



Working Paper One:

Ecologicalisation as a Progressive Response to Peak Oil and Climate Change – A Sympathetic Critique

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Eco-Localisation as a progressive response to peak oil and climate change – a sympathetic critique

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Abstract

This paper critically but sympathetically examines eco-localisation a response to the need to reduce oil consumption as a response to 'peak oil' and to reduce the emission of CO₂ to avoid dangerous climate change. Rather than seeing the politics of climate change and peak oil as in some way 'post-political', the paper argues that protagonists of localised economies are developing radical new conceptions of livelihood and economy that directly cut against the logic of growth-based capitalist economic strategies and elite conceptualisations of economic development. Building on development theory (Cowen and Shenton 1996), the paper develops a conceptualisation of 'immanent' and 'intentional' localisation, with the former a simple move by businesses of economic activities that have high transport costs closer to their markets. Advocates of intentional localisation are working at grassroots level to develop local solutions to peak oil and climate change based on much more resource-

poor yet enjoyable and fulfilling livelihoods in more localised economies. In discussing the contested nature of localisation, the paper engages with critiques of eco-localisation from neoliberal advocates and from the left, before concluding that localisation should be seen more as a different calculation of where economic activities would be located, which aims to reduce oil consumption and CO₂ emissions, rather than a call for autarky. The paper concludes by arguing that analyses of the scale of economic networks need to pay more attention of the materiality of oil consumption and CO₂ emissions, and that scales cannot be seen as socially constructed.

Keywords:

Globalisation, localisation, environmentalism, peak oil, climate change, scale.

1. Introduction

This paper argues that responses to peak oil and resource constraint as a long term problem cannot be disconnected from the need to avoid catastrophic climate change over the next century. Irrespective of short term volatility in the price of hydrocarbons, need to respond to peak oil and avoid dangerous climate change represent an end to the conditions that underpinned the thirty to forty year period of neoliberal globalisation (Peck and Tickell 2002; Stiglitz 2002; Harvey 2005). New communications technologies, cheap oil and externalised emissions, it is argued, led to a global political economy based on a 'spatial fix' of restoring capitalism's profitability by, where possible, relocating economic activity from high to low cost locations, with labour and environmental regulations seen as compromising 'efficiency'. While the global economy has gone through a process of time-space *compression* (Harvey 1992), the need to cut emissions and reduce energy use means it now needs to go through a process of time-space *re-extension* where transport costs again become significant in terms of cost, resource use and emissions. Currently very cheap goods produced through globalised production networks will become, and remain, more expensive. The currently near will become further away, again, in a process of 'reverse globalisation'.

In the context of peak oil and the need to avoid dangerous climate change, the paper critically engages with arguments for eco-localisation¹ that have been generated for some time by ecological and anti-globalisation activists, which have a new salience in the context of climate change and peak oil. In this paper, localisation refers to 'economic' or 'ecological' localisation, rather than the political project of devolving decision making to local communities. The lineaments of conceptions of localisation presented in this paper have been advocated for some time by greens and anti-globalisers (Dauncey 1988; Cavanagh and Mander 2004; Wall 2005; Scott Cato 2006) and put into practice through alternative currency networks and the like (see North 2007). More recent research drawn on in this paper includes interviews with members of agencies promoting localisation and responses to peak oil and climate change, analysis of their publications and web-based material,

¹ Hereafter, just 'localisation'

participation in and discussions with the Transition Towns movement, and discussions and presentations at an ESRC-funded seminar series on local economic development in an era of dangerous climate change and resource constraints².

The paper argues that, contra Swyngedouw (2007), there is no cosy, post-political consensus about what to do about peak oil and climate change. Drawing out the differences between conceptualisations of ‘intentional’ and ‘immanent’ forms of localisation, the paper argues that while it is possible to envisage a long term process of peak oil leading to a move of economic activities incurring high transport costs closer to their markets, with the result that the global economy becomes less integrated but more regional (‘immanent’ localisation), it is difficult to see what is progressive about such a new regime of accumulation (welcome associated carbon emissions reduction aside). The short term price volatilities in the price of hydrocarbons seen since the spike of 2007-8 might make some assume that, as in the past, the existence of resource constraints like peak oil can be doubted, and those who point to them are, as they have been in the past, at worst alarmist, and best acting prematurely (Cole, Freeman et al. 1973; Harvey 1974/2001). Price volatilities mean that technological innovation stalls. The paper then argues that advocates of intentional localisation are developing radical new conceptions of livelihood and economy that directly cut against the logic of growth-based capitalist economic strategies and elite conceptualisations that ‘we all know’ that trade liberalisation leads to wealth while barriers limit growth. The paper concludes with a discussion of neoliberal and progressive critiques of localisation.

2. Peak Oil and Climate Change – post-political, ‘double whammy’ or false apocalypse?

This paper works on the premise that peak oil is but one of the crises humanity will encounter over the coming twenty to fifty years. Without significant technological change, wider resource crises in food, fresh potable water, fertile land, and in ocean resources (fish production) will interact with processes of climate change, the growth of human population

² Grant number RES-451-25-4261.

and levels of economic development in a set of complex, cross-cutting processes (Meadows, Randers et al. 2005; Kunstler 2006; Heinberg 2007). Solutions to any of these problems, taken in isolation, might well exacerbate others (Hopkins 2008:36-39). For example, a technologically-optimistic reading would suggest that long term price rises associated with peak oil might well make currently uneconomic petrochemical resources like tar sands exploitable, given existing or in-the-pipeline technologies, thus bringing the price down again (Donlan 2008:1-22). Coal or gas can substitute for oil. But the need to reduce carbon emissions would suggest that we cannot afford to release the carbon locked up in high emission alternatives like tar sands, and more coal burning could have catastrophic effects on the climate (Hansen 2008), contributing to the loss of land suitable for agriculture through desertification, the loss of fresh water through glacial melt, and loss of fish resources through ocean acidification (IPCC 2007). Greater use of biofuels will lead to food shortages. The findings of the papers presented at the Copenhagen Climate Change Congress in March 2009 all suggested that the IPCC's worst case scenarios are being exceeded³.

In contrast, the global financial crisis that began in 2007 seems a less fundamental emergency: capitalism is prone to crisis and recovery. But Nicholas Stern's review of responses to the economic crisis suggests that climate change is being forgotten in the rush to reignite economic growth (Bowen, Fankhauser et al. 2009), while the volatile price for oil has meant that investment in technological solutions to these multiple crises is cut back as renewables becomes less economic in contrast with the transient low price for oil (Webb 2009). Transition Towns founder Rob Hopkins argues that facing runaway climate change with a collapsed economy is something to be avoided (Hopkins 2008:39). But it seems that is what we have.

Erik Swyngedouw (2007) has argued that climate change, and, by implication I would add, peak oil, is cast by elites as a 'post-political' problem. 'We' are all in danger of disaster, and 'we' must 'all' do something about it. No one is to blame, no one must be made to suffer or be overthrown, and it is clear what 'we' must do – adopt sustainable development. Who could be opposed to something so simple? Who would claim to be 'unsustainable'? In contrast, I argue that there is no cosy consensus, and that responses to peak oil and

³ <http://climatecongress.ku.dk>

climate change are deeply political. Following Heinberg (2004) and Murphy (2008), I argue that there are four potential response scenarios to these problems. First, the solution seemingly adopted by neo-conservatism; geopolitical and military struggle aimed at dominating the world's limited supplies of petrochemicals and to manage future climate-inspired conflict (see also (Abbott 2008; Busby 2008)⁴. Second is the technocentric cornucopianism of elite free-market enthusiasts, critics of 'limits to growth', and climate change sceptics. They argue that market economies are creative enough to solve problems through solutions of which we cannot as yet even dream, and that technology will overcome the peak oil and climate crises. The cornucopian approach to ecological problems of course has a long history, but more recently Friedman (2008) argues that the same creativity that produced the digital and knowledge economy holds the solutions to climate change. Through processes of Shumpertarian 'creative destruction', resources will be freed from non-productive uses and put to solving the new problems associated with resource and climate change. Future generations will be better placed to pay the costs and generate solutions far more cheaply (Lomborg 2001; 2007; Lawson 2008). Locally, this means developing new forms of smart, post-carbon growth (Krueger and Gibbs 2008). Predictions of the apocalypse are as premature now as they were in the 1970s (Cole, Freeman et al. 1973; Meadows 1974). These are the two elite strategies.

The past two to three years has seen the emergence of at least a putative new social movement, responding to concerns about peak oil and climate change. They support Heinberg's third scenario, working quite locally, at grassroots level, to develop local solutions to peak oil and climate change based on developing much more resource-poor yet enjoyable and fulfilling livelihoods based in more localised economies⁵ Localisers argue that peak oil and climate change should be seen as an opportunity to build more ecologically sustainable, more local and more convivial economies. Xenophobes provide Heinberg's final scenario: an end of all travel and pulling up the drawbridge to protect the climate

⁴ See also the US Army's 2008 Army Modernization Strategy, which argues "We face a potential return to traditional security threats posed by emerging near-peers as we compete globally for depleting natural resources and overseas markets." Available from http://www.g8.army.mil/pdfs/Army_Mod_Strat_2008.pdf

⁵ For CRAGs see www.carbonrationing.org.uk. 'Plane Stupid': www.planestupid.com. 'Leave it in the Ground': www.earthfirst.org.uk/leaveitintheground. 'Climate Camp': www.climatecamp.org.uk. Transition Towns: www.transitiontowns.org.

change winners and those sitting on energy resources from the losers⁶. Given the reality of fuel poverty and the reliance of many in rural areas on affordable fuels, social movement struggles could emerge arguing for cheap, not less, oil, such as those that emerged in Britain in 2000 (Doherty, Paterson et al. 2002; Robinson 2002; Doherty, Paterson et al. 2003; Robinson 2003). At worst, we see a breakdown of society into warring localised tribes after a crisis caused by rapid climate change or resource crisis, as described in Cormac McCarthy's (2007) dystopian novel 'The Road'.

These four scenarios should not be seen as self-exclusive. It may be that a progressive response to climate change might be a mix of scenarios two and three, depending on how optimistic you are about ecological modernisation. Similarly, the two reactionary responses would be scenarios one and four. For progressives, the extent that scenarios three and four can be separated is key – is localisation just a form of survivalism that stresses gardening rather than guns? With this in mind, the paper consequently examines the extent that localisation is an appropriate response to peak oil and climate change.

3. Localisation

Historically, we can identify a long tradition of localisation and decentralisation in progressive thought, going back at least to the different utopias developed by William Morris and Edward Bellamy. Against the centralising Soviet model of socialism, Guild Socialists and Distributists looked to build local and small-scale societies through the 1930s (North 2007:62-3) while the North American homesteading movement of the 1940s and 50s suggested return to the land and to local food production (Loomis 2005). In the 1960s communes grew up across North America and Europe and young people experimented, with varying degrees of success, with alternatives to the 'big system' of industrial capitalism (Melville 1972; Houriet 1973). In the 1970s and 1980s radical local authorities examined community-based ownership of closing enterprises as what became known as 'restructuring for labour' (Boddy and Fudge 1984; Clavel 1986; Mackintosh and Wainwright 1987). A

⁶ For the response of the far-right British National Party to Peak Oil see: www.bnp.org.uk/peakoil

locally-owned social economy was also seen as a response to the job losses associated with the recessions of the 1990s, and later, to the loss of manufacturing jobs to the global South more generally (Imbroscio 1997; Amin, Cameron et al. 2002; DeFilippis 2004; Defilippis, Fisher et al. 2006). It has formed a minority strand within the wider antiglobalisation movement, by no means accepted by all (Ashman 2004).

Contemporary localisation is advocated by Green Parties (Woodin and Lucas 2004; Wall 2005; Scott Cato 2006), by advocates of small-is-beautiful alternative production (Norberg-Hodge 1991; McKibben 2007), by participants in local currency networks (North 2007), by opponents of supermarkets and other 'big-box' large retailers (Mitchell 2006; Simms 2007), and by members of localist think tanks such as the New Economics Foundation, the EF Schumacher Society, the Institute for Local Self Reliance, or the International Forum on Globalization (Lang and Hines 1993; Hines 2000; Shuman 2001; Cavanagh and Mander 2004). It is now proposed as a solution to Peak Oil and climate change (Heinberg 2004; McKibben 2007; Hopkins 2008).

The core of localisation is a claim that economic decisions should focus not on profit maximisation and economic efficiency to the exclusion of all else, but on meeting needs as locally as possible (Curtis 2002). In contrast with neoliberal globalisers who call for the deregulation of economic decision making, localisers call for the re-regulation and re-embedding of economics into nations, regions or local communities. Shuman (2001:6) argues that localization "does not mean walling off the outside world" in a nationalist autarkic project. Rather, it is an argument against an integrated world economy based on a global division of labour without the regulation of labour and environmental standards. Against unsustainable and unequal neoliberal globalisation, localists argue that decisions about where to locate any given economic activity should not be based on cost alone, subsidised by cheap fuel and with CO₂ emissions externalised. Localists argue for a focus first on producing as much as possible as locally as possible, then within the shortest possible distance, with international trade only as a last resort for goods and services that really cannot be produced more locally (for example, tea or citrus in the UK). Consequently, Localisation suggests developing diverse economies at the lowest level appropriate for that activity: in places, localities and regions firstly, then countries, or groups of countries where

a lower level does not make sense. It is an argument for economic subsidiarity (Scott Cato 2006).

Localists object to the loss of local control associated with neoliberal globalisation. They object to decisions about a local economy being made by elites far away with no commitment to or even knowledge of the places they affect through their decisions, often to its detriment. In practice, localisation means developing community-owned local economic institutions like worker-owned and run co-operatives, communal gardens and restaurants, local power generation, local money, and communal forms of land ownership (Defillipis 2004).

Localists do not argue against connections out of the locality *per se*: rather they argue against a reification of connection as always inevitable and always good. Connections should be consciously entered into, controlled, and ended when they are damaging. Normatively, localisers argue that local diversity and local distinctiveness are good in and of themselves. Globalisation, they argue, is the ‘McDonaldization’ of society and economy, (Ritzer 2004) the domination of the global brand (Klein 2000). Drawing on conceptions of what is thought to be good about the natural world, localisers argue for societies and economies that are diverse, interdependent and resilient. A variety of local economies mirrors nature's diversity, facilitating experimentation and the development of more effective practices and models. Localised economies connected to each other combine diversity with interdependence without uniformity. They claim that diverse localised economies across space are more resilient in the face of external shocks. Economies reliant on economic monocultures are vulnerable to price fluctuations and changes in demand for the single product created by the monoculture, whereas in diverse and connected localised economies, if demand for the product created by one part of the economy breaks down, there are plenty of alternatives to take its place.

Localisation is not autarky or complete national self sufficiency as practiced by Soviet Russia or Nazi Germany in the 1930s, Cuba in the Special Period, or North Korea or Myanmar today. Ed Mayo (in Douthwaite 1996:ix) argues:

“Some ... imagine the aim of economic localization is complete self-sufficiency at the village level. In fact, localisation does not mean everything being produced locally,

nor does it mean an end to trade. It simply means creating a better balance between local, regional, national and international markets. It also means that large corporations should have less control, and communities more over what is produced; and that trading should be fair and to the benefit of both parties. ... Localization is not about isolating communities from other cultures, but about creating a new, sustainable and equitable basis on which they can interact.”

Woodin and Lucas (2004:69) quote the New Economics Foundation, for whom localisation is

“a relative term. It means different things to different people and depends on context. For example, your local TV station is likely to be further away than your local corner shop. For some of us local refers to our street. For others it means our village, town, city or region. However we think of it, ‘local’ usually connects to a group of people and the things they depend on – whether shops, health services, schools or parks. Think of local as that surrounding environment and network of facilities that is vital to our quality of life and well-being.”

Woodin and Hines (2004:30) argue:

“By ‘localization’, we mean a set of interrelated and self reinforcing policies that actively discriminate in favour of the local. In practice, what constitutes ‘the local’ will obviously vary from country to country. Some countries are big enough to think in terms of increased self reliance within their own borders, while smaller countries would look first to a grouping of their neighbours. This approach provides a political and economic framework for people, community groups and businesses to rediversify their own economies ... Localisation involves a better-your neighbour supportive internationalism where the flow of ideas, technologies, information, culture, money and goods has, as its end goal, the protection and rebuilding of national economies worldwide. Its emphasis is not competition for the cheapest, but co-operation for the best.”

Thus, for aeroplane production, a regional block of countries might be appropriate. (Hines 2004):38). It would not make sense, for example, for there to be a producer of wind turbine machines, hydroelectric power stations, or solar panels, at much below the national scale.

3.1 Localisation as a response to peak oil and climate change.

Obviously, localisation is *not* the only foreseeable solution to peak oil and climate change. Irrespective of the likely development new technologies, solutions to the energy crisis could be found, as the British Government and James Lovelock (2006) argue, in the development of a new generation of nuclear power stations⁷. Environmentalists would object that they will not come on stream quickly enough when compared with local energy micro-generation, there are doubts to their safety, and there is no solution to the problem of spent fuel⁸. Others point to the potential of second generation biofuels that do not have the same impact on food production as did for the first generation, or to mass use of solar power. Sceptics need to be convinced that carbon-capture technologies could make coal-fired power stations viable, but again technological developments could prove them wrong.

Responding to peak oil does, however, mean that we need to organise economic affairs in such a way as to minimise the use of increasingly scarce petrochemicals. There are debates about how deep cuts in carbon emissions need to be made and about the extent that IPCC scenarios tell us how much of a problem we have in relation to climate change. Climate change activists talk of a need for cuts of 80% to 95% from today's levels by 2050 (Monbiot 2006; McKibben 2007; NEF 2007). This double necessity, localisers argue, requires at least a deep reduction of avoidable emissions, at worst a fundamental restructuring of currently *unsustainable* capitalist economies (Blühdorn 2007). Transport and trade are targeted for reductions as global transport is responsible for 13.1% of emissions; with industry responsible for 19.4%, agriculture 13.5%, forestry 17.4% and energy supply 25.9% (IPCC 2007:36). Transport is the only area in which emissions are expected to be higher in 2020 than in 1990, the Kyoto baseline year: (Tyndall Centre 2008:46). Total world trade in 2007 was \$27,510 billion (WTO 2007:11). A proportion of industry, agriculture and forestry products are only produced for export – they would not otherwise be produced. Transporting goods around the world obviously consumes oil and creates emissions. If

⁷ See also “Why Greens must learn to love nuclear power” by climate writer Mark Lynas, <http://www.marklynas.org/2008/9/19/why-greens-must-learn-to-love-nuclear-power>

⁸ Against Lynas and Lovelock, see the Rocky Mountain Institute's “The Case against Nuclear”: <http://www.rmi.org/sitepages/pid504.php>

those goods and services that are exported can just as easily be consumed much nearer to where they are produced, then significant oil and emissions savings are possible.

The UK Department of Environment, Food and Rural Affairs (Weidmann, Wood et al. 2007) calculated that 21% of UK emissions were embedded in imports to the UK, and that embedded emissions are higher in imports to the UK produced abroad under lower environmental standards than in exports from Britain. Emissions from aircraft are even more damaging: were aviation allowed to grow at its present rate, it would account for between 39% and 79% of the EU's carbon budget by 2050, depending on which stabilisation scenario was chosen (Anderson, Bows et al. 2006:6). For reasons of global justice, emissions embedded in goods produced in the global South and consumed in the North, and the emissions and oil burned in transportation, should be part of the North's carbon allowance. Localists consequently argue against regions and countries exchanging similar goods and services that could just as easily be produced for local consumption, without the associated carbon emissions. Woodin and Lucas (2004:148), for example, point to reciprocal trade in food between similar countries with similar ecosystems and similar diets as something that could easily be cut, saving emissions and oil with no loss of utility.

There are limits to this. Peak oil and climate change are both multiscale phenomena (Bulkeley and Betsill 2003). Oil is burned and emissions emitted locally, but the effects (global warming, depletion) are felt globally. It does not really matter where a barrel of oil is burned or carbon is emitted. Consequently, it may also be the case that assuming that things should be done locally is a misplaced 'local trap' (Brown and Purcell 2005). Geographers have recently been very concerned to move away from conceptions of nested, or hierarchical scales where one scale in some sense 'matters' or dominates others in a structural manner, in favour of more relational ideas of scales as socially constructed, shot through, connected, inseparable from each other, creating each other (Delaney and Leitner 1997; Marston 2000; Brenner 2001; Marston and Smith 2001; Marston, Jones et al. 2005). If space is constructed relationally, can you cut a bit off? Where does the 'local' stop and the 'global' begin? If spatial relationships are conceptualised as flowing networks that has temporarily congeal in places (Amin 2002; 2004), does it make sense to try to capture them at any certain scale?

Localisation would also need to address issues of justice associated with processes of uneven and unequal development between spaces with different natural and human resource endowments. Would localisation mean that rich areas would maintain their unequal endowments, and poorer regions would have to pull themselves up by their bootstraps? When that didn't happen, those who could would move from poor to rich areas, increasing the inequalities and creating new informal settlements on the edge of more prosperous cities. How would localisation cope with climate change migration? What would be the attitude to wealthy regions seceding from larger political units as they opposed redistribution of their resources to poorer areas, as did Bolivia's Santa Cruz province in 2008? Localisers respond with a call for processes of economic localisation to be combined with increased redistribution between rich and poor areas through reform of international trading rules (Hines 2000:130-131; Woodin and Lucas 2004:129-144). They argue that a better balance between the local and the global is more likely to create the sort of vibrant livelihoods that mean people can stay where they are, and develop endogenous economies that might be a more realistic alternative to global integration (Norberg-Hodge 2001).

The implications of the discussion above are that it cannot be *assumed* that doing things locally inevitably reduces fuel consumption and hence emissions, and promotes global justice. For example, producing food in the open air in Southern countries and transporting it to the North may involve fewer emissions than using a heated greenhouse in the North (Walker and King 2007:242-4). Some goods and services can be moved around the world at a slower pace through a new generation of sail ships, or electronically, with few emissions. If localisation is to have any impact on peak oil and climate change, we must go beyond conceptualisations of the global as 'male, bad' and the local as 'female, good' (Freeman 2001). If global networks were all as weightless as some globalising enthusiasts and spatial theorists seem to suggest (Ohmae 1994; Friedman 2006), then a socially constructed economy of networks and flows, which only temporarily congeals, and where things happen across space does not matter, would make sense. But networks are not all weightless: the levels of carbon embedded in goods and services depend on where they are produced and how they are transported, and thus the materiality of global networks, in terms of oil consumed and carbon emitted, matters. Consequently, peak oil and climate

change activists advocate localisation for both normative and material reasons – at the local scale, they argue, is the best scale to address a global problem, even if Geographers might question this (North 2005).

3.2 ‘immanent’ and ‘intentional’ localisation

Engaging with questions of the scale and materiality of networks means that localisation needs to be defined more tightly. To this end a useful distinction might be made between ‘immanent’ localisation that just ‘happens’ as a market economy changes over time as a result of decisions made by individual businesspeople for business reasons; and ‘intentional’ localisation as a normative political project, something which someone ‘makes’ happen⁹. Cowen and Shenton (1996:173-5) argue that in the heartlands of capitalist development, economic development was seen as a process that just ‘happened’ without any central co-ordination or intentionality. The state did not ‘make’ development happen – it arose from the individual business decisions of entrepreneurs. In the later starters, and in the colonies to which the surplus population of the capitalist heartland were displaced, development had to be made to happen before settlement. Of course, this distinction of challengeable: Polanyi famously points towards the repressive role of the British state in legislating for the social controls first to facilitate capitalist development, and later to limit its worst excesses (Polanyi 1944/1980). Nevertheless, the distinction between localisation as something that just happens through normal processes of economic development and decisions about business location in the light of fuel prices and the regulation of emissions, and localisation as a radical emancipatory programme, are apposite.

Immanent localisation has no normative content, and is a process going on without a major transformation of the power relations of a market economy. Its impact on climate change is incidental, not central. Intentional localisation as a political programme works on the basis that the implications of peak oil and climate change are that neoliberal global capitalism has come up against a fundamental barrier to its further development, and that

⁹ Thanks to Gavin Bridge for suggesting this as a useful heuristic.

there is the possibility to build more liberated economic forms out of this resource crisis. Intentional localisation is seen as both necessary and desirable: the climate and peak oil crises could lead to a more human-scale, steady-state, convivial, ecological and egalitarian society than highly dynamic but unstable, unequal, consumption-driven and unsustainable capitalism. In this, and contra Swyngedouw (2007), advocates of intentional localisation are making political and contestable statements about what constitutes the good society.

3.2.1 Immanent localisation

Localisation is not *necessarily* a particularly radical project, and localisers arguing for more control of the economy at a national scale can find eminent support for their views: views that were pretty much taken as axiomatic during the Keynesian period of the global economy, from the political responses to the crisis of the 1930s through to the 1970s (Chang 2007). The previously hegemonic commitment to Free Trade of the nineteenth century broke during the 1930s. During the threat of a trade war between Britain and the Irish Free State, JM Keynes (1933) delivered a celebrated speech against free trade, and in favour of national self-sufficiency. He said:

“I sympathise with those who would minimize, rather than with those who would maximize economic entanglements among nations. Ideas, knowledge, science, hospitality, travel – these are things that of their nature should be international. But let goods be homespun whenever it is reasonably and conveniently possible, and above all, let finance be predominantly national.”

“When the facts change”, he famously said, “I change my mind”. Keynes began to argue that the age of mass migration of the nineteenth century made the global spread of investments, technologies and innovations both inevitable and necessary. But in the 1930s, he argued, the disadvantages of capital flight outweighed the advantages of global integration given that “modern mass production processes can be performed in most countries and climates with almost equal proficiency”, and that as an economy develops, tradable goods become a smaller part of national wealth compared with houses, face-to-face personal services and local amenities which cannot be traded internationally.

“Decadent international but individualistic capitalism” he argued “is not a success. It is not beautiful, it is not just, it is not virtuous, and it doesn’t deliver the goods”. We should be our own masters, not at the mercy of world forces trying to reach equilibrium. While neoliberal advocates would argue that the break-down of the global trade system from the 1930s to the 1970s was an aberration and not to be advocated, Chang (2007:27-30) argues that the global South achieved annual growth rates of 3% in this period, compared with (at best) 1-1.5% under neoliberalization. Contemporary problems with resource crises including ‘peak oil’, climate change, and the current global economic instability all suggest that the facts have changed again.

The capitalist economy has always responded to fuel prices, from the high oil prices of the 1970s to the collapse of the oil price to US\$10 in the early 1990s. In mid-2007, the price hit a high of U\$147 a barrel before dropping back to below U\$50. As before, business responded to higher fuel prices through what analysts called “Reverse Globalisation”. For example, CIBC World Markets argued:

“Globalization is reversible. Higher energy prices are impacting transport costs at an unprecedented rate. So much so, that the cost of moving goods, not the cost of tariffs, is the largest barrier to global trade today. In fact, in tariff-equivalent terms, the explosion in global transport costs has effectively offset all the trade liberalization efforts of the last three decades. Not only does this suggest a major slowdown in the growth of world trade, but also a fundamental realignment in trade patterns.” (Rubin and Tal 2008)

ABC News reported that the result of the high fuel price spike was that “homegrown manufacturing jobs are making a comeback after decades of decline” (Alfonsi 2008) while Time World Business Briefing argued that “with brutal efficiency, the oil price is beginning to duff up a monster of the 20th century: globalisation. ... The extraordinary rise in the price of crude oil is wrecking outsourced business models everywhere and distance from your customer is no longer merely a matter of dull logistics” (Mortishead 2008). In the South China Business Review, (Weisart 2001) reported that, contra claims about standardisation and the Macdonaldisation of the products of global businesses, Coca Cola has given its Chinese managers autonomy to develop drinks for local tastes and market them appropriately. They have developed local sourcing to the extent that only 2% of the

company's inputs are imported. While the subsequent drop in the short term price of oil reduced these pressures into 2009, these at present straws in the global wind suggest that the geography of global production might change as the one integrated global economy fractures into three global regions as the long term problem of peak oil kicks in. The balancing of low cost production with transport costs may mean that China and India begin to produce more for their huge home markets, while production for the American market moves to Mexico, and to East-Central Europe for the EU.

Ray Hudson (2007) argues that climate change and peak oil might lead to new opportunities for more integrated forms of regional development through the production of regions as sustainable integrated economic spaces minimizing wastes and transport costs, developing interdependent networks of enterprises that collaborate, exchange resources, recycle, and use each other's waste as inputs. Through collaboration based on proximity, regions may become important spaces of innovation.

Immanent localisation is a business decision, driven by cost, not politics or the need to reduce emissions and safeguard limited resources. A hard reading would be that there is nothing radical or progressive about this. Unsustainable products will be produced by multinationals, but closer to their markets and their suppliers. The economics of global production may be changing, with localisation as much of a process as is globalisation. Immanent localisation will not happen overnight, as we know that hyperglobalisation boosters have always consistently underestimated the 'stickiness' of economic transformation (Cox 1997). Sunk costs in plant and human capital, supply and distribution networks were not lightly written off as firms moved from global North to South, and would not be lightly written off again in a reverse move from South to North. Some forms of global trade will remain for activities from which transport costs are low or communication costs close to zero, or those that result globally in few emissions (for example, services traded over the web, light goods that can be transported more slowly by sea¹⁰). They will no doubt remain where the benefits of international communication and trade are worth the

¹⁰ Although emissions from efficient forms of transport like shipping cannot be ignored. While a large cargo vessel (over 8000 dwt) emits 15-20 grammes of CO₂ per ton-kilometre compared with 540 for air freight, the huge volume of global shipping means it accounts for 4% of global emissions. Source MARISEC: www.marisec.org/shippingfacts/environmental/atmospheric-polution.php accessed 16/7/08.

emissions, once avoidable emissions have been eliminated and transport technologies improve their efficiency – back to Keynes’ call for global trade in ideas and homespun manufactures. How the geography of global production changes as a result of peak oil and climate change is obviously a key element of any future research agenda that seeks to integrate environmental and resource constraints with economic geography (Bridge 2008).

Immanent forms of localisation, then, represent no localised utopia that breaks the limits of what neoliberalization can work within: its logic is neoliberal but with a different calculation of costs and benefits, and with a different degree of openness, leading to a different geography of production. Pacala and Socolow (2004) argue that problems associated with climate change can effectively be solved by seeing each sector of emissions as a ‘wedge’ which can be addressed by existing technologies. Small cuts in many wedges make up big cuts overall. Avoidable international trade that does not include other desirables, like human social intercourse or knowledge transfer, should be seen as one of the stabilisation wedges that we need to decarbonise through localisation. This is not a completely closed system, just a bit more closed than today – perhaps more like the middle of the last century. It is eco-business as usual, same exploitation, but carbon-free and with shorter supply and distribution networks.

3.2.2 Intentional localisation.

Proponents of international localisation argue that climate change constitutes an immediate and potentially catastrophic emergency, and resource crises constitute fundamental limits to continued growth, if not to the maintenance of complex society. They are loath to wait for a political commitment to the development of technological solutions that, they argue, seem unlikely to materialise. For them, technological optimists are the utopians. More radical change is necessary (given climate change) and inevitable (given peak oil). As the crises hit, intentional localisers argue, immanent forms of localisation will increasingly be seen as inadequate, and the process will deepen as global trade begins to shut down. Although climate change and peak oil activists have recently advocated intentional localisation, as described above, it has an older pedigree. Guy Dauncey’s (1988)

call for a 'rainbow economy' prefigures much of what came later, and inspired this author's interest in alternative currencies.

Contemporary writing such as Murphy's (2008) "community survival strategy for peak oil" calls for a significant reduction in resource use - eat less food, reduce meat consumption, recycle and conserve, can and store food, heat smaller houses less, do not buy anything inessential or drive a car, grow your own food, and have a hen house. Reusability and reparability will be key. He argues for consumption to be reduced at the individual level, where the ordinary citizen can have the most impact - food, housing, travel. When we are numerate about the embodied energy in personal consumption, he argues, we will realise the importance of personal levels of consumption: the millions in the global North using more than their share of the planet's resources must stop doing so. There are no win-wins. Murphy argues for re-localisation, which he sees as a recreation of how life was before suburbanisation in the 1940s. Economic activity will be localised as much as possible, with production of useful, low carbon technologies that cannot be produced locally will still go on at a larger scale (for example advanced transport systems, photovoltaics, computers). He is no autark: we will still have a low powered or solar powered internet. But some things we currently use which cannot be produced locally and which are inessential or entail too much resource use will be scrapped.

For Murphy, the older conception of localisation as a response to globalisation is different from contemporary calls for it as a response to peak oil and climate change. The former is an argument for the return of outsourced jobs, while the latter is an argument for the creation of new low energy forms of livelihood. Consequently, the form of localisation will need to be different in different parts of the world (2008:250). Some places with currently large populations will become less attractive or even intolerable places to live: millions will consequently migrate, so building lifeboats is both inhuman and probably unfeasible. Localisation will mean that in a post-carbon economy there will be a stronger relationship between a place and its wider ecosystem. Some newly unsustainable cities might decline, and food can be grown in the spaces vacated. Some cities already exist within a wider ecosystem that supports them. Suburbs will become neighbourhoods and we see the end of suburbia and the commute. The culture of the city will be bought to neighbourhoods so people don't need to migrate.

Greer (2008) argues against conceptualising peak oil as either something that we be fixed through technology, or an apocalypse. Drawing on Tainter's (1988) conceptualisation of complex societies finding that the rising costs and dwindling payoffs of complexity lead to problems, Greer argues that collapse comes from societies beginning to feed off themselves, which he calls catabolic collapse. Complex societies like contemporary Northern capitalism, he argues, will increasingly find it impossible to fix unexpected problems and replace consumed materials and resources within the ecosystem's overall resource and carbon budget. The failure of the US to rebuild New Orleans's ninth ward is cited as an example of catabolic collapse. Greer doubts that our complex, interconnected society will be resilient enough to withstand problems from peak oil and climate change. Localisation is necessary for this, and inevitable. Complex societies orientated on economic growth as a symbol of their success will inevitably engage in 'overshoot' (Meadows, Randers et al. 2005), as they 'buy' resources off of the future to make up the difference between the resources the ecosystem can generate and absorb through consuming fossil fuels, assuming that future generations will have developed sufficiently advanced technologies such that they will not suffer. It looks like forward momentum is being maintained, but the foundations on which it is being built are being eroded.

Greer argues that we will not see an acute crisis or collapse in response to peak oil and climate change. There will be no apocalypse. Rather, he argues that complex societies will go through a slow, difficult process of decline down the other side of the peak oil 'curve' until society and the ecosystem are back in balance with a much smaller population and appropriate technology. Greer argues that some societies have handled a rise and fall better than others, comparing China's ancient civilization, with its ebbs and flows, with societies that have collapsed, like the Maya. But, he argues, even the Maya civilisation took 200 years or so to decline – there was no apocalypse. A decentralised, localised fractal society will be better able to cope, so local peak oil resolutions and transition towns, preparing for the decline, are a hopeful sign that the traumas associated with inevitable changes will be minimised (2008:83). Peak Oil, of course, does not mean the end of oil – just the end of cheap oil. Availability will continue, and we are likely to see a decline that is cumulative and irreversible, but no worse than society handled in the Second World War or the 1970s.

Localisation, for Greer, would enable citizens to prepare for peak oil by managing declining energy by radically cutting their own usage, developing local fuel supplies, and ways to get food to the whole community through networks like farmers markets, food in the city, and community supported agriculture. Localisation would encourage people to handle economic contraction by developing a second, 'useful' profession producing things people use and need, and begin to live nearer to work. Much more will be produced in households and a local economy, perhaps exchanged with a local currency. People will not be able to rely on state provision of education and health, and look after their own needs more through home or community education and health. Greer argues that the process of moving from a large, complex integrated society where people are supported by big systems and insert themselves occupationally into a division of labour to one based on self reliance will take time. People will need to practice and develop new skills. Community building is also necessary to ensure that people are supported through the change, and a break up into warring or xenophobic communities is avoided. This is also the perspective of the newly emerging Transition movement (Hopkins 2008) which looks to build more resilient, localised economies, and reskill people for the post oil economy. A radical contraction of the economy, producing more at home and getting used to hardship is also the perspective of Astyk (2008). Orlov (2008) looks to learn from the collapse of the former Soviet Union. Other transition town supporters are inspired by Cuba's special period, where the loss of Soviet aid led to a resurgence of urban food production and organic gardening¹¹.

Ted Trainer (1995), radical localist and champion of a post-materialist, small-scale technological society, argues that as peak oil and climate change hit deeply, the price of global connections will make international trade unsustainable. He consequently argues for a society constructed from many highly self-sufficient small settlements and localised economies, inhabited by people living lifestyles characterised by significantly reduced personal consumption, compared with those currently practiced widely in the global North and by elites in the global South (Trainer 1995:56-111). The price of fuel and need to reduce emissions would mean that people would have to decide to travel less. Cities would be 'villagised' so people could meet more of their needs from their neighbourhood without commuting or trucking goods and services around urban areas, while avoidable long

¹¹ See www.powerofcommunity.org/

distance travel would be cut down drastically. Power would be generated locally, from renewable means. The vast majority of goods and services needed would be produced locally in decentralised small workshops and through community businesses that people could walk or cycle to. Small businesses would multiply, becoming the norm, and staying small. Crumbling transport infrastructures would be given over to community-owned farms growing food, grazing livestock, or for fish farms as unused motorways and airports are reclaimed for cultivation. There will still be some importing and exporting of goods that could not be produced locally, but it would be insignificant or incidental, rather than, as at present, the key driver of the economy. What he calls “the simpler way”, he argues, is unavoidable if we are to avoid dangerous climate change¹².

Trainer’s vision is at the extreme end of the intentional localising perspective, although a delegate at one of the seminars on which this paper is based, where Trainer’s ideas were presented, described them as “probably the strongest statement about the sort of society I want to see that I have ever heard”. It runs as a thread through Rob Hopkin’s (2008) “Transition Handbook”, which has inspired the Transition Towns movement. It is a fundamentally more radical, utopian vision of a society which has transitioned to a post-carbon economy based on inclusion, local distinctiveness, equality and freedom. As such, it is deeply political, and that globalisers reject it as a threat to the profitability of capitalism is what makes localisation attractive to anticapitalist localisers like Scott Cato (2006).

Cavanagh and Mander (2005) argue that localisation is inherently a subversive project in relation to neoliberal globalisation. They argue that it necessarily entails fewer opportunities for the involvement for multinationals to generate super profits for elites. Localisation would be a simpler economic system, with fewer opportunities for ‘middle men’ to add value or pass goods or services or money on, taking their cut en route. Before the recent revival of neoliberal globalisation, they argue, much of the planet’s economic activity was off limits to globalisation, with peasant subsistence in the South and many basic services nationalised or under local government control in the North – e.g. municipal electric, gas, water (2005:105). Much of social and economic life, they argue, *should* be off

¹² see <http://futurepositive.synearth.net/2003/01/21>

limits to globalisation, and the economy and ecosystems should be held in common, off limits to monetisation, privatisation and commodification (Wall 2005). The radical project is thus conceptualised as the defence of the global commons, un-monetised and collectively used for use, not exchange value, from commodification. Economic assets should therefore be locally or communally-owned and controlled (DeFilippis 2004). This community, or solidarity, economy is counterpoised to the privately-owned and run capitalist economy. Of course, intentional localisation cannot be seen as an post-political strategy, and it is to critics of localisation that analysis now turns.

4 Critiques of intentional localisation

While immanent localisation might have been ‘happening’ as a result of the 2007-8 oil price spike, and might happen again if the prognosis of peak oil is accurate, where any given form of economic activity should be located is purely a business decision. Making these decisions in part with an eye on transport costs and levels of regulation of carbon emissions is consistent with economic efficiency, but intentional localisation, conflated with protectionism; something to avoid at all costs. From Adam Smith and David Ricardo through the Manchester School to the present day, it has long been understood that the greatest economic welfare comes from the freest possible trade between countries based on a global division of labour (Bhagwati 2004; Wolf 2005; Friedman 2006). Trade, it is argued, enhances wealth while barriers limit growth and distort the economy by diverting resources into inefficient protected areas, where they may be better utilised in more efficient areas where the country has comparative advantage (Stiglitz and Charlton 2005):6). Alan Greenspan argues that localisation is at best an understandable reaction to the gales of Schumpeterian creative destruction associated with globalisation and financial crises and a desire for stability and control over the future, but the temptation to protect should be avoided (Greenspan 2008).

Against this, localisers contrast intentional localisation, defined as a conscious attempt to manage connections out of place, with protectionism, defined the selfish promotion of the exclusive welfare of one place irrespective of how it affects others. They argue that the welfare benefits of trade can be exaggerated, and that communities in the

global North and South might be able to generate more vibrant livelihoods by doing more locally. In the context of peak oil, they argue, the big, complex systems associated with globalisation are likely to break down, so localisation is inevitable. But would it add to welfare and human freedom, or represent a retrograde balkanisation?

The left has always contrasted the local, seen as backwards, constraining, authoritarian and parochial, with the outwardly looking global, seen as cosmopolitan, internationalist, and open. Radical social ecologist Murray Bookchin agrees: “No community can hope to achieve economic autarky, nor should it try to do so. ... Divested of the cultural cross fertilization that is often a product of economic intercourse, the municipality tends to shrink into itself and disappear into its own civic privatism ... Small is not necessarily beautiful” (Bookchin 1995:237). Localities, like all spaces, are differentiated by class, gender and a range of other local oppressions, and the left has generally preferred international links with other subalterns to alliances with local elites. Cavanagh and Manders (2005:160-163) agree the local *can* be small scale and oppressive, but argue this cannot be assumed: it need not be. As we show above, localisation must be contrasted with autarky, Heinberg’s lifeboats. Even radical localiser Trainer still argues for an international exchange of ideas and culture, particularly through information technologies. Opportunities for cyber and teleworking would remain, and for transfer of information and technologies by the internet. Once global carbon emissions have been brought down as much as possible by localisation and other ‘powerdown’ processes (Heinberg 2004), then possibilities for international connection might still be great.

Secondly, ecosocialists like Kovel (2007) and Wall (2005) have little time for what they call a naïve neo-Smithian valorisation of small, local economies, arguing that capitalism and markets are intertwined and that markets have an inbuilt tendency towards growth and monopoly – the classic Marxist position. Frankel (1987) argues that firms within markets have an innate tendency to growth or they lose their competitive edge. A Smithian localised economy would soon grow into a conventional capitalist market because the utopian economic practices of which it is composed would not be able to compete with globalised capitalism. Firms would either grow out of the locality or die as capitalism requires businesses to compete with each other. Unless *all* capitalists agreed not to grow their businesses, steady-state capitalism is an oxymoron. Cavanagh and Manders (2005) agree

that local businesses *can* be exploitative, but, as with locality, this cannot be assumed. The work of JK Gibson-Graham (2006a;b) is useful here: it objects that arguing that all productive or economic units are inevitably capitalist or growth-orientated ‘businesses’ is like assuming all women are maternal or child-orientated. Some ‘businesses’ do focus on growth, but there is a much greater diversity in economic forms. We can do more to explore the contribution to post carbon politics of worker-owned enterprises and co-operatives, working in solidarity economies rather than capitalist economies (de Sousa Santos 2006).

Elsewhere, David Featherstone and I (North and Featherstone 2009) argue that much of the left see localisation as a limited ‘militant particularism’ of local utility, unable to make a contribution to wider, ‘universal’ questions of emancipation (Harvey 2001:158-187). For the left, the emancipatory project, it is argued, is built on connection with others whilst localisation is founded on building in more disconnection. Massey (1994) famously argued for a ‘global sense of the local’, that local places are built on global connections and that nowhere can be cut off from global flows except through xenophobic political practices. Localisation, it is claimed, suggests that local elites are given preference over subalterns elsewhere. It could therefore be seen as a dangerous practice, against left conceptions built on the unity of the vast majority against a small oppressing, perhaps local, minority. We argue for that these objections are problematic as they conceptualise ‘local’ and ‘global’ political strategies as separate, even defined against each other. Localisation would inevitably lead to xenophobia, while internationalism inevitably leads to connection and solidarity. We argue for more *relational* accounts of the local which understand that the ‘local’ and the ‘global’ are co-constituted in *glocal* places (Swyngedouw 1997). In the context of peak oil, intentional localisation means managing the connections between places in such a way as human freedom and connection are maximised, along with local distinctiveness and resilience. It does not mean a xenophobic retreat.

5. Conclusion

This paper critiques Swyngedouw’s conceptualisation of the politics of climate change as reducible to ‘post-political’ conceptions of sustainability, arguing that climate

change and resource crises, including peak oil, are contested over the extent that these crises provide the opportunity to move away from an integrated global economy either to a new regionalism or to a new convivial economy. Localisation is not autarky – it is a different calculus about where economic activity should be located. There are immanent and intentional versions, with immanent localisation really meaning that business will carry on as usual, but with shorter supply and distribution networks, with a globally integrated economy perhaps becoming more regionalised into the three blocks (the Americas, the EU, east Asia) that some globalisation sceptics have long argued is a better conceptualisation of the current global economy than that of hyperglobalisers (Hirst and Thompson 1996). Immanent localisation does not specify any particular scale, just that goods should be produced as locally as makes sense within technical and ecological limits and the materiality (oil burned, CO₂ emitted) of global networks and flows. It does not specify what is produced – it can mean unsustainable technologies like jet aircraft. It will not entail excessive regulation. There will not need to be ‘a toll booth outside every city’ (Wolf 2004:194-9) as a high oil price will guide business to cut its costs, reducing emissions and resource consumption in the process. Immanent localisation suggests a less globalised capitalism as a new regime of accumulation, with technology able to provide solutions to the climate and resource problems. Intentional localisation seems a far more fundamental critique of neoliberal globalisation.

For geographers, the discussion suggests that analyses of globalisation, of the global economy, and of scale, do need to pay attention to the materiality of scale. When examining global economic networks, we cannot argue that scale is *just* socially constructed: moving goods and services around the globe has material effects in terms of oil consumed and emissions. This affects another material calculus: the extent that we are using up material resources at an unsustainable rate and emitting greenhouse gasses beyond the capacity of the planet to absorb them, given today’s or in-the-pipeline socio-technical systems. Your reaction to this depends on your perception of the ability of future socio-technical systems to solve the peak oil and global warming problems. Technological optimists have faith in humanity’s ability to develop the right technological fix, while pessimists would argue that we need reduce oil consumption and greenhouse gas emissions now, and to do that we need to pay attention to the materiality of global networks. Those

that are light (say, exchanging information and knowledge over the internet) can remain, while those that are heavy (exporting British cars to China and Chinese cars to Britain) are perhaps more obviously unsustainable. The unsustainability of these networks is not a social construction, but a material socio-technical system.

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Bibliography

- Abbott, C. (2008). An Uncertain Future: Law Enforcement, National Security and Climate Change. London, Oxford Research Group.
- Alfonsi, S. (2008). Oil Price Fallout: Jobs Coming Home?As shipping costs rise, businesses jump ship. ABC News, June 24, available at <http://abcnews.go.com/Business/story?id=5235731&page=1>.
- Amin, A. (2002). "Spatialities of globalisation." Environment and Planning A **34**: 385-399.
- Amin, A. (2004). "Regions Unbound: Towards a new politics of place." Geografiska Annaler **86B**(1): 33-44.
- Amin, A., A. Cameron, et al. (2002). Placing the Social Economy. London, Routledge.
- Anderson, K., A. Bows, et al. (2006). Growth scenarios for EU and UK aviation: contradictions with climate policy. Manchester, Tyndall Centre for Climate Change Research Working Paper 84.
- Ashman, S. (2004). "Resistance to Neoliberal Globalisation: a case of 'Militant Particularism'?" Politics **24**(2): 143-153.
- Astyk, S. (2008). Depletion and Abundance: life on the new home front. Gabriola Island BC, New Society Publishers.
- Bhagwati, J. (2004). In Defense of Globalization Oxford University Press.
- Blühdorn, I. (2007). "Sustaining the Unsustainable: Symbolic Politics and the Politics of Simulation." Environmental Politics **16**(2): 251-275.
- Boddy, M. and C. Fudge, Eds. (1984). Local Socialism. London, Macmillan.
- Bookchin, M. (1995). From urbanisation to cities: towards a new politics of citizenship. London, Cassel.
- Bowen, A., S. Fankhauser, et al. (2009). An outline of the case for a 'green' stimulus London, The Grantham Research Institute on Climate Change and the Environment
- Brenner, N. (2001). "The limits to scale? Methodological reflections on scalar structuration." Progress in Human Geography **25**(4): 591-614.
- Bridge, G. (2008). "Environmental economic geography: a sympathetic critique." Geoforum **39**: 76-81.
- Brown, J. C. and M. Purcell (2005). "There's nothing inherent about scale: political ecology, the local trap, and the politics of development in the Brazillian Amazon." Geoforum **36**(607-624).
- Bulkeley, H. and M. Betsill (2003). Cities and climate change : Urban sustainability and global environmental governance. London, Routledge.

- Busby, J. W. (2008). "Who Cares about the Weather?: Climate Change and U.S. National Security." Security Studies **17**(3): 468 - 504.
- Cavanagh, J. and J. Mander (2004). Alternatives to Economic Globalization. San Francisco, Berrett-Koehler Publishers.
- Clavel, P. (1986). The Progressive City: Planning and Participation 1969-1984. Brunswick, New Jersey, Rutgers University Press.
- Cole, H., C. Freeman, et al. (1973). Models of Doom: a critique of the limits to growth. New York, Universe Books.
- Cowen, M. and R. Shenton (1996). Doctrines of Development. London, Routledge.
- Cox, K., Ed. (1997). Spaces of Globalisation: reasserting the power of the local. London, The Guildford Press.
- Curtis, F. (2002). "Eco-localism and sustainability." Ecological Economics **46**: 83-102.
- Dauncey, G. (1988). Beyond the crash: the emerging rainbow economy. London, Greenprint.
- de Sousa Santos, B., Ed. (2006). Another Production is Possible: Beyond the Capitalist Canon. London, Verso.
- DeFilippis, J. (2004). Unmaking Goliath: Community Control in the Face of Global Capital. London, Routledge.
- Defilippis, J., R. Fisher, et al. (2006). "Neither Romance Nor Regulation: Re-evaluating Community." International Journal of Urban and Regional Research **30**(3): 673-689.
- Delaney, D. and H. Leitner (1997). "The political construction of scale." Political Geography **16**(2): 93-97.
- Doherty, B., M. Paterson, et al. (2002). "The Fuel Protests of 2000: Implications for the Environmental Movement in Britain." Environmental Politics **11**(2): 165-173.
- Doherty, B., M. Paterson, et al. (2003). "Explaining the fuel protests." British Journal of Politics and International Relations **5**(1): 1-23.
- Donlan, T. (2008). A World of Wealth: How Capitalism Turns Profit into Progress. London, FT Press.
- Freeman, C. (2001). "Is Local: Global as Feminine: Masculine? Rethinking the Gender of Globalization." Signs **26**(4): 1007.
- Friedman, T. L. (2006). The world is flat : the globalized world in the twenty-first century. London, Penguin Books.
- Friedman, T. L. (2008). Hot, flat and crowded. London, Allen Lane.
- Gibson-Graham, J. (2006). The End of Capitalism (as we knew it): a feminist critique of political economy. Minneapolis, University of Minnesota Press.

- Gibson-Graham, J. (2006). A Post Capitalist Politics. Minneapolis, University of Minnesota Press.
- Greenspan, A. (2008). The Age of Turbulance. London, Penguin.
- Greer, J. (2008). The Long Descent: a user's guide to the end of the industrial age. Gabriola Island, BC, New Society Publishers.
- Hansen, J. (2008). Coal-fired power stations are death factories. Close them. The Observer. London, The Observer <http://www.guardian.co.uk/commentisfree/2009/feb/15/james-hansen-power-plants-coal> last accessed 19th March 2009.
- Harvey, D. (1974/2001). Population, resources, and the Ideology of Science Spaces of Capital: towards a critical geography. D. Harvey. Edinburgh, Edinburgh University Press.
- Harvey, D. (1992). The Condition of Postmodernity. Oxford, Blackwell.
- Harvey, D. (2001). Militant Particularism and Global Ambition: The Conceptual Politics of Place, Space and Environment in the Work of Raymond Williams. Spaces of Capital. Edinburgh, Edinburgh University Press.
- Harvey, D. (2005). A Brief History of Neoliberalism. Oxford, Oxford University Press.
- Heinberg, R. (2004). Powerdown: Options and Actions for a Post-Carbon World. Gabriola Island, BC, New Society Publications.
- Heinberg, R. (2007). Peak Everything: waking up to the century of decline in the earth's resources. Gabriola Island, Clairview.
- Hines, C. (2000). Localisation: a Global Manifesto. London, Earthscan.
- Hines, C. (2004). A Global Look to the Local: Replacing globalisation with democratic localisation London, International Institute for Environment and Development.
- Hirst, P. and G. Thompson (1996). Globalization in Question: The International Economy and the Possibilities of Governance. Cambridge, Polity.
- Hopkins, R. (2008). The Transition Handbook: from oil dependency to local resilience. Totnes, Green Books.
- Houriet, R. (1973). Getting back together. London, Abacus.
- Hudson, R. (2007). "Region and Place: rethinking regional development in the context of global environmental change." Progress in Human Geography **31**: 827-836.
- Imbroscio, D. (1997). Reconstructing City Politics: Alternative Economic Development and Urban Regimes. London, Sage.

IPCC (2007). Climate Change 2007: The Intergovernmental Panel on Climate Change fourth assessment report <http://www.ipcc.ch>.

Kovel, J. (2007). The Enemy of Nature. London, Zed Books.

Krueger, R. and D. Gibbs (2008). "'Third Wave' Sustainability? Smart Growth and Regional Development in the USA." Regional Studies **42**(9): 1263-1274.

Kunstler, J. (2006). The Long Emergency: Surviving the end of oil, climate change and other converging catastrophes of the twenty-first century. New York, Grove Press.

Lang, T. and C. Hines (1993). The New Protectionism: Protecting the future against free trade. London, Earthscan Publications.

Lawson, N. (2008). An appeal to reason: a cool look at global warming. London, Duckworth Overlook.

Lomborg, B. (2001). The Sceptical Environmentalist. Cambridge, Cambridge University Press.

Lomborg, B. (2007). Cool It: the skeptical environmentalist's guide to global warming. London, Marshal Cavendish.

Loomis, M. (2005). Decentralism. Montreal, Black Rose Books.

Mackintosh, M. and H. Wainwright, Eds. (1987). A Taste of Power: the Politics of Local Economics. London, Verso.

Marston, S., J. P. I. Jones, et al. (2005). "Human Geography without scale." Transactions of the Institute of British Geographers **30**: 416-432.

Marston, S. A. (2000). "The social construction of scale." Progress in Human Geography **24**(2): 219-242.

Marston, S. A. and N. Smith (2001). "States, scales and households: limits to scale thinking? A response to Brenner." Progress in Human Geography **25**(4): 615-619.

Massey, D. (1994). A global sense of place. Space, Place and Gender. D. Massey. Cambridge, Polity Press: 146-156.

McCarthy, C. (2007). The Road. London, Picador.

McKibben, B. (2007). Deep Economy: the wealth of communities and the durable future. New York, Times Books.

Meadows, D. H., J. Randers, et al. (2005). Limits to Growth: the 30-year update. London, Earthscan.

Meadows, D. H. e. a. (1974). The Limits to Growth: a report for the Club of Rome's project on the predicament of mankind. London, Pan.

Melville, K. (1972). Communes in the Counter Culture: Origins, Theories and Styles of Life. New York, William Morrow and Company.

- Mitchell, S. (2006). Big Box Swindle: The True Cost of Mega-Retailers and the Fight for America's Independent Businesses. Portland, Beackon Books
- Monbiot, G. (2006). Heat: how to stop the planet burning. London, Allen Lane.
- Mortishead, C. (2008). Oil price crisis threatens to reverse globalisation. The Times Business Briefing online, available at: <http://business.timesonline.co.uk/tol/business/columnists/article4107268.ece>.
- Murphy, P. (2008). Plan C: Community Survival Strategies for Peak Oil and Climate Change. Gabriola Island, BC, New Society Publishers.
- NEF (2007). The European Unhappy Planet Index: an index of carbon efficiency and well-being in the EU. London, The New Economics Foundation and Friends of the Earth.
- Norberg-Hodge, H. (1991). Ancient futures: learning from Ladakh. London, Rider.
- Norberg-Hodge, H. (2001). Shifting Direction - from global dependence to local interdependence. The case against the global economy : and for a turn towards localization. E. Goldsmith and J. Mander. London, Earthscan Publications.
- North, P. (2005). "Scaling alternative economic practices? Some lessons from alternative currencies." Transactions of the Institute of British Geographers **30**(2): 221-233.
- North, P. (2007). Money and Liberation: the micropolitics of alternative currency movements. Minneapolis, University of Minnesota Press.
- North, P. and D. Featherstone (2009). Globalisation, global justice and climate change. Changing Worlds : Emerging World Movement and the World Social Forum. J. Sen and P. Waterman. New Delhi, OpenWord.
- Ohmae, K. (1994). The borderless world: power and strategy in the global marketplace. London, Harper-Collins.
- Orlov, D. (2008). Reinventing Collapse: The Soviet example and American prospects. Gabriola Island, BC, New Society Publishers.
- Pacala, S. and R. Socolow (2004). "Stabilization Wedges: Solving the Climate Problem for the next 50 years with Current Technologies " Science **305**: 968-971.
- Peck, J. and A. Tickell (2002). "Neoliberalizing space." Antipode **34**(3): 380-404.
- Polanyi, K. (1944/1980). The Great Transformation. New York, Octagon.
- Ritzer, G. (2004). The McDonaldization of society Thousand Oaks, CA Pine Forge Press.
- Robinson, N. (2002). "The Politics of Fuel Protests: Towards a Multi-Dimensional Explanation." The Political Quarterly **73**(1): 58-66.
- Robinson, N. (2003). "Fuel Protests: Governing the Ungovernable?" Parliamentary Affairs **56**: 423-440.

Rubin, J. and B. Tal (2008). Will Soaring Transport Costs Reverse Globalization?. CIBC World Markets, available at: yaleglobal.yale.edu/about/pdfs/oil.pdf

Scott Cato, M. (2006). Market Schmarket. Cheltenham, New Clarion Press.

Shuman, M. (2001). Going Local: Creating Self Reliant Communities in a Global Age. London, Routledge.

Simms, A. (2007). Tescopoly. Constable, London.

Stiglitz, J. (2002). Globalisation and its discontents. London, Allen Lane.

Stiglitz, J. and A. Charlton (2005). Fair Trade for All: How Trade and Pomote Development. Oxford, Oxford University Press.

Swyngedouw, E. (1997). Neither Global nor Local: 'Glocalisation' and the politics of scale. Spaces of Globalisation: reasserting the power of the local. K. Cox. London, The Guildford Press: 137-166.

Swyngedouw, E. (2007). Impossible "Sustainability" and the Post-Political Condition. Sustainable Development. D. Gibbs and R. Krueger. New York, Guilford Press.

Tainter, J. (1988). The Collapse of Compex Societies. Cambridge, Cambridge University Press.

Trainer, T. (1995). The Conserver Society. London, Zed Books.

TyndallCentre (2008). Decarbonising the UK: Energy for a climate conscious future, The Tyndall Centre for Climate Change Research.

Wall, D. (2005). Babylon and Beyond: the economics of the Anti-Capitalist, Anti-Globalist and Radical Green Movements. London, Pluto.

Webb, T. (2009). Shell dumps wind, solar and hydro power in favour of biofuels The Guardian. London, The Guardian available at <http://www.guardian.co.uk/business/2009/mar/17/royaldutchshell-energy> last accessed 19th March 2009.

Weidmann, T., R. Wood, et al. (2007). Development of an Embedded Carbon Emissions Indicator for the UK: Report to the UK Department of Environment, Food and Rural Affairs by Stockholm Environment Institute at the University of York and Centre for Integrated Sustianbility Analysis at the University of Sidney. London, Defra.

Weisart, D. (2001). "Coca-Cola in China: Quentching the thirst of a billion." The China Business Review July-August.

Wolf, M. (2005). Why Globalization Works. New Haven, Yale Nota Bene.

Woodin, M. and C. Lucas (2004). Green Alternatives to Globalisation: a Manifesto. London, Pluto.