between social relations and nature as explored in chapter 2. Approaches
which are overly state-centric, focused on the public sphere and formal
institutional decision-making processes, or which adopt a narrow view
of power and who exercises it, are increasingly redundant to an adequate
understanding of global environmental politics in a context of globali-
zation. By historicizing and politicizing environmental governance, it
becomes easier to understand its origins and potential for change. Rather
than viewing the ‘nature’ of governance as a result of an abstract rational
techno-bureaucratic response to environmental crisis, the point here is to
trace the contemporary dimensions of environmental governance to the
political and historical conditions that shape their inception and evolution.

Structure of the Book

The next chapter articulates a political ecology of globalization which
brings together work on globalization and political ecology respectively
in order to understand the social relations of environmental change which
characterize the link between the global political economy and specific
ecologies. Chapter 3 then lays out the theoretical foundations of a global
political economy account of environmental governance which provides
answers to the questions who governs, what is to be governed (and what
is not), how it is to be governed and on whose behalf? Taken together
these chapters enable an understanding of the three key dimensions of the
relationship between globalization and the environment that are examined
in the subsequent chapters. Chapters 4, 5 and 6 explore the relationship
between the environment and trade, production and finance, respectively.
Each chapter assesses in turn (i) the political ecology of trade, production
and finance (ii) the governance of these relationships and (iii) contestations
around the ways in which they are currently governed. Finally, chapter 7
draws together key overarching conclusions from the book.

Chapter 2

The Political Ecology of Globalization

This chapter lays out some conceptual tools to help us make sense of the
relationship between globalization and the environment as described in
chapter 1. These enable us to go beyond mapping the interaction of eco-

comic and ecological flows to look at questions of politics and power that
are decisive in terms of how the benefits of resource extraction and the
burdens of human-induced environmental change are globally distributed.
The governance dimensions of this are then explored further in chapter 3
on the political economy of global environmental governance.

In particular, the chapter seeks to show how the social forces which are
central to contemporary capitalist globalization are also decisive shapers
of environmental outcomes. The primacy of intensifying accumulation
on a global scale creates critical ecological and political challenges, notably
whether viable accumulation strategies can be identified which are less
resource intensive or may even profit from reduced resource use, or
whether environmental problems such as climate change create a crisis
of capitalism because of its inability to respect ecological limits to growth
(Kovel 2002; Magdoff and Bellamy Foster 2010; Newell and Paterson
2010). This context is critical for understanding the ‘nature’ and conduct of
global environmental politics and the effectiveness of existing structures of
global environmental governance. More specifically, it affects our under-
standing of whether such structures are capable of re-shaping the global
economy and steering it onto a more sustainable footing, or whether
their role is more likely to advance and deepen existing forms of capitalist
globalization.

In such a rendition, global environmental governance, understood con-
tventionally as what international environmental institutions (or ‘regimes’
as they are referred to in International Relations – see chapter 3) do,
is dislodged from a position of primacy in the analysis in favour of an
account which attempts to ‘read’ ecologically and socially the organiza-
tion of the global political economy: the relations of power which create
and sustain it and the ecological and social consequences of this way of
ordering things. While such an account has implications for the orthodox study of global environmental governance since it problematizes liberal understandings of the state and the role of (international) law, its main focus is the relationship between capitalism and ecology: a relationship which international institutions and powerful states within them mediate in important ways, but which requires an analytical focus that goes beyond that (Newell 2011a). This emphasis is maintained in the chapters that follow, which explore the political ecology of each dimension of globalization covered in this book: the governance of trade, production and finance respectively and contestations of existing arrangements that go beyond and seek to challenge the nature of current responses to global environmental change.

This chapter argues, firstly, that since many aspects of (global) environmental change are produced by economic and social forces associated with contemporary capitalism, we need to develop an understanding of global environmental politics in which attempts to construct forms of global environmental governance are placed within the historical context in which they develop and the social and economic forces which shape the context within which cooperation and change is (or is not) possible. This is crucial to understanding the sources of environmental change and the possibilities of containing or reversing it, given the prevailing organization of power and distribution of resources in the global system.

Secondly, the claim is made that such an understanding can be enriched and enhanced by combining insights from critical (international) political economy with an extensive body of work on political ecology. This work explicitly seeks to explain environmental politics, often understood as struggles over access to (natural) resources, as a function of the social relations such as class, race or gender that structure issues of access, property, entitlement and justice. Work in the political ecology tradition is hugely eclectic, including feminist political ecology, cultural political ecology and post-structuralist accounts alongside work within a political economy tradition (Blakie 1985; Rocheleau et al. 1996; Stott and Sullivan 2000; Forsyth 2003). While traditionally focused on particular sites of struggle, a (re)turn to global political ecology is increasingly apparent in the literature, which enables the sorts of cross-scalar, multi-site analysis that are critical to understanding the drivers and impacts of global environmental change as well as attempts to manage that change through institutions of global environmental governance (Carmin and Agyeman 2011; Peet et al. 2011). Here, it is argued that historical materialist lines of enquiry are particularly well placed to connect a macro understanding of social forces in global politics with micro and site-specific manifestations of these relations of power which political ecologists document with such rigour (Mann 2009). The fusion of insights from these distinct, but related, theoretical traditions offers the possibility of reading contemporary forms of globalized capitalism ecologically: capturing the nature of its material flows and their social and environmental consequences. This gives us a more wide-ranging, multi-dimensional and multi-scalar account of the everyday conduct of global environmental politics than global attempts to construct law around specific trans-border effects of production, which, as we will see in the next chapter, remains the focus of most traditional theorizing in International Relations.

Which globalization?

The historical context which this chapter describes is the current neoliberal order that has emerged from the late 1970s onwards, but whose project of monetary discipline and global integration has deepened and intensified during the 1980s and 1990s (Cox 1994; Harvey 2005). It refers, for example, to attempts to re-scale accumulation opportunities through bilateral, regional and global trade and investment agreements, state restructuring, privatization and the use of monetary policy and enhanced capital mobility, the ecological consequences of which we will explore in subsequent chapters. Within this broad landscape, there are specific features of the organization of the existing global political economy that are of particular significance for understandings of the potential and limits of global environmental governance. These include:

(i) the power and mobility of finance capital which has enabled the financialization of environmental services (Newell and Paterson 2010);
(ii) the critical though schizophrenic attitude towards the role of the state and regulation, particularly on the part of the US and UK, or what has been referred to as the 'Lockean heartland' after the liberal philosopher John Locke (van der Pijl 1998), which has left the plural but uneven ensemble of public and private institutions and initiatives that aim at de-regulating public, and re-regulating through private means, different sectors of the economy; and
(iii) the creation of new sites of accumulation to overcome the limits to capital by addressing crises of over-production and under-consumption (Harvey 2010). These crises occur when capital is accumulated over and above what can be reinvested profitably in
the production and exchange of commodities which means that surpluses of capital and labour are left unutilized or underutilized (see table 2.1).

This context has shaped the willingness and, to some extent, ability of states to create forms of environmental regulation threatening to powerful sections of business, or what are referred to by political economists as 'fractions of capital', amid fears of pollution flight and the relocation of industries to other parts of the world with weaker regulation. Whether a race to the bottom, top or to the middle is the appropriate term, or whether regulatory chill is a more accurate label (Vogel 1997; Neumayer 2001a, 2001b), depends very much on the country and sector in question and the degree of autonomy or 'developmental space' (Gallagher 2005) they have to assert conditions on powerful investors, as we will explore further in chapter 5. Nonetheless, the threat of capital flight is a powerful weapon in the armoury of corporations wishing to check more stringent environmental regulations and one many governments take extremely seriously and invoke themselves as a rationale for not imposing costs on their businesses which surpass those required of their competitors.

Table 2.1 Key concepts in historical materialism

| Capital | Capital is not just money, but wealth that grows through the process of circulation. In that sense, capital is money which is used to buy something only in order to sell it again in endless circuits of capital. Marx represented this as Money - Commodity - Money. Capital is also understood as a social relation in conflict with labour which is exploited to accumulate further capital (Marx 1981). Marxists often refer to the 'structural power of capital' (Gill and Law 1989) because of its power to shape the context in which state decision makers operate, whose primary function in capitalist society is to reproduce the conditions for capital accumulation. |
| Social forces | These are engendered by the production process and include capital, labour and social movements. They are not confined within the borders of states, but often have transnational dimensions. The balance of social forces at particular historical moments determines the shape of the overall political order and who benefits from it (Cox 1981, 1987). |
| Transnational capitalist class (TCC) | The TCC refers to a class of actors and individuals that manage the global economy, sometimes also referred to as a global managerial class. It consists of those people (policy elites within powerful states, transnational corporations and financiers) who see their own interests and/or interests of their social group as best served by identification with the interests of the global capitalist system. This class derives its material base from transnational corporations and the value-system of the culture-ideology of consumerism (Skalr 2002a, 2002b; van der Pijl 1998). |

The concept of hegemony provides us with a way of understanding the preservation of power and order in society. Hegemony refers to the alignment of bases of power of ruling classes that maintains their privileged position in a (global) order through control, for example, over production, institutions and ideas (Cox 1981). It is preserved through coercion, accommodation and consent, and contains economic and cultural as well as military dimensions (Morton 2007). For Gramsci, hegemony was a concept used to analyse the relation of forces in a given society and a hegemonic order was one where consent, rather than coercion, primarily characterized the relations between classes and between the state and civil society (Gramsci 1971).

Historical bloc An historical bloc refers to a historical congruence between material forces, institutions, and ideologies, or broadly to an alliance of different class forces. In this sense, historical blocs represent the dialectical link between the economic structure and the ideological superstructure. The formation of hegemony (see above) is essential to the development of an historical bloc. The spatio-temporal 'fix' refers to the way in which capitalists can avert crises through temporal deferral and geographical expansion. Creating the possibility to invest in and speculate about 'futures' or opening up new spaces (geographical areas or virtual spaces) to accumulation helps to address the chronic tendency of capital to accumulate over and above what can be reinvested profitably in the production and exchange of commodities. As a result of this tendency, surpluses of capital and labour are left unutilized or underutilized. The incorporation of new spaces and places into the system of accumulation absorbs these surpluses (Harvey 2003).

The concept of unequal exchange, often used by Marxists, has also been applied to the environmental domain to explain the unequal nature of resource flows in the global economy. In particular, it highlights how trade relations remain unfair because poorer nations export large quantities of under-priced products, whose value does not include the social and environmental costs of their extraction, processing and transportation. This helps to explain the uneven global distribution of environmental benefits and harms. It is also often closely related to the concept of 'ecological debt' that richer countries are said to owe to poorer ones for their historical over-use of the global commons to the detriment of all (Clark and Foster 2009; Roberts and Parks 2008; Martínez-Alier 2007).
features prominently, for example, in efforts to check initiatives by activists who seek new rules and regulations to govern the social and environmental behaviour of transnational corporations operating overseas (Newell 2001a), and in claims about ‘carbon leakage’ whereby businesses facing increased costs due to controls on carbon emissions threaten to move their operations elsewhere.

Instead of strengthened state regulation, we have seen a growth of self- and private regulation (regulation by and for business) which confers on leading business actors – principally transnational companies – the power and authority to establish their own rules of conduct and restraint in a more open (for some) global economy, a theme we return to in chapter 4 (Lipschultz and Rowe 2005). Much of the proliferation of voluntary regulation through the negotiation of codes of conduct and certification schemes can be understood as an attempt to respond to popular anxieties about the ability of corporations to exploit lower social and environmental standards in a more liberalized global economy and offers a concrete and visible way of taking action whilst not accommodating more critical demands for tougher forms of social and environmental regulation.

Beyond the question of governing globalization, what is interesting in environmental terms is the coincidence of early twenty-first-century capitalism with a growing realization that the energy base upon which modern capitalism has been built is unsustainable, whether because of scarcity induced by peak oil, concerns about climate change, or a questioning of the social costs of imperial ventures to provide energy security. Half of all emissions of carbon released into the atmosphere from the burning of fossil fuels and cement production have occurred since the mid-1970s, the period of accelerated globalization (Peet et al. 2011: 22). In this context, a set of economic strategies predicated on integrated energy markets and the movement of goods and services over ever longer distances starts to look vulnerable. Pressures to account for carbon footprints and reduce ‘food miles’ express anxiety about the environmental consequences of more globalized circuits of production and consumption. Then there are the unforeseen boomerang effects that reverberate around the global economy when the needs of food, energy and water compete and conspire to produce tension and crisis: For example, the drive in the US for bio-fuels as a solution to an energy crisis which pushes up the price of corn resulting in ‘tortilla riots’ in Mexico (Houtart 2009; Smith 2010); or the push towards land-grabs in countries such as Ethiopia and Sudan to secure future supplies of water and food for rapidly expanding economies like China, anticipating the exhaustion of their own resource bases (Borrás et al. 2011).

Such strategies create new vulnerabilities at the very moment that they appear to provide a measure of resource security. Harvey’s observation that capitalism does not resolve its crises, it merely moves them around, again seems extremely pertinent in this context (Harvey 2010).

These issues raise the question of capitalism’s relationship to fossil fuels. Clearly much of the history of the expansion of capitalism can be told through war, conquest, colonialism and accumulation through dispossession: the enclosure and privatization of what were once considered common property resources (such as water and forests) (Harvey 2003). The pursuit of oil and coal in particular (Freeze 2003; Kaldor et al. 2007) has been decisive in the making of British and American power (Rupert 1993) and in fuelling the industrial revolution. The need to secure reliable and affordable supplies of energy continues to be a significant shaper of foreign policy as any number of imperial ventures in the Middle East and elsewhere testify (Rees 2001). The question is whether in an age of ‘peak oil’ and climate change, a different type of capitalism can emerge to drive large-scale investments in ‘clean’ energy and related energy services (Newell and Paterson 2010) or whether climate change reflects a ‘crisis of the capitalist mode of production’ as writers such as Brunnengräber (2006: 219) claim or, as Huber (2008: 105) suggests, that ‘fossil fuels represent an historically specific and internally necessary aspect of the capitalist mode of production’. In other words can there be capitalism that is not ‘fossil capitalism’ (Altuvat 2006) and can we imagine a world beyond ‘hydro-carbon civilization’ (Peet et al. 2011: 10)?

Capitalism is nothing if not resilient. It has to continually adapt to changing circumstances, revolutionizing forms of production in restless waves of innovation in order to stimulate new opportunities for growth and investment. As Marx and Engels famously stated, the bourgeoisie ‘cannot exist without constantly revolutionising the means of production’ (1848)). While certain ‘base technologies’ (Storper and Walker 1989) may characterize eras of capitalism, as Buck (2006: 60) notes, it is important not to confuse particular manifestations of capitalism – that is, particular historical social formations – with capitalism itself, thus under-estimating the flexibility of the beast. Even a post-oil economy, he argues, would be a capitalist one as long as there is an industrial reserve army without ownership or control of the means of production and as long as the production of commodities by commodities prevails. Hence, even peak oil can be reworked as an opportunity for growth where fossil fuels can be replaced by a ‘solar revolution’ (Altuvat 2006: 53). Technological dynamism is at the heart of capitalism, and as a consequence, its technological trajectories are
not necessarily set in stone. Buck (2006: 63) claims that 'Capital, as value in motion, does not care about what it makes, the machinery used or the motive source. It cares only about its own self-expansion and valorization.' These are the incessant waves of creative destruction that some argue might yet be harnessed towards the goal of a low carbon economy (Derber 2010).

One area from whence this momentum may derive is finance capital's sensitivity to risk. Environmental activists have long targeted investment banks and insurance companies as powerful actors that wield significant influence over governments as well as the businesses that rely on them for capital, as we will see in chapter 6. Greenpeace sought to work with the insurance and re-insurance industry exposed to large pay-outs as a result of 'natural' disasters to encourage them to disinvest from fossil fuel investments (Paterson 2001a), while other activists have pressured leading investment banks to screen their portfolios for large fossil fuel projects which run the risk of attracting negative publicity and diminishing shareholder value (Newell 2008c). While such strategies have, on occasion, enjoyed a limited degree of success, the question remains whether finance capital can afford to be indifferent to the fate of fossil fuel industries and their dependents. It is important not to exaggerate the autonomy of financial capital from productive capital. After all, banks and insurance companies have to have something to invest in. It is also the case that many CEOs and shareholders are rewarded with stock options, tying their fate to the fortunes of the financial markets as increasing the price of stock itself becomes an objective of the corporation (Peet et al. 2011: 21). With the structures of regulation, tax and subsidies that we currently have, fossil fuels, despite clear evidence of the environmental problems they generate, continue to be systematically privileged by state managers and therefore continue to offer highly profitable returns. This explains why, despite the efforts of oil companies to re-brand themselves, as 'Beyond Petroleum' in the case of British Petroleum, or to dissociate themselves from business organizations that are openly hostile about the case for action on climate change, they continue to invest in highly destructive but highly lucrative investments like the oil tar sands in Alberta, Canada.

Over-production of course necessitates over-consumption. One of the most indelible features of the global capitalist economy over the last forty years has been the exponential increase in mass consumption that has been achieved through advertising and marketing strategies as well as the internationalization of production and transport networks, fuelled until now by cheap and abundant energy supplies. The 'shadows of consumption' that are left behind leave a trail of destruction, however. Ecological shadows, in this sense, refer to the global patterns of harm that result not just from the direct consequences of consuming, but also from the 'environmental spill-overs from the corporate, trade, and financing chains that supply and replace consumer goods' (Dauvergne 2008: xi). The changing geographies of production and consumption mirror closely the shifting profile and intensifying nature of pollution. The simultaneous de-industrialization of wealthier countries and industrialization of poorer ones, a strategy aimed at overcoming the power of unions to insist on higher wages and creating a new international division of labour, has meant that countries such as China, India, Brazil and South Africa have seen their contributions to global problems such as climate change increase significantly. China's CO₂ emissions, which amounted to 407 million tonnes in 1980, rose to 1,665 million tonnes in 2006, while India's went from 95 million tonnes in 1980 to 411 million tonnes in the same period (Peet et al. 2011: 21). The final destination for many of the goods produced during this surge of industrialization remains the rich global North. Forty per cent of China's product is exported as is twenty per cent of India's (Peet et al. 2011: 22), raising the question of 'embedded carbon' and who is responsible for the pollution embodied in the products that flow through the veins of the global economy.

The distribution of wealth and waste generated by this frenetic intensification of economic activity has been unevenly distributed, reflecting and exacerbating existing inequalities along the lines of class, race and gender as a vast literature on environmental justice has documented in detail (Pellow and Park 2002; Newell 2005b, 2006). Whether it is toxic, plastic or the sort of e-waste (computers and the like) that end up on landfill sites in Ghana (Carmin and Agyeman 2011), global accumulation strategies enabled by trade and investment agreements create greater distance between sites of production and sites of consumption. But they also allow 'spatial fixes' (see table 2.1) (Harvey 1981) for the need to privatize gain and socialize risk and the externalities of production in sites, within and between societies, where opposition is weak and regulation either non-existent or weakly enforced. This dynamic is visible not just in relation to waste, but also through the commodification of carbon in offset markets that provide a spatial fix (and a temporal one by discounting the future) by displacing carbon reduction efforts to areas of the world where it can be achieved more cost-effectively (Bumpus and Liverman 2008). It is a function, in many ways, of the triumph of efficiency over equity as the primary organizing principle in neo-liberal environmental governance (Okereke 2010).
These, then, are just some of the ways in which capitalism's relationship to nature has evolved in a context of globalization. They suggest shifting alignments of power in the relationship between state and capital, though notably not a 'hollowing out' or 'retreat' of the state in most areas of the world, or in areas of policy of most significance to the environment, as has been claimed for other areas of policy (Strange 1996). They point rather to a reconstitution of power whereby some parts of the state have internationalized, becoming embedded within, and responding to, the preferences of a transnational capitalist class, such as ministries of trade and finance, while others have diminished in importance, such as ministries of labour grounded in social forces that have lost power and that exercise less structural influence in conditions of globalization (Skilair 2002a). They suggest a delegation of regulatory power to market actors to establish appropriate forms of labelling and certification and a strong preference for regulation for business rather than of business (Newell 2001c), one that can be traced through the history of failed and half-hearted attempts at business regulation and the simultaneous rise of trade and investment agreements that grant new powers to transnational corporations, as we will see in the chapters that follow. This is a manifestation of what Gill refers to as the 'new constitutionalism' which gives legal protection to the rights of capital over states: 'a politico-legal framework for the reconstitution of capital on a world scale' (Gill 1995b: 78–9). This occurs through the protection and privileging of investor rights in trade and investment agreements, investor arbitration panels which award compensation to corporations claiming unfair treatment, and through a widening matrix of restrictions on the scope of autonomous state action in areas that affect transnational capital. The forms of globalization described here reflect the preferences and political project of a transnational capitalist class which includes 'globalising state bureaucrats' (Breslin 2003) and powerful fractions of capital that they represent and seek to serve based in the epicentres of the world economy (van der Pijl 1998).

The landscape of power described here also reveals the ways in which strategies for responding to environmental crises have been aligned with the imperatives of capital accumulation. At the most general level this is reflected in the compromise of liberal environmentalism discussed in the last chapter (Bernstein 2001) where the norms which underpin global environmental governance come to reflect and advance those of the liberal market order of which they are part. But it goes beyond that. Whether it be the marketization of environmental governance (Newell 2008a) and the preference for market-based over so-called command and control solutions, the rise of payments for ecosystem services approaches to conservation (whereby communities are financially compensated for their protection of natural resources) or the commodification of water, forests and carbon as responses to environmental problems (where attempts are made to price their value), dominant responses serve to entrench capitalism rather than respond to the need for structural reform in advanced capitalist economies demanded by environmental crises. Problems generated by over-consumption of resources, such as fossil fuels, become an investment opportunity for entrepreneurs to buy and sell 'offsets' which allow companies and individuals to purchase emissions reduction opportunities in the developing world and claim them as part of their own emissions reductions efforts, all the while keeping existing structures of production and consumption intact. Meanwhile, water scarcity is presented as a problem produced by inefficient state institutions and a failure to incentivize conservation by allocating property rights; such that privatization becomes the obvious solution (Bakker 2010). Institutions such as the World Bank play an important role in preparing the ideological grounds for such interventions. The World Bank's 2003 World Development Report on 'Sustainable Development in a Dynamic Economy' advances the idea that the spectacular failure to tackle poverty and environmental degradation over the last decade is due to a failure of governance, 'poor implementation and not poor vision'. The report (World Bank 2003) notes, 'Those [poverty and environmental problems] that can be coordinated through markets have typically done well; those that have not fared well include many for which the market could be made to work as a coordinator.' The challenge for governments is therefore to be more welcoming of private actors through, among other things, 'a smooth evolution of property rights from communal to private' (World Bank 2003: 3.22).

Capitalism, therefore, develops through, but also shapes, nature–society relations. Foster (1999) and his co-writers (Foster et al. 2010) build on Marx's adoption of the concept of metabolism in Capital to describe the contradiction between nature and capitalism in terms of 'an irreparable rift in the interdependent process of social metabolism' (Marx 1981: 949). Marx used this concept to identify the rift brought about by agricultural and trade practices that despoil the earth without replenishing its resources which deny whole regions their natural conditions of production. Some studies have applied Marx's theory of the metabolic rift to contemporary environmental problems, such as the fertilizer treadmill, ocean acidification and climate change (Clark and York 2005; Clausen and Clark 2005; Foster and Clark 2009). This goes beyond O'Connor's (1994, 1998) conception of the
second contradiction of capitalism which argues that the expansion of capitalism depletes natural resources, which in turn increases the production costs of capital, contributing to the creation of capitalist crises. In contrast, it focuses on capital’s rupture or interruption of a natural system, considered as a socio-metabolism, rather than simply seeing the repercussions on the economy. Moore (2011a: 1) argues that the metabolic rift theory is an indispensable point of departure in building a unified theory of capitalist development – one that views the accumulation of capital, the pursuit of power, and the production of nature as differentiated moments within the singularity of historical capitalism.

From this point of view ‘capitalism does not develop upon global nature so much as it emerges through the messy and contingent relations of humans with the rest of nature’ (Moore 2011b: 111). In Moore’s terms, then, it becomes difficult to discern the boundary between capitalism, the social system and the environment. A world-ecological perspective understands seemingly discrete ‘socio-ecological projects’ such as financialization, industrialization, imperialism (old and new) and commercialization (Moore 2011b: 114) as functioning within and relative to capital as a whole. Hence, capitalism has to continuously revolutionize its accumulation processes within the web of socio-ecological life. This builds on Harvey’s (2003) ideas about accumulation through dispossession, a refinement of Marx’s original ‘primitive accumulation’, but where logic remains the same: capital has to continuously extend its powers by searching for new territories, sectors and domains which hitherto have not been incorporated into its circulation.

So far the story of globalization and its relationship to environmental governance could be told through critical International Political Economy (IPE) accounts drawing on historical materialist analysis of (global) environmental politics (Gale and M’Gonigle 2000; Levy and Newell 2005) and broader bodies of critical scholarship on globalization and capitalism which usefully draw attention to the social forces underpinning the project of globalization, understood as the deepening, intensification and re-scaling of capitalism (Gill 2002; Sklair 2002b; Robinson 2004). What is missing from such an account, however, is more detailed evidence of the social and environmental consequences of a global economy organized in this way and premised upon these relations of power. This is where I argue that work on political ecology can make a useful contribution, balancing the macro-focus of critical IPE and grounding our analysis of the ‘socio-natures’ (Castree and Braun 2001) that produce and are produced by globalization.

Which Political Ecology?

What is political ecology and how does it help us to understand the relationship between globalization and the environment? At its broadest, political ecology seeks to provide a framework for understanding human-society or ‘socio-natural’ relations (Robbins 2004). More specifically, it examines the interrelations of politics and power, structures and discourses with the environment (see table 2.2). Here I highlight those elements which offer a bridge to critical traditions within IPE and Global Environmental Politics discussed above (and in further depth in chapter 3) (Paterson 2001b; Saurin 2001; Newell 2008c): materialist political ecologies that posit linkages between economies and the ecologies of which they are a part. For example, the global political ecology that Peet, Robbins and Watts engage in ‘emphasises global political economy as a main causal theme’ (Peet et al. 2011: 23). For them:

Political ecology is predicated on an ecologically conceptualised view of politics: it is attentive to the hard edges of capitalist accumulation and global flows of labour, capital and information, but also attuned to the complex operations of power-knowledge . . . all within a system prone to political-economic crisis (Peet et al. 2011: 23).

It is a research agenda that coalesces around the impact of capitalist development on the environment, as well as its emergence through particular socio-natures. It centres both on the social and political implications of prevailing practices of environmental protection and management, and the political economy of the way ‘new natures’ are produced. Such lines of enquiry have been pursued through work on the practices of commodification of neo-liberal natures’ (Castree 2003, 2008; Budds 2004; Mansfield 2004, 2007; Bakker 2005), as well as through ‘classic’ political ecology concerns with questions of access to material and natural resources, and issues of resistance, equity and justice in the negotiation and distribution of social and environmental benefits at multiple scales (Peluso 1992; Bryant and Bailey 1997; Paulson et al. 2003; Zimmerer and Bassett 2003).

One strand of political ecology which developed in the wake of, and by way of response to, the Rio Earth summit in 1992 is that associated with the work of Wolfgang Sachs, Nicolas Hildyard, Vandana Shiva and others, which perhaps resonates most directly with the traditional preoccupations of International Relations (IR) scholars (Sachs 1993). Critical of the contents of the Rio agenda, this work provided a powerful and timely antidote to the optimism and faith placed in the institutions of global governance.
to deliver effective environmental and development outcomes. It drew attention to what went ‘unsaid at UNCED’ in terms of the neglect of the role of militarism, debt and consumption in driving environmental degradation, and the corporate actors that had secured for themselves a place at the negotiating table in deciding appropriate forms of global managerial action, while deflecting attention away from their own implication in accelerating ecological crisis (Chatterjee and Finger 1994; Thomas 1996). It was critical of ‘the aspirations of a rising eco-cracy to manage nature and regulate people worldwide ... largely devoid of any consideration of power relations, cultural authenticity and moral choice’ (Sachs 1993: xv).

But there is actually a much longer lineage of work on political ecology, which is ‘global’, less in the spatial sense of privileging global institutions as the site of enquiry and the location of politics, and more in a causal sense by exploring the ways in which particular ecologies and the social relations in which they are embedded are a product of broader social relations.

particularly class relations. Piers Blaikie’s work was particularly pioneering in this sense, combining ‘the concerns of ecology and a broadly defined political economy’ (Blaikie and Brookfield 1987: 17); studying, for example, how the nature of social erosion in Nepal could be usefully understood in relation to the global capitalist political economy (Blaikie and Brookfield 1987). Other work on metabolism, metabolic rifts (Clarke and York 2005; Burkett and Bellamy Foster 2006) mentioned above, and entropy (Altizer 2006), drawing on Marx, as well as ecology and ecological economics is also useful here for its attention to ecological and energy flows in a way which is not bound by ontologies that privilege the state or international institutions as ‘units’ of analysis. Instead, the focus is on mapping and accounting for ‘ecologically unequal exchange’ (Martinez-Alier 2007) (see table 2.1), the social roots of global environmental change (Roberts et al. 2003) or the points of tension between how ecological systems operate and how capitalism functions. Such work provides us with an invaluable account of the economic and social causes of global environmental change.

But it also affords insights into how the expansion of capitalist logics under globalization and their extension to the environmental realm has intensified conflicts over natural resources and how they are valued (Martinez-Alier 2002). Studies on resistance to extraction, commodification and privatization of resources on the part of marginalized groups reveal the specific social and site-specific ecological consequences of attempts to open up mining, forestry and water to private investors (Goldman 1998; Newell 2007a). Increasingly, attention is also being paid to the ‘local’ social and environmental consequences of market-based initiatives deriving from global environmental institutions, whether it is the Kyoto Protocol’s Clean Development Mechanism (CDM), REDD (Reducing Emissions from Deforestation and forest Degradation) or conservation efforts centred around payments for ecosystem services (Bachram 2004; Brockington and Igoe 2006; Lohmann 2006; Adams and Hutton 2007; Newell and Bumpus 2012). This complements work on the activities of key neo-liberal economic institutions such as the World Bank as well as on environmental bodies such as the Global Environment Facility (Young 2002; Goldman 2005). Because issues of access, property rights and livelihoods are affected by and enrolled in global circuits of capital, political ecology provides useful ways of identifying and tracing the social and environmental consequences of neo-liberal forms of environmental governance. This contributes to lines of enquiry aimed at understanding who wins and who loses from particular (global) environmental governance arrangements which we discuss further in the next chapter.

Table 2.2 A typology of political ecologies

<table>
<thead>
<tr>
<th>Type of political ecology</th>
<th>Focus and approach</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical political ecology</td>
<td>Focus on the relationship between knowledge and power in the production of knowledge and the construction of narratives about the environment and ‘nature’</td>
<td>Fairhead and Leach 1998; Robbins 2000; Stott and Sullivan 2000; Forsyth 2003</td>
</tr>
<tr>
<td>Feminist political ecology</td>
<td>The links between patriarchy and ecological degradation</td>
<td>Rocheau et al. 1996; Rocheau and Edmunds 1997; Shiva 1998; Schroeder 1999</td>
</tr>
<tr>
<td>Third world/first world political ecology</td>
<td>The differences between environmental politics in the so-called Third and First Worlds</td>
<td>Bryant and Bailey 1997; Bryant 1999; Martinez-Alier 2002; McCarthy 2002</td>
</tr>
<tr>
<td>(Neo)Marxist political ecology</td>
<td>The relationship between class, inequality and environmental degradation</td>
<td>Blaikie 1985; Blaikie and Brookfield 1987; O’Connor 1998; Peet et al. 2011</td>
</tr>
<tr>
<td>Urban political ecology</td>
<td>The ‘nature’ of cities, urban environments and the social relations that produce them</td>
<td>Szwedowicz and Merrifield 1996; Szwedowicz 2004; Heynen et al. 2006; Szwedowicz et al. 2006</td>
</tr>
</tbody>
</table>
Given that site- and resource-specific conflicts increasingly result from and are embedded within 'global' configurations of politics and social forces, strands of critical IPE usefully connect with 'local' political ecologies, to show how broader structures of power are reproduced and present in struggles around natural resources which often embody inequalities based on class, race or gender (Blakie 1985; Blakie and Brookfield 1987; Peet and Watts 2004). The globalizing reach of international regimes and their role in creating markets in, and determining access to, resources as crucial as water, energy and seeds means that critical accounts of global environmental governance have to widen their analysis beyond the 'international' level and beyond conventional theoretical foci to comprehend how the structures of power which shape and circumscribe 'global' environmental governance may also configure sites of resource governance at other scales. The dynamic also runs the other way. These sites, in turn, impact upon global regimes through the value they create or fail to produce as commodities to be exchanged on global markets (in the form of carbon credits, for example), or the symbolic value vested in them as examples of successful projects (that bring 'co-benefits' to communities beyond their value as a commodity), or because of the controversy generated through acts of resistance by affected communities and social movements (Newell and Bumpus 2012).

Political ecology’s focus on material, institutional and discursive practices of power complements in many ways framings of power in global environmental politics which draw on the Italian Marxist Antonio Gramsci’s understanding of hegemony (see table 2.1) to illustrate how governance arrangements reflect and often serve to globalize particular sets of material and political interests (Levy and Newell 2002; Mann 2009). As with all hegemonic projects, however, for the sorts of solutions to problems of global environmental change promoted by global institutions to maintain their ‘common sense’ status, strategies of accommodation are required to bring on board critics and make concessions to other groups in the name of preserving the power of an historic bloc. Hegemony is never complete and acts of resistance serve to re-make them, producing legitimacy crises that their advocates then have to address. We see this clearly in the way in which the governance reforms taking place both within the CDM and the standards created in voluntary carbon markets aim to tackle instances of climate fraud (such as the double-counting of carbon credits) exposed by activists, so as to contain threats to the credibility of the market as a whole (Newell and Paterson 2010). Studies within political ecology also draw attention to the ways in which globalizing projects are resisted and rejected, or ‘reworked’ into more positive local impacts. For example, how people create opportunities within the global carbon economy by ‘manoeuvring through and finding spaces at the interstices of the same political economy that in other ways simultaneously constrains and structures their agency’ (Bebbington 2003: 300).

Conclusions

Contrary to much conventional analysis discussed in chapter 1, it is suggested here that globalization is most usefully understood as a political and economic project, often incoherent and unevenly applied, but one which seeks to overcome limits to capital accumulation by opening up markets through new suites of trade and investment agreements, securing property rights for investors and constructing institutions able to lock in an integrated global economy on terms set by its most powerful actors. This produces a range of environmental as well as social challenges that require theorists and practitioners to find analytical tools and resources that allow us to make sense of what is going on, on whose behalf and with what consequences. It has been suggested here that attempting to read globalization ‘ecologically’ through the use of a diverse and eclectic set of works that falls under the umbrella of political ecology provides a useful starting point in this endeavour that complements insights gleaned from critical traditions within IPE and global environmental politics. This is so because of political ecology’s explicit attempt to link ecological concerns with political economy, because of its attention to the way in which social relations produce, as well emerge from, different ‘socio-natures’, and because of its lack of respect for the sort of analytical categories and distinctions which prevent us from capturing trans-scalar political, economic and ecological dynamics. This enables us to explain both the causes of global environmental change as well as the context in which they are being addressed by states, international institutions and a multitude of other actors trying to steer globalization in a more ecologically stable and socially responsible direction.

The next chapter moves from analysis of the relationship between globalization and the environment from the perspective of political economy and political ecology to the question of how best to understand and explain the governance of this relationship. It analyses the actors, institutions and policies that mediate the interface between globalization and the environment by looking at the political economy of global environmental governance.