Unsustainable Urbanism? Climate Change and Resource Depletion: A Liverpool Case Study

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Unsustainable urbanism? Cities, climate change and resource depletion: a Liverpool case study

Abstract

This paper brings together geographical debates about how responses to climate change and to the depletion of ecosystem resources can be balanced with the need to ensure that our cities are vibrant, inclusive and economically successful places in. The paper uses Liverpool, UK as prism through which to review changing conceptualisations about how to make vibrant cities, bringing together a review of the city's recent past with a discussion of contemporary discussions about how the city could move to a low carbon future under which CO_2-equivalent emissions are 80% lower than today by 2050. A key issue is to explore the *unsustainability* of current accepted paradigms for local economic development, and, in this context, to examine how behaviour and practices at one time seen as normal might be seen as pathological by future generations as conceptions of what is seen as 'acceptable' and 'humane' change.

Introduction

Liverpool is one of the UK's few cities with a global recognition. As its history has tracked rises and falls in the global economy it is a good city to use as a prism through which to review debates about how the economic success of cities has been conceptualised over time. Many cities are attempting to grapple with emerging discourses of addressing climate change at a local level, and there is consequently a large literature on cities and sustainability, broadly conceived (Satterthwaite 1997; Bulkeley and Betsill 2003; Kousky and Schneider 2003; Krueger and Gibbs 2007; Haberle and Opp 2008; Bicknell, Dodman et al. 2009).   In this paper, rather than

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exhaustedly review this literature, I examine new understandings of the dangers to the survival of humanity and its wider ecosystem to ask if the growth-based paradigm based on global free trade has any future through a discussion of contemporary debates about local economic development in Liverpool. Given Liverpool's brand recognition, readers from other places are more likely to find these debates of interest than would be the case for less globally renowned cities. The data for the paper comes from an engagement with local policy makers in Liverpool on an ESRC-funded Knowledge Exchange Project "Building the low carbon economy on Merseyside"[1] which has explored what a low carbon agenda for a Northern English city might look like.

In the paper I also ask a perhaps mischievous question. At the turn of the nineteenth century, some Liverpool elites argued that the abolition of the trade in human beings would mean the death of a city that had grown wealthy from the profits of slavery and the development of what we now know of as mercantile capitalism. We now see that argument as repugnant and laughable. Might future generations, having to live with the consequences of our actions now, see the unsustainable growth based capitalism that is often unchallenged in conceptions of urban futures in the same light?

Liverpool's 'geographies of responsibility'

Liverpool's eighteenth and nineteenth century wealth was founded on one of the planet's great injustices, the transatlantic slave trade. Between 1750 and 1780 almost three-quarters of the British slave trade was financed by Liverpool merchants, and some 5000 slaving voyages left Liverpool between 1700 and the abolition of the trade in 1807 (Longmore 2007:132). Enslaving and trafficking human beings for profit was seen as legal, right and proper, and supported by most of the politicians, clergy and right thinking people of the time (Dicky Sam 1884).   The city eclipsed Glasgow and Bristol as centres of this pernicious trade (Rediker 2007:50).

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[1] Reference RES-185-31-0113. The project is a collaboration between the University of Liverpool, Liverpool Vision, Liverpool Chamber of Commerce and Industry, and Groundwork Merseyside. The views expressed in this paper are the author's own.

Talk in the nineteenth century was not of Liverpudlian 'scallies', but of Manchester Men and Liverpool *Gentlemen.* Liverpool was the centre from which the globalisation of its time was rolled out, much as in our day it has been rolled out from the current global heartlands (Peck and Tickell 2002). Even though Manchester was the city in which the ideology of free trade was developed (Peck and Ward 2002), Liverpool's merchants felt themselves far superior to that city's industrialists, and they erected buildings such as St Georges Hall, the Picton Reading Rooms and the Walker Art Gallery outside Lime Street station to reflect the city's importance. Consequently, Liverpool's commercial centre and waterfront has UNESCO World Heritage status.

While a minority, including the city's own anti-slavery campaigner William Roscoe, argued passionately against the slave trade and organised a consumer boycott of sugar as a product made in exploitative and oppressive working conditions, other Liverpool merchants argued that the city's economy would be catastrophically hit by the ending of the forced trafficking of human beings for profit. "Thousands of industrious honest Artificers, will thereby be reduced to a most distressing situation, perhaps to be sent forth solitary Wanders into the World, to seek Employment in Foreign Climes", they argued (Hague 2007:175).   If Liverpool didn't engage in this trade then someone else – probably the French – would. Yes, there are abuses and they need to be addressed, but stories about the poor conditions the slaves lived and worked under were often overblown. Slaves were happier, better treated and better fed that the residents of the city's slums, they argued. Any seaman maltreating slave would be flogged for damaging valuable property.

In other words, the elites of Liverpool engaged in an exploitative accumulation strategy that failed to recognise or live up to its geographies of responsibility (Massey 2004) to distant others. Worse, Liverpool's commercial elite was more focused on looking outward, speculating in world markets and commodities through exchange rather than on investing in the health and productivity of it local working class. In Manchester, wealth came from workers in local factories, who needed to be housed, educated and kept healthy. Liverpool's wealth came from slaves overseas. No factory-owning elite with a commitment to

place emerged, and this had important consequences for the future health of the city's economy.

Liverpool rhythms

Working on the docks provided insecure and informal employment that did not run to the rhythm of the factory hooter, but to that of the tide, and the need to get unload ships in port as quickly as possible. Dockers would be taken on as needed, worked hard until the job was done (sometimes informally taking a share of the goods in the hold as part of their compensation), before repairing to the pubs of Scotland Road to consume the proceeds of their labour. Later, seamen on the transatlantic liners, known locally as the 'Cunard Yanks', would bring back the consumer durables and rock and roll music that forged Merseybeat in the 1960s, making sure that when they rejoined their boats for the next transatlantic trip it would be with empty pockets and a full belly. Local author and trade unionist Steve Higginson argues that this is something to be treasured about the city: scousers, he argues, made their living in ways that suited them, not the authorities, and worked to rhythms more connected to their personal preferences and to the tides than to capitalist clock time and set, predictable hours of the Fordist factories of Manchester (Higginson and Wailey 2006). Liverpudlian workers objected to the discipline of the factory, and gained a reputation for militancy, criminality and ungovernability as a result (Boland 2008). They believed they lived by their wits: but a creative energy also emerged from the city and found its voice in music, comedy and the arts.

How Liverpool 'got its mojo back'

The twentieth century was less kind to Liverpool. The decline of the importance of British Empire trade in comparison with that with the European Union, containerisation, and the replacement of liners by jets seemingly left Liverpool marooned on the wrong side of the country. The city seemed to have lost its global economic golden egg. In the 1980s' Liverpool felt abandoned, scapegoated, and condemned as uncontrollable. Its residents consequently voted for fighters, and the city's Militant-led council briefly but successfully battled central government for more resources (Parkinson 1985; Taafe and Mulhearn 1988). By the

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early 1990s, though, the Militant Council had gained a reputation as a political machine, and the Liberal Democrats replaced Labour in the city hall. Although a bitter dock strike in 1996 generated sympathy and solidarity from around the world, the Liverpool Dockers were unable to turn the tide of dock job losses (Castree 2000).

The new Lib Dem administration believed that the city had an image problem. In an effort to counter this, after perhaps thirty years of neglect, in 2003 Liverpool won the designation 'European Capital of Culture 2008. The decision was met with a widespread welcome in the city. The local newspaper the *Echo* predicted that 12000 jobs would be created in a boom that would last a decade. The city council's Chief Executive David Henshaw expressed himself thus:

> "It's like Liverpool winning the Champions' League, Everton winning the Double and the Beatles reforming all on the same day – and Steven Spielberg coming to make a Hollywood blockbuster about it."

The city seemed, at last, to have embraced the consensus in thinking about local economic development: the 'entrepreneurial' approach which focuses on marketing the city to overseas investors and visitors (Hall and Hubbard 1998), improving the local infrastructure, developing the local economy's specific advantage within the global division of labour (in the UK, the 'knowledge' economy), and focussing on culture as the new driver for growth (Florida 2004; Garcia 2004; Miles and Paddison 2005).

Liverpool's year as Capital of Culture was, in its own terms, a success (Garcia, Melville et al. 2010). The culture company claims that 15 million tourists visited the city during 2008, spending £800 million to enjoy its cultural offering[2]. Highlights of the year included a launch party on St Georges Plateau, a Klimt exhibition in the Tate Gallery, street art including the famous Liverpool Lambananas, and the visit of 'La Princesse', a fifty foot-tall mechanical spider exploring the city's streets. The culture year boosted Liverpool's image (Melville, Selby et al. 2007), and the city seems well prepared to follow other similarly image-challenged cities like Glasgow in reinventing itself (Boyle and Hughes 1994; Garcia 2004). The 'Liverpool One' regional shopping centre, riverside skyscrapers, the Echo Arena and BT Convention Centre, and a new

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[2] See Http://www.liverpool08.com/Images/End%20of%20Year%2008%20brochure% 20COMPLETE%20FINAL_tcm146-147580.pdf

liner terminal seemed to show that the city could win four billion pounds worth of private sector development. The city seemed to have turned a corner. Liverpool now understood the need to manage its international image and to use culture as a driver for economic regeneration (Jones and Wilks-Heeg 2004).

Of course, severe problems remained. There have been persistent concerns about the extent that culture-led regeneration can benefit areas of entrenched social exclusion (MacLeod 2002; Mooney 2004), an issue that gained prominence after the global economic crisis that broke out after the culture year. Many from the city's poorer districts felt that neither the Capital of Culture programme nor Liverpool One had much for them: their fate would be to be surveilled, controlled, categorised as part of unruly Liverpool not welcome at culture events or in Liverpool One (Coleman and Sim 2000). The taken-for-granted, growth-based approach to regeneration has been accused of exacerbating inequalities by meeting the needs of a small, already quite privileged section of the economy (Jones and Wilks-Heeg 2004; Mooney 2004; Peck 2005).   Other critics have damned the 'entrepreneurial' approach as a diversion, creating vacuous discourses of place that amount to little more than marketing slogans rather than hard economic activity that enables working people to achieve a comfortable standard of living (Lovering 1995; Harvey 2001a, b). Proponents of culture-led regeneration respond that while there are still problems of deeply engrained poverty (Boyle and Hughes 1994; Mooney and Danson 1997; Coleman and Sim 2000; MacLeod 2002), strong growth will enable those currently excluded to join the new prosperity. They do not find other conceptualisations of economic development credible, especially when Liverpool's experiences with the confrontational tactics of the Militant-led council are contrasted with observable city centre development.

The second set of concerns centred on the carbon intensity of a strategy built on encouraging visitors to fly to the city and then partake of its cultural offering. In the follow up from the 1992 Rio summit many cities had engaged in Local Agenda 21 processes which involved citizens and community groups in the development of strategies for sustainable development. In Liverpool, LA 21 was little more than an exhortation for residents to recycle more. The 'real' economic development strategy saw Liverpool as a lagging city that needed growth. Planners would put few, if any,

environmental restrictions on anyone bringing what they saw as much needed jobs to the city. Liverpool needed a step change in its growth trajectory if it was to catch up with other cities in the UK. Sustainable development was for wealthy places. The sustainability of the new culture-based growth paradigm was consequently unexamined.

Green, Global Liverpool: Securing the city's accumulation strategy

In its Economic Review of 2009[3], The Mersey Partnership (TMP – the city-region's sub-regional economic development partnership) argued that the Capital of Culture year *had* generated the sort after step change in the city's performance, and the local economy had not been as badly hit by the global downturn as had been feared. The numbers were going in the right direction: gross value added (GVA), business formation rates and skills levels were going up, but – as had been feared – so had those of other UK cities. Liverpool had not closed the prosperity gap between it and other Northern English cities, and maintained a strong reliance on public sector employment.

After the Capital of Culture year, TMP argued that the city needed to develop a new strategy for securing its future. It proposed a four-pronged strategy:

- *The visitor economy* – building on the reinvention of the city's image.
- *The knowledge economy* – growing businesses and employment focused on knowledge.
- *The Super Port* – arguing that the global shipping industry is likely to be composed of a small number of global companies with fewer, much larger ships, Super Port concept brings together the airport, the docks and a new logistic infrastructure to capitalise on these developments
- *The Low Carbon Economy* – developing a new Environment Technology Sector to generate technological responses to climate change, and to capitalise on the city's wind and tidal resources. Liverpool is seen as a future net energy exporter once wind farms in Liverpool bay are constructed, and renewable energy is generated in the Mersey.

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[3] http://www.merseyside.org.uk/dbimgs/MER_REPORT2009.pdf

Seemingly, then, the low carbon economy had been embraced. After the Capital of Culture's success, the city could have sought the next 'fix' – the next big event. It didn't. Rather it sought a more balanced approach with the visitor economy as one of four strategic drivers alongside the development of the low carbon economy. Later in the year, the North West's Regional Strategy for the twenty years after 2010[4] was put out to consultation. Here, capitalising on opportunities from a low carbon economy and addressing climate change was even more prominent, forming the first of four strategic drivers. On the face of it, the city region had embraced sustainable development. Had it? Can growth through culture-led regeneration and the development of a knowledge economy easily be reconciled with the need to avoid dangerous climate change?

Unsustainable?

Observing debates in the city as the new agenda was discussed, it quickly became clearer that this optimistic analysis lacked credibility. At a basic level, there was no change from conventional conceptions of local economic development. Cities specialise globally, and Liverpool should continue to focus on knowledge production as there is no point in competing on manufacture as low cost economies will obviously have a competitive advantage. The city's culture is a resource that should be commodified and marketed. Local elites argued that the city is now seen as thriving, vibrant, and creative, rather than unruly, poor and crime ridden. It should continue its global outlook through investment in the port and airport. Environmental technology industries will generate new jobs and more economic value *and* protect the environment. A geographical position that made Liverpool wealthy in the nineteenth century and seemingly redundant in the late twentieth century would again make it a twenty first century renewable energy giant as wind farms are built in the Irish Sea and a barrage generates power from the Mersey's tides. Elites argued that the Stern Report (2007) showed that there is no trade off between generating wealth and protecting the environment. The environment will generate new jobs and more value. If it doesn't the city should do something else.

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[4] http://www.nwregionalstrategy.com/

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In other words, Liverpool's economic development establishment proposed a strategy that combined wealth creation through cultural and knowledge strategies with 'ecological modernisation' (While, Jonas et al. 2004; Gibbs 2007). No longer the 'city of missed opportunities' (Parkinson and Bianchini 1993), it now was following conventional wisdom.

A more critical reading is possible. It is quite understandable that the city's elites, like their forebears, can take some credit for their contribution to the city's prosperity through the successful delivery of the culture year. The city's image *had* been changed for the better, and parts of the city centre were noticeably more prosperous than before. It is understandable, but not good enough if this prosperity is uneven and built on foundations that ignore the needs of distant others who manufacture the goods the city consumes in exploitative conditions. It is also not good enough if it ignores distant others who will have to bear the brunt of the climate change and resource depletion will result from continued growth in Northern cities[5]. The city's economic strategy needs to be examined in the light of climate change.

Avoiding 'dangerous' climate change (a negotiable term that means avoiding temperature changes of more than around 2°c) requires cuts of 80% in carbon emissions quickly by 2050. To promote this the UK Government has enacted a Climate Change Act that legislates for year-on-year reductions in greenhouse gas emissions, and developed a UK Low Carbon Transition Plan (DECC 2008). Local Authorities have been given four key targets to address climate change. For many analysts, cutting 80% of the carbon currently emitted in a world constrained by the capacity of its ecosystem to supply the resources the economy needs to generate livelihoods for a growing global population that assets a 'right to development' (Baer, Atanasiou et al. 2007) and absorb its waste products requires a fundamental restructuring of economies. Local economic development strategies focussed uncritically on growth will cut against this commitment. Unless they make an explicit contribution to a reduction in carbon emissions and to the depletion of the planets

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[5] This analysis puts to one side the damage that has resulted from the carbon emitted by the city during the two hundred years of the mercantile capitalism celebrated in the city's UNESCO status.

ecosystems they are, in fact, *unsustainable* policies (Blühdorn 2007; NEF 2007). How does Liverpool's thoroughly conventional local economic development strategy stack up against these criteria, and what lessons can be identified for other places?

First, Liverpool's strategy is not conceptualised as a low carbon strategy. It is an accumulation strategy that aims to generate value and employment in low carbon ways. Growth, competitiveness and efficiency are still the objective, as they are elsewhere in cities and regions that have adopted a strategies focussed on ecological modernisation (Gibbs 2000; Kiel and Desfor 2003; Slocum 2004). If the low carbon economy does not generate jobs, businesses and growth, then the city will abandon it as an objective. Some voices even argued that as an economically lagging city, Liverpool should have 'some leeway' with regards to low carbon strategies. Like a less developed nation, Liverpool's emissions should be allowed to rise until it had caught up with leading cities.

For Liverpool's economic development elite, growth is all. Alternative measures of progress such as happiness or sustainable wellbeing indexes are not considered to be serious alternatives to GVA. The strategy does not attempt to change consumption patterns, reduce emissions, waste or levels of resource consumption at all. It assumes that the necessary resources for continued growth will continue to be available, and that wastes and emissions can continue to be absorbed by the ecosystem indefinitely. Theorists who argue for radical cuts in resource consumption and limits to growth (Meadows 1974; Daly 1996; Wackernagel and Rees 1996; Meadows, Randers et al. 2005) would have fundamental objections to the attachment to growth. The strategy is located firmly in arguments for the reform of capitalism as the hegemonic economic paradigm and deployment of market-based strategies for sustainable development (Porritt 2005; Stern 2007; Friedman 2008; Walker and King 2008; Stern 2009).

Liverpool's strategy assumes, following Stern and against eco-socialist perspectives, that there is no fundamental trade off between growth and saving the planet. If this is a justifiable assumption, then the strategy is sound. But if growth and reducing emissions do not go hand in hand so neatly and the bleak environmental scenarios for a hotter world depicted in the climate change literature come to pass (Broecker 1987; Diamond 2006; Lovelock 2006; Kerr 2007; Lynas 2007;

Pearce 2007) then today's elites are acting much as their forebears did in maximising their wealth in ways that ignore the needs of distant others who later regard their actions as unacceptable. Giddens (2009) and Hulme (2009) argue that this is the fundamental challenge of climate change: how should we act in the light of distant problems affecting others?

Secondly, the strategy is resolutely technologically optimistic, regarding new environmental technologies as both the solution to problems associated with climate change and the generators of new jobs and value. Certainly fears of impending apocalypse and resource crunches have regularly been augured, but few arrive. From Malthus's erroneous predictions of mass poverty that ignored the role of technology and consumption patterns in stretching 'limits to growth' (Harvey 1974/2001) through to the expected population bomb of the 1970s (Paddock and Paddock 1968; Ehrlich 1971) technological innovation has challenged fundamentalist conceptions of set ecological limits, and redefined what resources are. For example, before the invention of the internal combustion engine oil was not really seen as a resource at all (Cole, Freeman et al. 1973). We also need to pay attention to the amount of and nature of consumption practices, which might well be within the capacity of the ecosystem to provide the necessary resources for that consumption, and manage its wastes (Satterthwaite 2009). We cannot know what technologies the future might generate, and many technologies currently under development will make a major contribution to addressing climate change and resource constraints (Monbiot 2006; Brown 2008a; Brown 2008b; Goodall 2008). In an important article, Pacala and Socolow (2004) argue that existing and emerging technologies should be able, between them, to reduce global carbons emissions if the totality were seen as a series of wedges that can be addressed individually: small cuts cumulatively add up.

But the extent that technological solutions will emerge quickly enough and in sufficient quantities with the capacity to limit dangerous climate change while maintaining current levels of economic development is, to put it mildly, open to question. Technologies need to be developed and deployed. Given that we have long had the capacity, if not the will, to solve many current problems such as poverty and disease, we perhaps should be wary of any assumption that an economic system that stresses short-term growth and profit maximisation can uncritically be assumed

to be capable of resolving the issue so neatly. Can we assume that there can be easy technological fixes that will allow Northern consumption practices to continue?   Are some current practices, like flying to citybreaks, fundamentally *unsustainable*, and no technology likely to become available in time to avoid dangerous climate change could change this?

There is also doubt about the extent that the support infrastructure to re-engineer business practices as part of the transition to a low carbon economy on the scale of previous energy transitions (for example, the transition from coal to electricity itself) is in place. Should carbon reduction just be left to the market, to regulation, or to energy suppliers? Or should energy transitions be an intentional process of economic development, with businesses proactively helped to eliminate carbon from their processes? This is not just an issue for Liverpool (Parker, Redmond et al. 2009).

Thirdly, we cannot assume that environmental technologies will automatically provide jobs for socially excluded citizens. It is not at all clear that the city contains a strong enough economic development infrastructure to facilitate the emergence of new green SMEs. If new businesses are created, the extent that they will produce high employment levels is an assumption: the sector may be comprised of technologically-intensive enterprises that generate few jobs. Another untested assumption is that socially excluded citizens with few skills will either believe that they are capable of accessing this work, or capable in practice of accessing them. Employment in these sectors might certainly mean that graduates find employment, thus enabling the city to continue to benefit from the wealth they create. But this will perpetuate an unequal city in which the currently excluded continue to have no place.

The strategy of focussing on high technology sectors can be contrasted with other, more socially inclusive approaches like a Green New Deal (NEF 2008; Green Jobs Initiative 2009; Lambert 2009).   This approach suggests that the emphasis should be on retrofitting existing buildings to limit the costs of heating them, investing in public transport to cut car use, and promoting local manufacture and distribution, local food production and local renewable power generation.   The potential contrition of linking climate change policies to social inclusion strategies,

perhaps through strengthening the third sector, social enterprises and lifestyle to deliver these services, is underdeveloped. A Green New Deal might be more effective in linking climate change to policies for sustainable *reproduction*, which stress maintaining a city's quality of life, its open spaces, levels of public transport, high wages, education and childcare provision: provision that meets the needs of all citizens, not just elites (While, Jonas et al. 2004; Krueger and Savage 2007). Agyemen and Evans (2004) suggest a similar conceptualisation of 'just sustainability' linking sustainable development and social inclusion.

A broader conceptualisation of providing a more diverse range of valued ways of making a livelihood than a traditional quest for jobs and businesses (Gibson-Graham 2006) might resonate with the non-capitalist, tidal rhythm of the city identified by Higginson and Wailey (2006) discussed above. But again, while the city council has set up a small green jobs fund to do valuable Green New Deal type work the legacy of the Militant-led council means that elites do not find these arguments credible as a key focus for the city's economic development. In the Militant era, the council focussed on winning resources from central government to provide housing for the city's poorest, rather than on wealth creation which, elites argue, would create the wealth to pay for housing improvements and much more besides. Social enterprises are supported in the city's high unemployment centres, and there has been considerable investment of ERDF funds to support the social enterprise sector. But social enterprises are seen as bridges into conventional work rather than taken seriously as real alternative livelihood strategies when compared with serious economic development work. 'Serious' is the physical redevelopment and conventional businesses providing high levels of employment, thus raising the city's game in competition with other cities. This wealth is supposed to 'trickle down' to the poorest, a paradigm that advocates of a Green New Deal challenge.

Fourthly, in ecological terms the strategy is resolutely anthropocentric, or human centred. The natural world is seen as just a resource for human beings, providing economic value and ecosystem services for humans. The objective is to maintain a high consumption lifestyle, but in low carbon ways. An ecocentic perspective of this would critique, for example, putting windfarms on land currently unoccupied by humans and which birds crash into, seeing biomass as a way to

generate power with no concern for the loss of wild habitat, or placing tidal power at locations that affect wading birds and kill fish (Hill, Nelson et al. 2006; Kunz, Arnett et al. 2007; Kuvlesky, Brennan et al. 2009). Conceptualising Liverpool uncritically as a future renewable energy giant without thinking through what opposition might emerge from conservation lobbies, and ignoring the rights of other species, is problematic from this perspective.

Fifth, the strategy is unproblematically global. It assumes a world where the current, rather contingent, global division of labour does not change. Manufacture continues in low cost economies, assuming that wage rates and levels of regulation will not rise, so, as an example, there is no point trying to set up a windmill or photovoltaic manufacturing plant on Merseyside. It assumes that the emissions and embodied energy in goods manufactured in one place and consumed in and thrown away in another will be attributed to the country of manufacture. Boosting local manufacture is not on the agenda, associated with the unacceptable practices of 'protection' (North 2009). The extent that a low carbon economy will be more localised is contested and we do not have space to examine the whole argument here (see North 2010) but it is of note that arguments for the localisation of production as a response to climate change are seen as unacceptable, backward looking, and too close to the 'failed' policies of protecting jobs in the face of global restructuring attempted by Liverpool in the 1980s. Also missing are strategies to develop green circulation patterns between businesses able to trade with each other, reduce resource consumption through co-provision of services and collaborative innovation networks, and linking the waste outputs of one business to one where this waste can be considered an input (Hudson 2007). True, some local agencies do promote local sourcing and they are doing good work, but the resource targeted on this as an explicit strategy for cutting carbon out the region's productive processes is inadequate for the task.

Finally a linked issue is that resource depletion is not seen as a strategic threat to the economy in any way. Absent from local discussions are debates about 'peak oil' and energy security (Heinberg 2004; Roberts 2004). The fuel supplies needed to power jets that bring visitors to Liverpool's visitor economy are assumed always to be available. Any suggestion that the health of the visitor economy can in

any way be threatened by questioning the growth of air transport is not acceptable, despite the uniquely greenhouse gas intensive nature of air transport (Anderson, Bows et al. 2006). It is assumed that technological innovation and more efficient business practices will enable the airport to expand unproblematically. The only concessions to climate change are proposals to make the operations of the airport itself as low carbon as possible, ignoring emissions from the flights themselves – which seems as credible as past claims about the plush quarters and vibrant cultural life of Liverpool's slave ships!

Arguments for creating more resilient, more diverse local economies (Lerch 2007; Murphy 2008; Newman, Beatley et al. 2009; 2009) carry little weight when deployed as an alternative elite narratives about securing the city's global competitiveness and maximising wealth creation, even on the basis that peak oil might be threat to that agenda. The future prosperity of the port is assumed. Indeed, climate change the end of the era of cheap and plentiful oil is a driver of the Super Port concept. The emissions associated with international transport are externalised, and thus do not feature in discussions about the carbon intensity of the local economy. Local elites concerned with shipping argue that more expensive fuel costs, technological innovation, the widening of the Panama Canal and a future ice free North West passage mean that ship sizes will increase and the number of ports visited will be consolidated. Liverpool, it is expected, is well placed to benefit from this. The extent that this technologically optimistic scenario emerges is one for future research, but for now any conceptions that climate change and peak oil might constitute future threats to the health of a local economy integrated into a vulnerable globalised economy are not on the agenda. Work in this field is limited to a consideration of the vulnerability of the city's physical infrastructure to climate-related extreme weather events. This work is lead by the local authority and prompted by national targets: there is no wider consideration of these issues or of wider conceptions of vulnerability in the context of climate change (Füssel *2007*).

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Discussion

So, perhaps unsurprisingly, the strategy for the city region falls somewhat short as a strategy for building a low carbon economy. It is a growth strategy that

sees the development of a new environmental technology sector as one of four key drivers. It is not a strategy for cutting 80% of the carbon out of the city's economic activity. Stern's arguments, that economic growth can be delinked from carbon though smart growth or weak sustainable development have convinced policy makers that prosperity will come through the city attracting the new high tech environmental sectors. Hard decisions, ending unsustainable forms of economic development, are ducked. Politically, low carbon strategies must add to growth, to the development of new jobs and businesses, to be taken seriously. Any critique locally focuses on whether the low carbon agenda should be as strong a feature of local strategies as it is. Given the city region's historically poor economic performance, local emissions are lower than those from more successful city regions, it is argued.

So what is the response? Ecoscocialists, or course, would argue that this is more evidence for the unstustainability of capitalism and for the need for more thorough going transformation of the political economy of Northern cities (Foster 2002; Wall 2005; Kovel 2007). Others would argue just that Liverpool needs to learn from more 'entrepreneurially low carbon' places where the agenda is more advanced: perhaps Seattle, London, Freiburg, Austin. Rather, I take a middle view. In the 1980s a range of cities addressed progressive agendas for what they called 'restructuring for labour' (Boddy and Fudge 1984; Clavel 1986; Mackintosh and Wainwright 1987). In contrast with Liverpool Militant's more confrontationalist approach, some urban leftist administrations argued that global restructuring should not be at the expense of the poorest. Local action could be used to help the least vulnerable to benefit from, or at least avoid damage from, economic change. What would a contemporary progressive strategy of 'low carbon restructuring for labour' look like? I offer seven tentative suggestions.

(1) Any strategy needs to be a low carbon strategy, not an accumulation strategy based on growing a new environmental technology sector while leaving existing, perhaps deeply unsustainable practices untouched. Existing business practices need to be examined and re-engineered to cut carbon emissions and ensure that they are not based on unsustainable rates of depletion of natural resources or the emission of pollutants outside the capacity of the ecosystem to absorb them.

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(2) The performance of the economy needs to be measured, and judged, at least in part, on the basis of its contribution to low carbon targets. While the only number that really 'matters' is GVA (gross value added in relation to other comparator cities), low carbon strategies will at best be taken less seriously than strategies for growth. At worst, initiatives that do not add to growth will be inadmissible. More balanced measures of progress are necessary. For example, the Welsh Assembly in the UK looks at a range of indicators: GVA, social welfare (benefit levels), biodiversity, ecological footprinting, and wellbeing (older people and children).

(3) Any low carbon strategy would need to engage with energy practices. What matters is how people live their everyday lives in cities, and how that can be done in ways that minimise carbon emissions. This means work at a community level, and putting in an infrastructure that means that it is easy to be 'green' in everyday livelihood practices. Any serious low carbon economic development strategy would take peak oil and energy security as seriously as the need to reduce carbon. This is not on the agenda in Liverpool.

(4) A genuine low carbon strategy would support research and development in low carbon technologies at a range of scales. Rather than slotting into a global division of labour that assumes the global North will concentrate on high tech environmental technologies, while manufacturing will be done in the global South, technology can be developed closer to where it will be deployed. For example, while the Irish Sea will be the site for huge new windfarms, there is no conception that those windmills could be constructed in Liverpool's shipyards, or thinking about where the logistics for maintaining them in a dynamic and often hostile aquatic environment will be based. There are huge opportunities for new manufacturing and manual jobs that could be developed to service this new industry. Other manufacturing opportunities could be developed for a range of more appropriate, small scale, community-based renewable energy generation projects. The jobs from installing and maintaining a community-based renewable energy infrastructure will also be huge.

(4) The social inclusion benefits of Green New Deal activity are obvious. Rather than a market-based transformation of the urban infrastructure funded by individuals paying for the installation of small scale renewable and for energy

efficiency in their own private homes while the power generation infrastructure is modernised by the energy utilities who then pass the cost on to citizens through higher bills, a New Deal approach would look for collective solutions to energy efficiency. New social enterprises would carry out energy efficiency measures, and install and run small scale renewable.

(5) Alternative conceptions of livelihood and employment that are more in tune with ecological limits and processes could be explored. The tidal rhythm and informality of Liverpool's dock work might thus be seen as a model, not an anachronism. The Transition Town's movement is engaging with this agenda in a number of creative ways in Liverpool and elsewhere (Hopkins 2008).

(6) Any strategy would have to engage with the rights of non-humans as well as humans. The biodiversity of the non-human or natural world would be considered, and space left for other species to flourish.

(7) More consideration would be made of the values of local community ownership of the city's resources. Liverpool has suffered from a lack of investment by an outward looking commercial elite with no connection to place. Should its residents not benefit from the power generated off its shores, or should this just flow to the boardrooms and shareholders of the private sector companies making the investment?

Conclusion

The parameters of a progressive agenda for a low carbon economy in cities like Liverpool is, of course, a more explicitly political conception of a low carbon strategy involving a move away from unsustainable practices. Urban strategies for addressing problems with climate change cannot be 'black boxed' as socio-technical solutions that can be unproblematically transferred from place to place (Bulkeley and Betsill 2003). Liverpool's experiences will resonate with other cities that have attempted to address problems associated with changes in the global division of labour and to grapple with entrenched poverty and social exclusion using flawed policies.

There are considerable barriers to Liverpool creating a genuinely inclusive, ecological low carbon economy. Having had to dance to a centrally-directed tune

and address the GVA gap between it and other cities, just when the city turns a corner, reinvents its image and successfully implements a creditable physical redevelopment of its shopping district, the rules change. It has finally groped its way to an accumulation strategy based on growth, just when growth begins to be fundamentally challenged as an objective of urbanism. Given its past, it is not surprising that a convincing alternative to the underdeveloped and technologically optimistic low carbon strategies in the city have yet to emerge.

Liverpool is not the only city in this position, and there are many committed people working in the city's economic development policy community that are grappling with these issues. The extent that they are able to reconcile cutting 80% of the carbon out of the economy with a growth-based economic development strategy is a question for further research, as is the extent that a coherent alternative ecological strategy emerges from within civil society organisations either in opposition to elite views, or as a way to influence and change them.

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