Copenhagen, Beijing, Istanbul and Johannesburg) have elaborated the notion of sustainable development, each often reiterating the conventional wisdom regarding poverty–environment interactions.

Those who praise the Brundtland Report say that it deftly integrated concerns for conservation and development, permanently changing the course of 1960s and 1970s environmental thinking that viewed industrialization and development as antithetical to conservation (Mellor 1988; Beckerman 1992). This integration helped to appease southern nations that were primarily concerned about development, as well as northern environmentalists who increasingly sought to address environmental issues in the global South. Critics suggest that Brundtland, and subsequent UN meetings, have only allowed the neoliberal economic agenda to increasingly co-opt environment and development thinking, not to mention the discourse regarding poverty–environment interactions (Bryant 1997; Sneddon 2000; Logan 2004; Logan and Moseley 2004). Indeed, the perspective of poverty–environmental interactions as a downward spiral or vicious circle has been reiterated by a multitude of disciplines with different perspectives (Dasgupta 1995; Mabogunje 1995; Blaikie and Brookfield 1987). As Bryant notes ‘[t]he vision of “poverty-stricken masses” caught up in a vicious cycle of poverty and environmental degradation has come to dominate the mainstream literature, and rapidly become an article of faith among key development agencies such as the World Bank and the International Monetary Fund’ (1997, 6).

This is not an esoteric debate, but one of fundamental importance that affects real world policy and programmes. In West Africa, for example, development practitioners have employed the notion of poverty-induced environmental degradation to argue that the continued expansion of export-oriented cotton production is the best way to reduce poverty and encourage conservation in the region (because of the wealth it would generate for potential environmental efforts) (Moseley 2004). In the United States, President George Bush framed his Clear Skies Initiative by saying that ‘economic growth is key to environmental progress, because it is growth that provides the resources for investment in clean technologies’ (Revkin 2002, A1). While linking environmentalism and poverty alleviation (or economic growth) appears to be a laudable effort to unite concerns for conservation and social justice or economic development, a failure to examine rigorously and empirically the poverty–environment connection may mean that development theorists and planners are, at a minimum, inappropriately scapegoating the poor for problems they have not created, or worse, continuing to promote policies that undermine long-term poverty alleviation, food security and environmental integrity. In other words, this is one of those ‘big questions’ with which the scholarly community needs to engage (Kates 1987; Cutter et al. 2002; Harman 2003).

Several disciplines have contributed to the poverty and environment debate, with economics probably being the most prominent (e.g. World Bank 1992; Dasgupta 1995; Reardon and Vosti 1995). The poverty–environment dynamic has also been studied in nearly every major region of the world, from Africa (Logan and Moseley 2002; Moseley 2001a, 2004), to Latin America (Bebbington 1999; Ravneborg 2003; Swinton et al. 2003; Swinton and Quiroz 2003), to Asia (Broad 1994; Parikh 2003). In this paper, and the special issue it introduces, we explore and elaborate a geographical perspective on poverty–environment interactions. Geography, with its long-standing human–environment tradition, has produced a prodigious amount of scholarship regarding the factors that influence resource management and human–environmental interactions (e.g. Lambin et al. 2001). In particular, we elaborate on an increasingly accepted and interdisciplinary approach known as political ecology. Political ecology, or the political economy of human–environment interactions (Blaikie and Brookfield 1987), seems a particularly well suited approach for examining the poverty–environment interface given its attention to power, scale and discourse. With its emphasis on political economy, much new work on poverty–environment interactions moves away from a stylized view of the relationship, but brings to bear new views of agency, contingency as well as globalized processes.

Complicating the obvious

At one level, the notion of poverty as the cause and effect of environmental degradation seems intuitively sensible. A poor person gets hungry, he or she over-exploits the environment to feed the family, and this degraded environment further impoverishes the family. But could this be an overly simplistic scenario? This section explores how definitions of poverty, institutional arrangements, conventional economic models and assumed feedback loops may influence our understanding of poverty–environment interactions. Other issues (such as political economy, space, scale and discourse) will be reviewed in the following section on political ecology.
Poverty: conceptual diversions and alternative definitions

The way in which we define and conceptualize poverty influences poverty–environment analyses. Northern conceptions of poverty, defined in terms of monetary wealth and income (GDP/GNP per capita being the most frequently reported statistics), are fairly limited in many developing country contexts where a high proportion of production and transfers often take place outside the formal economy and where there are significant regional and inter-societal differences (e.g. Hagberg 2001). In many rural contexts, for example, rather than cash savings and earnings, wealth is often reflected in cattle holdings, the quality of agricultural implements, housing materials, labour resources, access to land, and the ability of the household to produce food. This is not to say that cash is insignificant as a mechanism for food transfers in some rural areas. In fact, food purchase is a growing component of household food budgets, particularly among poorer households that have had to diversify their sources of food and income in response to falling food crop production. Nonetheless, ‘[a]n assets-orientation is particularly important while examining poverty–environment interactions [in rural areas of the developing world]’ (UNDP 1999, 26).

We would argue that poverty defined by formal sector measures is a potential conceptual diversion because the analyst may be identifying a group of households (at least in rural areas) that is not necessarily poorer, but often less involved in the formal economy and modern agriculture, and more engaged in subsistence production. In other words, a definition of poverty based on traditional income measures may be more a measure of a household’s engagement with the formal (and often global) economy than its ability to consistently meet its needs over time. As such, ‘the poor’ are those less influenced by an external economy and often more apt to manage resources based on local, rather than external, demands. Paradoxically, this is often a recipe for a more sustainable system. In the Sudano-Sahelian regions of Africa, for example, cultural ecologists have argued that traditional subsistence farmers have a significant in-situ capacity for sound environmental management and successful adaptation in the face of environmental change (e.g. Richards 1985; Mortimore 1989; Fairhead and Leach 1996).

A more nuanced conceptualization of rural poverty is outlined by Reardon and Vosti (1995), who categorize poverty in terms of a lack of certain types of assets: (1) natural resource assets, (2) human resource assets, (3) on-farm physical and financial assets, (4) off-farm physical and financial assets. In both Moseley’s and Gray’s studies, for example, villagers consistently defined wealth in terms of numbers of domestic animals (especially cattle), housing type (e.g. a tin roof), household size (with particular reference to labour resources), and other types of productive and non-productive physical assets (e.g. ploughs, bicycles, and motorcycles). In other settings, land-holding size might also be an important component of wealth.

Another dimension of poverty is encapsulated in Amartya Sen’s entitlement concept, used to refer to a person’s legitimate claims to available food (Sen 1981; Dreze and Sen 1989). Entitlements, according to Sen, are claims on resources that can be converted to food, ranging from crops in the ground, to cash on hand for food purchases, to social relations that may provide food in times of need. Lack of entitlements, that is the ability to access resources, means that people can go hungry even though food resources may be abundant. Leach et al. have extended the concept of entitlement to environmental resources, ‘exploring how differently positioned social actors command environmental goods and services that are instrumental to their well-being’ (1999, 225). In particular, they use this framework to investigate how intracommunity dynamics mediate access to heterogeneous environmental resources. This approach is important because it breaks down the idea of community, recognizing that community members have very different entitlements that may, in turn, lead to different environmental and equity outcomes.

Because poor people are not a homogeneous group, the location and level of poverty is an important determinant of a household’s ability to respond to environmental stresses and shocks (UNDP 1999). Illiffe’s (1987) description of poverty in the African context distinguishes between two types of poverty, structural poverty and conjunctural poverty, which have different implications for how a household deals with shocks. Structural poverty is long-term in nature, due to personal and social circumstances, while conjunctural poverty represents poverty into which ordinary people can be temporarily thrown in times of crisis. Structural poverty can be apparent as a lack of land or labour, while conjunctural poverty is caused by specific shocks such as climate or political insecurity. While differentiating between these two types of poverty is analytically important, both types as experienced by the poor frequently converge (Hagberg 2001). In many instances the poor are the most vulnerable and are more deeply affected by climatic shocks or natural disasters (Wisner 2001). Studies of famine, for example, show how a household’s ability to recover from shocks depends on asset levels as well as social networks (e.g. Davies 1996). However,
in some instances, the poor are not necessarily more vulnerable than the wealthy (e.g. Moseley 2001b).

The above discussion suggests that poverty defined as a lack of income or cash savings is highly problematic in many contexts. Poverty is more about an inability to meet basic needs over time. As such, any definition of poverty must be context specific because the mix of assets and entitlements needed to meet basic needs varies from place to place.

**The institutional context**

As alluded to in the previous section, poverty–environment interactions are not a simple two-way street, but are mediated by a whole host of social institutions (Leach and Mearns 1996; Lambin et al. 2001). Understanding relationships between poverty and environmental outcomes necessitates investigating issues such as resource access (e.g. assets, land, labour, credit, markets), institutions (e.g. land tenure systems, governance) and vulnerability (e.g. seasonal vs. long-term, networks, entitlements).

Reardon and Vosti (1995) differentiate between welfare poverty and investment poverty, arguing that small differences in asset levels can determine whether people will invest in strategies that improve environmental quality. Stonich (1993) illustrates the complicated terrain of farmer decision-making based on asset levels and household needs in highland Honduras, where wealthier farmers engage in both conservation-related activities such as terracing and fallow, and land-extensive practices such as cattle herding. Poorer small-holders and renters, often farming the steepest poorest quality land, do not fallow land or use conservation techniques, choosing instead to find outside employment, a better route to servicing basic nutritional requirements. This example illustrates how the practices of poorer and wealthier farmers both result in environmental degradation at different scales, but have significantly different livelihood implications.

Several institutional interventions stand out in the realm of poverty–environment policy. Land tenure relations are an area of frequent intervention in the attempt to both decrease poverty and improve the environment. The relationship between poverty, environment and land tenure is put forth as this: poor farmers will not invest in conservation without secure tenure (Bassett 1993; Feder and Noronha 1987). Newer evidence, however, is showing this is generally not the case. Significantly, when governments intervene in the tenure terrain the results are frequently disastrous for the poor and women, whose rights are often expropriated (Platteau 1996). Little difference has been found in the levels of productivity and investment in land held under formal and informal tenure (Bassett and Crummey 1993). Furthermore, there is growing evidence that poor people often use investment as a way of creating tenure (Gray and Kevane 2001).

Other institutional interventions concern governance structures for natural resource management. Neoliberal policies have led to state retrenchment in many parts of the world; institutions such as the World Bank have been at the forefront of promoting more local-level participation in natural resource management (Reed 2002). Attempts to devolve control over natural resources have been promoted under the banner of privatization and decentralization. While these sorts of programmes may open up new spaces of resource control for the poor, they have also in some cases led to elite capture over resources and social mobilization. In Bolivia, for example, privatization of public sector utilities has resulted in price rises and decreased access to resources for the poor, which, in turn, has led to social protests (Kohl 2002).

**Wealth and the environment: spatial mismatches, the nature of nature, and real and imagined environmental feedback loops**

An important model in the economics literature, positing a potential relationship between wealth and environmental degradation, is the environmental Kuznets’ curve. Kuznets, a macro-economist, originally theorized that there was a relationship between development and income inequality (Kuznets 1955). He posited that less developed societies generally had a higher level of income equality, then went through a phase of growing income inequality as the economy industrialized, and then became more equal again in a post-industrial phase. Economists subsequently suggested that a similar theoretical relationship existed between wealth and environmental quality (Field 1997). As such, the environmental Kuznets’ curve posits that pollution is low in the initial stages of development, rises with rapid industrialization, and then falls again as economies mature. In the case of air pollution, for example, several studies indicate that a rise and fall in emissions closely mirrors a steady growth in per capita income (e.g. Kauffmann et al. 1998; de Bruyn et al. 1998; List and Gallet 1999; Dinda 2000).

The idea of wealth leading to greater environmental stewardship is bolstered by the economics literature on time preference theory (e.g. Murphree 1993; Bardhan 1996; Lumley 1997), as well as the psychology and sociology literatures regarding hierarchy of needs (e.g. Rowan 1998; Hagerty 1999). These theories suggest that once a person’s basic needs are addressed, they may consider higher order needs and wants, including environmental
There are several flaws in these versions of a wealth–environment relationship. First, we would argue that the environmental Kuznets curve is spatially myopic in that it does not consider the export of emissions that often accompanies the migration of dirty industries from more to less developed countries, a common phenomenon in an increasingly global economy (e.g. Hackenberg and Alvarez 2001). In other words, increasing wealth does not necessarily reduce pollution, it may just move it around. Similar relationships exist with many other types of natural resources such as land and forests, where the demand for products in wealthier countries is driving environmental degradation in poor countries (Redclift and Sage 1998). Ecological footprint analyses have been instrumental in illustrating this discontinuity between the consumption of natural resources by wealthier countries and their production in the poorer parts of the world.

A second potential area of concern is that the majority of studies regarding wealth–environment interactions have been undertaken at the national rather than household scale. Within geography, a considerable amount of work has been undertaken regarding the influence of analytical scale and spatial boundaries on correlation analysis. This work seems especially relevant to our understanding of the environmental Kuznets’ curve. Much of this work has been done by Openshaw (1977 1984) under the banner of the modifiable areal unit problem. He showed how the scale at which analysis is undertaken, as well as the particular shape of analytical units, can have a profound impact on potential correlations between the variables under study. For example, in the first instance, data aggregated at the national scale may yield one relationship, whereas analysis undertaken with household level data may suggest another. In the second instance, the actual position of national, provincial or district boundaries (which often have nothing to do with the phenomenon being studied) may influence results. This problem seems especially relevant to the poverty–environment debate, and the environmental Kuznets’ curve, because much analysis has been undertaken at the national scale to suggest that there is an inverse relationship between income and various forms of pollution. This is not to imply that national scale analysis is necessarily problematic, as some forms of pollution may be appropriately analyzed at this scale. Rather, we would argue that analysis should ideally be undertaken at multiple scales. When different outcomes exist at different scales of analysis, scholars should seek to explain these differences rather than automatically privilege one analytical scale over another. Scholars should also consider how relevant the shape of the analytical unit is to the particular phenomenon under study.

Third, it is difficult to generalize about relationships, given that the nature of the environmental resource is itself an important determinant of the types of relationships that unfold. The mainstream view tends to describe poverty-induced environmental degradation as a generalized phenomenon that occurs across all resource categories. Physical environments and ecosystems vary in terms of sensitivity and resilience, and these characteristics have some bearing on the way in which a resource-poor or resource-rich household interacts with the environment. While the environmental Kuznets’ curve seems to characterize some sorts of environmental changes – e.g. air pollution – it does not do all that well with other types, in particular wildlife and biodiversity, which inevitably seem to decline as economies expand and per capita wealth increases. These resources, once lost, are difficult to reconstruct, even for a wealthy society. Bassett’s paper illustrates the decline of wildlife in Cote d’Ivoire due to hunting, much of it for urban and international markets.

Fourth, a problem with the time preference theory and hierarchy of needs literatures is that they fail to explain the future-oriented behaviour of some poor households in drought prone areas (Moseley 2001a). For example, it has been observed that rural African households are often extremely reluctant to sell productive assets during a food crisis. Long before the family oxen or plough is sold, poor families very often cut back on food consumption for extended periods of time in order to avoid decapitalization (Maxwell and Frankenberger 1992). Households also cut back on consumption, or switch to less desirable wild food sources, in order to preserve a significant portion of grain reserves as seed stock for the next year’s planting. This type of behaviour suggests that extremely poor and hungry households do not value the present over the future (or put food needs before all other desires), but are willing to make serious sacrifices in the present in order to enhance the chances of future productivity and livelihood security. This type of future-oriented behaviour in the face of food insecurity in the present has not been limited to a few isolated cases, but is a commonly observed phenomenon. Such behaviour has been noted and studied in a variety of contexts, including Sudan (de Waal 1989; Cutler 1986), Nigeria (Watts 1983a), Ghana (Devereux 1993a 1993b), Mali (Davies 1996) and Ethiopia (Rahmato 1987; Turton 1977). In sum, the poor are not so obsessed with the present, or short-term nutritional needs, that they lose sight of longer term livelihood security and resource productivity concerns. In fact, wealth may arguably lead to
greater living in the present if there is (in contrast to the poor) less concern about hardships in the future.

A final shortcoming of the notion that increasing wealth leads to pollution abatement and enhanced environmental management is that there is often a spatial mismatch between pollution and degradation on the one hand, and wealthy abodes on the other. This spatial mismatch is a central insight of the political ecology and environmental justice literatures. In the case of political ecology, authors like Blaikie (1985) have described how the socially marginalized are often further ‘marginalized’ into ecologically marginal areas. In the case of environmental justice scholars, social scientists such as Bullard (1990) have described how dirty industries and toxic waste sites are often sited in poor communities of colour. As such, the mainstream poverty–environment discourse may be imagining an environmental feedback loop that does not necessarily exist in many instances. In other words, the wealthy may not be particularly concerned about pollution if dirty industries are sited in poor communities, or if the poor are the ones marginalized into degraded areas. In fact, the environmental justice literature argues that it is the poor who are often more concerned about pollution and degradation because they are the ones that must live with this reality on a daily basis (e.g. Bullard 1993; Kurtz 2003). The rub is that these communities often do not have enough political power to act on this real (as opposed to imagined) environmental feedback.

Political ecology: implicating political economy, scale and discourse

In geography, political ecology is one of the key lenses through which poverty–environment interactions may be examined. Political ecology emerged in the 1970s and 1980s as a critique of cultural ecology and ecological anthropology’s use of basic ecology principles to examine the adaptive capacities of human societies, ignoring the role of political economy, power and history in shaping human–environmental interactions (Watts 1983b; Moore 1996). Blaikie and Brookfield’s seminal work Land degradation and society defined political ecology as ‘concerns of ecology and a broadly defined political economy’ (1987, 17). Their analysis linked the actions of local land users, through nested chains of causality, to broader forces of the local, regional and global political economy. One of the key elements of Blaikie and Brookfield’s critique was a move away from the neo-Malthusian ‘pressure-of-population-on-resources’ view of human–environmental interactions to an emphasis on how inequitable social relations structured dynamics of local land degradation.

Political economy and ecology

Early work in political ecology viewed poverty–environment interactions in a Marxist framework of poverty-driven over-exploitation of resources and simple reproduction squeezes (e.g. Watts 1987; Blaikie 1989). Because of increasing costs and decreasing returns to labour, it was suggested that farmers are forced to mine their natural resource base, resulting in increased levels of land degradation and indebtedness. Peet and Watts (1996) critique this early emphasis as unduly focused on the role of poverty in environmental degradation. Poverty, they argue, is only a proximate cause of environmental degradation. Driving forces such as structural inequality at the local and global level are the root cause of poverty–environment interactions. Furthermore, political ecology has tended to focus on small-scale rural dwellers when many of the people causing environmental change or affected by it are neither small-scale nor rural. For example, Hecht and Cockburn (1989) illustrate how deforestation in the Brazilian Amazon is largely due to capital intensive production strategies. New work in urban political ecology argues that urban dwellers are more vulnerable to environmental risk than rural dwellers, both because of the toxic nature of urban environmental problems and the reduced ability of urban populations to adapt to these risks (Pelling 2003).

Political ecology’s early focus on economic status was likewise critiqued as being short on local politics (Moore 1993; Neuman 1992; Peet and Watts 1996) because it privileged structuralist interpretations over micro-politics. If anything, now, the field is rich with local-level investigations of many different types of political struggles over resources, whether it concerns gender relationships (Carney and Watts 1990), cultural change and ethnicity (Gray 2002; Moore 1996), social movements, state actors and non-governmental organizations (Bebbington 1996; Peluso 1992), or new conservation territories (Neumann 1998; Sundberg 2003; Young 2003). These works recognize the importance of politics, history, scale, and discourse in conditioning human–environment interactions and resource access and control.

The heavy emphasis on political economic relationships, and now poststructural approaches, has led to another realization that political ecology has failed to ‘attribute explanatory significance to ecological factors’ (Bryant 1992, 13). Batterbury et al. (1997) assert that many political ecology and poststructural approaches to human–environment
relationships either uncritically accept environmental change as a given, or overlook biophysical aspects of environmental change altogether. Indeed, political ecology provides little methodology or theoretical direction in understanding the specific dynamics and processes of physical and biological change that may occur at different spatial scales and levels of abstraction. While much political ecological research has focused on overturning dominant narratives and environmental orthodoxies (Leach and Mearns 1996), a concern is not to go too far in the other direction of believing science has no intrinsic value. Gandy (1996) contends that when scientific knowledge and theory are reduced to relative ‘truths’, constructed from the social norms and power struggles of respective disciplines, this undermines their ability to say anything about processes that, while contestable, do have a basis in reality. This has led to calls for hybrid research that includes both social and physical methodologies (Batterbury and Bebbington 1999).

Scale and space

Blaikie and Brookfield (1987) made scale a central feature of political ecology, drawing particular attention to the potential connections between processes operating at different scales and how this could influence human–environment interactions and access to resources. Blaikie (1994) argued that local-level resource users/managers should be the first link in the models of political ecology; analyses should then scale-up to examine policy and processes. Most work in political ecology does start with local processes and then examines broader linkages. Bassett (1988) illustrates this trend with Vayda’s (1983) idea of progressive contextualization, using a local-level contextual analysis and then linking it progressively to processes at different scales.

Examining environmental issues at different scales is important for several reasons, not least because many environmental problems manifest themselves at different scales. For example, deforestation can have local, regional and global dimensions, as different actors and environmental processes work at different scales. Bryant and Bailey (1997, 33) point out that ‘while one actor’s involvement may reside predominantly in contributing to an environmental problem, another actor might largely be involved in its attempted resolution, and a different actor may be primarily involved only because it is particularly affected by the problem’. Linking in a causal manner, however, can be difficult as ‘processes and parameters important at one scale may not be important or predictive at another scale’ (Turner 1989, 17), and changes in the scale of analysis change the relevant variables (Meentemeyer 1989). Lambin and Guyer (1994) illustrate the problematic nature of coordinating remote sensing data with ethnography, as the scale at which land cover change is determined is different from the scale that social processes are best elucidated.

The trend in political ecology is to broaden the consideration of scale from a hierarchical chain of causality. Zimmerer and Bassett consider horizontal, as well as the relational and simultaneous production of scales, as ‘diverse environmental processes interact[ing] with social processes, creating different scales of mutual relationships that produce distinctive political ecologies’ (2003, 3). How does this issue of scale play into poverty–environment relationships? The spatial distribution of environmental degradation and resource access is unequal both within localities and globally. Processes at the global scale such as global markets and trade policy affect the global poor. Oxfam’s (2001) example of US subsidies to cotton farmers illustrates how poorer farmers have very little power in determining world prices for a commodity that is extremely important to the poor of the world. The walkout of poorer countries from trade talks in Cancun, Mexico over these issues demonstrates the poverty of power relations among the poorer vis-à-vis the wealthier countries of the world. One of the ironies of this is that in West Africa, cotton farmers are essentially too poor to pollute (Kutting 2003), gaining neither the economic benefits nor the environmental degradation associated with global cotton production.

Mobility across space is also an important scalar dynamic in poverty–environment interactions. Marginal environments tend to be the home of socially marginalized peoples. In some instances, socially marginal people are forcibly displaced into these areas (Blaikie 1985). Environments that are marginal and susceptible to degradation can aggravate poverty, leading to further environmental degradation and out-migration.

Conservation territories and conceptions of community

New spaces of conservation, or conservation territories, have become a recent research agenda in political ecology (Zimmerer 2000; Schroeder 1999). These new territories encompass a wide range of spaces intended to conserve and protect nature, ranging from national parks to biosphere reserves and wildlife corridors (Zimmerer and Bassett 2003). These new types of protected areas often result in the exclusion and enclosure of common property resources, which in turn, has implications for the
users of these resources, often the rural poor. Schroeder (1999) illustrates that the extent of enclosures of different types of environmental resources has been quite large and has had largely negative effects on humans living around these territories, who have had basic livelihood systems outlawed and criminalized. Populations have responded by resisting the expansion of protected areas and subverting conservation aims (Peluso 1992).

Attempts to reconcile exclusion and resource management have been found under the banner of Community Based Natural Resource Management (CBNRM) programmes, Integrated Conservation and Development programmes (ICDPs) and community forestry (the latter is discussed in this issue by Glasmeier and Farrigan). Programmes generally endeavour to include local people in the management of natural resources, with the intent of giving local people incentives to conserve natural resources, the idea being that if conservation pays, people will preserve natural resources. Critiques have emerged that these types of programmes neither increase local livelihoods nor do they increase environmental conservation (Adams 2001). Oates (1999) argues that attempts to integrate conservation with development in the context of West African rainforest areas have been both a failure for local people and local wildlife, and instead argues that conservation efforts should be separated from development efforts. Bassett, in this issue, critiques this perspective, illustrating how the causes of wildlife depletion are more complex and multi-scaler, involving local (e.g. increasing livestock numbers, expansion of fields) and extra-local forces (e.g. urban demand for game meat, worsening terms of trade).

Other critiques are concerned with the way that community conservation programmes conceptualize community, particularly in notions that communities are based on consensus and cooperation (Agarwal and Gibson 1999; Logan and Moseley 2002). Much work is now focused on how local community structures are frequently unaccountable, inequitable and non-participatory (Engberg-Pedersen 1995; Neumann 1997; Ribot 1996). Programmes overlook the fact that village social relations are based on conflict and competition, which, in turn, can lead to negative environmental and equity outcomes (Leach et al. 1999). Furthermore, community-based resource management is often about environmental enclosure, defining rights at the local level. This has resulted in resource boundaries, which have been historically flexible and negotiated, being defined in favour of primary users. People with secondary rights, the rural poor and marginalized, women and migrants, for example, are frequently in danger of losing their rights (Gray 2002).

**Discourse and power**

Research analyzing discourses of environment and development has implications for poverty–environment relations. Explanations of why generalized discourses persist are myriad. They range from the importance of crisis narratives in mobilizing international resources, the fact that simplifying assumptions enable the creation of standardized solutions, and that these stories serve the interests of particular powerful groups (Leach and Mearns 1996; Roe 1991). Ferguson (1990) presents development discourse as an instrument of the dominant. Crush argues that development discourses are ‘fundamentally about mapping and making, about the spatial reach of power and the control and management of other peoples, territories, environments, and places’ (1995, 7). The language of crisis creates a need for intervention. These discourses define the space of development, putting it into a neutral language of modernization and intervention, which, in turn, masks different power relations and contestations over resources (Escobar 1995). Research in political ecology has actively debunked common beliefs about human–environmental relations (Fairhead and Leach 1996; Bassett and Zueli 2000). Below several dominant poverty–environment discourses or narratives are revealed.

**Who is responsible for environmental degradation: blaming the victim?**

The attempt to blame the global poor for the bulk of the world’s environmental degradation can be viewed from many vantage points and at many scales. Organizations such as the World Resources Institute have been part of the attempt to shift the blame for global climate change to developing countries by arguing that high rates of population growth and deforestation are responsible for a much larger proportion of greenhouse gas emissions than previously thought. This helped to justify the US pullout from the Kyoto accords on the basis that developing countries were being let off the hook (Agarwal and Narain 1991). Likewise, attempts to blame Sahelian desertification largely fell on the shoulders of poor peasant farmers and herders (Thomas and Middleton 1994).

Discourses such as these help to veil the fact that on a global scale, the wealthy of the world use a disproportionate amount of world resources, whether they be water, fish, forests or energy. This is despite the fact that the bulk of the world population actually lives in the poorer regions of the world. At local levels, wealthier farmers using capital-intensive technologies generally have an overall larger environmental impact (Moseley in this issue).
Furthermore, while the wealthy may reap the benefits of such technology, the costs of environmental change largely fall on the poor (Bryant and Bailey 1997). Duraiappah’s (1998) analysis of a whole host of institutional factors affecting different types of environmental degradation (forests, land, water and air) illustrates that the poor are not responsible for much environmental degradation. Instead, it is the activities of the rich and powerful, combined with market and institutional failures, that are the ‘primary factors forcing groups living at the margin into poverty’ (1998, 2177).

It is often difficult to compare the environmental impact of wealthier households which may farm a larger but moderately impacted terrain, and poorer households which may farm a smaller, but less sustainably managed area (Scherr 2000). All of these factors suggest that the specific resource studied and the types of management strategies examined may affect conclusions on poverty–environment interactions.

The population–environment–poverty nexus: neo-Malthusians, Boserupians and environmental securitists

Complicating views of poverty–environment relationships are issues of population growth, which are frequently portrayed hand-in-hand with poverty issues. One way that poverty and population growth rates are linked is via the observation that people in the poorer parts of the world have more children. While most analysts agree that there is a spatial correlation between poverty and fecundity, the nature of and the degree to which there is a causal relationship between these two factors is hotly disputed. Two main camps have distinctly different views of the interaction between high rates of population growth, environmental change and poverty. On the one hand, neo-Malthusians, such as Cleaver and Schreiber, attribute population growth in sub-Saharan Africa to a nexus of ‘mutually reinforcing causality chains’ (1994, 1). High population growth rates are thought to exacerbate environmental and agricultural problems, leading to greater poverty and to more environmental degradation. Boserupians, on the other hand, suggest a very different view of population–resource interactions, one of intensification and wealth creation. Research from sub-Saharan Africa (Tiffen et al. 1994; Turner et al. 1993) illustrates how farmers have responded to population growth through agricultural intensification resulting in better environments and less poverty.

Political ecologists challenge both these optimistic and pessimistic views of population–resource interactions, focusing instead on unequal access to resources as the relevant issue in population–environment interactions. Blaikie and Brookfield’s (1987) conception of population–resource interactions critique both Malthusian and Boserupian positions for trying to isolate population as a single causal variable. Environmental degradation need not occur because of population at all; many examples of degradation occur under declining or unchanging population. Population, therefore, is a mediating factor, one of many that influence environmental outcomes.

Fieldwork in political ecology has generally agreed with the intensification hypothesis, but questions the over-optimistic view (e.g. Rocheleau 1995), showing how intensification has been accompanied by both socio-economic differentiation and environmental degradation due to capital intensive farming (Benjaminsen 2001; Murton 1999). Gray (in this issue) echoes these concerns by arguing that intensification has led to differential environmental outcomes, with wealthier farmers having an overall greater environmental impact.

Literature focusing on the interaction of population change and environmental violence has emerged, arguing that population-induced resource scarcity may be a future primary source of conflicts over natural resources (Kaplan 1994; Homer-Dixon 1999). This work highlights the role of ethnic clashes, particularly through migration, in conflicts over natural resources. Peluso and Watts (2001) and Hartmann (2001) dispute this neo-Malthusian analytical framework. They contend that structural elements are important in determining how resources are allocated and emphasize that abundance of resources is equally likely to be associated with violence. Instead, they propose a political ecological model of violence that recognizes the importance of place-specific, spatially oriented interactions among relations of production, environmental process and discourse in determining how environments turn violent.

Is there a poor people’s environmental knowledge?

Political ecology emerged as a critique of the cultural ecology of indigenous technical knowledge or poor people’s knowledge, that appreciated the special role of local farmers in preserving and categorizing local knowledge systems. Advocates of this approach portray small farmers as activists, developing and adapting agricultural practices to local environments as well as having a unique appreciation of their local agricultural systems (Brokensha et al. 1980; Richards 1985; Wilken 1987). These approaches have been very important in combating the dominant view of many technical experts and bureaucrats that assume that lack of knowledge is the key
problem in poor people’s management of natural resources (UNDP 1999).

However, new work on the roles of communities has critiqued an over-idealization of local knowledge systems which tend to lump local knowledges together, ignoring that knowledge, as well as the resulting environmental practice, is frequently differentiated by social groups. Fairhead argues that literature on indigenous knowledge has tended to focus on classification, treating knowledge as if it were a ‘lost and untranslated technical manual authored by a particular culture’ (1991, 4). Thompson and Scoones (1994) criticize these approaches as ‘naïve populism’ because they ignore the multiple epistemologies that emerge out of particular social settings. Political ecology helps to understand ‘why particular knowledges are privileged, how knowledge is institutionalized, and how the facts are contested’ (Peet and Watts 1996, 11).

Moving forward

The primary policy response to poverty and environmental issues in the international arena has been the idea of sustainable development. The root question, however, is whether the agenda of sustainable development as put into practice actually serves the interests of the poor or results in environmental improvement. While states and international institutions have been adept at appropriating the language of sustainable development, their actions generally have aligned them with the interests of capital and international corporations (Fernando 2003). Speth (2004) and Logan (2004) argue that policymakers have supplanted the sustainable development paradigm with the globalization paradigm. Is sustainable development, particularly in an international environment that privileges ‘trade over aid’ (Speth 2004), compatible with the needs of the poor or with the environment? This seems unlikely given that the effects of neoliberal reforms in many countries have put poorer people at risk (e.g. Wisner 2001) or with globalized production patterns that encourage more and more consumption of resources.

While many actors at the global level use the rhetoric of sustainable development without making meaningful changes, there are some indications that different forms of sustainable development from below are making meaningful progress (Adams 2001). Examples of this include the work of international NGOs to influence global policy and coordinate practice (such as Human Rights Watch and Greenpeace described in Steyn 2004), as well as movements to influence the types of products consumers buy (Bell and Valentine 1997; Bordwell 2002), such as certification (Gale 2002) and fair trade. The authors in this special issue also make some suggestions for moving beyond programmes and policies based on, often overly simplistic, assumptions regarding poverty–environment interactions.

In their meta-analysis of community forestry case studies, Glasmeier and Farrigan conclude that ‘poverty alleviation may be too much to ask of community forestry’. In the case of developing countries, they found that the community forestry movement has focused on gaining access and voice for a very large fraction of the population that is often poor and reliant on the forest for subsistence. In the US, the situation appears much more complex. Community forestry, with its emphasis on increased participation in the decision-making process, often means that the poor are just one of many voices making up a broader community forum. While the distributional weaknesses of some community forestry initiatives need to be carefully considered, Farrigan and Glasmeier caution policy and programme managers not to have exaggerated expectations.

Bassett outlines wildlife loss in northern Cote d’Ivoire which he argues is not the result of ‘chaos and unregulated hunting’ but the outcome of agricultural policies promoting cash crop cultivation and livestock development efforts that drive habitat loss. Furthermore, there is increasing hunting pressure fuelled by the proliferation of firearms, a growing number of hunters associated with anti-crime hunter associations, the need for income diversification by struggling households, and a strong demand for bushmeat from urban consumers. Bassett suggests that reducing rural poverty is critical. One way to do this is by ‘re-channelling the flow of value in the cotton commodity chain from cotton companies and exporters to small-scale growers’. Furthermore, Bassett argues that a stronger state is needed to control crime and the bushmeat trade.

Moseley suggests that, rather than poverty driving environmental degradation in southern Mali, soil degradation seems to be more clearly linked to direct and indirect effects of export-oriented cotton production that are largely associated with relatively wealthy smallholder farmers. Given that the Government of Mali derives nearly half of its revenues from cotton production, it is, understandably, reluctant to acknowledge the existence of environmental problems associated with it major export commodity. The World Bank, moreover, has been supportive of increasing cotton exports given its structural adjustment reform package in Mali. Somewhat ironically, the poverty–environmental degradation discourse has been employed to support cotton-driven economic growth in this particular context. This is a decidedly unsustainable development given that the maladapted ‘modern’ agricultural practices employed to farm cotton are the means by which the Malian State effectively robs Peter (soil resources) to pay
Paul (debt service, civil service payrolls and potential environmental remediation). Moving beyond the rhetoric to acknowledge environmental issues related to cotton production is an important first step that could be taken by the Government of Mali, bilateral and multilateral donors. This may imply more than a technological fix in cotton production, but a broader policy to encourage diversification of the cash cropping sector.

Gray illustrates how intensification in southwestern Burkina Faso has been an uneven process, one with significant social and environmental costs. Wealthy and poor farm households have very different agricultural practices, with poorer farmers being far less involved in commercial production. The practices of wealthier farmers have larger landscape and soil impacts, but result in much higher levels of household wealth. So a paradox emerges that while the practices of poor farmers minimize environmental damage, their non-involvement in newer production practices has negative livelihood consequences. This trend is exacerbated by several institutional changes that are accompanying changing production practices. In particular, the wealthy have greater access to land borrowing networks and village institutions, such as grower cooperatives, than do poorer farmers. Certain groups, particularly newer migrants, have largely been left out of these networks. Policymakers, therefore, need to be aware of the processes of intensification and socioeconomic differentiation that exist in rural communities in Burkina Faso before attempting to intervene in ways that attempt to alter existing natural resource management systems.

The papers in this special issue demonstrate a view of poverty–environment relations that diverges from the stylized ‘vicious circle’ portrayal. Indeed, both Gray and Moseley’s papers depict a different vision of poverty–environment relations in West Africa, where wealthier farmers have larger environmental impacts than do poorer farmers. Bassett illustrates the complicated terrain of wildlife depletion in Cote d’Ivoire, where wildlife is being depleted for a variety of reasons, including worsening terms of trade, firearms proliferation, and urban bushmeat demand. Glasseier and Farrigan conclude that poor communities in developed countries are sometimes only tangentially located to forest resources. While poverty may be an important driving force of environmental degradation, these studies illustrate how wealth and economic development are more likely culprits in environmental degradation. This special issue builds on recent work in political ecology that focuses on issues of agency, power, and discourse in understanding poverty–environment interactions. The studies also put scale in the centre of the debate, showing how globalized production processes and governance structures affect local poverty–environment interactions.

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