

Chapter 1

Cities, Nature and Development: The Politics and Production of Urban Vulnerabilities

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As the United States struggles with a persistent economic recession, concerns related to conditions and experiences of vulnerability have become the focus of academic scholarship and popular press coverage. With a US national unemployment rate hovering above 9 percent (Brookings Institute, 2010), many households are economically vulnerable, with some unable to retain their housing. In April 2010, e.g., one in every 45 US households received a foreclosure filing (Georgia Consumer Banking, 2011), up 16 percent from March 2009 (Tyrell, 2010). The financial struggles facing US households is mirrored internationally with the collapse of financial markets resulting in profound economic hardships for national governments, communities and households globally. In addition to the increasing economic vulnerability experienced by households worldwide over the past several years, changing environmental conditions – specifically changing climatic regimes – are also contributing to conditions and experiences of vulnerability. It appears as if the United States – and the world more generally – is facing unprecedented changes, as socio-economic stresses occur alongside environmental crises related to the degradation and depletion of usable land, water and air resources. Much of the scholarship and popular media coverage examining these conjoint economic and environmental crises has approached vulnerability as a state of being or condition measured at a particular point in time and experienced within a specific place.

Researchers working in disaster management and hazards, food and water security, and climate change fields have advanced theories that, collectively, help to define and advance the field of vulnerability studies (Turner et al., 2003; Kasperson et al., 2005; Eakin and Luers, 2006; Ionescu et al., 2009). This expansive and progressive research arena has generally defined vulnerability as the degree to which a system (or series of interconnected systems) is susceptible and responsive to (either as adaptation or mitigation) the adverse effects of shocks and stresses (McCarthy et al., 2001). Assessing levels of exposure, sensitivity, and adaptive capacity to external pressures have provided insight into how conditions of vulnerability operate within particular populations (Wisner, 1993; Adger, 2006). Early studies concluded that conditions of overall vulnerability increase with a

corresponding decrease in a given population's ability to prevent and recover from such stresses (Timmerman, 1981; Kates, 1985).

While these scholars focus on specific attributes of populations and their ability to respond to disasters and hardships, other scholars examine more explicitly the dynamics between pre-existing and emerging economic, environmental and social conditions that impact vulnerable communities. Liverman (1990) distinguished between the biophysical environment that contributes to vulnerability and the political, social, and economic conditions that also influence increased risk of exposure to harm. Wisner et al., (1994) linked increased levels of vulnerability to: a) hazardous environmental conditions and insufficient levels of natural resource availability, and b) the accessibility of provisioned services (e.g., health services, credit, information) and social resources (e.g., income, assets, familial support). Scholars have argued that the most rigorous and meaningful analyses of vulnerability are achieved from an interdisciplinary approach where considerations of social and ecological conditions are integrated (Cutter, 1996), even if dedicated analytic focus falls more heavily on natural systems, such as the mechanics of storm surges, or on social systems, such as low income housing policy.

Urban Vulnerability Analysis: From Static Condition to Dynamic Process

Scholars describing and measuring vulnerability have shifted their attention from largely rural contexts to urban settings. These studies have concluded that risks to urban environmental hazards are more complex phenomena, with overlapping risks associated with the household, workplace or neighborhood, and with uneven resource allocations and pollution risks from industrial contamination (e.g., Hardoy, Mitlin, and Satterthwaite, 2001). In urban and urbanizing environments, poverty and access to stable, affordable housing are key factors in determining a household's ability to withstand socio-economic stresses (Sanderson, 2000; Moser, 1998). Poverty alleviation and predictable and safe housing conditions enhance coping strategies for households responding to natural disasters, for it is the homeless and those without access to safe housing that are frequently most harmed by environmental hazards (Pelling, 2003). Along with poverty and housing access, the differential social impacts of local stresses resulting from, and contributing to, vulnerability are examined in the context of health, racial, gender and age composition of effected households and communities (Phillips et al., 2009).

However, experiences and conditions of urban vulnerability both result from and contribute to broader scale political, economic and environmental changes. For example, as Moser (1994) illustrates, the vulnerability of poor urban populations in developing countries must be understood within the context of global aid organizations by documenting the plight of communities affected by structural adjustment programs. Spatial scale becomes an important variable in understanding how conditions of vulnerability for urban populations are a response to, and a byproduct of, larger-scaled phenomena, including national policies,

global financial markets, and regional environmental disasters. These studies reflect a shift from understanding vulnerability as measurable conditions towards conceptualizing vulnerabilities as conditions that are created and maintained through a series of historical relationships that interact across spatial scales. Here, researchers analyzing community responses to disasters and other destabilizing events, consider vulnerability as sets of dynamic conditions produced from historic interactions across economic, cultural, and social processes (Hewitt, 1987; Wisner et al. 1994; Pelling, 2003; Hogan and Marandola, 2005; Andrey and Jones, 2008).

The notion of vulnerability as multiple conditions that change through time is vastly different from the static “point-in-time” assessment approach which focuses on calculating rates of exposure, measuring risk-burden, and predicting impacts. The latter approach is characteristic of risk assessment and “vulnerability as outcome” studies (Kelly and Adger, 2000; O’Brien et al., 2007). In contrast, a more dynamic notion of vulnerability connotes how conditions of, and experiences with, vulnerability are produced through specific cross-scale interactions that are historical in nature. The authors in this book present research that draws from and expands upon the systemic and integrated socio-ecological drivers of vulnerability, i.e., in the *production of vulnerability*.

This volume follows the work of Findley (2005) who considers vulnerable spatialities to be the processes by which people and places are exposed to shifting states of vulnerability through a series of codified and enforced political economic agendas. Subsequent chapters in this volume similarly demonstrate that political ideologies and strategies influence access to human and natural resources for different social groups, thus designating responsibility for the production of vulnerability to politically and economically powerful institutions and individuals (Pelling, 2003). Conceptualizing vulnerability in terms of its historical production therefore allows researchers to identify the potential sources – including influential inter-agency and public-private alliances – that instigate, manage, and perpetuate vulnerable populations and places (Hogan and Marandola, 2005). A production-oriented framework provides conceptual space for analyzing how interactions between political economies of resource use and normative planning and management interventions – at both global and local scales – influence which places and populations are made vulnerable, and the intensity and persistence of conditions of vulnerability (Davis, 1998; Peet and Watts, 2004; Orsi, 2004; Wisner et al., 2004; Collins, 2005, 2008, 2010; Mustafa, 1998, 2005). Contributors to this volume develop thorough articulations of how conditions and experiences of vulnerability are produced, regulated, manipulated and resisted.

The Production of Urban Vulnerabilities: Key Analytic Themes

This volume theorizes the city, and its economic, cultural and environmental components through the lens of vulnerability. In the following pages we identify a suite of epistemological and ontological approaches that re-theorize urban nature

as “material *and* narrated, ecological *and* political” (Braun, 2005, p. 642). Along with considerable work in the field of vulnerability studies, this volume builds on urban political ecological scholarship that emphasizes the mutually-constitutive relationship between economies, policies and ecological systems across temporal and spatial scales (Cronon, 1991; Gandy, 2002; Swyngedouw, 2004; Kaika, 2005). At the same time, various chapters seek to de-naturalize processes of urbanization and re-politicize the field of urban ecology by revealing and describing the deeply political and contentious processes through which urban ecological problems are produced, defined and mitigated (Keil and Desfor, 2004). A political urban ecological framework conceptualizes cities as complex integrated (economic, cultural and biophysical) systems that are governed through racial, gendered and class-based city politics, and undergirded by normative planning commitments to urban development, regional economic growth, and individual wealth accumulation (Wolch et al., 2002; Dooling et al., 2006; Robbins, 2007; Brownlow, 2008). Contributions within this volume describe cities as socio-ecological arenas – at once produced through multi-scalar social and ecological processes and contested within spheres of formal and informal environmental politics (Heynan, et al., 2006). By explicitly developing the concept of *the production of urban vulnerabilities*, and by detailing its relationship to planning agendas that guide (oftentimes conjointly) urban sustainability, gentrification, suburban development, climate change adaptation, and other planning initiatives, the concept of urban vulnerabilities is a provocative conceptual lynchpin for the otherwise wide-ranging field of urban political ecology.

The contributing authors in this volume analyze a variety of urban vulnerabilities in North America and Europe that demonstrate two key points: (1) the dynamic nature and recursive processes involved in the creation, regulation, and manipulation of urban vulnerability and (2) practices of resistance to conditions and experiences of urban vulnerability as a form of political action. Several authors leverage dialectical analyses to reveal the concealed and invisible contradictions associated with sustainability related discourses, political movements and planning efforts (see chapters by Agyeman and Simons, Dooling, and Mason and Whitehead). The contradictions identified and articulated in these chapters challenge conventional notions that the benefits attributed to urban sustainability planning efforts are inherently positive, and that these benefits are distributed equitably and experienced uniformly. Some contributors conduct longitudinal analyses to demonstrate the effectual and affectual nature of vulnerability as it builds momentum over time (see chapter by Simon). In this chapter, a combination of urban economic development imperatives, real estate speculation and tax restructuring policies work alongside afforestation activities to produce vulnerability in a step-wise progression. Other contributors situate their analytic approach in urban political ecology frameworks that emphasize the impact of neoliberal economic strategies on cities struggling with significant demographic and industrial shifts (see chapter by Graybill); cities confronted by diverse and emerging urban park activities and preferences (see chapters by Perkins, Brownlow); and cities challenged by the disproportionate

North–South flow of environmental externalities stemming from First World risk offsetting behavior (see chapter by Collins and Jimenez). Two authors articulate how conditions of vulnerability are leveraged, manipulated and (for some) ignored in the political realm to support economic and ecological gains for political and economic elites (see chapters by Dooling, Perkins, Simon), while other authors demonstrate how racial prejudice works in concert with city planning efforts to disproportionately place minority and immigrant groups at risk to environmental hazards (see chapter by Tretter and Adams).

Resilience, as an analytic compliment to vulnerability, is explored by a number of contributors. Using historical analysis, Graybill documents the ways in which economic downturns in a rust belt city is counter-acted by proactively leveraging the economic and social capital associated with an influx of immigrants. Here resilience is conceived of as the capacity to respond positively to the condition of urban economic vulnerability and to avoid collapse due to industrial re-structuring. For Mason and Whitehead, resilience is a preparatory response to the threat of being vulnerable to the harms associated with climate change activism that values self-reliance in the face of an ineffective governmental response. Resilience can be conceived of as an individual's, neighborhood's, city's or social movement's capacity to resist persistent vulnerability, as well as the capacity to reverse the production of vulnerability.

For the editors of this volume, resilience and vulnerability are the two sides of the sustainability coin. Specifically, assessing vulnerability as a dynamic, temporally and spatially dependent phenomenon can lead to strategies for improving a population's or place's ability to resist or reverse vulnerable conditions, thus improving the capacity to adapt to, or mitigate, undesired future change absent significant disruption. Efforts intended to make cities sustainable that fail to consider processes generating future risks, will ultimately exacerbate vulnerabilities by deepening existing inequities and undermining the achievement of the very sustainability goals they propose to advance.

This edited volume demonstrates several analytic concepts related to urban vulnerability. First, vulnerability is more than a state of being to be assessed at a single point in time. Rather, it is generated through processes resulting from interactions between people (community, political and economic elites), institutional agendas (government agencies and non-profit groups), systems of production for goods and services (such as organic farms and global commodity markets) and government led planning strategies (including urban densification and suburban investments). The production of vulnerabilities also involves interrogating how resources and environmentally sensitive lands are managed and regulated (including floodplains, greenspaces, forests, areas of food production, location of polluting facilities) and how the physical terrain is constructed and designed (such as neighborhoods, streets and waterways). Second, the production of urban vulnerabilities can deepen existing harms while also creating new risks. Third, powerful alliances that direct the growth and development in cities

can mobilize rhetoric of vulnerability in order to secure economic gain while perpetuating risks for already vulnerable people and places.

Fourth, experiences of vulnerability, driven by processes of political marginalization and economic segregation, can be mobilized into grassroots political movements that expose, resist and transform the mechanisms that generate and reinforce conditions of being vulnerable. These mobilizations can potentially lead to the development of alternative planning and urban economic development trajectories.

This collection of essays does much more than use the condition of vulnerability itself as a means of explanation. Rather, it is vulnerability as a dynamic and recursive process that is thoroughly explained.

Conceptualizing Vulnerability: Six Clarifying Questions

We recognize that the dynamics involved in producing and encountering vulnerability are complex and traverse spatial and temporal scales, i.e., the mechanisms that facilitate the production of urban vulnerabilities, and the diverse responses among those at risk, are context specific. The chapters in this book also reflect a place-based, constructivist approach to conceptualizing vulnerability, where theories about urban vulnerability are developed and refined using empirical data from specific locales. By focusing on local histories, politics and biophysical characteristics, chapters in this volume articulate how the production of urban vulnerabilities is mediated locally in the face of larger-scale processes.

We pose a series of questions to clarify nuances and complexities associated with the volume's constructivist, context-dependent conceptualization of vulnerability.

First, given that conventional research has typically concerned itself with static, point-in-time assessments, our first question asks: *what does it mean to be vulnerable?* Drawing from chapters in this volume, conditions of vulnerability include: being impoverished, being an immigrant and lacking predictable, safe housing (Dooling); owning property in areas with high fire loads stemming from a century of localized wealth and biomass accumulation (Simon); being African American or Mexican living in flood prone areas (Tretter and Adams); residing in a city that has lost its industrial base (Graybill); and lacking access to affordable, organic food that reflects culturally specific ingredients and produce (Mason and Agyeman).

A logical next question to ask is: *what are the (potential and actual) consequences of being vulnerable?* Drawing from the work in this volume, the consequences of codified, racially discriminatory city plans has resulted in African Americans disproportionately living in urban areas prone to flooding, thus increasing their risk of property damage and displacement (Tretter and Adams). Low-income immigrant households in a neighborhood targeted for transit-oriented development face an increased risk of being displaced due to rising

housing costs and the demolition of affordable units resulting from neighborhood improvement initiatives (Dooling). Activist groups calling attention to urban vulnerabilities related to climate change themselves become vulnerable to the psychological and physical dangers of demonstrating in the public realm (Mason and Whitehead). Long-term city disinvestment in public amenities, such as parks and green spaces, results in places where residents feel unsafe, and where crime is perceived to be high. Conditions of “produced” vulnerability are then used by city managers to justify the allocation of city funding to maintain parks in wealthier, white neighborhoods (Brownlow, Perkins). Other consequences for parks that are vulnerable to declining city funds include the replacement of city employees with park volunteer labor, which ultimately results in lost jobs (Perkins). For cities, the consequence of being vulnerable to furthering economic decline entails developing political-economic strategies that promote the city as a welcoming and economically viable place for immigrants (Graybill). This volume presents numerous ways of experiencing vulnerability and argues that the intensity and duration of being vulnerable – which may include health, economic and quality of life indicators – vary within and across populations and places.

While these examples illustrate connections between conditions and consequences of being vulnerable, there are additional questions related to identifying multiple vulnerabilities connected to the same event, region or set of urban conditions. Chapters in this book thus ask the following question: *how are multiple vulnerabilities connected – not only in relation to the originating event or place, but also in relation to each other?* How might researchers analyze such complexity? The analysis of interacting vulnerabilities requires a process-oriented conceptualization of vulnerability and benefits from a dialectical methodological approach. Dialectical analyses move beyond the identification of feedback loops that are part of systems theory. While feedback loops identify both reinforcing (negative) and destabilizing (positive) influences among system variables, they do not necessarily facilitate, nor are conventionally used in, the identification of how multiple feedback loops relate to each other. This is an important distinction as dialectical analysis focuses on the structure of processes (rather than objects or conditions themselves) that involves multiple spatial scales and local histories (Lewontin and Levin, 2007).

Dialectical analysis also involves analyzing contradictions that contribute to and emerge from interacting feedback loops in complex urban environments. Identifying contradictions is valuable for being able to predict unintentional outcomes associated with urbanization, development and conservation efforts; and for providing insight into how conservation and sustainability related efforts are undermined by alliances and tactics that are not easily observable or recognizable. In this volume, Dooling discusses how goals of increasing public ridership and lowering the city’s carbon footprint through transit-oriented development is undermined by displacing already public-transit dependent households to the urban fringe lacking public transportation options, which will lead to future increases in the private vehicle miles traveled (VMTs) for the region.

Other contributors to this volume reveal how risk and exposure to harm associated with a single phenomenon is experienced differently across populations and places. Simon describes how Oakland Hills residents in fire prone areas are vulnerable to periodic conflagrations; yet, residents living in the flatlands far removed from frequent fire disasters experience higher net vulnerability. The poorer populations located in the flatlands have reduced access to insurance risk-offsetting resources, and are thus more likely to incur the full extent of costs associated with fires. Actively incorporating first and second order analysis of vulnerability can yield considerable analytic dividends. Simon reveals that while exclusive neighborhoods are constructed in high-risk fire areas, their attempts to maintain an economically exclusive neighborhood through tax reforms had the secondary effect of exacerbating vulnerability in their immediate neighborhood and in the Oakland flatland areas where poor and minority people lived as a result of depleted fire department budgets. As these examples suggest, this volume argues that understanding conditions of vulnerability in the fullest sense requires a relational approach in order to account for social-ecological feedbacks, the interactions among destabilizing and reinforcing feedback loops, and multiple forms of vulnerability within a single analysis.

A third clarifying question relates to the persistence of being at risk, and how the intensity and duration of risk varies through time. *Does being vulnerable mean constant endangerment, or does it imply existing in a state of elevated, but not prevailing, risk?* Tretter and Adams detail the fluctuating risk African Americans and Mexican immigrants experience to their homes being flooded as a result of racial policies that allocated their settlements to environmentally hazardous parts of the city. Experiences of being at risk can intensify as conditions change and threats emerge; likewise, experiences of risk can be alleviated by minimizing exposure to harm and shifting the risk to a different place or group of people. Collins and Jiminez describe various forms of vulnerability associated with the North-South transfer of harmful environmental externalities associated with neoliberal economic policies. Some populations are made vulnerable through community displacement practices that push agrarian communities into urban slums. Other communities are forced to reside near manufacturing and waste facilities that poison airsheds and adjacent water bodies. With these developments, some urban residents will be consistently vulnerable with a relatively low risk of morbidity (living in slums with constant health risks associated with poor sanitation, malnutrition and disease), while others are exposed to conditions that are more immediately life-threatening such as high exposure to carcinogenic dioxins from waste incineration. Mason and Whitehead illustrate the persistent risks associated with climate change that, in turn, spur various political activists to challenge those perceived to be responsible for their endangerment. Yet, these individuals themselves become subjected to periodic (i.e., less persistent) but considerably more acute forms of vulnerability for speaking out on the issue. These authors demonstrate that the duration and intensity of risk, with its associated condition of vulnerability, fluctuates depending on what people are at risk to – poverty, toxins, or violence. While the magnitude

of impacts is a crucial variable for defining vulnerability, so too is the frequency of exposure to high-risk conditions. Thus, developing a robust conceptualization of vulnerability in the context of uneven exposure over time requires establishing explicit temporal parameters to guide analysis.

The fourth clarifying question explores the extent to which conditions of vulnerability are embedded within deeply rooted hierarchical, political, economic and social relations along lines of income, race, gender and citizen status. *How are conditions of being vulnerable (to flooding, displacement, and wage loss) created and perpetuated by highly uneven levels of access to economic resources, political power and strategic alliances?* Dooling's work in this volume sets apart two distinct, albeit interacting, lines of enquiry: (1) what are the sustainability planning processes through which politically and economically marginalized populations are put at risk? And (2) how does the experience of being persistently at risk contribute to a deepening sense of being disempowered for those marginalized within public planning processes? These lines of enquiry connote a difference between marginalized populations being made vulnerable by the effects of historical patterns of disinvestment, and the marginalizing influence of vulnerability, where the latter highlights the regressive momentum (i.e., increased disempowerment) that may accompany and reinforce experiences of living under elevated levels of risk. Dooling argues that patterns of long-term disinvestment in a poor, immigrant neighborhood reflect city-wide strategies to concentrate affordable housing in these communities which, in turn, contributes to the area's overall susceptibility for continued experiences of substandard housing quality, crime, and flooding. The pattern of disinvestment, and the resulting concentration of primarily immigrant, low-income, rental households, contributes to the neighborhood's relative lack of political leverage in city planning efforts, which contributes to a sense that the low-income neighborhood residents are excluded from meaningful involvement in decisions about the neighborhood's future.

Contributors to this volume also illustrate how conditions of vulnerability are exploited to achieve economic and political gains for city elites. Collins and Jimenez argue that a political economic analysis of vulnerability acknowledges the influence of policies that produce on-the-ground conditions of vulnerability for poor people while simultaneously concentrating wealth for elites. Perkins argues that constricting city budgets for parks management is used to justify the expansion of volunteerism and the laying off of city park employees, thus exploiting the city's budgetary vulnerability to alternative employment practices that maintain fiscal solvency. Additionally, exploitation of vulnerability can result in the allocation of funds for securing and maintaining resources and amenities for wealthier segments of urban populations. Perkins demonstrates that in order to develop commodity parks for wealthy urban clientele, the city of Milwaukee intentionally neglected parks through many years of disinvestments in maintenance and recreation programs. More exclusive, privately funded park spaces with expensive restaurants have been created, in part by making the parks previously used by the more impoverished segments of society less desirable, and even dangerous.

Agyeman and Simons describe how the identification of healthy food deserts spurred the creation and spread of alternative food networks. Yet locavore movement boosters have done surprisingly little to bring culturally appropriate local organic foods to poor neighborhood communities and, instead, generated considerable social and financial resources for securing and increasing healthy foods options for middle and upper class white residents. In the case of local foods and city parks, community disparities widen, and not necessarily because less food or open space is available for certain communities, but rather because the status of the resources they use – as inadequate and in need of improvement – was leveraged to secure new and upgraded resources for more privileged members of society.

These chapters highlight the relationship between material and symbolic vulnerabilities. They show that in many situations, addressing the plight of vulnerable communities is less important than mobilizing public concern for them, and that their instrumentalist mobilization ultimately advances the goals and planning objectives of elite community members. It can be instructive, then, to view vulnerability for certain communities *in relation to* vulnerability's counterpart: the augmentation of privilege, and access to desirable and essential resources for more resilient segments of society. Exploiting the material and symbolic conditions of vulnerability in a manner that benefits certain groups, ultimately widens disparities and undermines efforts to create socially and environmentally just places.

The disempowering impacts associated with political and economic exploitation of vulnerabilities are crucial to our overall conceptualization of vulnerability. Equally valuable, however, are questions related to the possibilities for resisting and transforming experiences of being vulnerable. A fifth clarifying question asks: *how do communities mobilize to transform conditions of vulnerability?* More than a social-ecological outcome, the concept of vulnerability provides analytic space for the careful consideration of societal responses and political movements. Various chapters discuss political and social mobilizations that actively resist being vulnerable through efforts that aim to transform governance systems and policies. Contributors to this volume articulate urban vulnerabilities as starting points, and not ending points, in how cities are planned and developed. Vulnerable urban populations are both acted upon and activated, as a source of development outcomes *and* starting points. As Gibson-Graham (2006) notes, the project of examining hegemonic formations that generate social vulnerability must also include efforts “to contemplate its destabilization” and imagine individuals and communities as “‘made’ and ‘as making’ themselves” (2006, p. 23). While some social groups may reinforce dominant planning agendas, this volume demonstrates how other groups, from park users to climate change activists, may chart new urban development trajectories.

Brownlow documents how African American women self-organized to restore a neglected urban park and transform the park into a valued public amenity. He argues that the motivations for volunteering are political and personal, derived from histories of racial discrimination and political neglect. The women's restoration efforts accomplish many goals, including reversing conditions of environmental

degradation, resisting the historical marginalization of African American women in the city, and enhancing the construction of an “insurgent citizenship” (Holston, 1999). Mason and Whitehead focus on a political and cultural movement associated with climate change politics known as the Transition Culture. These community groups expose how cities are vulnerable to the impact of peak oil and climate change; Transition Culture emphasizes local self-reliant strategies that build internal capacities (resilience) to resist harms associated with future risk. Meanwhile, Graybill describes the cross-scale strategies among city boosters and state and federal governmental agencies to revitalize a Rust Belt city now void of its industrial economic base and faced with a recent influx of immigrants. Taken collectively, these chapters demonstrate the various strategies of social mobilization, including: (1) community groups that effect change within existing governmental structures (Brownlow); (2) activist groups that are suspicious of government’s effectiveness and self-organize outside of governmental support (Mason and Whitehead); and (3) city-wide co-ordination of multiple government agencies to develop larger-scaled responses to economic and social change (Graybill).

The sixth clarifying question points to the heart of this volume, whereby we ask: *how are urban vulnerabilities produced?* How do various existing conditions of vulnerabilities, inequities, structural hierarchies and neoliberal practices and government policies contribute to the production of vulnerabilities? What are the implications of conceptualizing vulnerability as a process oriented phenomenon? Each contributor to this volume demonstrates how conditions and experiences of being vulnerable are built upon and out of historical alliances, urban inequities, and political economies of wealth accumulation and patterns of dispossession, and marginalization. When placed in a historical perspective, the production of vulnerability, by virtue of its temporal aspects, includes strategies of maintenance, regulation, exploitation and – in some instances – resistance. In this way, we consider vulnerability as not necessarily an end-point condition, but an urban phenomenon that dynamically shifts intensity and duration through time and across space, and from which contradictions emerge that are frequently unarticulated. The key intellectual contribution of this volume is demonstrating the diversity of mechanisms and processes through which urban vulnerabilities are produced, the emerging contradictions, and the implications this has for sustainable and resilience urban development. The chapters that follow are organized into categories of production, and are briefly summarized below.

Production of Vulnerabilities: Analytic Themes in Chapters

Geographies of Wealth and Risk Accumulation: Neoliberal Policy and Resource Instrumentalism

Simon frames his historical analysis of the 1991 Oakland Hills Firestorm (Oakland, CA) event by highlighting how household fire risk was founded upon

and reinforced by a broader regional political economic and environmental history that was premised on an unremitting commitment to wealth accumulation and instrumentalist land use policy. Vulnerability, defined as the risk of harm and exposure to fire, as well as the burden of purchasing fire insurance for not-wealthy residents, is produced through early resource extraction and property speculation activities closely linked to the development of San Francisco Bay Area townships as well as emerging suburban conservative homeowner politics, subsequent statewide tax restructuring policies, and uneven risk offsetting resources. Simon makes an important contribution to the study of urban vulnerability by clearly articulating how conditions of vulnerability become more acute and chronic over time, first as a state of *effect* stemming from regional development and resource use policies, and second a state of *affect* that engenders further land use responses and produces new and enhanced levels of vulnerability. In this way, vulnerability is never produced as a planning outcome only. Instead, conditions and experiences of vulnerability intensify and persist as they compound and gain momentum over time. After nearly 150 years of vulnerability in production, Simon's chapter concludes by describing how those most implicated in property and wealth accumulation activities are buffered from substantive fire risk, while poorer members of Oakland's flatlands – far removed from the region's instrumentalist land use policies – experience the fullest risk burden.

Marginalization, and its corresponding theme of facilitation, is explored by Collins and Jimenez. These authors conceptualize vulnerabilities in the context of processes that displace and transfer risk; as economically powerful communities and regions externalize risks onto poorer and less powerful populations. Risk displacement involves the simultaneous processes through which risk is created (facilitation) and received (marginalization). The authors outline three ways in which unequal risk and vulnerability are produced under a neoliberal economic order. First, the emergence of disaster capitalism, enabled by neoliberal institutional arrangements, allows political and economic elites to transfer risks to less powerful communities while expropriating rewards stemming from socio-natural disasters. Second, technological risks are transferred to from the global North to South as wealthy states and populations are permitted to accumulate capital while displacing the deleterious and toxic wastes of their consumption activities onto less powerful communities (who then must cope with harmful exposures). Lastly, with land privatization and decreasing funds for social programs, urban in-migration has increased with the concurrent proliferation of slums, resulting in more people being exposed to hazardous living conditions. These three modalities of uneven risk production lead the authors to pivot from theories of "accumulation by dispossession" to a conceptual ordering around the notion of "accumulation by endangerment."

Two contributors focus on the ways in which public urban parks are vulnerable to budgetary constraints. These chapters examine the implications of municipal strategies taken to address insufficient funds for park management within neoliberal modes of governance. Perkins describes market-oriented urban environmental

governance strategies that organize park patronage around public–private sector partnerships that prioritize market profitability and personal responsibility. Focusing on Milwaukee, WI, Perkins details how disinvestment in many city parks during the last thirty years reduced patronage and closed facilities, leading citizens to think of parks as increasingly dangerous places to visit. Meanwhile the emergence of commodity parks exemplifies a shift in the management of urban nature, as parks are no longer invested for the sake of providing urban residents recreation and rejuvenation in green space. Poor and minority citizens, in particular, are susceptible to a compromised quality of urban life when active and passive recreational opportunities in safe park spaces become dependent on the park's ability to participate in these market practices. Volunteering in specific parks is used to rationalize reducing unionized municipal park caretakers. The net effects of a for-profit parks management system are lost wages and health benefits for many employees, which in turn, jeopardize their ability to provide for themselves and their families.

Unanticipated Vulnerabilities: Sustainability Planning, Environmental Movements, and Activism

Authors in this section document unanticipated vulnerabilities that are produced through sustainability planning efforts, environmental movements that promote locally grown organic food, and activism that calls attention to the dangers of climate change. Agyeman and Simons provide an overview of the emergence of the locavore movement, which seeks to generate local food systems, ecologically sensitive production techniques, and locally oriented economic development. This has resulted in a proliferation of urban farmer's markets and Community Supported Agriculture (CSA) projects that provide a more holistic and direct connection between food producers, consumers and the agricultural landscape (urban and rural). Whether perceived as an anti-globalization effort, rural economic development initiative or as a component of broader urban sustainability programs, the local organic food movement has been touted as an important strategy for creating healthy, ecologically sustainable and socially just cities. Drawing from environmental justice literature, Agyeman and Simon challenge these assertions by demonstrating how local food access is structured along race and class lines. The authors demonstrate that access to local organic food, in the form of farmer's markets, is concentrated in middle to upper income neighborhoods, while poorer neighborhoods – mostly communities of color – exist in conditions of food insecurity, where food access is limited to nutritionally unhealthy options, and where risk to associated health impacts is high. Analyzing access to locally, organically produced food along race and class lines reveals how access to such food for those most in need fails to materialize, and that poor and minority community members continue to experience disproportionately higher levels of risk to poor nutrition and food insecurity.

Dooling exposes other contradictions associated with planning efforts intended to enhance urban sustainability by exploring cases of ecological gentrification in Seattle, WA and Austin, TX. The Seattle case demonstrates how designating public green spaces for ecological purposes – including carbon sequestration, habitat connectivity and expansion of pervious cover – results in the expulsion, banishment and, in some cases, arrest of homeless people camping in these spaces. In seeking to reduce their vulnerability to crime and disease associated with shelters and temporary housing, homeless individuals increase their vulnerability to different risks – expulsion from green spaces and (for repeat offenders) arrest. Whereas designating green spaces for ecological purposes allows, and even promotes, the access to for non-profit and educational groups, the vulnerability of homeless people is both ignored (“it’s not our problem” attitude among park planners) and exacerbated (through expulsion and arrest). The enforcement of civility ordinances, which are intended to regulate public behavior of those people who enact their private lives publically, become mechanisms in the production of social vulnerabilities in the context of sustainability planning. The Austin case demonstrates that both social and ecological vulnerabilities can be produced from sustainable transportation projects intended to enhance urban ecological functioning. The approved transit-oriented development plan situates low-income immigrant rental households’ citizens vulnerable to future displacement through inadequate production and preservation of affordable rental housing options. With some households relocating to the urban fringe where public transit is lacking, the miles traveled using private transportation by this previously transit-dependent population will most likely increase, which will likely undermine the sustainability goals articulated in the plan. Dooling demonstrates that ecological change is never socially neutral, that multi-scalar analyses are critical for identifying social costs and vulnerabilities that are produced by ecologically driven planning efforts.

Drawing upon a Lefebvrian framework, Mason and Whitehead focus on how the mobilization of a politics of vulnerability is associated with three modalities of vulnerability that co-exist in the urban context: (1) vulnerabilities that are produced beyond the city-scale yet directly impact the urban environment (e.g., climate change); (2) perceptions of vulnerabilities that are constructed by various groups in order to serve political agendas; and (3) experiences of being physically and psychologically vulnerable that are associated with being a political activist. The Transition Culture movement, a community-based mobilization, leverages media framings of climate change and peak oil threats to the future of cities. The movement proposes a planned strategy for energy descent based on re-organizing urban economies around smaller metropolitan areas. The authors describe how an activist camp, by virtue of its anti-capitalism stance, is vulnerable to the coercive forces of the state (i.e., arrest and police violence) as well as to an unsympathetic (and occasionally violent) public that create stress and psychological trauma for activists. The authors conclude that the use of vulnerability as progressive political tool produces new kinds of urban anxiety and potential trauma, and the challenge for activists is to establish the real and present danger of urban vulnerabilities to

climate change while minimizing feelings of trauma that could potentially inhibit radical political action. This paper provides insights into the interactions between structural effects and individual affects associated with the production of urban vulnerabilities.

Vulnerabilities in the Urbanizing Context: Cultural and Demographic Transformations

These authors explore the production of urban vulnerabilities through nuanced analyses that considers historical demographic transformations. In contrast to Perkins chapter on parks (see previously), Brownlow focuses on how a group of African American women in Philadelphia, PA self-organized to restore a neglected urban park in their neighborhood. Their initiative and persistent commitment to the park's ecological restoration emerged in the face of persistent neglect of parks in minority neighborhoods on the part of the city parks department and the resulting self-imposed exile of women from these parks due to unsafe environments. The women self-organize based on experiences of being vulnerable to continuing park department policies of neglect that is perceived as a form of injustice. Whereas Perkins frames volunteerism as producing harm and risk for city employees, Brownlow describes volunteerism as opening up a political space for women who have experienced racial and economic prejudice and as an opportunity for (a temporary and) safe re-entry into a historically important space for community gatherings and recreation. In addition, the women's restoration effort occurs within state sanctioned policies and discourses. Drawing from feminist analyses of women's re-appropriation and politics of place, Brownlow argues that, in Philadelphia, volunteerism calls attention to and ultimately challenges racialized histories of injustice and neglect and corresponding conditions of vulnerability. Thus, the women's volunteer restoration effort works to resist future neglect, spatial exclusion, environmental degradation and the production of unsafe urban parks. While Brownlow's analysis points to the impact of neoliberal policies related to volunteerism, his primary contribution to vulnerability studies focuses on integrating feminist and urban political ecology theories to reveal and challenge women's marginalization within and resistance to urban geographies marked by racism and classism.

Graybill reveals the ways in which re-articulating and re-aligning processes associated with producing vulnerabilities can lead to strategies that enhance ecological function, economic productivity and new potentials for urban vitality. Focusing on the rust belt city of Utica, NY, Graybill's historical narrative documents the forces that have contributed to ecological and economic conditions of vulnerability: abandoned brownfield sites, declining city population, outmigration of the creative class to the suburbs, declining tax base, and shifting cultural identities among generations of immigrants. She demonstrates how reframing conditions of vulnerability as a potential basis for revitalization can facilitate city strategies, including securing federal and local resources for refugee resettlement

in the wake of precipitous population decline. At the urban scale, the city addressed two conditions of vulnerability (massive population decline and long-term tax base decline) by attracting and supporting new immigrant communities. Looking to the future, abandoned properties and areas containing a high number of brownfield sites can be places of future urban in-fill development. The major conceptual contribution of this work to vulnerability studies is the framing of urban development as a series of interactions between vulnerabilities and resilience, and that the interplay between these conditions are generated, managed and abated by influential governmental, and local actors operating across scales.

Tretter and Adams demonstrate how the valuation of land based on vulnerability to natural hazards (i.e., flooding) has historically intersected with policies of white supremacy in order to organize the shifting historical geographies of race and class during the Jim Crow era in Austin, TX. Drawing from environmental racism literature, these authors describe the history of urban policies that sanctioned practices of segregation for African Americans and also Mexicans immigrants. For these two minority groups, affordable land was located in floodplains. Vulnerability – defined as the disproportionate risk to flooding – is produced through city policies and urban land economics, which in concert with segregationist politics, is transferred along lines of race and class. Understanding the dynamics of transferring the burden of risk, and thus the experience of being vulnerable, necessitates an understanding of racial politics, of not only African Americans but also, in Austin, Hispanics. As the authors note, both of these groups do not receive the privilege of staying dry, and the burden of flood risk is produced through the confluence of segregationist politics and land use economics. These authors major contribution to vulnerability studies is their application of an environmental justice framework to an historical analysis of the production of vulnerability to urban flooding.

All of the chapters following this volume may be organized around two primary meta-objectives. First, this book uses *vulnerability as an epistemological tool* to explain and demonstrate the magnitude, frequency, distribution, and directionality of vulnerability within particular places and populations, and also to explain emerging and persistent structural processes and practices that produce vulnerability over time and space – ranging from neoliberal economic policy to regional suburbanization and urban sustainable planning initiatives. This book describes a number of dialectical relationships to illustrate these and various other modalities of vulnerability's production. Second, this book uses a series of case studies to articulate the inner mechanisms and dynamics involved in producing vulnerabilities. Chapters in this volume will assist in explaining *the ontology of vulnerability* as a complex process that fluctuates through time and across space; that generates contradictions between intentions and outcomes; that increases in intensity, gains momentum, reinforces and transfers conditions of vulnerability; and that dissipates, undermines, and challenges those very same conditions.

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