

Cities, Nature and Sustainability

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1. Introduction

This chapter considers the nexus between cities, nature and sustainability. At first glance, the relationship between cities and the natural environment may sound like a peculiar nexus to focus on. Cities have long been viewed as places where nature ends and where urbanism begins, a perspective still prevalent today in many urban policy practices. Yet, cities are inhabited by a magnificent variety of flora and fauna, are built out of natural resources, produce vast quantities of pollution and effluents, contain mesmerising conduits for all manner of resource and other environmental flows, and have become central nodes in the commodification of nature (Heynen et al., 2006b; Hinchcliffe and Whatmore, 2006). What is more, under the banner of ‘urban sustainability’ cities have been pinpointed as primary places and producers of unsustainable practices, as well as being places where emerging policies and practices under the banner of urban sustainability are being constructed, targeted and at times fiercely contested.

Since the 1980s, the notions of urban sustainability have become omnipresent in academic and policy debates. The UK’s New Labour government, for instance, have positioned ‘sustainability’ as a key rhetorical cornerstone of how towns and cities will be planned, designed, managed, run and measured against in the future (Office of the Deputy Prime Minister, 2003; Communities and Local Government, 2009). In a variety of places across the Global North and in many parts of the Global South, many politicians, businesspeople, non-governmental organisation representatives, activists and others have either demanded, or claimed to be rolling out, urban sustainability. From Malmö to Vancouver, Manchester to Curitiba, discourses of sustainability are being drawn up, discussed, circulated, disputed and considered. Whilst these discourses often vary with regard to what they mean by sustainability and how this looks like in practice, they often assert a similar message: that in order to safeguard the social and ecological order of things, we need to change the ways in which we, as humans, interact with nature, and

the relations between cities and nature. In other words, we need to make really important changes to make sure nothing really changes!

In order to understand the relations between cities and nature, this chapter will begin by critically analysing the rise of urban sustainability as a political discourse and academic terrain of enquiry together with its conceptualisation of nature-cities relations. It will show that urban sustainability is wrapped up in the wider process of neoliberalisation, in which market-led economic development is prioritised over ecological or social justice (Heynen, et al., 2007). As a result, we shall argue, sustainability fails to understand or resolve the ways in which injustice and exploitation run through contemporary relations between cities and nature. The chapter will then critically explore the contributions of the environmental justice and urban political economy literatures, which foreground issues of (in)justice and (in)equality and their relationship with city-natures. In doing so, we shall show that the strength of the former approaches lies in its focus on the patterns of environmental injustice while the latter's strength is in its understanding of the way inequality is wrapped up in the process of urbanising and metabolising nature. The chapter considers how urban sustainability and environmental injustice can only be understood by examining the complex and interweaving 'extra-local' relations that constitute urban life, an issue that frequently gets overlooked in the literature. This will be done in two stages: first by demonstrating that socio-environmental inequality is not produced solely within the boundaries of a town or city, but is produced through wider and more complex processes of uneven geographical development and, second, by showing how social struggles over environmental (in)justice are often negotiated beyond the urban, operating at multiple scales and increasingly engaging in trans-local networks of support and solidarity.

2. The problematic rise of urban sustainability

It is a commonly-held belief today that cities in their present form and functioning are unsustainable. They use and abuse natural resources, they emit endless streams of pollution from car fumes to excessive food packaging, they are dependent on non-renewable fossil fuels such as oil and gas, and they are key contributors to the warming of the global climate (Blowers and Pain, 1999). Although cities in the Global North, following deindustrialisation, seldom look like the smog-infested, chimney-stacked industrial cities of previous decades – as so famously depicted in the paintings of L. S. Lowry – it is widely understood that their relationship with nature continues to be reckless and short-sighted, in turn damaging the livelihoods of humans and the ecological conditions on this planet (see Figure 1). In the cities of the Global South – including many parts of Asia where smog-infested chimney-stacked industrial cities are now a common feature – poorly-regulated industrialisation, grinding poverty, and expanding and barely inhabitable slums suggest that Global South cities too are completely unsustainable (Davis, 2007). A consensus has emerged that cities need to sever their ties with their unsustainable habits and become ‘sustainable’.

Of course, the issues of sustainability and unsustainability are not new, even if the vocabulary is relatively so. Cities have long been troubled by environmental, social and economic problems and injustices. In 1844, for instance, Friedrich Engels already lamented the deplorable sanitary and ecological conditions of the working classes in industrialising English cities (Engels, 1844 (1971)). Furthermore, since the mid-1800s the urban elite in the West have selectively challenged particular urban socio-ecological problems, such as the rise of cholera and typhoid through the construction of sewer systems; the lack of green space through the construction of urban parks; and poor air quality through the introduction of air pollution regulations (Gandy, 2004).



Figure 1: *The Lake* by L. S. Lowry (1937)

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Nevertheless, urban sustainability and the problem of ‘unsustainability’ have both risen to the fore in political and public consciousness in recent years. A core element of urban sustainability is its emphasis on the repercussions of urbanising nature *beyond* the city, marking a contrast to previous insular city-nature understandings. It also views nature as being inherently benign and harmonious, desirable and in need of recovery from our ill-advised practices. Multiple visions, blueprints and models of sustainable urbanism reflecting these beliefs have been drawn up and circulated (see, for instance, Whitehead, 2007). Redevelopment projects such as the Bo01 waterfront development in Malmö or new settlements such as Dongtan in China, have been framed as ‘best practice’ examples for other politicians and developers to imitate, praised by some for their use of renewable energy sources, low energy use and green space,

among other things. They are presented, not unproblematically, as technological advanced and ecological sensitive developments but also as catalysts for economic growth (cf. Castle, 2008; Jamison, 2008). Curitiba in Southern Brazil, meanwhile, has been widely cited and the destination of many policy holidays looking how to implement *low-costing* sustainable planning, examining its extensive and cheap to use over-ground public transportation and its recycling and litter picking reward schemes in particular (Moore, 2007).

Most blueprints of sustainable urban futures, including those of Malmö, Dongtan and Curitiba, actually envision small alterations to the current status quo. New Urbanism is further example of such status quo sustainable urbanism. Popularised in North America and in parts of Western Europe since the 1980s, its advocates bemoan post-war urban sprawl, car-orientated and heavily zoned cities and the damage these have on surrounding green fields outside the city and community spirit within the city. Their prescriptions tend to focus on design principles of compact and ‘walkable’ cities and mixed-use development (McCann, 2009; www.cnu.org). Some blueprints demand more fundamental changes in socio-environmental relations such as the increasingly popular Transition Towns movement. Its doyen, Rob Hopkins, argues in *The Transition Handbook* (2008) that communities must realign themselves now before peak oil and climate change necessitates a transition. A ‘petropolis’ is no longer viable. For Hopkins and his supporters, a transition to ‘energy descent’ where communities are more “self-reliant, and prioritis[e] the local over the imported” is urgently required (Hopkins, *ibid*: 55; see also www.transitiontowns.org; Mason and Whitehead, 2008).

Perhaps the most cited sustainability manifesto is the United Nation’s World Commission for Environment and Development (1987) report *Our Common Future* (widely known as the Brundtland Report). Three core messages from the report have received much lip-service from urban policymakers and practitioners throughout the world: first, its plea to make the three pillars of sustainability – economic development, social justice and the environment –

work together rather than in opposition; second, its belief that we should “adopt life-styles within the planet’s ecological means” (ibid: 9); and third, its definition of sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (ibid: 5). Nonetheless, as we shall see, the issue of social justice, prevalent in the Brundtland formulation, is often a peripheral issue for those drawing up or implementing urban sustainability.

The rise of urban sustainability and ‘unsustainability’ has simultaneously created, and been shaped by, an emerging sustainability industry. This industry has a myriad of bodies who, according to their rhetoric at least, ‘think’, ‘speak’ and ‘operationalise’ sustainability. Companies now selectively manufacture and market ‘sustainable’, ‘green’ or ‘organic’ products from buildings to food, provide supposedly more ‘sustainable’ energy sources, and fix and replace selected ‘unsustainable’ technologies. In addition vast numbers of ‘sustainability experts’ are involved in measuring sustainability on the one hand, and dreaming-up and promoting sustainable alternatives on the other. As Rydin (2007) has noted, numerous government agencies, academics and consultants devise and update catalogues of (often-competing) sustainability indicators, benchmarks and sustainability league tables that measure the sustainability of people, places and organisations (see, for instance, Forum for the Future, 2009). Comparing cities such as Malmö and Curitiba with other places, and extracting ‘mobile’ policy prescription, has become big business. Likewise, the numbers of ‘how-to’ sustainability guides, such as Rob Hopkins’ (2008) *The Transition Handbook* or Douglas Farr’s (2008) *Sustainable Urbanism* are growing rapidly as are on-line ‘good practice’ sustainability portals (e.g. www.sustainablecities.org.uk; www.sustainablecities.dk). Of course, it is right to be somewhat sceptical over the claims of many of these new ‘sustainable’ products, bodies, metrics and guides. Much sustainable labelling is somewhat superficial, vague and vacuous, a form of ‘green-washing’ which seeks to appeal to,

and shape the mentalities of, more environmentally-minded consumers (Jermier et al., 2006; Smith 2008).

More disconcerting, perhaps, is the neoliberalisation of sustainability and its associated inattention to social justice. Sustainability increasingly resembles the concept of ecological modernisation, a body of work which seeks to 'green capitalism' through the reduction of corporate pollution and the mobilising of more 'ecological' production techniques (Harvey, 1996). In sustainability and ecological modernisation alike, economic development is unquestionably prioritised with the issues of social justice either not mentioned or receiving only limited consideration (Baker, 2007; Keil, 2007). Concurrently, a hegemonic consensus has emerged that (neoliberal) sustainability is a 'good thing' that can be achieved and managed through technological fixes and organizational change, while maintaining economic growth, rather than being viewed as an intensely political issue over possible or desirable future socio-ecological urban trajectories. Despite the varieties of urban sustainabilities, debates are confined to how to reduce carbon emissions, what technologies to use, the mix of organisational fixes, and the urgency of the timing and the implementation (Swyngedouw, 2007). With carbon being promoted as the external planetary villain, capitalism and neoliberalisation have been let 'off-the-hook' allowing the status quo to remain more-or-less intact. Following O'Neil (1999), the opportunities for dissensus and real debate about possible and more radical futures are severely curtailed (Swyngedouw, 2007). Within the post-politization and neoliberalisation of sustainability, questions of socio-ecological justice and equality are downplayed and ignored. As Portney (2003: 158) argues, "many cities that purport to be working toward becoming more sustainable do not address the issue of inequality at all". As we shall discuss below, issues of socio-ecological injustice and inequality remain rife in towns and cities throughout the world, even in the self-styled sustainable cities (Agyeman, 2005). Access to environmental 'goods' remains starkly unequal as is the exposure to environmental 'bads'. We cannot sideline these

injustices when considering the relations between cities and nature. We shall now turn to consider two approaches that take injustice and inequality seriously: environmental justice and urban political ecology. We begin with urban environmental justice.

3. Environmental justice and injustice in the city

In towns and cities throughout North America and increasingly those in Europe and the Global South, calls for ‘environmental justice’ are being made. Self-styled environmental justice movements are being formed, protests are being organised in the name of environmental justice, disadvantaged people are taking to the streets, and governments and businesses are being lobbied. While their messages and targets vary, these groups frequently share a similar belief that environmental ‘goods’ and ‘bads’ are unequally and unfairly distributed in society, and that environmental decision-making circles are unjustly insular and difficult to influence for those who suffer the most from the uneven distribution of environmental ‘goods’ or ‘bads’.

Furthermore, as encapsulated in the motto of a London-based environmental justice NGO, Capacity Global, these groups believe that “living in a clean and healthy environment is everybody’s right” (www.capacity.org.uk). In the field of social movements and, more recently, the social sciences, the question of environmental (in)justice has become increasingly prominent.

Concerns with environmental justice (hereafter EJ) emerged in the United States in the 1970s and 1980s. The community protests against the opening of a PCB-infested landfill site in Warren County, North Carolina, a predominately black and poor area, during 1982 marked a pivotal moment in the fledgling EJ movement. As McGurty (2007) notes, although the protests were unsuccessful in stopping the opening and running of the landfill, the injustice of the Warren County landfill and the community struggle against it galvanised other communities and citizens in the USA and beyond suffering from what they saw as environmental injustice or

environmental racism to actively struggle against existing and proposed injustices. The burgeoning EJ movement would also go on to spur large volumes of academic research into environmental (in)justice in the USA, spearheaded by the academic-activist Robert Bullard (1983, 1990). This early work, with an emphasis on quantitatively mapping the spatial patterns of environmental injustice, demonstrated that hazardous waste facilities were disproportionately located and deliberately sited in disadvantage and predominately black neighbourhoods. In doing so, these studies “connected what had previously been largely isolated stories of risk into a racially identifiable pattern of injustice” (Byrne et al., 2002: 5).

EJ studies have become more empirically diverse and theoretical advanced in recent years. Recent work has focused more on environmental (in)justice beyond the USA and has revealed the social inequalities wrapped up in a variety of urban environmental issues, such as waste management, green space, water and transportation (e.g. Lucas, 2004; Sze, 2006; Buckingham and Kulcur, 2009). Research has also used the EJ framework to reveal the social inequalities that shape so-called ‘natural disasters’ such as hurricanes, floods and earthquakes across the world (Cutter, 2006; Bullard and Wright, 2009). In the words of Neil Smith (2006, n.p.), the research has shown that “there is no such thing as a natural disaster. In every phase and aspect of a disaster – causes, vulnerability, preparedness, results and response, and reconstruction – the contours of disaster and the difference between who lives and who dies is to a greater or lesser extent a social calculus”. The example of Hurricane Katrina in Box 1 demonstrates this thesis.

Box 1: New Orleans and the environmental injustice of Hurricane Katrina

On 28th August 2005, Ray Nagin, the mayor of New Orleans, ordered a mandatory evacuation of the city, upgrading his previous orders for a voluntary evacuation the previous day. On the 29th August, as predicted, Hurricane Katrina hit New Orleans and the wider Gulf Coast of the USA. Although New Orleans did not receive the full brunt of the hurricane, the accompanying storm surge breached the city's insufficient flood defences. As a result, 80 percent of the city was severely flooded, hundreds died in the city, and billions of dollars of damage was caused.

Although the hurricane and the flood were in large part biophysical processes, it was socially mitigated with the lives of the black working class – who were already disadvantaged prior to Katrina – disproportionately victimised by the events. International news reports so famously showed a largely black working class population, left behind in New Orleans on their attics and rooftops, in the Convention Center and the Superdome, to face the storm and flood with little or no food or water (see Spike Lee's (2007) documentary *When the Levees Broke*). Not only were the black and poor more vulnerable to the immediate threat of Katrina – through lack of private transportation and often low-lying and substandard housing – but they have continued to suffer disproportionately during the 'recovery' as it was more-often-than-not them who were relocated haphazardly across the USA away from family and friends, and had little or no access to personal savings or flood, household and health insurance (Bullard and Wright, 2009). What is clear from Katrina, therefore, is that the environmental injustices do not simply erupt from the onset of 'natural' disasters but are conditioned in large part by pre-existing structural inequalities.

Although early work on EJ was somewhat preoccupied with the somewhat counterproductive question of which social group – ethnic minorities or the poor – suffers most from environmental justice (for critical reviews, see Downey, 1998 and Kurtz, 2009), more recent studies have demonstrated the *multiple and intersecting axes of inequalities* that are wrapped up in EJ. Studies, for instance, have shown that gender relations are shaping, and shaped by, environmental injustice. They have demonstrated how the positioning of women as unpaid labourers in the household division of labour and the biological workings of the female body (in particular their reproductive systems) mean that they are more exposed and vulnerable to particular toxicities than men (see Knopf-Newman, 2004; Buckingham and Kulcur, 2009). Moreover, women and gender-informed issues are often curtailed or ignored within patriarchal governing institutions and EJ movements (Kurtz, 2007; Buckingham and Kulcur, 2009). Gender inequalities, as studies have shown, intersect with a number of axes of inequality based around class, race, sexuality, age and disability (to name but a few) in contingent ways to produce particular urban socio-ecological landscapes of environmental justice and injustice (Sze, 2006; Buckingham and Kulcur, 2009). Another important insight is that environmental injustice is not simply the result of *deliberately* discriminatory acts and decision-making – for instance a decision to put a toxic plant in a working class black community (Pulido, 2000; Morello-Frosch, 2002). This, as Morello-Frosch (2002: 491) reasons, has implications for how we think about environmental justice:

“Given the insidious nature of discrimination in contemporary society, intent-based theories of environmental inequality are over-simplified by limiting inquiry to the most proximate causes while overlooking the institutional mechanisms and historical and structural processes that determine distributions of environmental hazards.”

For Morello-Frosch the more subtle and structural inequalities in the housing markets, the racial division of labour and processes of economic restructuring as shaping patterns of environmental

injustice are pivotal to the workings of environmental injustice, and therefore cannot be overlooked. Pulido (2000), on a similar note, argues that institutional racism, or ‘white privilege’, is a key structural process creating these inequalities. In the words of Walker (2009), a complex and contingent mixture of factors – including those mentioned above as well as others such as access to insurance and health care – help structure the landscapes of vulnerability that toxicities and biophysical processes interact with.

At this point it is important to consider what is actually meant by ‘environment’ and ‘justice’ (with such definitional issues having received mixed attention from EJ scholars and activists). In terms of the environment, EJ activists and scholars have tended to emphasize its social relations and social production. As Dana Alston, a prominent EJ activist once said, “the issues of the environment do not stand alone by themselves. They are not narrowly defined... *The environment, for us, is where we live, where we work, and where we play*” (Alston, quoted in Whitehead, 2009: 664-665, emphasis added). In contrast to mainstream conservationist groups who seek to preserve and despoil the ‘wilderness’, EJ activists and scholars perceive the environment as deeply and unavoidably intertwined in social life.

Although environmental justice movements seem to bond around the need for justice, what justice actually means is not always so obvious. More often than not, EJ activists and scholars focus on the issue of *distributional justice*, arguing that environmental bads should not be concentrated in, or nearby, disadvantaged communities but (re)distributed more equally. However, as David Schlosberg (2003, 2007) has argued, drawing on the work of Iris Marion Young (1990), although distributional justice is key to environmental justice, other conceptions of justice are equally as important. For him, these are *procedural justice* (the desire for fairer and more democratic decision-making processes and the involvement of disadvantaged groups within this); *recognition justice* (the desire for recognition and respect for the disadvantaged communities who suffer from environmental injustice and those who participate in the EJ

movement); and the *justice of capabilities* (the desire for the production of healthy, functioning communities). Schlosberg insists that EJ scholars and activists must pay attention to all of these aspects of justice as they are all inter-linked. For instance, the justice of capabilities necessitates a political focus on distributional justice: healthy communities require some form of redistribution of 'environmental bads'. And in order to achieve distributional justice and the justice of capabilities, procedural justice and recognitional justice (i.e. inclusive policymaking, respect and recognition) are necessary.

Success, in truth, has been mixed for EJ activists and scholars. Activists have often struggled to achieve their immediate goals, more-often-than-not, of preventing particular toxicities from opening or worsening in disadvantaged communities (Cole and Foster, 2001). What is more, their victories are frequently isolated victories against a strong prevailing, discriminatory wind. Scholarly work, meanwhile, has suffered criticism that it is too often uncritical of the environmental justice movements themselves (Brulle and Pellow, 2005), that it tends to privilege distributional justice over other conceptions of justice (Lake, 1996), and that selected quantitative accounts are methodologically questionable (Bowen, 2002). Perhaps the most substantial criticism is that EJ accounts often focus on the patterns of environmental injustice (for instance, by mapping the geographies of injustice), while paying only limited attention to the often hidden processes that produce socio-environmental inequalities (Swyngedouw and Cook, 2009). We shall now turn to an approach, urban political ecology, which places emphases on structural processes in the production of city-natures.

4. Metabolising the city: Urban political ecology

Whereas the EJ literature tends to focus on the *patterns* of socio-spatial environment inequality, urban political ecology (hereafter UPE) is primarily concerned with the political-economic and

ecological processes involved in the reworking of human-non-human assemblages and the *production* of socio-environmental inequalities. UPE is a school of critical urban political-environmental research (Heynen et al., 2006b) and takes many of its bearings from the wider and more voluminous academic school of political ecology (for reviews, see Castree and Braun, 2001; Keil, 2003). Led by the seminal work of Piers Blaikie (1985; Blaikie and Blookfield, 1987), Neil Smith (1984) and, of course, David Harvey (1996) – whose notorious statement that “there is nothing unnatural about New York City” has been taken as a leitmotiv – urban political ecologists have sought to understand the social basis of urban environmental problems and conditions.

Two common misunderstandings about the relationship between society and nature have been exposed by UPE scholars. The first issue is the presumed ontological divide between nature and society that exists in popular and many academic understandings of nature/society. Political ecologists argue that nature and society do not exist independently of each other, but are intricately tangled, often to the point of blurring. To illustrate this point, there are few, if any, spaces of nature which are pristine or unaffected by human processes (think, for instance, of the global environmental effects of increasing carbon emissions). Furthermore, as Castree (2001) has demonstrated, capitalism has sought to reinvent and commodify (and, thus, socialize) more and more of what we traditionally see as ‘natural’ (e.g. seeds, organs, genes). Similarly, UPE scholars have countered the myth that towns and cities are “places where nature stops” (Hinchcliffe, 1999, p. 138), positing instead that nature has become urbanised and mobilised in the process of making and remaking cities. Drawing upon the work of Bruno Latour (1993) and Donna Haraway (1991), among others, several UPE scholars have claimed that capitalism and urbanisation are fundamentally hybrid processes through which social and bio-physical elements are assembled, entangled and transformed, and socio-natural cyborgs are produced (see Swyngedouw, 1996, 2006; Gandy, 2005). Such a lens permits grappling with the social and the

physical in non-dualistic and deeply political ways. Natures and cities are always heterogeneously constituted, the product of a dynamic assemblage of human and non-human actants in metabolic circulatory processes. Rethinking nature and society relations in this way has important implications for how we think about the *politics* of socio-environmental relations. As Castree and Braun (1998, p. 34) state:

“The crucial issue therefore, is not that of policing boundaries between “nature” and “culture” but rather, of taking responsibility for how our inevitable interventions in nature proceed – along what lines, with what consequences and to whose benefit.”

A second bone of contention for political ecologists is the Malthusian-influenced explanations of environmental degradation and resource depletion, which implicate overpopulation and poor people as the primary cause and culprits. Instead, it is argued that capitalism is responsible for these ongoing environmental atrocities. Drawing influence from Marx, scholars such as O'Connor (1996) and Henderson (2009) have shown that the ceaseless quest for surplus value compels capitalists to extract, commodify and urbanize more and more bio-physical resources. In doing so, capitalism degrades the very resources that are necessary for capitalism's reproduction and builds extraordinary landscapes of socio-ecological inequalities.

For many UPE scholars, both ‘circulation’ and ‘metabolism’ – first proposed by Karl Marx (1970 [1867]) in *Capital* – have become increasingly popular and theoretically advanced concepts through which to understand a series of interconnected, heterogeneous (human and non-human), dynamic and contested processes of continuous quantitative and qualitative transformations that re-arranges humans and non-humans in new, and often unexpected, assemblages like cities (Gandy, 2004; Swyngedouw, 2004). Metabolism is the process whereby bio-physical matters such as water, oil, pigs or whatever are transformed through the mobilisation of capital and labour in a circulatory process organized under distinct capitalist relations of production and exploitation (Swyngedouw, 2006). Metabolic circulation is the

socially-mediated process of environmental-technological transformation and trans-configuration, through which all manner of actants are mobilised, attached, collectivised, and networked.

Urbanisation, in fact, is such process of geographically-arranged socio-environmental metabolisms. Such socially-driven material processes produce extended and continuously reconfigured, intended and non-intended spatial (networked and scalar) arrangements (Heynen et al., 2006b). The urban political ecological approaches illustrate how the city and urbanisation more generally can be viewed as a process of de-territorialisation and re-territorialisation of metabolic circulatory flows, organised through social and physical conduits or networks of 'metabolic vehicles' (Virilio, 1986). These processes are infused by relations of power in which social actors strive to defend and create their own environments in a context of class, ethnic, racial and gender conflicts and struggles. As will be explored later in the chapter, circulatory metabolism is not confined to the boundaries of a city but involves a complex process of linking places, and the humans and non-humans within these places, in uneven and contingent ways. These perspectives reveal how city, nature, and social power are fused together in constantly shifting and deeply uneven power relations and injustices wrapped up in its production. They also help us think critically about the types of cities we want to inhabit in the future, the type of political struggles to engage in, and what metabolisms and circulations make up these urban utopias.

In summary, then, UPE scholars focus less on the instances of environmental (in)justice than their EJ counterparts. Rather it is the socio-ecological production of urban inequality where emphasis is placed. These approaches are by no means incompatible. Indeed, UPE can draw upon the insights provided by EJ studies of the experiences and patterns of environmental injustice to highlight empirically the inequality produced through urban metabolism.

5. Networks, scales and the political ecology of the city

This section will move the debates further on by considering the *geographies* of the cities-nature nexus. In particular, it will critically examine the contention that environmental (in)justice and urban (un)sustainability can be understood through sole reference to the processes operating within the city. Echoing the work of urban political ecologists (see Heynen, et al., 2006a) and the work of Doreen Massey (1993, 2004, 2007), we reason that such a view is untenable. As Massey has argued, cities should be thought of as being porous, open and constituted in large part through their positions in wider power geometries. Cities cannot be understood by their internal characteristics alone but by their social and ecological relations which stretch beyond the city. Although at particular times, people, materials, energy and information and so on are territorialised or ‘moored’ in one or a small number of places, many such ‘actants’ move beyond, and operate across, the boundaries of a particular city (Swyngedouw and Kaika, 2000; McCann and Ward, forthcoming). Indeed, the processes that bring about urban (un)sustainability and environmental (in)justice are rarely, if ever, produced, circulated, mediated and consumed in one place. To take one example, when EJ activists campaigned against a maquiladora lead smelting plant in Tijuana (Northern Mexico), which was dumping lead slag and heavy metals on-site poisoning workers and the water supplies for nearby residents and subsequently abandoned the site in 1994 without remediation (Carruthers, 2008), they could not simply attribute blame to those working in the factory or the local authorities. For it was a San Diego-based company that owned and abandoned the plant, it was the Mexican government that drafted minimal environmental and safety regulations and failed to enforce these, it was pre-NAFTA agreements between the governments of Mexico and the United States that helped establish the maquiladoras, and so on. What is more, such an instance of environmental injustice cannot be understood independently of the geographies of capitalist uneven socio-ecological development, a global process that thrives on global inequalities, ensures an endless quest for surplus value by

capitalists, and necessitates others to compete to earn a wage. The example of Tijuana plant shows that we should not be thinking about the political ecology *in* the city, but a political ecology *of* the city.

In the metabolism of the city, it is not always easy to see the somewhat hidden exploitative social relations that are wrapped up in this, not least because of the widespread fetishisation of commodities under capitalism (Swyngedouw 2006). This remains the case in self-styled 'sustainable' cities, whose production, we argue, frequently involves the shadowy exploitation of people and ecologies inside and outside of the city as well as the conscious or unconscious mobilisation of resources and the production of environmental 'problems' elsewhere. Think, for instance, of recycling. Many urban governance institutions cite the recycling of household goods from bottles to newspapers (and, to a lesser extent, business waste) to be a linchpin of their environmental sustainability agenda. However, their rhetoric rarely tell us about who is doing the recycling, where this recycling is taking place, or the working practices, conditions and uneven power relations involved in it. Looking at the recycling of computers, for example, David Pellow (2007) has demonstrated that this business often involves hidden, trans-national exploitation. Computers are shipped illegally to China, India, Nigeria and other Global South nations where they are either dumped or, more likely, disassembled by labourers by hand in unsafe working conditions for scant wages. Indeed, he estimates that approximately 80 percent of the computers collected for recycling in the United States are exported to Asia. Although jobs can be created, profits can be made and re-usable resources can be salvaged in computer recycling plants, the health of the workers and the environmental conditions are always at risk from toxic substances in the computers such as mercury, lead, beryllium and cadmium. Another example of the transportation of socio-ecological problems elsewhere is the international ship-breaking industry in which vessels largely from Global North ports are transferred to ports in poor nations, noticeably Bangladesh, India and Pakistan, to be dismantled

in hazardous conditions and its parts recycled and sold onto other businesses. Box 2 details the socio-ecological injustices and global networks involved in these through a case study of the ship-breaking yards in Chittagong, Bangladesh. The examples of e-waste and ship-breaking demonstrate that the people and environments of the Global South frequently suffer at the expense of the profit-orientated ‘sustainability here, exploitation elsewhere’ strategies by capitalist firms and governments in the Global North. Furthermore, these case studies show that due to the processes of capitalist uneven development, racism and patriarchy, labourers and communities in the Global South are, in the words of one EJ activist, Jim Puckett, left “with an untenable choice between poverty and poison” (quoted in Pellow, 2007: 191).

Box 2: Ship-breaking in and beyond Chittagong

On the beaches north of Chittagong, the second largest city in Bangladesh, ships are dying. They are being stripped down by the labour force of local businesses using simple tools such as blowtorches and winches. The ships’ materials such as fire extinguishers, refrigerators, cables, lifeboats, foam, water hoses and (most important of all) steel are being removed and sold on to businesses in and beyond Chittagong (Buerk, 2006). Although ship-breaking can bring jobs, capital and resources to the area, it does so through the exploitation of labour. The labourers – most of whom are recruited from the poverty-stricken rural villages in North Bangladesh – work long hours outdoors, for very little money, with little or no protective clothing, footwear or safety training. The workers are potentially exposed to poisonous substances (e.g. asbestos, mercury), falling objects, sheets of steel cutting into their skin, and explosions and fires when blowtorches react with oil residues. Since the emergence of the ship-breaking yards in the 1970s, reports have estimated hundreds of deaths in the yards and thousands of workers sustaining severe injuries (e.g. limb-loss, burns) and illnesses (e.g. tuberculosis, skin diseases) as a result of working in the yards (see, for instance, International Federation for Human Rights, 2002).

Compounding this, workers often continue to work with such illnesses and injuries as there is no sick pay and they fear being dismissed (Buerk, 2006).

Ship-breaking in Chittagong is part of a global process whereby ships owned by companies in the Global North, particularly Europe, are broken up in poor countries, notably Bangladesh, India and Pakistan. Blaming 'excessive' regulations and high costs, merchants seldom use the dry docks in Western Europe for ship-breaking, preferring instead to sell 'end-of-life' ships onto businesses who use the 'regulation-light' yards and their cheap labour force in places such as Chittagong. Although the transfer of ships from countries with 'environmentally sound' disposal facilities to countries such as Bangladesh who lack such facilities contravenes the 1989 Basel Convention, many merchants continue to circumvent such laws and allegations of bribery are frequently voiced (Sonak et al., 2008). The growth of the industry has been perversely backed up by the Bangladeshi government's unwillingness to strongly regulate these yards or improve labour standards for fear of losing inward investment and cheap steel imports. The widespread poverty in Bangladesh, especially in its rural Northern villages – itself the result of capitalist uneven development, British imperialism and a retreat from a malign form of socialism – has left the villagers with few options other than to work in such yards.

With good reason, studies of environmental justice movements (EJMs) and, to a lesser extent, urban sustainability movements (USMs) have emphasized the contingent extra-local spatial relations of such movements. They have shown that these movements' abilities to act and the contexts in which they act are conditioned in part by actors, institutions and processes operating at scales and places elsewhere. In addition, the organisational operations and 'repertoires of actions' of USMs and EJMs frequently go beyond the boundaries of particular communities and cities. In many instances, such extra-local engagement reflects a desire to influence the public and private institutions directly and indirectly responsible for

‘unsustainability’ or environmental injustice who are frequently located or headquartered elsewhere. As Kurtz (2002) argues, EJM and USMs often attempt to ‘jump scale’ in order to influence institutions such as national government departments and international organisations situated at other scales in order to further their campaigns. More horizontally, Bulkeley (2005) has shown that since the early 1980s, in the Global North in particular, Transnational Municipal Networks (TMNs) such as the Cities for Climate Change Project have emerged forming ‘new political spaces’ for engaging localities in resource sharing activities and joint policy initiatives. Concurrently, incidents of joint campaigns and the sharing of resources between EJMs have grown substantially in the last decade or so. Carruthers (2008), for instance, shows how the struggle against the aforementioned lead smelting plant in Tijuana involved a variety of Mexican and American EJ, human rights and labour movements and coalitions working alongside and in cooperation with each other. These movements and alliances have been underpinned by a number of beliefs, notably that environmental injustice rarely operates in one locality alone and therefore needs trans-local struggles, resource-sharing and networks of solidarity. Such alliances, it is also believed, help reduce the risk that ‘environmental bads’ that have been successfully ‘fought off’ by EJMs in one place will be displaced into a partner EJM’s locality. Together with the growing numbers of formal and informal trans-boundary co-operations, trans-national EJMs such as the Basel Action Network and the Global Alliance for Incinerator Alternatives have formed, not least in the hope of operating at a similar scale to where the mechanisms that organised and sustain these injustices themselves are (re-)produced. For Faber (2005: 44), these new trans-national EJMs mark a significant departure from the 1980s in the United States where “largely separate movements were organizationally isolated or loosely connected to one another and engaged in primarily locally based battles for environmental justice.” Nonetheless, it must be remembered that comparatively isolated EJMs continue to exist and while the trans-national movements appear to be about cooperation and solidarity, we cannot overlook the reality that

uneven power relations are inevitable and, as with other political movements, there is always the likelihood of disputes, splits and unproductive cooperation (Routledge, 2007). On a final note, the practices of ‘creative destruction’ involved in forms of trans-boundary movements are also important, despite receiving little scholarly attention. It is necessary for further work to consider whether such trans-border EJMs transcends a parochial politics of place by developing more universal and transcendent concepts of, and strategies towards, justice and equality (echoing David Harvey’s (1996) conception of ‘militant particularism’), or whether these movements sacrifice *necessary* localised requirements and beliefs of communities in particular places. It is vitally important, therefore, for academics and activists alike to continually (re)consider the socio-spatial and political strategies through which socio-environmental justice can be achieved.

6. Conclusion

Issues of injustice, inequality, exclusion and exploitation are central to the nexus of cities and nature. As this chapter has sought to demonstrate, we cannot understand city-nature relations without considering the uneven power relations that are wrapped up in the making and re-making of the urban environment. The lens of urban sustainability, although popular and arguably hegemonic, is unable to fully grasp the social aspects of city-nature relations. Its ecologically-modernised, narrow focus on economic development through environmental sustainability fundamentally downplays politics, social struggles and the plurality of natures in the city. An urban political ecology-inspired focus on the metabolised reworking of human-non-human assemblages and the inequalities infused within this is necessary, alongside the careful consideration of the spatial-temporal class-based, racialised and gendered patterns of environmental injustice. Such a synergy of the environmental justice and urban political ecology perspectives would provide a fruitful platform for exciting and nuanced understandings of the processes and patterns we have begun to explore in this chapter. Of course, these city-nature

relations cannot be seen to operate solely within the boundaries of the city. We must not fetishize the urban, but look to the stretching and mooring of socio-nature assemblages and relations beyond the city boundaries to other places and scales. Not only does this alert us to the new cross-boundary networks of sustainability bodies and environmental justice movements, it also opens us up to the notion that the production of sustainable communities (for some) is potentially predicated on the exploitation of others in and beyond the city.

A critical eye when examining existing and proposed socio-environmental practices and policies is necessary if we are to understand and remove such injustices. As we have shown, such a view is particularly necessary when policymakers, businesspeople and others herald their communities, cities or organisations to be leading the pathway to sustainability. Visions and practices of (un)sustainability and environmental (in)justice are constantly being re-imagined, revised and invented, often with a new-and-improved 'green' veneer, and we cannot simply assume that they are more sustainable and just because they are new(er) or because their rhetoric claims them to be. Furthermore, researchers and students must use their critical evaluations to inform utopian ideas about what types of urban environments we want to be part of, and how we relate to other peoples and ecologies not just in our town or city but in places elsewhere – for instance, the places that our towns or cities are competing against for investment, places we see on the news, places the resources we use are extracted from, assembled in or disposed of in, or the places we eerily hear little about.

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Web-resources

Social Polis (www.socialpolis.eu). This is the website of a European Commission funded research project examining social cohesion in European cities. The Urban Ecology and Environment section hosts numerous documents on the nexus of cities, social cohesion and the environment.

Sustainable Cities (www.sustainablecities.org.uk). This website is run by the UK Commission for Architecture and Built Environment (CABE) featuring 'good practice' on how to plan, design and manage sustainable cities.

Capacity Global (www.capacity.gov.uk). This is the website of Capacity Global, an emerging London-based Environmental Justice NGO.

Environmental Justice Research and Resources (www.geography.lancs.ac.uk/envjustice). This is an educational resource portal on environmental justice maintained by Gordon Walker at Lancaster University.

Basel Action Network (www.ban.org). This is the website of the NGO Basel Action Network who seek to monitor the international trade in international toxic waste (notably e-waste and ship-breaking).