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Critical urban studies in the age of a green new deal

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Nothing will shape urban life in this century more than carbon—efforts to abolish it, and the consequences of its pollution. Critical urban studies must put the climate emergency at the very core of the discipline. This paper suggests four methodological injunctions to this end: (1) a field-wide development of carbon literacy along the lines of how all critical urbanists understand capital and inequalities; (2) research that links technical low-carbon urban projects to urban spaces' core political conflicts; (3) both a recuperation of historical cases of democratizing, massive built environment intervention, and an engagement with the cutting-edge technologies of green urbanism, each in service of producing egalitarian visions of climate-friendly urban spaces; finally, (4) I argue that critical urbanists must join the fight, forging new alliances within and beyond universities to prevent eco-apartheid, and articulate a no-carbon, radically democratic alternative.

Keywords **urbanization, climate change, density, carbon, social movements, political economy**
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Introduction

Will anything shape urban life in the twenty-first century more than carbon—the efforts to abolish it, and the consequences of its pollution?

The only way to prevent global warming from increasing in intensity in perpetuity is cut carbon emissions to zero, ideally by 2050 or shortly thereafter (Masson-Delmotte et al. 2018). Decarbonizing will leave precious little of urban life, anywhere, untouched. And in most cases, decarbonizing will involve not just changes to street lamps and the greening of municipal buildings' rooftops. It will involve changes to housing, transit, and land use; it will involve new systems for managing waste and new systems for circulating less centralized energy. This means, by extension, that the line between climate politics in particular, and virtually any other major urban contestation, has dissolved (Cohen 2017). And all this is urgent! The guardrail 2C target is more forgiving in terms of timelines than the safer 1.5C target; even with the 2C target in mind, leading climate scientists have said that the 2020s must be the decade of 'Herculean' efforts to transform the economy (Rockström et al. 2017).

That's the causal end. The consequences will also be (unevenly) ubiquitous—and they could be apocalyptic. By one estimate, across the world, roughly 300 million people now live on land that would be underwater, by 2100, under a global average of 4 degrees Celsius warming—but not under 2 degrees Celsius warming (Strauss, Kulp, and Levermann 2015). Another 232 million live on land that would be flooded even at 2 degrees Celsius (Strauss, Kulp, and Levermann 2015). Never mind storm surges, occasional flooding, gradual land erosion, and other maladies associated with rising seas. The biggest numbers are in South and South-East Asia, but coastal cities the world over are vulnerable. They are nearly all also vulnerable to heat waves and stronger storms, and in many cases drier droughts. And all of this has already begun: with adaptation even more obviously than decarbonization, the politics of climate safety and of pre-existing struggles over housing, transit, infrastructure, and so on, are one.

And cause and consequence are merging: what use are solar panels covering bungalows that are destroyed by sea level rise or wildfires? Increasingly, in both imaginaries and concrete projects, we will see a fusion under the two ostensibly contrary priorities of decarbonization and adaptation (Wachsmuth and Angelo 2018).

Each urban space will be touched by the effort to decarbonize, each urban space will be impacted by warming, and the slower we decarbonize, the more severe those impacts will be. One can debate the definition of 'the urban'. But whether one is speaking only of big, jurisdictionally delimited municipalities or a 'planetary' fabric of differentiated urban space: carbon's primacy obtains either way.

The climate emergency is here. And it is as grave for social science as it is for organized life. For neither is prepared for the all-encompassing changes that are now inevitable—changes whose severity is still up for grabs. For decades, a tiny subset of society, and a comparably tiny sub-set of social science, has self-identified as being principally concerned with the environment; even fewer have focused on climate change as such. Now that the climate emergency is shredding the already untenable divisions between social and ecological inquiry

(Mies 1986; Moore 2015), there is a plethora of new scholarly paradigms for a more encompassing framework. In this essay, I will not attempt to review the tradition of urban climate studies, or the competing paradigms for socio-ecological analysis (in and beyond urban studies).

I simply propose four methodological injunctions that I hope could prove useful across theoretical frameworks and particular traditions—not floating above, but cutting through. The first two are basic and general: (1) embrace carbon absolutism, and (2) link the political, the technocratic, and the carbon; my third injunction, with an eye to the politics of the 2020s, is idiosyncratic: (3) Take back the future and the past (of creative built environment changes). And my conclusion and final injunction: (4) Join the fight.

Embrace carbon absolutism

A handful of greenhouse gases (GHGs), most importantly carbon dioxide, are what cause climate disruption. For short, I'll speak of carbon. The amount of carbon emitted will profoundly influence the extent of climate breakdown; and the form that decarbonization takes will transform urban spaces in various contextually specific ways. Carbon, then, is not akin to a particular sector or concern that, while connected to everything else, has its own internally consistent subject matter—like transportation, sport, or the arts. Until carbon emissions have been practically zeroed out, carbon will be more like money (or capital), or inequalities. These are pervasive phenomena that can be focused on primarily, or that must be kept in consideration at all times. Any critical account of urban transportation involves some understanding of capital and cost, and some sense of how it reproduces or softens inequalities. In practice, this is only possible because in the critical social sciences, analyses of capital and inequalities are ubiquitous. We are all basically literate in these phenomena, even if they are not our primary concern. We should all, I would argue, get to the same place with regard to carbon (Berners-Lee 2011; Ervine 2018).

This is not to say that we must all master the rudiments of climate science. Rather, understanding the causal relationship between human activity and climate change requires *social scientific* analysis of carbon emissions: the who, when, what, where, how? The natural science of climate change is mostly settled. (Probably the biggest remaining gap for urbanists is projecting small-scale regional change.) By contrast, both the social science of emissions accounting, and the carbon literacy of most of us social scientists, are still developing. Carbon emissions accounting is how we estimate the links between, say, driving a car or cooking a hamburger and the amount of carbon in the atmosphere. This involves statistics and—more difficult—assigning causal responsibility (Bergmann 2013; Jamieson 2014) Is the farmer who raised the cow responsible for the burger's emissions? The restaurant that served it? The urbanist who devoured it? The agricultural system? The supermarket system? The restaurant system?

Because answers to these questions come down to abstracted quantification, I see carbon in the contemporary world as fundamentally analogous to capital (or money, or value). We all need to refine our carbon intuition so that we can

roughly understand what kinds of phenomena raise or lower carbon emissions in urban spaces.

Yet the two most common ways we have of thinking about carbon are limited: the individual carbon footprint, and the carbon footprint of some polity or place, like London. The standard carbon footprint of individuals doesn't comport with a theory of change—or even a theory of individual behavior—that critical urbanists would find compelling. Meanwhile, the carbon footprints of places is a deeply flawed instrument (Wachsmuth, Cohen, and Angelo 2016).

The carbon footprint of places—including cities—is almost always reported territorially, which means, one estimates how many emissions are physically produced in a place, then one adds the emissions from waste leaving the city, and of the electricity wired into the city (Yetano Roche et al. 2014). What this means is that affluent cities' normal carbon footprints—what I call their 'snowglobe' footprints—conveniently exempt all the polluting material work that enables their urban prosperity. A handful of wealthy cities have done both a snowglobe and a consumption-based footprint—ie, including an estimate of all the emissions involved in making and moving the goods ultimately consumed in the city (plus air travel of city residents). Typically the consumption count is two to four times higher than the snowglobe count (e.g. British Standards Institution 2014; Stanton, Bueno, and Munitz 2011; Stockholm Environment Institute - U.S. 2012). This gives a much more cynical picture of density in affluent places: far from a bullet-proof low-carbon technology, affluent density turns out to be a lovely form of environmental privilege—rub elbows with fascinating neighborhoods, while the factories that churn out your smart phones belch smoke in another land. Even the technocratic C40 low-carbon policy network has acknowledged that consumption accounting undermines the easy image of affluent, dense cities being low-carbon by default (C40 2018). Density anchored in affordable housing tends to have much lower carbon footprints than density anchored in luxury condominiums (Heinonen et al. 2013; Rice et al. 2019).

This more nuanced picture of density is just an example of the many upshots of a more nuanced analysis of carbon flows. It is the essential starting point because in a world of global trade flows and sprawling food and energy systems, it is hopeless to understand carbon and cities without a planetary perspective, without seeing cities as nodes in a world of flows. Most work required to decarbonize urban life will occur beyond city limits, in their 'operational landscapes' (Brenner and Katsikis 2016); the virtue of the 'planetary urbanization' and 'world ecology' frameworks is that they reflect this fact (Brenner 2014; Patel and Moore 2017).

And all that work—both within and outside cities—immediately involves complications far beyond the simple question of swapping tofu for beef, or wind turbines for coal power plants. In practice, the decarbonization of activities like space heating buildings, moving people in buses, producing steel and concrete, growing vegetables, and so on, involve innumerable technical complexities. But we cannot afford to lapse into a technocratic approach.

Link the technocratic, the political, and the carbon

How can we politicize urban carbon in our research? Should we simply describe (and/or critique) powerful, technocratic actors who are pursuing low-carbon

strategies that reproduce inequalities? Wait for urban movements from below take up low-carbon urban politics and simply follow where they lead? Or can following the carbon in diverse ways expand our accounts of urban climate politics?

Urban political ecology (UPE) has taught a generation of urbanists to think about the environment, social inequalities, complex infrastructures, and urbanization processes in complex new ways. These studies have helpfully deconstructed rigid distinctions between experts and the rest, exposing the hollowness of ostensibly 'post-political' solutionism (Swyngedouw 2011). The principal topic of UPE research has been water. Water's infrastructures are complex; they breach jurisdictional and spatial containers. But water is also concrete, relatively easy to apprehend, and watersheds are largely regional. It is easy to identify a range of protagonists pursuing contrary projects concerning water. The upshot is that UPE has taught us to see beyond the ridiculous notion that there is a contest between environmental and social priorities. In fact, there is a contest between different socio-natural projects. This framework cannot, however, straightforwardly inform analyses of urban carbon politics.

As I argued above, a satisfying analysis of carbon flows requires a dialectic of abstraction and concreteness, a multiplicity of accounting perspectives, and a planetary geographic frame. If mustering a grassroots movement to contest water governance, waste systems, or air toxins has been challenging (Sze 2007), it has been even rarer for grassroots movements of working people to organize around urban carbon emissions (at least until the last two or three years). Another possible reason that there has been so little work on carbon politics in the UPE tradition (for a signal exception, see Rice 2014) is that water and other urban-regional resources are not analogous to carbon. Take Hajer and Dassen's (2014) sprawling effort to account for all major urban materials in a UPE framework of regional metabolism: carbon is absent. This all-encompassing political ecology of the urban is missing the principal *cause* of the era's predominant urban environmental crises!

To center carbon in critical urban studies, we should also draw on the literatures on green gentrification (Anguelovski et al. 2018; Checker 2011; Dooling 2009; Gould and Lewis 2017). These studies essentially track how land markets and housing prices respond to local environmental improvement, typically causing the displacement of poor and working-class residents in the wake of greening.

Accounts of green gentrification typically combine research streams on environmental injustice (Agyeman et al. 2016; Bullard 2000) and a broader literature on battles over the urban 'production of space' (Lefebvre 1991), urban land markets and 'growth machines' (Harvey 1989; Logan and Molotch 1987), and 'collective consumption' amenities (Castells 1983). To be sure, green gentrification accounts are also limited by understanding greening in terms conventional environmental amenities and harms. But because the political economy current of this tradition concerns the intersections of housing, transit, and land use, and because those are such important drivers of urban carbon emissions, we can read carbon politics into battles over gentrification—both when the key actors talk about carbon, and when they do not. In my own research, I have argued that housing movements can be low-carbon protagonists if they defend affordable densification, in opposition to a luxury, low-carbon densification scheme, even if those housing movements do not speak about carbon; all urban actors

are climate actors, whether or not they speak in those terms (Cohen 2017). I also found that with time, these same movements have increasingly adopted climate rhetoric, as discourse and research compatible with their visions proliferates (Cohen 2017, 2016). Echoing UPE, this is not a question of elite urban carbon hawks versus purely social concerns, but rival political visions of low-carbon urbanism.

And beyond the politics of low-carbon density, we can find intense contestations around the intersections of political economy and carbon around all manner of low-carbon urban built environment dimensions (Feng and Hubacek 2016; Knuth 2019; 2016; Silver 2017; While, Jonas, and Gibbs 2010). Carbon is increasingly entangled in esoteric technical domains; a neighborhood micro-grid, district heating systems, smart meters linking heat pumps to utility sub-stations, and so on. The socio-technical systems literature shines in illuminating these complexities (Bulkeley et al. 2011), although it does not always succeed in showing their subtle connections to agonistic politics, from revolting social movements to bitter left-right political battles. Our job is not to invent or project protagonists who perfectly share our values and desires. But it is to explore enough social groups, and to situate socio-technical systems broadly enough, that we see where the most intense political fault lines are developing, and make sure we understand multiple sides of the conflict.

And just as elite urban projects have entailed a wide range of explicit and implicit carbon politics, so too have campaigns from below, civil society, and progressive politicians. Efforts to source more food for school lunches from organic farms in São Paulo, to stop airport (runway) construction in London and Mexico City, to increase metropolitan-scale public transit in Paris, all connect carbon and a diversity of political constituencies in different ways. In Washington, DC, organizers have linked climate politics with the framework of prison abolition (Ranganathan and Bratman 2019).

Put another way, while the multi-level climate governance literature (echoing the fast policy transfer literature) has helpfully highlighted the inter-city travel of climate policy ideas (Acuto 2013; Bulkeley and Betsill 2013), I am proposing a combination of sophisticated carbon accounting with relational and intersectional approaches to the multiplicity of local actors and political economies (Desmond 2014; Pulido 2016; Ranganathan 2016); this would focus our attention on carbon politics' entanglement with social struggles where many core actors are not primarily oriented toward carbon. By that rationale, following the carbon across localities would yield a different economic geography than accounts of low-carbon policy city networks; we would instead focus more on political economic geographies of supply chains, mineral extraction, farming, energy infrastructures, and so on, which connect city and hinterland (de LT Oliveira, McKay, and Plank 2017; Klinger 2017; Riofrancos 2019).

All this work should maximize our analytic leverage when we confront the increasing rise of self-conscious climate movements and demonstrations in cities. They may not always call themselves urban movements, but how else could we think of Extinction Rebellion, a climate justice movement whose principal tactic has been interrupting urban flows of people and capital (Madden 2019).

Following the carbon into the viscera of social life should also enrich our understanding of adaptation politics. For one thing, as I argued above, getting

to zero carbon means that even poor urban spaces that bear effectively no responsibility for climate change will eventually be touched by decarbonization: low-income precarious homes will get electricity somehow, move around somehow, and so on. For another, insofar as adaptation projects do *not* in any sense engage the politics of decarbonization, this is something that a critical social science should critique and explain. Finally, the underlying dynamics whereby carbon is entwined with colonialism and racial capitalism also of course obtain in adaptation politics (Goh 2019b, 2019a; Koslov 2016, 2019), and in contests over UPE mainstays like water and its infrastructures (Doshi 2019; Millington 2018), which involve the exact same housing, transit, land use politics as fights over carbon and densification (Cohen 2016). A finer emphasis on carbon might help bridge ostensibly separate stories about decarbonization and adaptation.

Ultimately, we can only view carbon-oriented politics as irrevocably technocratic and esoteric if we believe that the traditional vehicles of insurgent and progressive politics—community groups, labor unions, housing movements, and so on—are incapable of thinking about carbon with as much nuance and precision as when they think about capital, racial and colonial violence, and interest group realpolitik.

Take back the future and the past (of creative built environment changes)

As bad as climate breakdown is now, and as big as climate protests, new green technologies, and pledged climate policies have become, the really big stuff is still ahead. Urban climate politics are always about the future. This is not unprecedented. The birth of urban industry, anti-colonial revolt, movements of women, radicalized communities, migrants, and others have focused on the future, and thought of it. But perhaps the climate emergency is distinctive in just how apocalyptic some of its most plausible scenarios are—they take the old genre of 'dead cities' (Davis 2002) and substantiate them with the world's best science. At the same time, we confront eco-modernist utopias, dazzling green technological dreamworlds. How can critical urban studies take a more measured and critical approach to these imaginaries? And which histories should we return too?

We must reckon with the fact that fear of (all-too plausible) climate dystopias has become a political force. It is not just carbon emissions accounting that is increasingly shaping policies to change the built environment, but also the interpretations of climate models: projections of water scarcity, storm violence, sea level rise, and their damages. In Bangladesh, such 'anticipatory ruination' has come to justify an elite-driven 'adaptation regime' of economic development, which involves a dubious embrace of shrimp-farming in the Sundurbans, along with encouraging migration of young people from rice-growing villages into big cities to work in factories or urban services (Paprocki 2019). Why stay behind on shrinking land that is ostensibly doomed? In the United States, we have analogous struggles, only this time it is insurers whose cold mathematical models seem to map precisely how much insurance costs should rise for vulnerable properties, in effect redistributing populations and financial hardship

through climate projection (Elliott 2019). And at a different level, idyllic visions of 'eco-city' and 'smart city' futures are used to sell developments and projects—some of them vast—that often amount to little more than green-washed enclaves for the rich, superficial branding, or the harvesting of individuals data for tech firms' profit.

Critical urban scholars have rightly critiqued these visions. The more challenging task is debunking with a reconstructive move. As I suggested above, this means teasing out alignments between prospective low-carbon efforts and really existing social actors and political forces. Here I push us to identify real or potential social and political alignments at the technological cutting edge of a democratic green urban future. This requires disentangling and investigating built environment interventions both in terms of modest systems and grand plans.

In terms of systems, we can think of emerging technologies that should be fought over, and over which we need a multi-sided understanding. Rooftop and community solar arrays, electric rickshaws, high-efficiency air-conditioning units, electric buses, home energy retrofits, low-carbon leisure amenities, neighborhood cooling centers, porous sidewalks, white and green roofs, restored mangroves and marshlands, 'agrivoltaic' systems (where solar panels shade pollinator plants and vegetables)—all these, and countless other potential interventions, can be found in urban climate plans, and in visions for the future that emphasize either luxury enclaves or democratic urban spaces (e.g. see Lennon 2017; Mulvaney 2019; Rao and Ummel 2017).

As scholarship on the practices proliferates, we might interrogate the conditions under which these new technologies and systems could be scaled up and managed democratically in urban spaces. We might borrow insights from relational political sociology, of the kind practiced by Gianpaolo Baiocchi (Baiocchi 2005; Baiocchi, Heller, and Silva 2011) in his studies of participatory budgeting politics in Brazil and elsewhere. This work complicates the hard conceptual divide between 'civil society' or 'social movement', and state. From this perspective, states and movements are always overlapping and co-constitutive. Participatory budgeting really has put neighborhoods in charge of a giant piece of a city's budget. On the other hand, compared to Porto Alegre's achievements, participatory budgeting in North America, over tiny pots of city councillor's discretionary funds, is just a waste of everyone's time (Baiocchi and Ganuza 2017).

It is this context-specific challenge of scaling, enabled by public investment, that we need to think with. We might mix our carbon imagination with historical analogy. Part of our task is to compare emerging urban climate politics with what they *might* become, spaces of (climate) hope: projects where large scale transformations of the built environment at once slash carbon emissions, increase adaptive capacity, and abolish inequalities. This isn't the norm of rigorous social science. Then again, rigorous social science with a temporally restricted framework is in constant danger of naturalizing the prevailing power relations (Unger 2002). Breaking with the Thatcherite 'There is No Alternative' dogma means taking climate justice as an organizing principle of urbanization seriously as an emerging possibility.

One way to ground possible near-term climate just futures would be re-examining major urban efforts to strategically leverage particular built

environment interventions to achieve multiple goals at once. To see a pretty democratic and successful example, we could revisit Red Vienna's successful program of social housing construction (Blau 1999), whose legacy is a dense, affordable, relatively low-carbon urban fabric. (We might also explore the different Singaporean public housing model or the massive construction of council housing in London after World War 2 as models of energy-efficient urban planning via social housing construction.[1]) More broadly, we might revisit both developmentalist and anti-colonial urban visions that aimed to overthrow colonial legacies and improve people's lives dramatically in short periods of time. For more contemporary examples, we could critically examine the recent São Paulo master plan, which aimed to strategically densify city corridors with a dizzying array of legal and financial mechanisms, while greatly expanding public housing provision; the plan was largely written by an architect and urbanist (Fernando de Mello Franco) and a historian of housing turned Workers Party city councilor (Nabil Bonduki). We could also look at the more narrow efforts, with mixed results, to implement bus rapid transit as a strategic, multi-benefit intervention, from Bogotá to Cape Town. We could examine the inept but expensive recent neoliberal green resilience infrastructure projects in the United States—but use an analysis of landscape interventions during the New Deal to suggest better approaches to contemporary challenges (Fleming 2019). As we assemble these analyses, we might consider combining them into broader packages.

Conclusion: join the fight

What changed for climate politics in 2019, at least in the North Atlantic, was the sudden idea that we could confront the climate emergency with a policy framework at the scale of the problem: with a Green New Deal (Aronoff et al. 2019; Klein 2019; Pettifor 2019).[2] The European Union has even made its minimalist homage in the form of a (much more limited) 'Green Deal', while the British Labour Party ran on a Green Industrial Revolution that polled well—but not enough, evidently, to prevent the party's brutal defeat. The new Spanish coalition government of Socialists and Podemos, whose electoral platforms included a Green New Deal, declared a climate emergency in January 2020. At the time of writing, in the United States, all the leading presidential contenders are campaigning on some version of a Green New Deal—most prominently, Bernie Sanders. And there are echoes of this vision of transformative green investment elsewhere. In Brazil, the venerable United Nations economics group, ECLAC, is proposing a 'Big Green Push' of environmental investment, with a focus on infrastructure. One way of reading the Green New Deal idea is that it is a leftwing counterpart to the argument, increasingly made in elite global circles, that the world requires a massive new round of investments in infrastructure and the built environment—what Marxist critics have called a green 'spatial fix'.

This grand vision has everything to do with urban spaces. The first Green New Deal legislation introduced in the U.S., by Ocasio-Cortez and Sanders, was a Green New Deal for Public Housing. Cities like New York and Los Angeles are proposing their own Green New Deal legislation. And even policies not explicitly framed in urban terms—from food to energy—implicate urban spaces

in subtle and obvious ways. We cannot know whether the specific Green New Deal phrase will survive politically for another year—or ten—but it does seem that at last, the idea of transformative green investment, largely driven by the public sector, has finally become one of the principal possible futures for urban climate politics.

With the likely return in the 2020s of a more 'mixed economy' model of economic and climate governance (from both left and right), we must find ways of becoming practically involved that don't require surrendering our critical insights—after all, the postwar heyday of global mixed economy models planted the seeds of neoliberalism and prevented more radical pathways (Offner 2019). So we must highlight contradictions—and delve into them.

In addition, then, to critiquing and combatting the rise of eco-apartheid and green capitalism, I would argue that critical urban studies might explore ways to deepen its public engagements, finding ways to support, inform, and of course improve Green New Deal-style urban climate policy projects. In this light, we might revisit the stories of urbanists who have thrown themselves into this kind of politics. I think of Catherine Bauer, the urban reformer who first traveled Europe in the early 1930s to see the latest trends in social housing, then helped found the Labor Housing Congress in Philadelphia, to lobby the New Deal government around a progressive vision of 'modern housing' (Radford 1996). I think of a whole generation of Brazilian urbanists—Nabil Bonduki, Raquel Rolnik, Erminia Maricato—who traveled back and forth between progressive governmental work with the Workers' Party, and the University of São Paulo. And I note that these practical orientations imply closer links between urban scholars, social movements, political parties, and states. And they imply more overlap between urban scholars in social science and urbanists in the design professions.

Overall, I have hoped to argue in this short essay that a more sophisticated grasp of carbon flows, a better understanding of how esoteric climate policies intersect with agonistic politics, and a deeper familiarity with cutting edge green technologies and their likely futures, should equip us to join this decade's existential fight for a decent urban future.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes

1 I owe the idea of investigating London's example to David Madden.
2 The phrase is not new; Pettifor gives a detailed genealogy of its first appearances, and how it came to prominence again in 2018.

References

Acuto, Michele. 2013. *Global Cities, Governance and Diplomacy: The Urban Link*. New York: Routledge.

Agyeman, Julian, David Schlosberg, Luke Craven, and Caitlin Matthews. 2016. "Trends and Directions in Environmental Justice: From Inequity to Everyday Life, Community, and Just Sustainabilities." *Annual Review of Environment and Resources* 41 (1): 321–340. https://doi.org/10.1146/annurev-environ-110615-090052.

Anguelovski, Isabelle, James J.T. Connolly, Laia Masip, and Hamil Pearsall. 2018. "Assessing Green Gentrification in Historically Disenfranchised Neighborhoods: A Longitudinal and Spatial Analysis of Barcelona." *Urban Geography*. https://doi.org/10.1080/02723638.2017.1349987.

Aronoff, Kate, Alyssa Battistoni, Daniel Aldana Cohen, and Thea Riofrancos. 2019. *A Planet*

to Win: Why We Need a Green New Deal. New York: Verso.
Baiocchi, Gianpaolo. 2005. *Militants and Citizens: The Politics of Participatory Democracy in Porto Alegre*. Stanford: Stanford University Press.
Baiocchi, Gianpaolo, and Ernesto Ganuza. 2017. *Popular Democracy: The Paradox of Participation*. Stanford: Stanford University Press.
Baiocchi, Gianpaolo, Patrick Heller, and Marcelo Silva. 2011. *Bootstrapping Democracy: Transforming Local Governance and Civil Society in Brazil*. Stanford: Stanford University Press.
Bergmann, Luke. 2013. "Bound by Chains of Carbon: Ecological–Economic Geographies of Globalization." *Annals of the Association of American Geographers* 103 (6): 1348–1370. https://doi.org/10.1080/00045608.2013.779547.
Berners-Lee, Mike. 2011. *How Bad Are Bananas? The Carbon Footprint of Everything*. Vancouver: Greystone.
Blau, Eve. 1999. *The Architecture of Red Vienna, 1919-1934*. Cambridge, MA: MIT Press.
Brenner, Neil. 2014. *Implosions/Explosions: Towards a Study of Planetary Urbanization*. Berlin: Jovis.
Brenner, Neil, and Nikos Katsikis. 2016. "Operational Landscapes." *Kerb: Journal of Landscape Architecture* 24: 96–97.
British Standards Institution. 2014. *Application of PAS 2070 – London, United Kingdom. An Assessment of Greenhouse Gas Emissions of a City*. London: BSI Standards Limited.
Bulkeley, Harriet, and Michele M. Betsill. 2013. "Revisiting the Urban Politics of Climate Change." *Environmental Politics* 22 (1): 136–154. https://doi.org/10.1080/09644016.2013.755797.
Bulkeley, Harriet, Vanesa Castán Broto, Mike Hodson, and Simon Marvin. 2011. *Cities and Low Carbon Transitions*. London and New York: Routledge.
Bullard, Robert. 2000. *Dumping In Dixie: Race, Class, And Environmental Quality*. 3rd ed. Boulder: Westview Press.
C40. 2018. "Consumption-Based GHG Emissions of C40 Cities." no. March: 17. https://c40-production-images.s3.amazonaws.com/researches/images/68_C40_CBE_Report_FINAL.original.pdf?1520350162.
Castells, Manuel. 1983. *The City and the Grassroots: A Cross-Cultural Theory of Urban Social Movements*. London: Edward Arnold.
Checker, Melissa. 2011. "Wiped Out by the 'Greenwave': Environmental Gentrification and the Paradoxical Politics of Urban Sustainability." *City & Society* 23: 210–229. https://doi.org/10.1111/j.1548-744X.2011.01063.x.I.
Cohen, Daniel Aldana. 2016. "The Rationed City: The Politics of Water, Housing and Land Use in Drought-Parched São Paulo." *Public Culture* 22 (2): 261–289. https://doi.org/10.1215/08992363-3427451.
Cohen, Daniel Aldana. 2017. "The Other Low-Carbon Protagonists: Poor People's Movements and Climate Politics in São Paulo." In *The City Is the Factory*, edited by Miriam Greenberg, and Penny Lewis, 140–157. Ithaca, NY: Cornell University Press.
Davis, Mike. 2002. *Dead Cities*. New York: New Press.
de LT Oliveira, G., B. McKay, and C. Plank. 2017. "How Biofuel Policies Backfire: Misguided Goals, Inefficient Mechanisms, and Political-Ecological Blind Spots." *Energy Policy* 108: 765–775. https://doi.org/10.1016/j.enpol.2017.03.036.
Desmond, Matthew. 2014. "Relational Ethnography." *Theory and Society* 43 (5): 547–579. https://doi.org/10.1007/s11186-014-9232-5.
Dooling, Sarah. 2009. "Ecological Gentrification: A Research Agenda Exploring Justice in the City." *International Journal of Urban and Regional Research* 33 (3): 621–639. https://doi.org/10.1111/j.1468-2427.2009.00860.x.
Doshi, Sapana. 2019. "Greening Displacements, Displacing Green: Environmental Subjectivity, Slum Clearance, and the Embodied Political Ecologies of Dispossession in Mumbai." *International Journal of Urban and Regional Research*. https://doi.org/10.1111/1468-2427.12699.
Elliott, Rebecca. 2019. "'Scarier than Another Storm': Values at Risk in the Mapping and Insuring of US Floodplains." *British Journal of Sociology*. https://doi.org/10.1111/1468-4446.12381.
Ervine, Kate. 2018. *Carbon*. London: Polity.
Feng, Kuishuang, and Klaus Hubacek. 2016. "Carbon Implications of China's Urbanization." *Energy, Ecology and Environment* 1 (1): 39–44. https://doi.org/10.1007/s40974-016-0015-x.
Fleming, Billy. 2019. "Design and the Green New Deal." *Places Journal*. https://placesjournal.org/article/design-and-the-green-new-deal/.
Goh, Kian. 2019a. "Flows in Formation: The Global-Urban Networks of Climate Change Adaptation." *Urban Studies*. https://doi.org/10.1177/0042098018807306.
Goh, Kian. 2019b. "Urban Waterscapes: The Hydro-Politics of Flooding in a Sinking City." *International Journal of Urban and Regional Research*. https://doi.org/10.1111/1468-2427.12756.
Gould, Kenneth A., and Tammy L. Lewis. 2017. *Green Gentrification: Urban Sustainability and*

the Struggle for Environmental Justice. New York: Routledge.
Hajer, Maarten, and Ton Dassen. 2014. *Smart About Cities: Visualizing the Challenge for 21st Century Urbanism*. Rotterdam: nai010 and PBL Publishers.
Harvey, David. 1989. *The Urban Experience*. Baltimore: Johns Hopkins University Press.
Heinonen, Jukka, Mikko Jalas, Jouni K. Juntunen, Sanna Ala-Mantila, and Seppo Junnila. 2013. "Situated Lifestyles: II. The Impacts of Urban Density, Housing Type and Motorization on the Greenhouse Gas Emissions of the Middle-Income Consumers in Finland." *Environmental Research Letters* 8 (3): 035050. https://doi.org/10.1088/1748-9326/8/3/035050.
Jamieson, Dale. 2014. *Reason in a Dark Time: Why the Struggle Against Climate Change Failed—and What It Means for Our Future*. Oxford: Oxford University Press.
Klein, Naomi. 2019. *On Fire: The (Burning) Case for a Green New Deal*. New York: Simon & Schuster.
Klinger, Julie Michelle. 2017. *Rare Earth Frontiers: From Terrestrial Subsoils to Lunar Landscapes*. Ithica, NY: Cornell University Press.
Knuth, Sarah. 2016. "Seeing Green in San Francisco: City as Resource Frontier." *Antipode* 48 (3): 626–644. https://doi.org/10.1111/anti.12205.
Knuth, Sarah. 2019. "Cities and Planetary Repair: The Problem with Climate Retrofitting." *Environment and Planning A: Economy and Space* 51 (2): 487–504. https://doi.org/10.1177/0308518X18793973.
Koslov, Liz. 2016. "The Case for Retreat." *Public Culture* 109 (2): 568–580.
Koslov, Liz. 2019. "Avoiding Climate Change: 'Agnostic Adaptation' and the Politics of Public Silence." *Annals of the American Association of Geographers*. https://doi.org/10.1080/24694452.2018.1549472.
Lefebvre, Henri. 1991. *The Production of Space*. Translated by Donald Nicholson-Smith. Malden, MA: Blackwell Publishers.
Lennon, Myles. 2017. "Decolonizing Energy: Black Lives Matter and Technoscientific Expertise Amid Solar Transitions." *Energy Research and Social Science* 30: 18–27. https://doi.org/10.1016/j.erss.2017.06.002.
Logan, John R., and Harvey Luskin Molotch. 1987. *Urban Fortunes: The Political Economy of Place*. Berkeley, CA: University of California Press.
Madden, David. 2019. "Editorial: City of Emergency." *City* 23 (3): 281–284. https://doi.org/10.1080/13604813.2019.1648734.
Masson-Delmotte, Valérie, Panmao Zhai, Hans-Otto Pörtner, Debra Roberts, Jim Skea, Priyadarshi R. Shukla, Anna Pirani, et al. 2018. "Global Warming of 1.5°C: Summary for Policymakers." *Report of the Intergovernmental Panel on Climate Change*.
Mies, Maria. 1986. *Patriarchy and Accumulation on a World Scale: Women in the International Division of Labour*. London: Zed Books.
Millington, Nate. 2018. "Producing Water Scarcity in São Paulo, Brazil: The 2014-2015 Water Crisis and the Binding Politics of Infrastructure." *Political Geography*. https://doi.org/10.1016/j.polgeo.2018.04.007.
Moore, Jason. 2015. *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. New York: Verso.
Mulvaney, Dustin. 2019. *Solar Power: Innovation, Sustainability, and Environmental Justice*. Berkeley and Los Angeles: University of California Press.
Offner, Amy. 2019. *Sorting Out the Mixed Economy: The Rise and Fall of Welfare and Developmental States in the Americas*. Princeton: Princeton University Press.
Paprocki, Kasia. 2019. "All That Is Solid Melts Into the Bay: Anticipatory Ruination and Climate Change Adaptation." *Antipode* 51 (1): 295–315. https://doi.org/10.1111/anti.12421.
Patel, Raj, and Jason W. Moore. 2017. *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet*. Berkeley and Los Angeles: University of California Press.
Pettifor, Ann. 2019. *The Case for the Green New Deal*. London: Verso.
Pulido, Laura. 2016. "Flint, Environmental Racism, and Racial Capitalism." *Capitalism, Nature, Socialism* 27 (3): 1–16. https://doi.org/10.1080/10455752.2016.1213013.
Radford, Gail. 1996. *Modern Housing for America: Policy Struggles in the New Deal Era*. Chicago: University of Chicago Press.
Ranganathan, Malini. 2016. "Thinking with Flint: Racial Liberalism and the Roots of an American Water Tragedy." *Capitalism, Nature, Socialism* 27 (3): 17–33. https://doi.org/10.1080/10455752.2016.1206583.
Ranganathan, Malini, and Eve Bratman. 2019. "From Urban Resilience to Abolitionist Climate Justice in Washington, DC." *Antipode*. https://doi.org/10.1111/anti.12555.
Rao, Narasimha D., and Kevin Ummel. 2017. "White Goods for White People? Drivers of Electric Appliance Growth in Emerging Economies." *Energy Research and Social Science* 27: 106–116. https://doi.org/10.1016/j.erss.2017.03.005.
Rice, Jennifer L. 2014. "An Urban Political Ecology of Climate Change Governance." *Geography Compass* 8 (6): 381–394. https://doi.org/10.1111/gec3.12134.
Rice, Jennifer L., Daniel Aldana Cohen, Joshua Long, and Jason R. Jurjevich. 2019. "Contradictions of the

Climate-Friendly City: New Perspectives on Eco-Gentrification and Housing Justice." *International Journal of Urban and Regional Research*. https://doi.org/10.1111/1468-2427.12740.

Riofrancos, Thea. 2019. "What Green Costs." *Logic* (9). https://logicmag.io/nature/what-green-costs/.

Rockström, Johan, Owen Gaffney, Joeri Rogelj, Malte Meinshausen, Nebojsa Nakicenovic, and Hans Joachim Schellnhuber. 2017. "A Roadmap for Rapid Decarbonization." *Science* 355 (6331): 1269–1271.

Silver, Jonathan. 2017. "The Climate Crisis, Carbon Capital and Urbanisation: An Urban Political Ecology of Low-Carbon Restructuring in Mbale." *Environment and Planning A*. https://doi.org/10.1177/0308518X17700393.

Stanton, Elizabeth A., R. Bueno, and C. Munitz. 2011. *Consumption-Based Emissions Inventory For San Francisco Consumption-Based Emissions Inventory For San Francisco*. Somerville, MA: Stockholm Environment Institute-U.S. Center.

Stockholm Environment Institute - U.S. 2012. *Greenhouse Gas Emissions in King County: An Updated Geographic-Plus Inventory, a Consumption-Based Inventory, and an Ongoing Tracking Framework*. Seattle: Stockholm Environment Institute.

Strauss, Benjamin H., Scott Kulp, and Anders Levermann. 2015. *Mapping Choices: Carbon, Climate, and Rising Seas Our Global Legacy*. Princeton: Climate Central Research Report.

Swyngedouw, Erik. 2011. "Depoliticized Environments: The End of Nature, Climate Change and the Post-Political Condition." *Royal Institute of Philosophy Supplement* 69 (July 2015): 253–274. https://doi.org/10.1017/S1358246111000300.

Sze, Julie. 2007. *Noxious New York: The Racial Politics of Urban Health and Environmental Justice*. Cambridge, MA: MIT Press.

Unger, Roberto Mangabeira. 2002. *Social Theory: Its Situation and Its Task*. 2nd ed. New York and London: Verso.

Wachsmuth, David, and Hillary Angelo. 2018. "Green and Gray: New Ideologies of Nature in Urban Sustainability Policy." *Annals of the American Association of Geographers* 108 (4): 1038–1056. https://doi.org/10.1080/24694452.2017.1417819.

Wachsmuth, David, Daniel Aldana Cohen, and Hillary Angelo. 2016. "Expand the Frontiers of Urban Sustainability." *Nature* 536 (7618): 391–393. https://doi.org/10.1038/536391a.

While, Aidan, Andrew E. G. Jonas, and David Gibbs. 2010. "From Sustainable Development to Carbon Control: Eco-State Restructuring and the Politics of Urban and Regional Development." *Transactions of the Institute of British Geographers* 35 (1): 76–93. https://doi.org/10.1111/j.1475-5661.2009.00362.x.

Yetano Roche, María, Stefan Lechtenböhmer, Manfred Fischedick, Marie-Christine Gröne, Chun Xia, and Carmen Dienst. 2014. "Concepts and Methodologies for Measuring the Sustainability of Cities." *Annual Review of Environment and Resources* 39 (1): 519–547. https://doi.org/10.1146/annurev-environ-012913-101223.

Daniel Aldana Cohen is an assistant professor of sociology at the University of Pennsylvania, where he directs the Socio-Spatial Climate Collaborative, or (SC)². He is the co-author of *A Planet to Win: Why We Need a Green New Deal* (Verso 2019). Email: dacoh@sas.upenn.edu