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EXPLORING SUSTAINABLE DEVELOPMENT

Geographical Perspectives

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Geography and Sustainable Development

Martin Purvis

Introduction

The current state of the world has led many commentators to conclude that the unequal priority given to economic growth, social welfare and the health of the environment renders established development patterns unsustainable. The alternative ideal of sustainable development – that which ‘meets the needs of the present without compromising the ability of future generations to meet their own needs’ (WCED, 1987) – has, therefore attracted increasing support. But once we look beyond such broad definitions, much remains elusive and contested about sustainable development. As noted in Chapter 1, the scope of existing economic theory is limited, and few others have taken up the challenge of establishing a sound theoretical foundation for future action. It is, of course, also true that the label of sustainable development is applied to an increasing number of practical measures. However, the sheer number and diversity of such initiatives, and the mixture of motives that inspire them, only adds to the ambiguity which surrounds the concept. There is still, therefore, much work to be done if sustainable development is to be established as a credible blueprint for the 21st century.

The chapter begins by comparing geography’s long-standing interest in both society and nature, and the links that unite them, with the new agenda of sustainable development. This is followed by a brief review of the attention given to sustainable development in the geographical literature, and to the themes of place and space in discussions of sustainable development. The chapter then moves on to consider the potential for applying geographical skills in planning for more sustainable development. Arguably more important, however, is a greater geographical contribution to critical reviews of current thinking about sustainable development, both in practice and in theory.

A Case for Geography

Sustainable development in disciplinary perspective

The concept of sustainable development is innovative and distinctive in pointing to the need for simultaneous attention to maintaining economic growth, meeting social

needs and conserving environmental quality. This broad and challenging agenda requires that the exploration of sustainable development as theory and practice is grounded in a profound understanding of social, economic and environmental systems. It will necessarily draw upon the input and insights of a wide range of academics, and also of many others, including politicians, planners, development workers, business managers, farmers and consumers. The emphasis placed here on thinking geographically should not, therefore, be misinterpreted. What follows is not a claim of perfect knowledge or a bid for intellectual hegemony. Rather, our case is that geography can make a valuable and distinctive contribution to wider debates about sustainable development.

Although geography – like sustainable development – is often seen as resisting unambiguous definition, three themes may be taken to constitute its core. The first is the study of relationships between humanity and the environment. The second is the exploration of the distinct and differing characters of particular places. And, thirdly, geography is concerned with the documentation and analysis of the spatial patterning of phenomena across the surface of the Earth. The variety of studies embraced by these themes, and the potential for tension between different approaches, have sometimes been regarded as marks of disciplinary weakness. Taken together, however, the different facets of geographical study have the power to advance our understanding of the world in important and distinctive ways (see Massey, 2001). In part, this reflects geography's transcendence of the conventional intellectual divide between the social and natural sciences. An important element of geography's purpose is to explore the ways in which specific environmental contexts influence human society, and the impact of human actions on the form of the landscape, environmental quality and biodiversity. It follows that geography does not define itself as the exclusive study of a single category of phenomena, but as a discipline concerned with connections, associations and distributions. Thinking geographically can, therefore, encourage a breadth of vision and capacity for synthesis that seem particularly appropriate to the study of sustainable development (on the need for this holistic perspective see Belsky, 2002; Liverman, 1999; Redclift, 1998). More than this, however, there are clear echoes in the contemporary agenda of sustainable development of long-standing geographical concerns with documenting and improving the state of the world.

Development and environmental change

Until recently, mainstream economic theory has exhibited relatively little interest in the environment, or natural capital. By comparison, geographers have frequently – if not consistently – advanced perspectives more consistent with current thinking about sustainable development. Attention to the environmental impacts of human actions has led to an understanding of development as a process of transformation that is environmental as well as socio-economic (Simmons, 1996). More specifically, geographers have made a considerable contribution to documenting the environmental consequences of human population growth, the areal extension and intensification of agriculture, urbanization and industrial development (see, for example, two classic collections of essays from Thomas, 1956, and Turner et al, 1990). Environmental change can be a positive process, involving the 'taming' or 'improvement' of nature

in order to yield greater rewards for humanity. Yet these studies also reveal the price invariably paid in terms such as air and water pollution, biodiversity loss, soil erosion and decline in landscape quality.

It is clear, moreover, that human impacts on environmental quality and the availability of resource capital may be on such a scale that they undermine not only current economic prosperity and social well-being, but also prospects for continued future development. Geographical research has thus presented important evidence pointing to the current unsustainability of human activity (Sneddon, 2000). In so doing, it has powerfully reinforced arguments for the necessity of a new balance between economic, social and environmental goals.

Place and space

Geographical synthesis is most distinctive when expressed as the study of place, aiming to describe and explain the unique character of specific portions of the Earth's surface (Agnew and Duncan, 1989; Hart, 1982). Often, too, geographers have been concerned with understanding the ways in which communities and individuals perceive the places in which they live, the importance attached to being 'in place' and the emotional and symbolic qualities attributed to particular sites (Gold and Burgess, 1982; Tuan, 1990). Such work has the potential to create a rich and insightful record of geographical difference. More than this, it encourages us to consider how such differences influence, and are influenced by, the course of human development.

The comparative study of place – or of specific attributes of particular places – also inspires an alternative construction of geographical research as the study of the spatial distribution of phenomena. At its most basic, this may be seen as an exercise in cataloguing the various dimensions of natural capital and in recording the accumulation of man-made capital, typically as embodied in the creation of urban and industrial regions, or as investment in the infrastructure of transportation, education and healthcare. The resultant evidence of difference has often been expressed through cartographic display (Dorling and Fairbairn, 1997; Kraak and Ormeling, 1996). This has proved to be a particularly effective way of communicating information about the state of the world, both to academic audiences and to publics, politicians and other decision-makers (see, for example, Dorling, 1995; Middleton and Thomas, 1997). Recent technological developments in remote sensing, geographical information systems (GIS) and computer mapping have further enhanced the potential of this visual medium (Wood, 1999). Together they give us a real and immediate – although not unproblematically 'truthful' (Wood, 1993) – sense of environmental, social and economic conditions at every scale from the local to the global, often reinforcing the case for a new and more sustainable form of development.

However, geography as a spatial science aims to go beyond description to offer an analytical understanding of the form and functioning of human and physical systems. Studies of spatial coincidence and correlation in the patterning of different phenomena have the potential to enhance our knowledge of the scale and causes of unsustainability. At its simplest, spatial association may provide an indication of causal links between particular human activities and unsustainable outcomes. In addition, previous studies have revealed the extent to which specific problems impact in multiple and mutually reinforcing ways upon particular places (Pacione, 1999b). Too

often, economic insecurities caused by unsustainable livelihoods are associated with, and exacerbated by, low standards of social welfare and environmental quality. Such observed associations raise important questions not just about the incidence of unsustainability, but also about the underlying causes that link its different dimensions.

Spatial inequalities

Attention to geographical difference thus reflects an explicit concern about the uneven fashion in which capital is distributed and redistributed. It follows that interest in the intermeshing effects of economic, social and environmental changes is accompanied by attention to the ways in which they reshape or reinforce patterns of spatial inequality. Moreover, concerns about the negative consequences of economic activity are reinforced by evidence of the uneven spatial distribution of its social and environmental costs. Geographical studies have shown that there is often an underlying logic to this maldistribution that reflects the patterning of other characteristics – including income, class, gender and race – with the result that the greatest costs are borne disproportionately by the poorest and least powerful people and places (Knox and Pinch, 2000). These same communities may also be denied many of the benefits of economic growth, thus perpetuating their disadvantage and vulnerability. In such circumstances, documentation of inequality cannot be solely an end in itself. It is potentially the starting point for geographical work that seeks actively to promote a new ethos of social and environmental justice (Bunge, 1971; Harvey, 1973; Heiman, 1996; Smith, 1994).

Studies of spatial inequality have thus encouraged attempts to develop a more sophisticated understanding of the geographical form of social and economic systems, and of socio-economic processes as an influence upon the production and reproduction of space. Particular attention has been paid to the ordering of space under capitalism, leading to a recognition that spatial inequality – often characterized as uneven development – is an integral feature of capitalist development (Smith, 1990). Such attempts to understand the causes of social and spatial inequality highlight the extent to which local conditions are shaped by the wider interplay of economic and political forces at a national and international level. It follows that measures to secure positive change must often be directed towards points in time and space that are far removed from the most obvious symptoms of social injustice and environmental stress. Crucially, too, the argument that development in one region is necessarily predicated on underdevelopment elsewhere has profound implications for aspirations to secure greater intra-generational and inter-generational equity. It helps to explain why change is often so controversial and contested, which is a reality that is not always confronted in current economic theories of sustainable development.

Thinking geographically

Geography has a long record of studying both the environmental impacts and sustainability of human activity, and the equity with which the costs and benefits of development are distributed. In this sense, geographical attention to what is now termed sustainable development long predates discussions inspired by the 1987

Brundtland Report or the ensuing 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro. Geography's record of applied work – in fields ranging from environmental management to access to welfare services – is also consistent with the desire to improve both the human condition and the health of the environment that motivates the study of sustainable development (for different perspectives on applied geography, see Burton and Kates, 1965; Pacione, 1999a; Peet, 1977; Stamp, 1963). Moreover, thinking geographically – which involves attention to the needs and circumstances of particular communities; to the spatial patterning of human activity; to the relationships that connect the human and environmental spheres; and to the links between individual localities and wider systems – has the potential to enhance and extend existing attempts to understand the theory and practice of sustainable development. In a context that demands a broad-based and integrative understanding, geography's intellectual diversity and capacity for synthesis constitute genuine strengths. Geography does not have answers for all of the questions posed by sustainable development; but, arguably, it has the right attitude to advance knowledge in this field. The chapter now turns, therefore, to consider the attempts already made to foster explicit engagement between geography and sustainable development.

Engaging with Sustainable Development

Putting sustainable development on the geographical agenda

Development – what it means, how it can best be achieved and what its consequences are – has always ranked high amongst geography's concerns (for recent overviews see Crush, 1995a; Dicken, 2003; Knox and Agnew, 1998; Potter et al, 1999; Power, 2003). The advent of the concept of sustainable development potentially marks a new phase in this record of engagement. Initial enthusiasm is evident in commentaries such as Wilbanks (1994), which argues that closer links between geography and sustainable development would be beneficial, both in increasing understanding of sustainability and in giving geography a renewed disciplinary coherence and sense of purpose. Indeed, there are echoes here of earlier calls for geography to champion a more explicit ethic of social and environmental justice (see, for example, Kates, 1987; Smith, 1977; Stoddard, 1987).

During the 1990s, sustainable development gained a place in geography's disciplinary lexicon (McManus, 2000). Its study is now part of the geography syllabus in UK schools (Grimwade et al, 2000) and the concept is explored in general textbooks aimed at an undergraduate audience (for example, Cloke et al, 1999; Daniels et al, 2001; Johnston et al, 2002). Geographers have also produced accessible accounts that review evolving ideas about sustainable development, often paying particular attention to its attempted translation into practice (Adams, 2001; Elliott, 1999; Middleton et al, 1993). These broad-ranging studies are complemented by treatments of sustainable development in particular geographical contexts, both generic and specific (Bowler et al, 2002; Haughton and Hunter, 1994; Jussila et al, 2001). In turn, debates about sustainable development and efforts to create composite indices of sustainability have begun to influence geographical studies of spatial differentiation (for example, Straussfogel,

1997). Such work is novel in attempting the integrated assessment of spatial variation in the state of the environment, individual welfare and the strength of social cohesion, alongside more conventional economic measures of development.

The growing geographical literature on sustainable development performs an important educational role: first, in raising awareness of the current unsustainability of economic and social systems worldwide and, second, in fostering debate about the need for change. If there is to be significant progress towards greater sustainability those currently in education – who will become tomorrow's consumers, workers, employers, voters and politicians – must make more informed decisions about the balance to be struck between aspirations for economic growth, social progress and environmental conservation. However, the potential also exists for geography to play a more explicit role in refining current understanding of the concept of sustainable development and its practical application. Indications that proposals for securing greater sustainability in practice often intersect with geography's defining interests in place, space and the spatial patterning and scale of activity provide some obvious points of departure.

Spatial form and scale

There are good reasons for thinking that the sustainability of development is, in part, related to its spatial form. It has long been evident, for example, that the concentration of population and economic activity in urban centres can create particular social and environmental stresses. Equally, it is hardly novel to argue that attention to the location and spatial design of development can reduce associated costs – both internal and external – and assist the delivery of intended benefits. It is unsurprising, therefore, that spatial form has been identified as a key to creating greater sustainability in a variety of contexts, including the urban. This is evident in calls for the development of compact cities, with a greater local diversity of population and land use than is currently the case (see Chapter 6). It is claimed that such changes allow urban economic functions to be maintained, while simultaneously promoting resource efficiency, social cohesion and improved access to essential facilities. Spatial planning is thus viewed as a tool to secure both intra-generational and inter-generational equity. The intent is to ensure that today's urban residents enjoy growing prosperity and a higher quality of life, while rural environments are protected from the destructive effects of urban sprawl. But more than this, economic growth, urban renewal and environmental conservation constitute a positive inheritance for subsequent generations (Murdoch, 2000).

Some commentators argue for change in the spatial form of development to be taken further, reshaping not just the internal plan and character of urban and regional systems, but also the relationships between them. At its most radical, this represents a call for the wholesale rescaling of human activity. Advocates of bio-regionalism, or for a 'turn to the local', argue that individual territories must develop a greater degree of self-sufficiency, basing their development primarily on the sustainable use of resources immediately available at a local or regional level (Mander and Goldsmith, 2001; Sale, 1985). Global sustainability would thus be achieved through a series of balances struck at the scale of individual states, regions and urban centres. A greater degree of dependency upon local resources would, it is claimed, encourage better

long-term management of natural, human and man-made capital. Further environmental gains would follow from a reduction in the energy use and pollution currently associated with the international transportation of goods and raw materials. At the same time, greater political autonomy at a local or regional level is presented as an effective means of securing greater popular participation in decision-making, thus creating a guarantee of social justice.

Place and locality

The thinking behind calls for the rescaling of activity finds an echo in other arguments for the importance of the local arena to the pursuit of sustainable development. Local initiative has, for example, been widely identified as a key means to advance the vision outlined in the Agenda 21 document produced by the United Nations Conference on Environment and Development (UNCED) (see Chapter 6). The hope is that when individual communities take a leading role in planning for more sustainable development, this will result in greater stress on projects that meet local people's expressed needs, that are consistent with existing social and cultural mores, and that make effective and sustainable use of indigenous resources. Involving people themselves in securing positive change at the local level is also seen as a powerful means of overcoming the reluctance, or inability, of national governments and international agencies to take responsibility for promoting more wide-ranging reforms.

There are echoes here of broader dissatisfaction with the generic policies generated by conventional development planning, which have too often been applied with insufficient consideration for the needs and circumstances of particular people and places (Crush, 1995b). Faith in grand plans born of professional 'expertise' has thus given way to attempts to promote more locally appropriate development in a wide variety of different contexts (see, for example, Ferris et al, 2000; Ghai and Vivian, 1992; Wing et al, 1996). In principle, at least, greater attention in development planning is given to dialogue between a broad range of interested parties, including publics, businesses, planning professionals, governments and development agencies. Recent decades have, therefore, seen a growing emphasis on participation and the strengthening of local democracy as an essential starting point for better development. Often the hope is that mutual confidence gained in one sphere will encourage the extension of cooperation and participation to new activities. Equally, the creation of initial 'islands' of sustainability is presented as a means of inspiring equivalent actions elsewhere (Wallner et al, 1996).

The aspiration to foster development that is locally appropriate and sustainable in the long term highlights a need to know more about the economic, social and environmental circumstances of particular places and people. This is one of the chief tasks that geography has traditionally set itself, and an aspect of geographical study that merits renewed attention. Geographers themselves have much to learn from arguments about appropriate and sustainable development, with their injunctions to accord full respect to indigenous knowledges and to the accounts that local people offer of their own circumstances and aspirations. In turn, geography, as a discipline of synthesis, offers a model for the study of place that goes beyond the disaggregated documentation of specific local attributes. This is important: the pursuit of sustainable

development creates a new demand for more holistic and integrated understanding of the character and circumstances of particular places. It requires that we appreciate the ways in which these are shaped and reshaped through the interaction of economic, social, cultural, political and environmental forces. No single aspect of the character of a place can be fully understood in isolation from this broader context.

Geography and the Pursuit of More Sustainable Development

On the one hand, these initial reflections on the importance of place and space in planning for sustainable development confirm the potential for greater application of geographical skills and understanding to the pursuit of progressive change. Yet adherence to the agenda of sustainable development as currently defined should not be unthinking. Geography also has a part to play in scrutinising existing ideas and proposals. Indeed, one of the most valuable services that a critical observer can perform is to highlight flaws and limitations in the diagnosis of a problem and the solutions offered in response. Ultimately, therefore, geography's most important role may be to help confirm the need for more sophisticated conceptions of sustainable development – in theory and in practice – and to begin to show how these might be achieved.

Applying geographical skills

Some of the ways in which geography could contribute to promoting more sustainable development in practice have already been alluded to above. Skills in spatial analysis might, for example, be applied to the search for greater resource efficiency. This would include attention to specific measures, such as the planning of new infrastructure for recycling, allowing facilities to be accessed with least financial cost and transport demand. More generally, such analysis could be refined and extended so that it helps to inform the design of geographies of development that are not simply efficient in narrowly economic terms, but which create an optimum balance across a broad range of economic, social and environmental costs and benefits (see Cowell and Owens, 1998; Owens and Cowell, 2001 for the discussion of particular cases). Geographical expertise in urban and regional modelling could also find new applications in the context of sustainable development (see Chapter 5). Modelling offers a means of gaining a more sophisticated understanding of the outcomes of economic and demographic growth, and the complex spatial transfers of costs and benefits between and within particular territories. The ability to predict future conditions not only allows an assessment of the sustainability – or otherwise – of development, but also enables an evaluation of the likely outcomes of a range of corrective policies. This should assist in identifying the most effective sustainability strategies.

The use of such techniques need not, moreover, perpetuate a model of decision-making driven entirely by external or governmental expertise. Work on information technology and, specifically, on the development and application of GIS now places

growing stress on their use as a means of encouraging broadly based participation in decision-making about development (Craig et al, 2002). GIS allow the presentation and dissemination of information in a visual format that can be widely comprehended. This creates a new facility for individuals, community groups and other interested parties to assess the potential outcome of alternative development proposals, enabling them to take a more active and informed role in subsequent decision-making. Still more important are initiatives intended to put GIS and other information technologies in the hands of local populations themselves (for example, Jordan, 2002; Parker and Pascual, 2002). Such projects often aim to empower people who have hitherto been marginalized, enabling them not simply to respond to development policies created by others, but to set out their own agenda. This form of technology transfer may be of particular value if it enables local people to present a case in a format and with an implied authority that directly challenges the prescriptions of government, business, international non-governmental organizations (NGOs) and other outside interests.

A more questioning approach

The potential for refinement of existing techniques for planning more sustainable development should not, however, distract attention away from the need for critical scrutiny. Ideas about the re-scaling or re-siting of development cannot be regarded as a total solution to current unsustainability. It is vital, therefore, to question what is practical, what is effective and what is adequate as a prescription for more sustainable development.

Prime candidates for such interrogation are arguments that present the locality as an important arena for effective decision-making and action to foster more sustainable development. There is a risk that such arguments overstate the extent to which individual communities can improve their own situation. In part, this reflects profound inequalities in the spatial and socio-economic distribution of the various fractions of capital, which impose multiple deprivation upon the poorest communities. Moreover, the implication that local populations are characterized by shared values, and a willingness to work together equitably and cooperatively in pursuit of common goals, is not always borne out in reality. Geographical studies of place also confirm the extent to which the condition and character of specific localities reflect their interaction with external agencies and larger systems. These interconnections and the unequal relationships between places that they both create and embody are at the heart of the current experience of uneven development, and associated injustice in the distribution of the costs and benefits of economic activity. This recognition is vital for it clearly implies that the effective pursuit of more sustainable development by and for specific places will involve more than local reforms. Substantial progress will often require major changes in the constitution and distribution of power within national and international systems to redefine the terms upon which an individual locality participates in these larger entities. All of this reinforces the need to know more about the internal inequalities and power relations that characterize particular populations, and the local influence of generally operating economic and political forces (Mohan and Stokke, 2000).

Attempts to rethink planning policies so that specific developments are re-sited in the name of sustainable development also merit critical scrutiny. The notion of a

locational fix is potentially dangerous if it encourages a presumption in favour of development. Spatial planning – which is often allied with the use of other techno-fixes such as pollution reduction and site landscaping – may give credence to the idea that there need be no curbs on development; that everything is possible provided that it is properly planned and correctly located. In practice, technical approaches invariably address only specific aspects of unsustainability. For example, the siting of additional industrial development in districts where natural capital is already degraded may appear justified as a means of minimizing damage to surviving areas of high environmental quality. Yet this apparent defence of inter-generational equity may exacerbate intra-generational inequality if it heaps further costs on places and populations whose existing levels of social and environmental welfare are low.

Arguments that financial compensation, social investment or environmental improvements can fully offset such differentials are also disingenuous. In practice, any deal is more likely to reflect the relative economic and political power of the interests involved rather than the full external costs of development. In truth, the latter are often beyond calculation and compensation. This points to a wider tension between abstract conceptions of capital as an input into the development process and other more complex interpretations of the value of environmental and social systems. The former viewpoint suggests the potential for maintaining the total value of capital through substitution, either between its different fractions or between capital located at different points in space. Yet place-based studies make clear that particular environments perform specific ecological functions that cannot be fully replicated through investment in the enhancement or environmental restoration of sites elsewhere. Equally, particular places are valued by their inhabitants in emotional and psychological terms that have no material equivalent and permit no substitute (Cowell, 1997; Robertson, 2000).

An emphasis on limited fixes is more generally a feature of readings of sustainable development advanced by business and other sympathetic interests – including many national governments – which equate the concept with eco-efficiency, thus marginalizing its social dimensions. The limitations of such approaches have already been highlighted in the geographical literature (see, for example, Bridge and McManus, 2000; Cloke et al, 1996; Eden, 1994; McAfee, 1999). In response we must remind ourselves that sustainable development represents a search for social equity as well as eco-efficiency; that intra-generational equity merits as much attention and concern as inter-generational equity; and that sustainable development requires change in both the developed and developing world. From this viewpoint we are again confronted by a sense of the breadth of perspective and understanding demanded by the pursuit of sustainable development. More specifically, we need to appreciate the extent and complexity of the connections that shape our terrestrial existence: between economic, social, political, cultural and environmental systems; between actions and events at particular times and places; and between activity and decision-making at different levels of the spatial hierarchy. By making these connections – something we have argued is inherent in a geographical approach – we can advance beyond a superficial concern with the symptoms of unsustainable development to engage with its causes.

Looking Deeper

Linkages and causes

The pursuit of sustainable development reinforces the importance of understanding the linkages between different dimensions of injustice and deprivation. There are powerful arguments that poverty and social injustice are products of a lack of access to all forms of capital, but also, in turn, causes of continuing environmental degradation. As a result of their economic insecurity, the most marginalized and exploited populations may be forced into a position of environmental exploitation. In a situation where there is no alternative, short-term survival comes to depend upon the unsustainable use of the local environment to extract an immediate surplus.

Such arguments, which engage with the causes as well as the symptoms of unsustainability, are particularly associated with work cast within a framework of political ecology (Bryant, 1992; 1998). This seeks a new dialogue between ecological studies of human society and (often Marxist-inspired) political economy. The potential of such analysis was well demonstrated in two seminal studies of land degradation in the developing world (Blaikie, 1985; Blaikie and Brookfield, 1987). These challenged accepted thinking, which attributed problems such as soil erosion to a combination of overpopulation and the ignorance, or indifference, of peasant farmers. Instead, erosion is argued to be a product of fundamental economic and political inequalities at the local, national and global levels, which concentrate land ownership in the hands of a small elite. This perspective confirms the limitations of technical solutions that, at best, treat the symptoms of unsustainability and injustice. Attention to sustainable agricultural development should, therefore, strengthen perceptions of the need for profound change, involving land reform at a domestic level and a critical review of the international trading system (see Chapter 8).

Thinking in this way about the larger causes of local unsustainability highlights wider concerns about the lack of compatibility between the constitution of the current world economy and the ideal of sustainability. Pursuit of more sustainable development may, therefore, confer added significance on studies that explore and explain the uneven and unstable geographical form of capitalism. As work on the political ecology of soil erosion demonstrates, it is not simply the case that current poverty and lack of potential for future development are the product of an absolute lack of capital (Yapa, 1996). Often they reflect socio-economic and political inequalities that enable some groups and individuals to claim access to resources at the expense of others. The wealth of particular people and places is, therefore, understood to be predicated on the deprivation of others (Frank, 1969; Smith, 1990). This presents a formidable barrier to both intra-generational and inter-generational equity.

The differential mobility of different fractions of capital raises further questions about the apparent tensions between the preservation of capitalism as an economic system and the wider agenda of sustainable development. In theory, at least, the growing mobility of financial capital in the contemporary world will exacerbate a tendency to produce economic activity that exploits and degrades particular environments and communities. This is because mobility confers the freedom to withdraw in search of new opportunities elsewhere, thus avoiding negative feedback that might

choke off further economic growth, as well as responsibility for the long-term well-being of a population and its environment (see Chapter 7).

Such arguments, voiced particularly by the critics of multinational business, have echoes of attempts to produce a deeper theoretical understanding of the space economy, drawing on Marxist theories of growth under capitalism. The historical record of capitalist expansionism and the progressive penetration of new territories led Harvey (1975; 1982) to argue that the spatial switching of capital has been fundamental to the survival of an inherently unstable economic system. This 'spatial fix' is seen not so much as a device to evade external costs, but as a means to resolve crises caused by the inevitable over-accumulation of capital within established regional economies. The exploitation of new territories – as markets, as sources of labour and materials and as investment opportunities – is driven by the need to find profitable uses for otherwise surplus capital.

Harvey's analysis is not, of course, couched in the terminology of subsequent debates about sustainability. But his work indicates that the tensions inherent within capitalism have often been resolved in ways that are incompatible with sustainable development. The importance accorded to maintaining economic growth has led to a willingness to sacrifice both human welfare and environmental quality. More specifically, capitalism has shown itself ready to deal inequitably with particular places in an attempt to maintain the integrity of the system as a whole. This treatment is not confined to the expanding periphery of the capitalist world economy. Regions within the original core may be abandoned – sometimes regardless of the legacy of unemployment, social decay and environmental degradation – if they are no longer deemed capable of delivering a sufficiently profitable return on investment. Viewed in this way, the existing structures of capitalism seem likely to prevent any significant progress towards more sustainable development (compare with O'Connor, 1994).

The attempt to engage theoretically with the causes of unsustainability need not, however, lead to a wholly pessimistic conclusion. This is evident in the work of Drummond and Marsden (1999), who adopt a perspective informed by regulation theory. The latter – which has gained widespread currency in economic geography since the mid 1980s – focuses on the ability of capitalism to establish enduring regimes of accumulation despite its internal tensions and inherent tendency to crisis. Capitalism's stability is argued to be founded on the establishment of historically and geographically specific modes of regulation. These are evident as systems of conscious social management – embodied in the active creation of institutional forms, typically at the level of the state, but differentially affecting particular regions and economic sectors – which mediate contradictions in the behaviour of competing individuals, groups and social classes to maintain established accumulation regimes. Regulation is not, however, seen as a total solution to the instability of capitalism. Corrective regulatory mechanisms can themselves break down in the face of both internal and external crises. During the ensuing instability, new regulatory regimes are forged. But the consequences of regulatory failure are potentially dramatic, involving major changes in systems of production and consumption; in technologies and the organization of labour; in the use of natural capital; in cultural norms; and in geographies of economic activity.

Historically, the primary objective of regulation has been to preserve the value of financial investments, plant and machinery and institutional networks. Hence, crisis

resolution has often involved the devaluation and increasing exploitation of human and natural capital. However, Drummond and Marsden (1999) argue – as does Gibbs (1996; 2002) – that regulatory regimes are not the inevitable enemy of sustainable development. Indeed, it is possible to envisage the construction of alternative regimes that maintain economic development without sacrificing human and natural capital. This requires that the existing economic objectives of regulation be qualified by more clearly stated social and environmental objectives.

Potentially, therefore, the barriers to sustainability evident in the contemporary world economy can be overcome; but this will require intervention at the deep level of regulation. At moments of crisis when capitalism is unusually malleable, there may be opportunities to reshape regulation to embrace defence of the environment; to reform labour rights; to reallocate access to natural capital; to rethink the logic of systems based on mass production and consumption; to change systems of pricing, taxation and subsidy; and to define new terms of trade. This is not, however, to claim that radical change in the prevailing orthodoxy of regulation will be uncontested. Drummond and Marsden (1999) themselves question whether any fundamental challenge to current neo-liberalism and related modes of social regulation can be mounted in practice. Their work is important, nevertheless, in influencing how we should think about the location, scale and potential of action to promote more sustainable development.

Scales of action

Clearly, the existence of powerful theoretical arguments for looking beyond the immediate local arena in any search for the causes of unsustainable development has important implications for the framing of corrective action. As yet, however, Drummond and Marsden (1999) remain unusual in outlining any means to secure fundamental change in practice. As with earlier work on the political ecology of environmental degradation, the task remains of going beyond initial diagnosis to show how economic and political barriers to any deep-laid transformation may be overcome. Peet and Watts (1996) argue that abuse of the environment might become a focus of popular mobilization, creating a 'liberation ecology' that would inspire the world's poor to claim economic and political rights hitherto denied them. The potential for more radical and assertive mass action could be increased by greater investment in education and international efforts to promote and protect effective and representative democratic institutions at every level of the political hierarchy. Perhaps, too, new information technologies, often seen as the means by which capitalist interests control increasingly far-flung operations, could become a means of coordinating resistance. Opportunities for building virtual communities of dissent may begin to erode the weakness, born of geographical separation, that has previously characterized many localized protests (Herod, 1998).

Such arguments about the importance of information and communications, and educational and political reform, have previously been highlighted in some of the more ambitious prescriptions for sustainable development (BBC, 2000). But the identification of these important enabling forces raises further questions about how, in practice, they can be promoted in ways that achieve more than localized or tokenistic change. The central question remains: why should existing powerful

interests, which derive immediate advantage from current conditions of unsustainability and inequity, permit change that will imperil their own privileged position?

Such questions take us far beyond any specifically geographical perspective on sustainable development and point, once again, to the need for significant change in the constitution of contemporary economic, social and political systems at both national and international levels. They do, however, reinforce the case made earlier for the importance of geographical contributions to education, and to the dissemination of both information and information technologies. It is vital that initiatives in these fields look beyond immediate and local goals to consider how they may assist in generating a momentum for wider societal change in the longer term.

Thinking in this way about the potential for connections between initiatives at different levels of the social and spatial hierarchy suggests a more specific focus that could and should be accorded greater geographical attention. As has been noted, previous discussion of sustainable development frequently highlights projects at particular levels of action, often very localized. There is a danger that this becomes translated into a general prescription for the 'correct' level at which to promote more sustainable development, and encourages a tendency to focus on particular places and problems in isolation. This disaggregation could be countered by greater geographical attention to the role of spatial scale and spatial connections in conceptualizing and promoting sustainable development. Current debates about the wider rescaling of political life (Held and McGrew, 2000; Pierson, 1996), involving both the growing role of supranational authorities, such as the European Union, and the devolution of powers to sub-state territories, offer a starting point for a more sophisticated discussion of spatial frameworks for sustainability planning. Going beyond present assertions about the rescaling of activity, such work would explore the extent to which the distribution of authority and capacity between local, regional, national and international levels could and should be redefined to promote effective and coordinated support for more sustainable development.

It is also important to show that specific dimensions of sustainability must be addressed simultaneously within different arenas and at different levels of the spatial hierarchy. Measures to combat climate change, for example, require international coordination if they are to be efficient and equitable. But international agreement to the principle of action means little without initiative at other levels, including changes in national energy policies, planning reforms by local and regional governments, and acceptance of responsibility for managing energy consumption by individual households and businesses (see Chapter 11). It is vital to recognize these connections and the consequent potential for initiative at one level to be frustrated by inertia or ill-considered actions elsewhere. Attention to coordination, communication and the building of mutual confidence between actors and authorities in different places and at different levels of the spatial hierarchy must, therefore, be a key focus in planning for more sustainable development.

Theory, space and scale

Consideration of particular places and levels, and the relationships between them, is not only relevant to practical policy; it should also prompt us to review theoretical conceptions of sustainable development. Abstract economic formulations of sustain-

able development, as a balance between the accumulation and depletion of capital, are not grounded in place and make no reference to space or to spatial scale. As Grainger explores in Chapter 3, this omission is potentially very important. The ultimate aim of sustainable development may be to establish a balance between capital accumulation and depletion at the global level. At the same time, however, the goal of intra-generational equity requires that we consider the impact on particular people and places of measures intended to promote a global balance. The concept of sustainable development as the achievement of balance must, therefore, be qualified by the injunction to pursue this end in ways that challenge, rather than reinforce, existing exploitative relationships between places. This might be expressed as an extension of the well-known Brundtland formula: development is sustainable where it is conducted in a fashion that enables a population living within a particular territory to meet its immediate needs and secure the inheritance of future generations, without compromising the ability of other populations elsewhere to meet comparable present and future needs.

Such thinking has inspired the calls for greater self-sufficiency noted earlier. An alternative approach is to accept the value and necessity of interaction and exchange between places but to change its character. This would require, amongst other initiatives, moves to reform the terms of trade and the prices paid for the transfer of goods and resources in order to take full account of the social and environmental costs involved. Currently, the environmental services performed for one place by another, or, indeed, for the world as a whole, are often barely acknowledged. In future, it is important that they are properly valued and paid for. Such charges would not only be an incentive to pollution prevention and waste minimization; they would also be an important step towards a more equitable distribution of the costs and benefits of development. Such initiatives might, for example, change the ways in which conservation policies are viewed, turning them from a block on conventional development to an alternative means of generating income to invest in human and man-made capital.

Enthusiasm for such an outcome should, however, be qualified by attention to its practicality and desirability. It is far from clear how equity in allocating the costs and benefits of development could be defined and secured in practice. Any ideal of progress based on acknowledgement of shared responsibility for sustainable development also seems vulnerable to the desire of particular places and populations to pursue their own development path free from external considerations and constraints. Some measure of coordination is undoubtedly necessary to strike a balance between freedom and responsibility. State governments have usually discharged this role as a regulator and arbiter at a national level. In recent decades, however, a growing sense of the global scale of economic activity and environmental change has inspired efforts to strengthen institutional structures at an international level. However, such institutional arenas can become a focus of conflict, rather than of cooperation, as developed and developing countries attempt to advance contrasting readings of sustainable development (see Chapter 12). Indeed, the interpretation of fundamental concepts, not least equity itself, is potentially contentious (see Chapter 11). In a context where the distribution of economic and political power remains fundamentally uneven, we may continue to see constructions of the 'common good' that prioritize the interests of established elites.

Conclusion

This chapter has sought to demonstrate the affinities between the concerns of sustainable development and established geographical interests in the economy, social and environmental justice, and relationships between human society and the natural world. The consequent potential for dialogue will be explored further in subsequent chapters that revisit long-standing geographical concerns with themes such as environmental change, agriculture, urban form and function, and environmental management. In every case we show that it is logical and revealing to think holistically, linking environmental, economic, social and political considerations. An ability to challenge the conventional divide between the study of human and natural systems is vital, not least because contested readings of the relationship between society and nature are at the heart of debate concerning specific aspects of sustainable development. Nowhere is this more evident than in the very different conceptions of sustainable agriculture discussed in Chapter 8. For some, true sustainability can only be achieved through respect for the integrity of the natural world; others believe that an unprecedented human manipulation of nature through biotechnology is the best guarantor of future prosperity and security. The way in which such debate unfolds in the coming years seems likely to have profound implications, not just for sustainable development per se, but also for the wider characterization of the social and the natural.

This chapter has also made the case that geography's distinctive preoccupation with place and space adds a new dimension to the definition and pursuit of sustainable development. Existing theoretical treatments of sustainable development are limited by their lack of grounding in any sense of spatial context. Yet it is important to ask questions about the spatial scale at which any balance between the accumulation and degradation of capital is to be conceived. Moreover, we cannot ignore spatial inequalities in the distribution of capital, and in the power to appropriate and employ it, as important influences upon intra-generational and inter-generational equity.

We must also consider the implications of the division of continuous physical space into a series of discrete territorial units: particularly, but not only, at the level of the state. Each territory is differentiated not just by location, but often also by characteristic regimes of accumulation, regulatory structures, political institutions, cultural and social values, histories and environments. Such variation makes it inevitable that there will be debate between and within these territories about the theoretical conception and the practical execution of sustainable development. Potentially, space itself allows the accommodation of much of this need and desire for difference between places. Yet, in reality, no single territory functions in isolation. States, regions and localities are linked by flows of resources, goods, waste and pollution, capital, people, ideas and information. Ultimately, too, all share a common dependence upon the global resource of Critical Natural Capital (see p.15). It follows that any projects and proposals intended to deliver more sustainable development within a particular territory will affect, and be affected by, events and decisions elsewhere. Spatial disaggregation of the global space is accompanied by spatial interconnection, with the result that trade-offs required to secure more sustainable development will have a geographical, as well as a sectoral, dimension.

The implications of thinking geographically about sustainable development are so profound that it is surprising that the literature in this field is not more substantial. It is striking how reluctant geographers themselves have been to explore and extend existing economic theories of sustainable development to secure a more refined understanding of the implications of spatial scale and interconnections. But, as has already been suggested in Chapter 1, the holistic perspective that geographers espouse also highlights other absences in existing theory, especially a lack of attention to the social dimension of sustainable development.

This imbalance in the theoretical conception of sustainable development is echoed in another peculiarity of geography's attention to the concept. Although a broad range of geographical work, both physical and human, has added substantially to our understanding of the present condition of unsustainability, explicit attention to the alternative of sustainable development has been much more restricted. To date, discussion has been dominated by those whose primary interests are in environmental management, the environmental impacts of human activity and geographies of development. If geography is to fulfil its potential as a discipline capable of thinking in the round, the basis of this engagement must be extended to embrace the intellectual mainstream in economic, social and political geography, biogeography and studies of environmental change.

In particular, a broader geographical input into current debates might help to provide a more sophisticated understanding of the space economy, thus strengthening the existing theoretical treatment of sustainable development. Established economic theory does little to explain why the ideal of sustainable development is so difficult to attain in practice. Some of the answers are provided by theoretical characterizations of economic and social development under capitalism as not only inherently unstable, but also uneven in space and time. This presentation of development and underdevelopment as necessarily connected has particular implications for aspirations to intra-generational equity – a consideration which is itself often marginalized in popular definitions of sustainable development. Studies in the tradition of political ecology take the analysis a stage further in making important connections between socio-economic marginalization and environmental degradation. It is important to appreciate that poverty, as well as affluence, can place unsustainable strains upon the environment.

Such thinking gives greater rigour to criticism of orthodox strategies for achieving more sustainable development. It highlights the dangers of placing too great a faith in limited technical or managerial measures that only treat the immediate symptoms of environmental or social problems. The underlying causes, which often reflect much more deep-rooted inequalities in the distribution of economic and political power at every spatial scale from the local to the global, remain unchallenged and, perhaps, unheeded. It is important, therefore, to understand the condition of particular places not as discrete entities, but from a perspective that acknowledges their connections with wider human and environmental systems. Thinking in this way has very real implications for the local and participatory emphasis of many practical projects that are intended to promote more sustainable development. Promoting change from the bottom up can be effective in securing immediate improvements in livelihoods, social welfare and environmental conditions. But it is not always clear that the sponsors of such initiatives are willing or able to go beyond local change and rewrite the terms upon which particular localities participate in wider economic, social and political systems.