Strategies for Sustainability

Brian Petersen
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Justice in Climate Action Planning

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For Diana, Brookelyn, and Iris—BP
For Albert and Jaqueline—HBD

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Introduction: Placing Justice in Cities' Climate Action

As warnings become more dire (IPCC, 2018), climate change discussions increasingly invoke the concept of "transformation" (Krause, 2019), especially around implementing policies and actions that address climate change by transitioning to low carbon technologies (Bulkeley et al., 2011). Such transitions require political decisions and tradeoffs that have the potential to advantage some at the expense of others. In an urban context, scholars have examined city sustainability goals (Broto & Westman, 2019), urban politics (Luque-Ayala et al., 2018), and addressing poverty (Roy et al., 2016). As Hordijk et al. (2016: 1) make clear, "urban poverty requires a conscious consideration of climate change as a global process with local impacts." More and more cities have initiated climate action plans—planning efforts aimed at reducing carbon emissions and preparing for climate change consequences through coordinated actions—but early analyses suggest that equity and justice remain peripheral in these efforts (Schrock et al., 2015). At the same time, cities in the United States that have climate action plans are falling behind on their emission reduction goals (Markolf et al., 2020). Recent events in the United States, including the emergence of the Black Lives Matter Movement, George Floyd's murder, and the prominence and visibility of racial injustices in the public sphere, have heightened awareness around justice. Several cities have taken prominent roles in linking justice and climate action planning. Oakland, California, Minneapolis, Minnesota and Providence, Rhode Island, which have created a Climate Justice Plan, are key examples. Still, as climate change consequences become more acute, and as justice issues take on greater importance in cities, more clarity and insight is needed to understand how cities are responding, and can respond, to climate change in a just way.

The interface between justice and climate action planning explored in this volume builds upon a robust literature. This includes ground-breaking theoretical analyses of justice (Harvey, 1973), as well as more recent interrogations that refine notions of social justice (Lake, 2018) and injustice (Barnett, 2018). Some scholars have moved from justice to the "just city" (Fainstein, 2010, 2014), the "sustainable city" (Hodson & Marvin, 2017), and the "climate-just city" (Steele et al., 2019). Resilience has also been utilized to understand and interrogate justice in cities,

especially when used to better understand how best to improve well-being for the disadvantaged groups (Vale, 2014; Fainstein, 2014). The significant challenges climate change poses to cities (i.e., extreme weather, floods) have led to discussions related to climate urbanism (Long & Rice, 2019), urban vulnerability (Krellenberg et al., 2017), and climate governance in the context of cities (Rice, 2014). Lefebvre's Right to the City (1996) established a clarion call to both take cities seriously and to do so in a way that led to unity and just outcomes for city residents and communities. However, O'Byrne (2020) argues that the literature around the Right to the City has invoked justice in abstract ways that do not translate well for social movements to use in their efforts to build unity and justice in cities. In short, justice remains an important focal point in urban geography and planning theory, but one that needs clarity and empirical insights regarding how it is defined and deployed, and whether it has led to positive and just outcomes in the context of climate action planning.

Our volume seeks to build on literatures from these diverse fields and perspectives. Though much has been written about justice, it remains unclear how climate action planning has (or has not) engaged this concept. A richer understanding of justice in climate action planning (CAP) is not only missing but necessary for ensuring that responses in cities effectively meet the challenges posed and do so in ways that promote just outcomes. As Russo and Pattison (2017: 187) note: "While some CAPs proffer limited poverty reduction goals, few cities have made robust social policies part of their climate action plans or integrated such considerations into how they think about adaptation." Justice represents a key term and idea in liberal democracies and one that is critical in responses to climate change. A full examination of the concept and its origins is beyond the scope of this introduction. However, situating justice in a historical context is necessary to understand its contemporary contextualization and use in climate action planning.

Why Cities, Why Justice?

In 2018, the United Nations reported that 55% of the global population lived in cities and that this proportion would grow to 68% by 2050 (United Nations, 2018). Estimates suggest that cities generate 70% of global greenhouse gases (Duren & Miller, 2012) and C40, a network including megacities across the globe working to address climate change, states that cities comprise roughly 2% of global land cover but use over 67% of global energy (C40, n.d.). These statistics and trends showcase how cities make a tremendous contribution to climate change and that climate change has and will continue to greatly affect cities. In addition, cities remain a key site for policy development and implementation. In the United States, in particular, inaction to address climate change at the federal level has left a vacuum for cities to fill. Cities have responded by implementing climate action plans intended to reduce their emissions, but also prepare and respond to climate-related consequences.

Cities retain a great deal of power and control related to planning and processes can vary in terms of public participation, power relations, and priorities. Cities,

through the planning process, have great latitude regarding housing, transportation, infrastructure, and other city processes that directly affect the lived experience of residents. Although well intentioned, planning has had mixed results. Susan Fainstein and co-authors diagnosed the expert rationale embedded in planning that often results in the assumption that "good planning [is] assumed to be simultaneously in the general interest and guided by experts" (2005: 122). She notes that "critics accused them [planners] of being undemocratic by not consulting the people most directly affected by planning initiatives" (2005: 123) and draws on evidence and the work of scholars to show how planning has led to negative outcomes and injustices. Hall's (1980) *Great Planning Disasters* is a prominent example. Although some cities have taken proactive steps to create inclusive processes to link equity and environmental concerns (USDN, 2020), recent analyses show that in some cases planning has "failed the test of democratic equality" (Lake, 2018: 342). Planners do not set out to create social problems or extend social injustices. However, even attempts to promote justice have led to unjust outcomes, in part as a result of "significant racial, class, and geographical biases that are embedded in all forms of public planning" (Soja, 2010: xiii).

Not only will climate change affect cities, but the responses implemented by cities have tremendous implications and consequences for justice. Climate action planning necessitates decision-making that involves differential power relations showcasing priorities and ultimately leading to policy and actions that have the potential to extend injustice or realize justice. That reality makes the case for this volume focusing on cities (primarily in the US context) and also offers a timely interrogation into the extent to which climate action planning has focused on justice. As more cities develop and implement climate action plans, research is necessary to examine power, justice, and outcomes.

Exploring Justice

Justice is a uniting concept and ideal that can be traced back to the Athenian polity (Soja, 2010). Aristotle focused in particular on the extent to which political participation was distributed throughout society (Jackson, 2005), an irony given that in Athens at the time "the majority of the population, consisting of slaves, nearly all women, simple artisans, and others who did not qualify as citizen, were excluded from the democratic order" (Soja, 2010: 74). Brodie (2007: 95) notes how the social, "synonymous with society and the collective," and not just about individual participation, emerged and shaped our contemporary understanding of social justice. Drawing on Jackson (2005) and others, Brodie traces social justice concerns in contemporary society as they emerged from the revolutions responding to capitalist relations in the nineteenth century and states that "the idea of social justice rested on the premise that justice was a virtue that could be applied both to the collective and the individual and, moreover, that social institutions and social positions could and should be assessed as being just or unjust" (97). Brodie (2007: 97) goes on to say,

quoting Fleischacker (2004: 7), "that dominant constructions of social justice required that the state rather than individuals or charitable organizations 'had the responsibility for shaping and enforcing the chosen distribution of social resources.'" This has direct relevance to cities and climate action planning.

Cities have the responsibility of creating just outcomes in all they do, and notably in their approaches to climate change. What justice actually entails, how to assess it, and who should be the arbiter for determining whether justice has been served remains contested. Erik Olin Wright (2010: 368) suggests that "social justice…requires that all people have equal access to the necessary social and material means to live flourishing lives." Others view social justice more simply as a means to assess the fairness of society. Basta (2016) outlines two approaches, those put forth by Rawls and Sen. Rawls (1971: 302) focuses on the right to liberty and argues that the distribution of social and economic inequalities should benefit the least advantaged members of society, and that opportunities for employment and positions in society should be open and lead to the "fair equality of opportunity." Critics of this conceptualization of justice suggested that it is a-historical and a-spatial (Soja, 2010), focuses on the individual, and fails to recognize differences among social groups (Young, 1990), and that it assumes perfect institutions materialize to ensure and realize fairness across society. Sen (2009) responds with skepticism that just outcomes can materialize from the top down and instead theorizes justice by inverting this conceptualization to identify the "actions which could sustain individuals in advancing justice 'upward'" (Basta, 2016: 196). These theoretical discussions are critical for planners to consider as they define justice and seek to enact just outcomes in cities.

Additional theoretical arguments about justice can help to inform practical applications in planning. For example, Harvey (1973), drawing from a political economy perspective, focuses on the spatial distribution of justice, arguing that power is central to how society allocates benefits. Specifically, he argues that the gains from surplus value should be justly distributed. Similarly, Smith (1994: 24) states that distributive justice means that "whatever is being distributed should go to people in the right quantities" and that "a central issue in distributive justice is how to justify differential treatment, or how to identify the differences among people which are relevant to the particular attribute(s) to be distributed." These insights have relevance for understanding social justice in the urban context and have particular implications for climate action planning.

Distributive justice is critical to consider in climate action planning. How are impacts and protections from impacts distributed? Who is most impacted and how do we best protect all citizens? For example, as Adger et al. (2006) explain, the felt consequences of climate change are unevenly distributed, negatively affecting the Global South more than the Global North, and show that some people and communities will be disproportionately affected, especially the poor and marginalized. At a more local scale, we also see those who are already marginalized and vulnerable facing greater impacts, with fewer options for avoidance. Analyzing Hurricane Katrina and its aftermath, Bullard and Wright (2009) showcase the distributional harms created by racism, planning, and explicit priorities to advantage some at the

expense of others in New Orleans. This particular example provides an opportunity for other cities to assess the extent to which historic decision-making and implicit priorities will create or have created disproportionate consequences for some members of society as climate action planning moves from policy to implementation.

Similarly, and perhaps more importantly, procedural justice concerns are central to climate action planning. Procedural justice addresses how decisions are made and who participates in that decision-making process. Young (1990: 24) suggests that procedural justice identifies "democratic decision-making procedures as an element and condition of social justice." Does everyone have a voice and are those voices equally heard and acted on? Procedural justice has long concerned planners and has taken on increased importance as cities work to create public dialog when acting on climate change. Ensuring transparent and meaningful dialog that influences outcomes and decisions remains difficult. As Fainstein (2010: 30) explains: "My criticism of the proceduralist emphasis in planning theory is not directed at its extension of democracy beyond electoral participation but rather at a faith in the efficacy of open communication that ignores the reality of structural inequality and hierarchies of power." Young (1990) raised similar concerns arguing that power inequalities, stemming from unequal economic relations in society, lead to domination and a quelling of certain voices while privileging others. As noted above, planners acting in good faith to create public venues for dialog do not necessarily overcome these power imbalances that often suppress marginalized voices in planning decision-making (Lake, 2018).

Environmental and Climate Justice

Social justice broadly concerns whether the outcomes of society are fair. Invoked in a positive connotation, justice represents and ideal to strive towards. Barnett (2018) offers an alternative approach, grounding justice in its absence: "justice is something developed not to satisfy an ideal standard, either an a priori principle or an emergent one, but is a universalizing response to situated expressions of injustice" (Barnett, 2018). Drawing on Harvey (1973), Barnett argues that distributional justice and the accompanying processes that drive injustice, namely market production mechanisms, have been overlooked and maintain "structural sources of injustice" (321). He goes on to say that these structural mechanisms "are properly located in processes of class power, property relations, accumulation by dispossession, and exploitation, mediated by dynamics of gender, race or sexuality and state formation" (321). Climate action planning is embedded within these structural processes. Ensuring effective action on climate change, as well as just outcomes, remains a difficult goal and one that needs further interrogation.

Focusing on injustice, the environmental justice movement emerged to showcase the disproportionate burden minorities, especially African Americans, and other marginalized groups faced regarding pollution and environmental risks. Cutter (1995: 112) frames this around environmental equity, "a broad term that is used to describe the disproportionate effects of environmental degradation on people and

places" before describing environmental justice as "a more politically charged term, one that connotes some remedial action to correct an injustice imposed on a specific group of people." The differentiation between equity and justice is important. However, the terms are often used interchangeably, including the contributors in this volume who use both. But they have different connotations. Gilio-Whitaker (2019) distinguishes the two by noting that equity refers to the equal distribution of risk, while justice stresses protection from risk and degradation. Equity has a positive connotation, implying equal protection, while justice represents a demand for fair and just treatment and outcomes.

Robert Bullard has been instrumental in documenting environmental injustices and with providing the evidence and framing that has helped galvanize environmental justice social movements. His book *Dumping in Dixie* (1990) remains an essential and indispensable indictment of power relations in communities that lead to the disproportionate burdening of minority communities with toxic and environmental harms. Specific to climate planning, Bullard explains,

> planning has to be sensitive to the fact that communities and nations have different levels of wealth, health, and education. The goal for planning should be to build community resilience and provide an opportunity for people to bounce back both before and after a catastrophic event … Policy and plans should begin by understanding why people become vulnerable (Bullard et al., 2016).

Bullard further argues that a just plan must not only protect frontline communities, but that the most vulnerable citizens must have a seat at the table and be participants in the creation of a just climate response. Thus, both distributive and procedural justice remain critical in the climate planning process.

Schlosberg (2007, 2013) has written widely on environmental justice, framing it in the context of injustice. Drawing on Bullard (1990), he follows the history of the "inequity in the distribution of environmental bads" and states that "Those environmental bads were simply another example of social injustice" (2013: 38). He traces the emergence of the environmental justice movement to the 1982 protests in Warren County, North Carolina, where residents, mostly African Americans, protested the dumping of PCB laced soils in a local landfill. Later, the report from the United Church of Christ Commission for Racial Justice linked the distribution of environmental bads to poor and especially minority communities. The United States Commission on Civil Rights (2003) published *Not in My Backyard* and cites the EPA definition of environmental justice as the "fair treatment of people of all races, income, and cultures with respect to the development, implementation and enforcement of environmental laws, regulations, and policies, and their meaningful involvement in the decision-making processes of the government." This definition includes justice elements listed above, but the report showcases how environmental outcomes perpetuate injustice. In particular, the report draws on Manuel Pastor's work that disproves the market dynamic theory, which suggests that poor people and minorities choose to live near toxic facilities and shows instead that power relations in society continually lead to outcomes in which toxic facilities are regularly sited in poor, minority communities. Recent evidence confirms these trends and outcomes (Newkirk, 2018) and have strengthened support for framing these outcomes not as environmental justice, but environmental racism.

Climate justice builds off from and extends the insights garnered from the environmental justice movement. Just as contaminants and pollution have been shown to disproportionately affect the poor and marginalized, so too has climate change. Particularly in the United States, key climate justice principles developed from experiences with environmental racism and related concerns (Schlosberg & Collins, 2014). Despite the increasing attention to social justice, the term remains contested, with no definitive, agreed upon definition (Meikle, 2016). Roberts and Parks (2009) trace the emergence of the term "climate justice" to a chapter written by Henry Shue in 1992, while others link it more closely to the United Nations Convention of Parties meetings in 2007 and 2009 aimed at forging an international response to climate change (Cassegard & Thorn, 2017). Calls for climate justice reflect the deeply inequitable outcomes from a global economy that has contributed to increasing carbon emissions and associated climate consequences. Negotiations through the United Nations Framework Convention on Climate Change have raised the profile of climate change as an international imperative, but has not led to meaningful interventions and binding policies. The contestation around climate change in the international arena has created deep divisions in part based on divergent views of fairness (Parks & Roberts, 2010). In addition, climate justice has created alliances, as well as schisms, within the climate movement, particularly between elite institutions (NGOs) and grassroots movements (Schlosberg & Collins, 2014), that limit progress toward climate justice goals (Hadden, 2017). Although divergences exist, Jafry et al. (2019: 3) suggest that perspectives around climate justice "have (at least) one thing in common: they focus on equity and justice aspects to both the causes and the effects of climate change."

Any responses to climate change will have justice implications. Both climate mitigation and adaptation can create and exacerbate existing social vulnerabilities leading to further injustice (Adger et al., 2006; Marino & Ribot, 2012). Cities implementing resilience strategies that include green infrastructure are doing so in ways that do not engage historic inequities arising through development. These well-intentioned efforts marginalize people and create climate gentrification that exacerbates existing inequities (Anguelovski et al., 2019; Shokry et al., 2020). In addition, how the global community responds to climate change has the potential to inflict further climate injustices by diminishing dialog, entrenching political imbalances, and imposing "solutions" that have inequitable outcomes (Wainwright & Mann, 2018). Climate negotiations and processes have often focused on procedural justice, making sure voices are heard. However, this approach has limitations not only because not every voice is heard or counts equally in global discussions, but also because participation does not necessarily lead to just outcomes and decisions (Patel, 2009). Scholars and activists have increasingly called on processes that focus on outcomes, as opposed to distributive or procedural justice (Forsyth, 2014). This is particularly the case as it relates to future generations. Climate change relates to those already facing disproportionate impacts, as well as those who will face them in the future. The call for intergenerational justice remains a core tenet of the movement and one that is seen as difficult to implement (Puaschunder, 2019).

Justice and Cities

What does this all mean for cities faced with planning to mitigate and adapt to climate change? How can justice concerns more directly inform and shape climate change action planning? Justice is a complex, contested term. Still, justice remains an essential basis for city action. This reality takes on even more relevance in approaches to address climate change. Thorn et al. (2017: 236) make clear that "the issues of climate and social justice are inseparable in a global context." We concur and argue the same holds true for cities. Although cities increasingly invoke justice in their approaches to climate action planning, the authors in this volume show how those efforts often remain cursory and insufficient. Invoking justice reflects good intentions, but realizing just outcomes demands something more. This is an early volume dedicated to surveying climate action planning from a justice perspective. The following chapters, focusing primarily on case studies across the United States, do not provide blueprints for how to realize justice in climate action plans. What they do offer, however, are insights that planners, activists, practitioners, and academics can draw on as we all work toward climate action that truly leads to just outcomes.

Overview of the Book

This book initially emerged out of a paper session at the American Association of Geographers conference in 2019. The session was framed around the different scales at which climate mitigation and adaptation can occur. In the course of that gathering, we realized that without being necessarily explicit about it, presenters were in fact placing different conceptions of justice and injustice at the center of their reflection, and also that the questions they investigated were place-based and anchored in specific urban environments. We quickly recognized that the discussion had relevance for city action related to climate change and needed to expand beyond the silos of academia. The insights presented had significant real-world implications for cities and included the many actors who are involved in thinking, taking responsibility for, designing, deciding, implementing, operating, observing, assessing, and adjusting climate change solutions and their impacts in terms of equity and justice. It is our hope that by providing here a platform for artists, professionals in the nonprofit sector, planners, practitioners, community advocates, and interdisciplinary scholars at different stages of their careers to join together, the volume will foster a fruitful cross-sectorial and cross-generational conversation among all who share in the effort to inject ideas of justice in city planning and seek just implementation and outcomes of climate policy.

We have organized the volume around five intersecting axis that are meant to bring in concert theory, practice, critiques, and recommendations related to existing climate action plans and their making, and questions about where to look next and

who to make sure to include for adequate and just solutions. First, we provide the theoretical and historical contexts for the emergence of the notion of justice in the climate debate, in particular at the scale of the city. Second and flowing out of this discussion, the concepts of climate justice and equity in planning are teased out through case studies that highlight not only a variety of places, but also of actors and theoretical underpinnings implicated. Third and fourth, we offer a focus on resilience and community—resilience as a crucial node to problematize the interplay between avoiding climatic disturbance over time, facing impact, and recovering from harm in sustainable ways; and community as the physical, political, and sociocultural site where much of climate action planning is either being directed to or mobilized through a mix of bottom-up and top-down decision-making processes. Finally, although our chapter selection in this book is intended to unveil what cities in the United States are doing in terms of incorporating (or not) their respective understandings of justice in climate action planning, we wish to open up the discussion to incite a comparative curiosity and suggest that there are lessons to be learned from what cities are doing outside the United States. The book does not pretend to propose a comprehensive analysis of city-led climate action planning at an international scale, but merely aims to evoke a sensible sounding board that exemplifies that paying attention to what is done elsewhere could provide useful avenues for reflecting on domestic climate action in novel ways previously unexplored, as well as encourage cross-border comparative scholarship as city-to-city emulation and conversations are increasingly bypassing national level relationships across the globe. Because of the contrast it offers to the US situation and the fact it has been the only European member-state to make climate action and climate adaptation planning mandatory (given that the 2000 UK Nottingham Declaration on Climate Change has not been enforced) under the centralized responsibility of its national environmental and energy agency—arguably sheltering the process from political instability—we choose France. That country stands here as an illustration of possible paths for successes, but also pitfalls of climate action planning exemplified by the now prominent phenomenon of the *Gilets Jaunes* response, which may be understood as a long-term chronic (it started in the winter of 2018) French equivalent of the Battle of Seattle, albeit with a more amorphous and fluid agenda being pushed forth.

In Part I—Theory and History—three chapters delineate the purpose of the book by detangling the trajectory the concept of justice has followed in the climate action planning debate at the level of the city in the United States. In Chap. 1, Deidre Zoll engages "with critical race studies to read adaptation plans as racial projects that distribute resources along race and class lines while simultaneously racializing people and places as vulnerable" in 25 American cities. Through manifest content analysis, the findings of this study set the stage for a multi-layered discussion about "manufactured vulnerabilities" that result from racial segregation stemming from systemic racism and passive silence about the uneven distribution of resources and power in addressing climate risk—an unevenness that is then reflected in climate action plans. Engaging in unjust practices such as redlining, this first chapter efficiently laces theory with an across-the-board attention to the types of obstacles to

justice that can be found in climate action plans, thus setting the tone for the volume's informed critique not only of the role of cities in leading climate adaptation planning and implementation in just ways and for just results, but also of the ways in which theory has been recruited as baseline for discussions in practice. Anne Drevno picks up on this last point in Chap. 2, in which she traces how unequal climate-related threats and outcomes are both issues of distribution and redistribution, leading to fundamental conceptualizations of justice as procedural or redistributive. Using a critical theory framework, she highlights different forms of governance brought about by capitalism and casts light on the ways governance, justice, power, and scale must be considered in conjunction to understand how justice is embedded in climate action planning in the San Francisco Bay Area. Her zooming and de-zooming approach to climate action planning in Californian cities effectively puts the question of scale at the heart of climate policy and discussions on carbon energy and points to engrained paradoxes in the various approaches to climate urbanism she describes. To close this first section, Brian Petersen brings readers right into the planning process that he experienced first-hand in his work with the City of Flagstaff, Arizona. In theorizing the contradictions between solutions pressed forward to reduce emissions—but that all the while remain growth-based—and the demands in the face of the urgency of twenty-first century climate action, he too draws on critical theory to further surmise that ideology is a key influencer in climate action planning, notably ideological denialism that "occurs when climate change is acknowledged as happening and in need of a response, but leads to solutions that do not address the actual drivers of emissions." His study also makes a useful contribution by way of general and practical recommendations against which to start measuring whether climate action planning processes contain some of the necessary elements to ensure effectiveness and equity.

In Part II—Climate Justice and Equity—three chapters identify further contradictions and limitations in the way in which equity policies and considerations are brought into climate action planning. In Chap. 4, James Sirigotis et al. focus on the "mismatches" in California between the solutions that are sought and the means chosen to provide responses, as well as the resources, notably financial, allocated toward the implementation of remedy. The authors in this chapter also condemn a tendency to adopt a one-size-fits-all emulation through injudicious borrowing from one plan to the next with little attempt for place-based tailoring that could better address pressing and specific local needs. They note how this practice is being facilitated by the emergence of a new professional class of climate consultants and web-based "best practices" public access document sharing. Greg Shrock et al. dedicate Chap. 5 to Portland's experience with climate action planning. In their work, they evoke yet another dimension of justice, i.e., "recognition justice," which, when achieved, has the power to re-center decision-making processes around frontline marginalized and particularly vulnerable populations. They highlight how bringing the public into the discussion may lead to positive outcomes in terms of increased equity although as they observed, the relationship between planning officers and communities can be tenuous and break down in some cases. How to build this relationship is illuminated in Chap. 6 by Jalonne White-Newsome and Julie Slay, both

practitioners emanating from non-governmental agencies and directly involved in creating pathways for not only better communication about community needs, but for concerted and shared action. Their focus on urban flooding and the Kresge Foundation CREWS initiative (Climate Resilient and Equitable Water Systems) seeks to uncover seven strategies by which systemic patterns of exclusion of low-income communities (LIC) and communities of color (COC) must and can be unsettled, with these communities being brought to the planning decision-making table, on equal-footing with planners, donors, officials, and water experts. While the chapters in this section at times portray a dire picture of the intervention of justice concerns, either in decision-making or outcomes, White-Newsome and Slay bring a glimpse of hope by showing how shifting the ways in which planning is organized to be deliberately inclusive from the very onset may improve equity levels in the ways in which LIC/COC face and mediate floods, but also other types of climate risk.

Part 3—Resilience—expands on this thinking by featuring three chapters that direct their attention to the interconnection of climate action planning and the often misunderstood concept of resilience. Through discussions about issues of scale, community participation, the role of culture in adaptive capacity, and barriers to action in particularly vulnerable cities, these chapters expand the possibilities for incorporating justice in climate action planning. First in this section, Nicole Lambrou uses Watts in Los Angeles in Chap. 7 as an example of what happens when climate action planning is scaled-down to the level of a neighborhood. In this analysis, the neighborhood is understood as facing its own very localized risk and past and potential future harms, at the same time as it holds its own interpretation of what climate justice looks like and how to go about achieving it. Like other authors in this book, Lambrou's work signals the necessity for situating climate action planning in the local and for ensuring that local populations be given access and the tools that allow them to participate and own the process itself in a way that integrates social, climatic, environmental, and urbanistic concerns. Moving us to the eastern United States in Chap. 8, Geoffrey Habron reveals the experience of Asheville, North Carolina, and its Climate Resilience Assessment and Comprehensive Plan. Focusing on resilience as "the interplay of social capital, adaptive capacity, and risk as it applies to socio-ecological systems," Habron posits justice as both object and actor in resilience efforts and reviews how specific threats and community assets get evaluated in tandem when seeking resilience, especially for socio-economically vulnerable populations. He breaks down the planning process in stages before offering a climate resilience resource guide that could become a useful "kit" for other urban communities. Examining each element of the kit through the lens of justice and adaptive capacity, Habron acknowledges possible cross-scale tensions and other mismatches, engaging in precise applications such as the tree canopy and urban heat or individual mobilities. Identifying gaps in Asheville's climate planning efforts, the chapter makes four recommendations for an effective commitment to a comprehensive approach to bio-physical structural components that ally considerations for building the social capital necessary for a full climate resilience policy. In the last study in this section, Melissa Kenny furthers this

discussion in Chap. 9 by scrutinizing the abilities of communities to address the distributional impacts of climate change in extreme environments. Comparing Boston, Massachusetts, with Anchorage, Alaska, she emphasizes how both cities climate-related plans have differently combined justice with resilience goals, the role of social relations, citizen engagement, and community-driven input and action. She shows how the two cities' engagement in social and racial equity has ranged from apathy to explicit accountability, with consequences on communication. As it underscores some obstacles to effective multi-partite dialogue, her research highlights the value of a city-to-city comparative outlook and what we can learn from contrasting the experience of one city against that of another when devising climate action plans with justice as a core precept.

Part IV—Community—takes up the notion of social capital by reinforcing that community building and community participation are pivotal in the design and carrying out of climate action planning founded on justice. The three chapters in this section also assert the value of hearing various voices and taking into account various sources of expertise in designing climate action planning with equity goals in mind. In Chap. 10, Aurash Khawarzad uses his original multi-faceted approach as a creative artist and urban planner to denounce injustices in the ways in which post-Hurricane Sandy New York faced massive displacement under gentrifying pressures. His community-centered method involves creative mapping endeavors and multimedia community narratives as the basis for conveying information about community culture and needs. His innovative work is a case in point that arts and culture, while often blatantly absent from discussions of climate resilience or climate response, must be reintegrated in the process, not only as information to be acquired about communities, but as methodology to acquire these knowledges. Indeed, Khawarzad describes how the Art+ design projects developed tools for community-based planning, leading to the creation of social hubs and networks where collective knowledge is produced. These social spaces are seen as essential to the successful design of flexible and community-appropriate solutions, erasing the mismatch issues that some authors in this volume raise and lessening key obstacles to effectively incorporating justice at every stage of climate action planning. In Chap. 11, Carolyn Conant Creighton elaborates on the concept of social network in her analysis of interagency collaboration in Fort Collins, Colorado. Positing that "social networks features—specifically network structure and the strength of ties—have measurable effects on outcomes of interest to interagency collaboration, such as transfer of knowledge, improved productivity, innovative capacity, and provision of services," she employs the filter of social network theory to evaluate what it takes for successful collaboration across 46 organizations. Her study reveals probative results about the value of qualitative information to grasp the needs of local and peripheral communities and elaborate solutions, as well as to identify obstacles to procedural justice hinging on gaps in communication or faulty understanding across agencies or activity sectors, and between community and government stakeholders. The major takeaways she proposes from her study can be usefully applied to other mid-size urban contexts, especially when taken along with her recommendations for how to achieve increased connectivity and effect network weaving practices. In the

last chapter in this section, Bill Stroud explores what happens in vulnerable locations in Cape Coral, Florida, when climate action planning is absent. In Chap. 12, he covers the case of pre-platted communities that were built in the 1950s and 1960s with disregard for climate change considerations, as they were focused instead on the aesthetic and amenities value of southwest Floridian landscapes. Stroud's study brings about a critique of situations where land use planning has not occurred. It also highlights competing uses and apprehension of space based on enjoyment value on one side and the generating of profits from land sales that benefited developers on the other. The results have been ill-conceived communities sitting on exposed wetlands, marshes, and coastal zones that are particularly vulnerable to climate harms, especially hurricanes and storm surge inundations, although these are not the same types of communities we usually think of when discussing environmental justice. The Cape Coral experience brings to the fore a case where justice has historically been completely absent from local planning frameworks. However, as Stroud indicates, things may be changing since justice has nonetheless made its way to the discussion in Cape Coral, at the same time as climate change has. It is indeed suggested that the notion of justice might possibly be included in the upcoming 2021 updated Comprehensive Plan, perhaps indicating a shift in values for future planning in the region. It is also telling that at the same time as climate change is integrated more widely in the conversation there, that so might be justice, demonstrating that both may increasingly be seen as unavoidable and necessary elements of the same discussion.

Lastly, Part V—A Comparative Framework for US Experiences—serves as an opening rather than a closing part of the picture we would like to give. Here, we want to suggest that not only comparisons across US cities are important and valuable sources of knowledge, but that we should also extend our awareness to other parts of the world with similar concerns. Two chapters here engage with France as a place where these conversations are acutely taking place. Elena Lioubimtseva and Charlotte da Cunha present in Chap. 13 an original study comparing a number of mid-size American cities and towns with French counterparts. Theirs is a rare study that not only designs a methodology for comparison across borders, but also encourages international collaboration and information sharing to ameliorate adaptation and climate action planning while unraveling the ways in which notions of vulnerability and equity are perceived and constructed in different national, cultural, political, administrative, and territorial contexts. We end the volume with an examination of France's *Gilets Jaunes* (Yellow Vests) movement and an approach to climate action planning through the idea of mobilities, which is a recurrent theme in the volume. Jean-Baptiste Frétigny's Chap. 14 places the social movement in the discourse on (in)justice as it intersects with spatial inequities and movement. Hard to define, not clearly delineated, fluid and evolving, the social movement regards the lack of attention to the effects of transport-related and fiscal policies in climate action planning as sources of exacerbated economic vulnerabilities. As it highlights the disconnect between government climate adaptation-driven decisions and their potential ramifications, the study tells a story of the birth of a grassroot push-back. It also relays how successive top-down solutions envisaged by the government in

response have not managed to curtail popular discontentment, which this *ad hoc* community has expressed in weekly marches since the winter of 2018 (COVID-19 lockdown excepted). This is an example of a movement that has encompassed the whole national territory while representing very local interests, as symbolized by the physical occupation of local roundabouts, but also cross-territorial "class" or occupational interests. This work is a useful reminder that climate action planning has real consequences on real people at the most tangible levels of their lives, and that, as many chapters in this book show, collective action and collective bargaining are powerful tools in ensuring that justice is incorporated not only procedurally, but also in the way we pro-actively think through the desired outcomes of climate policies and how those will affect different populations across space and over time.

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Contents

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Part I
Theory and History

Chapter 1
We Can't Address What We Don't Acknowledge: Confronting Racism in Adaptation Plans

Deidre Zoll

Introduction

Climate change and our efforts to reduce its impacts have the potential to fundamentally reconfigure land use, infrastructure, and public goods and services (Rosenzweig et al., 2018). This reconfiguring occurs within landscapes characterized by racial and economic inequalities caused by systemic racism and continuous processes of racialization (Lipsitz, 1994; Neely & Samura, 2011; Pulido, 2012). Urban planning in the United States has, directly and indirectly, contributed to these inequalities (Rothstein, 2018; Thomas, 1994). A growing number of scholars and activists are concerned that city-led adaptation interventions that ignore these realities are likely to maintain or exacerbate disparities and the systems that produce them (Anguelovski et al., 2016; English et al., 2013; Shi et al., 2016). Emerging research captures how climate plans address justice and equity more broadly (Bulkeley et al., 2013; Schrock et al., 2015; Woodruff et al., 2018), but limited research explicitly examines how climate adaptation plans attend to racial and economic inequalities (Anguelovski et al., 2016; Meerow et al., 2019; Shi et al., 2016).

In conversation with urban adaptation and climate justice scholars, I examine how 25 city-led adaptation plans in the United States discuss racial and economic inequalities, frame concepts of justice or equity, and propose to allocate resources through adaptation actions. I engage with critical race studies to read adaptation plans as racial projects that distribute resources along race and class lines while simultaneously racializing people and places as vulnerable (Hall, 1992; Mills, 2007; Omi & Winant, 2014). I contrast plan attention to inequalities with current racial segregation levels and historic redlining processes to understand how planners contend with racism in the face of climate change. Results indicate most plans

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acknowledged some form of unequal climate vulnerability, but few unpacked the root causes of those disparities and were especially silent on racism and segregation practices. I suggest the lack of attention to racism and racial inequality creates a collective silence that helps maintain racial oppression (Hall, 1992; Mills, 2007). Additionally, a majority of plans engaged with concepts of climate justice or equity as frameworks to address unequal climate vulnerabilities, but less than 10% of proposed adaptation actions directed resources to people or places cities had identified as vulnerable. I argue this racializes people and places as vulnerable, while simultaneously not providing resources to address those vulnerabilities. These findings contribute to our understanding of how emerging urban planning responses to climate change may continue or attempt to disrupt racialized planning practices and climate injustices (Anguelovski et al., 2016; Hardy et al., 2017).

Background

Cities across the United States are grappling with a changing climate and associated impacts and have responded through local and regional adaptation planning efforts starting in the early 2000s (USGCRP, 2018; Wheeler, 2008). City adaptation plans typically fit into one of four categories. First, are stand-alone adaptation or climate resilience plans that focus solely on reducing the impacts of climate change. Second, are climate action plans that have one or more sections dedicated to adaptation but also address mitigation efforts. Third, some plans focus on only one specific climate risk, like sea level rise or extreme heat. Fourth, are hazard, resilience, sustainability, or comprehensive plans that include one or more sections on adaptation. In this chapter, climate resilience plans are treated separately from broader resilience plans. Broader resilience plans often have a climate section but cover a much broader scope of planning concerns including issues like transportation, education, and economic development. Here, I use adaptation plans as shorthand for the first and second categories. In developing adaptation plans, cities analyze climate risks, assess impacts, and detail intended responses. In the United States, cities generally consider risks associated with sea level rise, temperature increases, precipitation changes, and the subsequent impacts on flooding, droughts, heat events, and wildfires (Rosenzweig et al., 2018; USGCRP, 2018). Often cities assess the potential consequences of these changes on residents, infrastructure, public health, ecosystem services, and the economy (Rosenzweig et al., 2018; USGCRP, 2018). Plans establish city goals, document priorities, and detail the allocation of resources through adaptation actions. Within these plans, if and how cities address uneven climate impacts and existing social inequalities varies widely, contributing to concerns that urban adaptation interventions may amplify vulnerabilities and climate injustices (Nordgren et al., 2016; Shi et al., 2016).

Although urban climate planning is a relatively new area of practice, substantial research documents the quantity and quality of city-led adaptation plans. Studies indicate a low uptake of adaptation planning and implementation in the United

States—for example, Lyles et al. (2017) found only 50 cities had fully developed plans. Cities with adaptation actions tended to be well-resourced, had strong local leadership, and pursued low-risk initiatives that protected city assets or addressed familiar climate hazards like flooding (Bierbaum et al., 2013; Hughes, 2015; Shi et al., 2015). Research on plan quality found that adaptation plans were strongest in strategy setting and science-based planning but were generally weak in prioritizing actions, identifying funding, detailing implementation, and describing future evaluation processes (Woodruff & Stults, 2016; Woodruff et al., 2018). In tandem with plan evaluation research, multiple studies noted patterns of cities not engaging with the socio-spatial disparities of climate change impacts, which, if left unaddressed, may reproduce social inequalities (Hughes, 2015; Nordgren et al., 2016; Rumbach & Kudva, 2011).

Scholars analyzing climate planning discourses on equity and justice described how plans acknowledged these issues but observed that relatively few plans carried that attention into proposed climate actions (Bulkeley et al., 2013; Schrock et al., 2015; Woodruff et al., 2018). For example, Schrock et al. (2015) examined the prominence of equity in 28 climate and sustainability plans and found 90% mentioned equity, but only 36% had actions or outcomes associated with addressing inequalities. Case studies on plan content, land use decisions, and social inequalities have connected planning processes and outcomes with the potential amplification of climate risks for marginalized communities and conversely with risk reductions for wealthier white residents (Anguelovski et al., 2016). Together these studies establish foundational information around the lack of adaptation plans, challenges for implementation, and potential climate injustices. However, few studies explicitly examine how adaptation plans attend to racial and economic inequalities and address underlying drivers of climate vulnerabilities (Meerow et al., 2019; Shi et al., 2016). To help fill this gap, I investigate how climate adaptation plans frame climate vulnerability, discuss existing racial and economic inequalities, acknowledge racism and segregation, define climate justice or equity, and direct proposed adaptation actions towards addressing social inequalities.

Theory

I evaluate how climate adaptation plans engage with the drivers and impacts of racial and economic oppression under the assumption that climate justice is predicated on racial justice and conversely that climate injustices are fundamentally rooted in systemic racism. I draw from critical race scholars to situate uneven exposure to climate risks as a consequence of racialized urban processes that have made people and places vulnerable to climate change (Jacobs, 2019; Pulido, 2018). Here, racialization refers to the processes of constructing races and the subsequent unequal treatment by race that produces inequalities (Bonilla-Silva, 2015). I employ Omi and Winant's (2014) theory of racial formation to read adaptation plans as racial projects that distribute power and resources along racial lines to protect people and

places from climate risks or to leave them vulnerable. Lastly, I consider the implications of adaptation plans that are silent on racism by theorizing silences as racialization processes that maintain systems of oppression through collective ignorance (Hall, 1992; Mills, 2007).

Manufactured Vulnerability

Research across multiple scales and geographies consistently warns policymakers about the unequal distribution of climate risks and the uneven ability for people to respond (Barros et al., 2014; USGCRP, 2018). Scholars and policymakers often refer to the people facing these disparities as "vulnerable communities" or "socially vulnerable people," which draws from decades of disaster and hazard research analyzing which areas and groups of people are the most at risk from disaster events (Bulkeley and Tuts, 2013; Cutter et al., 2009; Jurgilevich et al., 2017). Across multiple climate-related hazards including heat waves, flooding, and extreme storms, studies have consistently identified race, income, and age as the most significant predictors for uneven exposure, disproportionate impacts, and prolonged recoveries (O'Neill et al., 2005; Rufat et al., 2015; Uejio et al., 2011; Van Zandt et al., 2012). Other impacted groups also labeled as vulnerable include single parents, people learning English, mobile home residents, and people experiencing mental or physical health issues (CDC, 2016; Cutter et al., 2003; Fatemi et al., 2017). Critical to these discussions is a recognition that individuals and groups are not inherently vulnerable but have been made vulnerable by unjust systems of oppression (Jacobs, 2019; Ribot, 2014).

In cities in the United States, urban planning has contributed to creating vulnerable places and social inequalities through participating in systems of racial oppression. Segregation, racial zoning, redlining, disinvestment, and land use are some of the planning or planning adjacent practices that have created racialized spaces and inequalities (Lipsitz, 1994; Massey & Denton, 1993; Thomas & Ritzdorf, 1997). These practices are often co-constituted with the distribution of environmental risks and benefits along racial and class lines (Bullard, 1993; Pellow, 2016; Pulido et al., 2016). Examples of these processes include early urban planning practices of segregating communities of color in environmentally risky areas and the more recent disinvestment in Flint's water system (Dooling & Simon, 2012; Grove et al., 2017; Morckel, 2017). These urban processes have resulted in devastating inequalities in job access, home-ownership, wealth, incarceration, education, health, and political representation (Thomas, 2012; Shabazz, 2015; Goetz et al., 2020). The racialization of urban spaces manufactures extensive socio-spatial patterns of inequality and unequal exposure to climate risks, especially for Black, Latinx, and lower-income residents (Baldwin, 2013; English et al., 2013; Hoffman et al., 2020). If left unattended, climate change will amplify existing socio-ecological inequalities by increasing environmental and infrastructure risks across already racialized landscapes.

Contextualizing urban planning practices, climate change, and adaptation responses as racial projects lends insight to how vulnerability is manufactured and racialized while also refuting an ahistorical approach to adaptation planning. Racial projects are theorized by Omi and Winant (2014) as actions that distribute resources and power along racial lines and recreate or oppose larger systems of racial formation. I read climate adaptation plans as racial projects by documenting how cities frame vulnerability, discuss existing racial and income inequalities and their drivers, and signal their intentions to distribute adaptation resources.

The Work of Silences

I draw from Stuart Hall and Charles Mills' scholarship on silences as a racialization process to complement my more material use of racial projects and attend to the seemingly covert ways racism functions through silences in urban planning. Stuart Hall (1992), in describing approaches to understanding how different logic of racism are perpetuated, emphasized analyzing how race and racism are talked about but perhaps more importantly analyzing what is not said about race and racism. Charles Mills (2012) includes these silences as one aspect of a systemic collective denial that maintains what he calls "white ignorance" of the foundational and omnipresent role of white supremacy in the United States (Mills, 2007, 20–21). In framing the production of white ignorance, Mills notes the importance of how the telling of our histories is constructed as both "a feel-good history for whites" and a "forgetting" of foundational and continuous violence by white people and the state against Black and Indigenous people and other communities of color (Mills, 2007, 30). For Mills, the telling and the forgetting of our histories can be intentional or unintentional but are always creating a cultural hegemony of "non-knowing" (Mills, 2007, 20–21).

Dishonesty and the production of white ignorance allows white people to claim that access to power and wealth is the result of merit and hard work while simultaneously avoiding any reckoning with the violent theft of Black, Indigenous, Asian, and Latinx land, people, labor, and capital. Dishonesty about our history makes us dishonest about our present circumstances in terms of why Black, Latinx, and Indigenous people have such vastly different social outcomes and, conversely, how white people have obtained their land, wealth, health, and security (Mills, 2007, 28). Importantly, Mills notes that silences, ambivalence, forgetting, and non-knowing are so normalized that they can be maintained without effort or racial animosity unless directly confronted (Mills, 2007, 23). Plans are one of the main languages of formal city planning. They convey our understanding of current urban conditions, present a vision for a collectively better future, and communicate how we will get from here to there. Therefore, I read adaptation plans to understand what is said and not said about race and racism to question the impacts of silences on our framing of climate injustices and proposed solutions (Hall, 1992).

Methods

To evaluate how cities have addressed racial and income inequality, I used manifest content analysis (Neuendorf, 2016) and plan evaluation methods (Berke & Godschalk, 2009) to analyze 25 climate adaptation plans. Plans were sampled from a study population of US cities with more than 50,000 residents (N = 757) with publicly available adaptation plans (n = 99) identified through city websites and online searches. City population parameters were based on assumptions of sufficient financial and staff resources to implement adaptation plans while ensuring a variety of city sizes, histories, politics, and demographics (Berke & Conroy, 2000; Berke & Godschalk, 2009). I excluded 658 cities from the sample frame because they did not have publicly available climate plans (n = 495), their plans did not address adaptation (n = 107), or drafts were not public (n = 43). Thirteen cities were excluded because they incorporated adaptation in their comprehensive, sustainability, or hazard plans (n = 8), or they focused on one specific climate risk (i.e., a sea level rise plan) (n = 5). These 13 cities were excluded to ensure plans could be compared across similar scopes. For example, sustainability, comprehensive, and hazard plans often are broader in scope, and their analysis of human impacts is not likely to be limited to climate risks. Conversely, a stand-alone sea level rise plan has a narrower scope, which impacts the assessment of risks and proposed adaptation actions. Future research could incorporate these types of plans and provide insights into different approaches to adaptation actions. I stratified the remaining 99 cities by census region (Northeast, Midwest, South, and West) to ensure geographic, social, and climatic variations (Boswell et al., 2010; Cook et al., 2002) and used stratified random sampling to select 25 cities for analysis (Fig. 1.1).

I imported the latest climate adaptation plans into NVivo and deployed content analysis (Krippendorff, 2018; Lune & Berg, 2017) and plan evaluation methods (Berke & Godschalk, 2009) to explore how cities considered issues of climate risks,

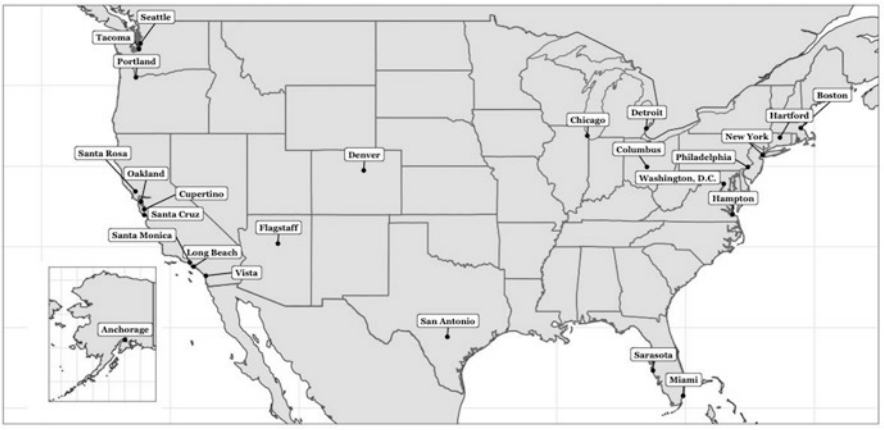

Fig. 1.1 Map of cities with adaptation plans analyzed in this study

race, class, justice, and equity. Plan evaluation methods are commonly relied upon to systematically synthesize plan content and compare plans across established standards under the assumption that higher plan quality yields better planning outcomes (Lyles & Stevens, 2014). Following Berke and Godschalk's (2009) plan evaluation framework, I developed a codebook based on internal plan categories: issue identification, fact base, policies, implementation, and monitoring and evaluation. I added adaptation-specific elements including climate risks, adaptation mechanisms, and adaptation actions based on studies evaluating climate risks and plans (Araos et al., 2016; Rosenzweig et al., 2018; USGCRP, 2018). Social group categories were developed from vulnerability indices, urban climate justice scholarship, and plan content (CDC, 2016; Schrock et al., 2015; Woodruff & Stults, 2016). It is important to note that these groups are socially constructed, contested, and imprecise (Zuberi & Bonilla-Silva, 2008) and categories in this study do not capture how race, ethnicity, citizenship, class, gender, age, physical and mental conditions, and sexualities combine to shape people's experiences nor how systems of oppression are interlocked and co-constituted (Collins, 2008; Crenshaw, 1991; Zuberi & Bonilla-Silva, 2008). Lastly, I compiled plan sections that defined justice or equity, climate inequalities, and envisioned outcomes (Table 1.1).

Table 1.1 Condensed coding scheme used to evaluate adaptation plans

Plan elements	Variables
Climate risks	Temperature • Heat general • Heat waves • Increased air pollution • Cold Water • Precipitation changes • Drought • Snowpack • General flooding • Coastal flooding • Sea level rise (SLR) • Land loss (SLR) • Increased water pollution • Salinization Public health • Air pollution and public health • Amplification of existing public health concerns • Emergent diseases • Flood and storm impacts on public health • Extreme heat or cold impacts on public health • Water and food security • Wildfires • Increased storms

(continued)

Table 1.1 (continued)

Plan elements	Variables
Adaptation mechanisms	Groundwork • Studies • Plan development • Enact existing policies and plans Capacity building • New staff • Capacity building • Mainstreaming adaptation into city departments and policies • Fundraising Coordination • Institutional coordination • Communities and community organization engagement • NGO and business partnerships Education and outreach • Public outreach • External training programs • School education programs Infrastructure • Hard infrastructure – Move existing infrastructure – Change infrastructure design guidelines – Modify existing infrastructure – City building efficiencies – New infrastructure • Green infrastructure • Emergency preparedness – Early warning systems – Backup equipment – Shelters and resilience hubs • Social safety nets Policies and land use • Land acquisition • Buyouts • Planned retreat • Development regulations • Building codes • Land use Incentives and fees • Revenue generation • Incentive programs

(continued)

Table 1.1 (continued)

Plan elements	Variables
Social groups	Others Race/ethnicity • Specific racial or ethnic groups • Communities or people of color • Learning English Class • Low-income communities • Unemployed • Outdoor workers • Receiving government assistance (e.g., SNAP, etc.) • Unhoused Gender/sexuality • Gender • LGBTQ+ • Single-parent households Age • Seniors • Youth Health • Pre-existing medical conditions Conglomeration terms • Vulnerable • Marginalized • Frontline • At-risk Others

The first column represents three broad plans elements: climate risks, adaptation mechanisms, and social groups. The second column contains predetermined variables within those elements that were coded for analysis

I used manifest content analysis to code each plan element as present or absent along with the frequency of different adaptation mechanisms and social groups targeted for all proposed adaptation actions. Manifest content analysis is a technique to synthesize text and identify meaning through deductive coding that evaluates the presence of a predetermined set of words, phrases, or synonyms (Krippendorff, 2018). This approach is still subject to bias but leaves less room for researcher interpretation and increases replicability (Krippendorff, 2018). I used inductive value-based coding to categorize city descriptions of justice or equity. Instead of relying on a predetermined set of words or phrases, inductive value-based coding uses repetitive reading and coding practices to allow themes related to norms, attitudes, and beliefs to emerge organically (Saldaña, 2015). Following coding, I analyzed frequency counts of climate risks, general attention to social inequalities, and the composition of individual adaptation actions in terms of mechanism types and targeted social groups.

Findings

Five major findings emerged from my analysis. A majority of plans used the concept of social vulnerability in framing the impacts of climate change on city residents and identified low-income residents and communities of color as social groups who may experience unequal climate risks. Second, almost 70% of plans acknowledged disparate climate vulnerability and proposed addressing those through principles of climate equity or justice. Third, despite notable attention to injustices, the majority of plans did not consider underlying drivers of inequalities and were especially silent on systemic racism. Fourth, attention to inequality or engagement with concepts of justice or equity all but disappeared in proposed adaptation actions. Finally, five cities accounted for the majority of adaptation actions targeting social groups and shared patterns regarding plan attention to existing racial inequalities and acknowledgment of racialized planning practices.

In developing their adaptation plans, cities assessed a variety of climate risks and their potential impacts on residents. Plans predominantly focused on increasing temperatures, heat events, changing precipitation patterns, flooding, and public health impacts (Table 1.2). In considering effects on residents, 84% of plans noted

Table 1.2 Number of plans that identified specific climate risks

Category	Risks	Cities	Cities (%)
Fire	Fire	12.00	48.00
Storms	Storm events	14.00	56.00
Sea Level Rise	Salination	4.00	16.00
	SLR land loss	5.00	20.00
	General SLR	15.00	60.00
Flooding	Coastal flooding	14.00	56.00
	General flooding	21.00	84.00
Public health	Health impacts flooding	8.00	32.00
	Water pollution	11.00	44.00
	Infectious diseases	14.00	56.00
	Air pollution	16.00	64.00
	Amplification of existing health issues	17.00	68.00
	Food or water insecurity	17.00	68.00
	Health impacts heat events	20.00	80.00
	Health impacts air pollution	22.00	88.00
Precipitation	Extreme snow events	8.00	32.00
	Droughts	15.00	60.00
	Precipitation increases	23.00	92.00
Temperature	Extreme cold events	0.00	0.00
	Extreme heat events	22.00	88.00
	General temperature increases	23.00	92.00
Other	Other	10.00	40.00

The first column contains broad categories of risk (i.e., public health). The second column details specific risks in those categories (i.e., air pollution). The third column is the total number of cities that identified each risk. The fourth column is the percent of cities (out of 25) that mentioned each risk

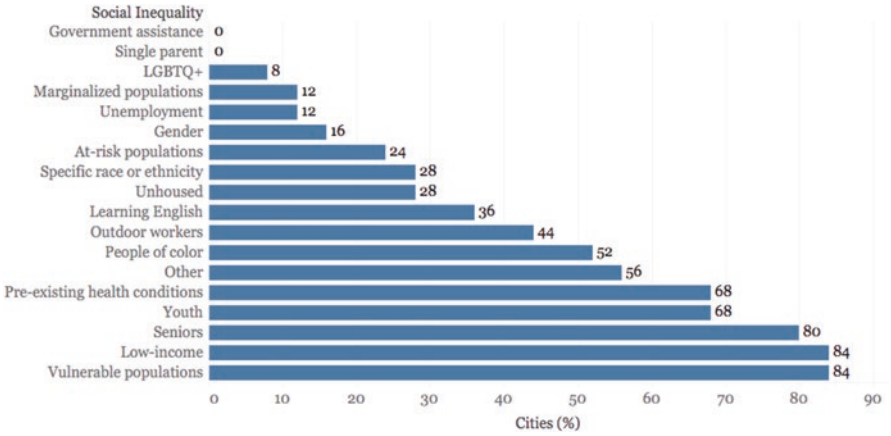

Fig. 1.2 Percent of adaptation plans (out of 25) that identified different social groups as climate-vulnerable

one or more social groups that may face unequal climate risks, including "vulnerable" residents, low-income communities, seniors, youth, those with pre-existing medical conditions, and people of color (Fig. 1.2). Seven plans referenced specific racial or ethnic groups, including Black, Latinx, Indigenous, and Asian communities. Cities defined "vulnerable" residents to include low-income households (80%), seniors or youth (68%), people with pre-existing medical conditions (52%), communities of color (40%), and specific racial or ethnic groups (8%).

Of the 21 plans that discussed climate vulnerability, 17 stressed the importance of addressing equity or justice, and 15 described what that entails. In articulating climate injustices, 44% of plans noted the disproportionate impacts of climate change and their potential to exacerbate existing inequalities. When characterizing what climate justice or equity requires, plans focused on equal access to resources and services (40%); prioritizing adaptation actions in vulnerable communities (40%); engaging disenfranchised residents (36%); reducing disproportionate climate risks (24%); and centering communities of color (16%). Six cities attempted to operationalize climate justice or equity by including checklists or toolkits to help staff consider the potential impacts of public engagement, policies, and actions. Although plans signaled notable attention to equity and justice, results indicate that few unpacked the systemic drivers and urban processes that create inequalities and make places and people vulnerable. In exploring current levels of racial segregation and histories of redlining, I found that 80% of cities in this study currently have medium or high levels of racial segregation and 68% were redlined (Brown University, 2019; Nelson et al., n.d.). In total, 11 plans did not mention race, yet 10 of those have medium or high levels of segregation, and 8 were redlined. Of the 17 cities in this study that were redlined, only 2 acknowledged that history. While 21 plans elevated social inequality concerns, only 5 talked about practices of legal or de facto segregation, 4 acknowledged general histories of discriminatory actions,

3 used the term "racism," and 2 explicitly brought up redlining. This indicates that cities are willing to acknowledge vulnerability and inequalities, yet are quieter on planning's role in creating those vulnerabilities and mostly silent on racism.

The dissonance between naming vulnerability and the systems that create vulnerability was also present and amplified in proposed adaptation actions. Adaptation actions distill how the city intends to distribute effort, resources, and funding to various planning domains, mechanisms, locations, and communities. Each plan contained actions that were categorized as supporting adaptation efforts with a total of 1485 proposed actions. Approximately a third of the actions called for new or modified infrastructure, and another third directed effort towards groundwork initiatives, especially new studies and assessments. A quarter focused on education, outreach, coordination, and capacity building. Less than 10% addressed land use, building codes, development regulations, and financial revenue or incentives (Fig. 1.3). While almost 70% of plans had at least one action targeting a social group, under 9% of all actions directed resources to those groups. Actions associated with social groups predominantly focused on "vulnerable residents" (3%), followed by low-income communities (1%), and people of color (<1%) (Fig. 1.4). Together, these results indicate a general willingness to be explicit about directing adaptation actions but highlight the steep decline from plan rhetoric to specific actions.

In addition to a small number of overall actions targeting social groups ($n = 126$), most actions were associated with groundwork, coordination, and outreach initiatives. Approximately a third were related to studies, assessments, and the modification or creation of new plans. Another third dealt with internal and external coordination, plus public outreach and education. Less than 15% were connected to infrastructure projects, and those were concentrated in green infrastructure, municipal building efficiencies, and resilience hubs or emergency shelters. These patterns held when isolating actions that prioritized low-income residents and people of color. However, none of the proposed actions reference specific racial or ethnic groups. Importantly, actions associated with land acquisition, land use and zoning, building or design codes, and development rules or regulations were not associated with any social group (Fig. 1.5).

In analyzing how general plan rhetoric around social inequalities, uneven climate vulnerability, and climate justice translated into proposed climate adaptation actions, I found a high degree of policy dissonance. For example, 84% of plans drew attention to social inequalities, 68% engaged with concepts of climate justice or equity, and 40% defined climate justice or equity to include prioritizing adaptation actions in vulnerable communities. Yet less than 9% of all proposed adaptation actions targeted any social group. Similarly, cities identified low-income residents (84%) and communities of color (52%) as groups especially vulnerable to climate impacts, but less than 3% of all adaptation actions targeted those groups (Fig. 1.6). In total, 13 cities did not have actions directing resources to low-income residents or people of color, and 7 cities only had 1 action each. These findings highlight substantial disparities between who cities said are at risk, their public commitments to equity and justice, and their proposed allocation of resources.

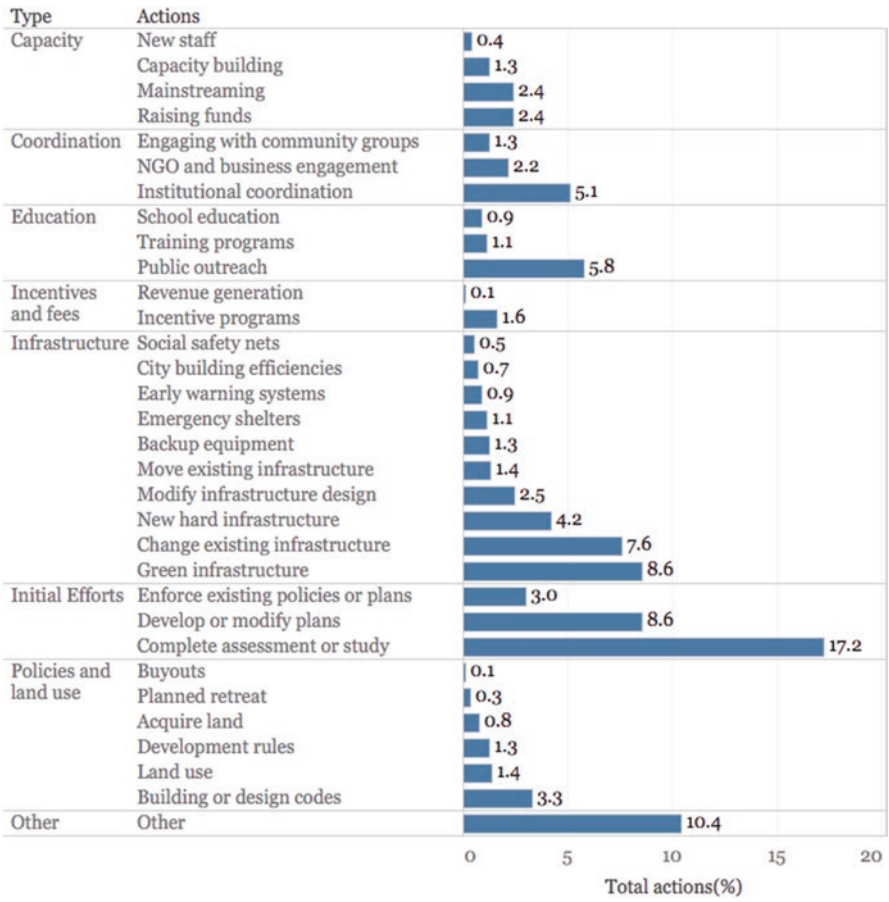

Fig. 1.3 Percent of total proposed adaptation actions (out of 1485) (column 3) categorized by broad adaptation mechanism (column 1) and specific actions within those mechanisms (column 2)

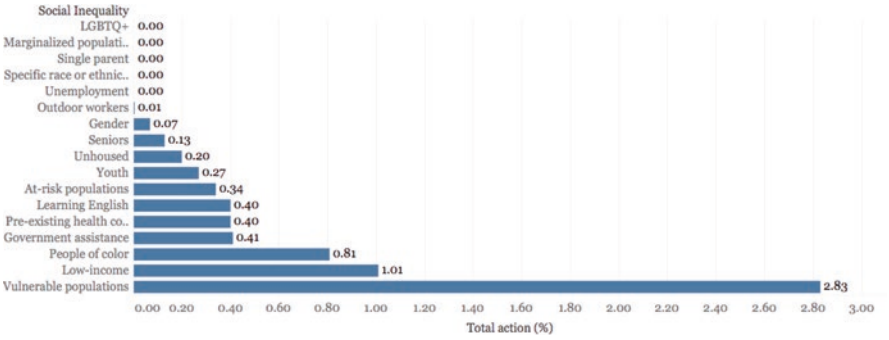

Fig. 1.4 Percent of total proposed adaptation actions (out of 1485) that were directed to different social groups

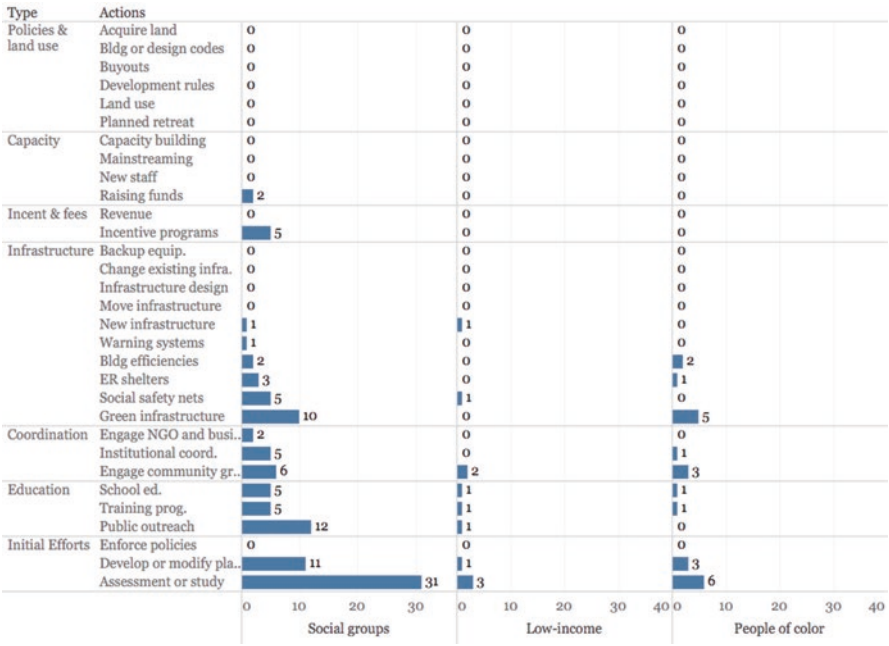

Fig. 1.5 Number of total proposed adaptation actions (N=1485) directed to different social groups. The first column is broad adaptation mechanisms. The second column is specific actions within those mechanisms. The third column is the number of actions targeting any social group. The fourth column is the number of actions linked to low-income residents. The fifth column is the number of actions that mention people of color

In contrast, Oakland, Portland, San Antonio, Santa Monica, and Seattle accounted for 50% of all actions targeting social groups and 85% of actions directing resources to low-income residents and people of color. When exploring the potential commonalities between these cities, I found that each plan articulated a vision of climate equity that acknowledged the disproportionate impacts borne by low-income residents and communities of color and sought to reduce those by prioritizing actions for communities most affected by climate change. These cities framed climate justice or equity by historicizing patterns of inequalities, and three explicitly noted practices of institutional racial discrimination and framed racism as the primary driver of social inequalities and climate vulnerabilities. San Antonio was the most explicit about tracing racialized city-led interventions noting the codification of racial segregation in 1826, redlining impacts, and the continuous systemic disinvestment in communities of color (2019, 55–56). Seattle was the only city to name racial justice as foundational to climate justice, while the other four cities situated reducing racial disparities as a major component of climate equity. Oakland, Portland, San Antonio, and Seattle relied on equity working groups to help develop or review plans, and three created or drafted equity toolkits. There are areas for critique in these plans; however, they offer potential lessons learned around practices of forming equity committees, acknowledging systemic discrimination, attempting to operationalize equity, and directing resources to social groups.

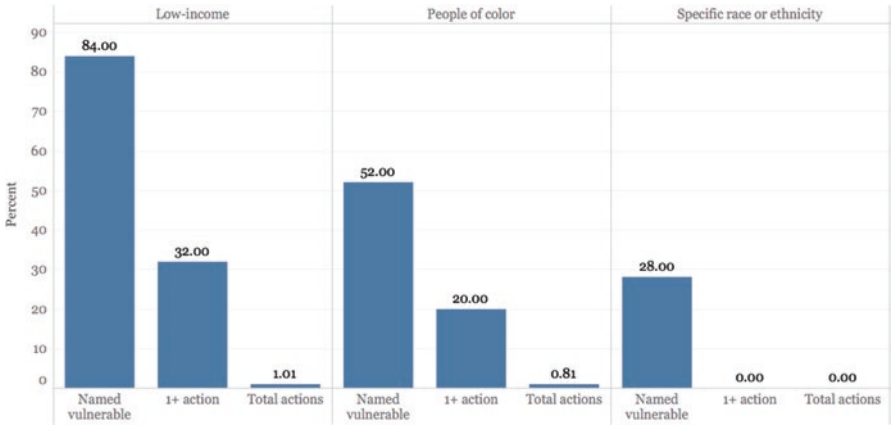

Fig. 1.6 Percent of plans (out of 25) that name low-income residents, people of color, or specific races or ethnicities as vulnerable, percent of plans (out of 25) that direct one or more actions to those groups, and the percent of total actions (out of 1485) that target those groups

Implications

Research outcomes point towards four implications for adaptation planning. First, we must attend to the policy dissonance between who cities say is vulnerable, their stated commitments to equity or justice, and how they intend to distribute adaptation resources. I am putting forward these critiques to support the normative visions cities committed to in their adaptation plans. Almost 70% of cities in this study stressed the importance of addressing equity or justice, and 85% acknowledged the unequal climate risks faced by "vulnerable" residents. However, the rhetoric around climate vulnerability and justice did not translate into adaptation actions connected to social groups or inequalities. Less than 3% of all adaptation actions directed resources to low-income communities or people of color, and actions targeting those groups were concentrated in education, outreach, and coordination efforts. These findings align with previous research that documents a high degree of rhetorical commitments to equity or justice in climate or resilience plans (Meerow et al., 2019; Schrock et al., 2015). They also support previous evidence regarding the disconnect between rhetoric of justice or equity and accompanying actions (Bulkeley et al., 2013; Schrock et al., 2015). Importantly, public commitments to climate justice and equity offer critical openings for communities and NGOs to hold cities accountable and ensure that they take tangible and transparent action to support their stated intent.

Second, framing adaptation plans as racial projects provides insights into how resources are distributed along racial lines and how places and people are racialized through concepts like climate vulnerability. In evaluating the 1,485 adaptation actions proposed in the 25 plans, I found 28% were associated with infrastructure and 7% addressed land use, building codes, or development regulations. Out of the 536 actions related to infrastructure and land use, only 11 mentioned low-income

residents and communities of color. These outcomes support previous research documenting inadequate physical adaptation actions aimed at reducing disparate climate risks and extend those to focus on income and race explicitly (Hughes, 2015; Nordgren et al., 2016; Schrock et al., 2015). Given the ways climate change will alter our urban environments, it is worrisome that so few actions were associated with infrastructure and land use and how few of those actions connected to low-income residents and communities of color. This feels especially egregious in light of planning's use of zoning, land use, and infrastructure as tools of racial oppression (Bullard, 1999; Wilson et al., 2008).

Land use regulations and zoning have origins in white supremacy; they have been used to racialize urban landscapes, and have contributed to resulting inequalities (Lipsitz, 1994; Rothstein, 2018; Thomas & Ritzdorf, 1997). Similarly, cities have used infrastructure to segregate cities, destroy neighborhoods of color, and spur displacement (Avila, 2014; Wilson et al., 2008). Infrastructure and land use have interwoven racism into our urban fabric so extensively that racial oppression is maintained as the default, regardless of malicious intent (Heynen et al., 2018; Lipsitz, 2007; Pulido, 2018). I suggest that not directing land use and infrastructure actions to communities of color continues patterns of racialized planning interventions while simultaneously bypassing two of the most substantial planning mechanisms that could help create less harmful urban landscapes.

Theorizing adaptation plans as racial projects is about both the distribution of resources and how places and people are racialized through concepts like climate vulnerability. Just as planning deployed land use and infrastructure to create spaces that are less healthy, less wealthy, and less safe, they have also contributed to the ways these spaces are racialized as "dangerous," "inner cities," or "ghettos" (Bonilla-Silva, 2013; Omi & Winant, 2014). The naming of places and the people in them as unsafe, unhealthy, or impoverished has historically justified planning interventions to "solve" these issues through acts like building and destroying public housing, urban renewal, increased surveillance, and the criminalization of places, people, and activities (Alexander, 2012; Neely & Samura, 2011; Shabazz, 2015). There are similar critiques around how concepts like social vulnerability often ignore the continuous and co-constituted systems of oppression that create vulnerability while simultaneously naming people and places as insufficient and needing intervention (Bankoff, 2001; Jacobs, 2019; Burghardt, 2013). These arguments do not ignore the realities of uneven exposure to climate risks, but instead question the intent behind naming people as vulnerable without addressing the root causes of inequality (Jacobs, 2019; Ribot, 2014).

The third and related implication for adaptation planning is to extend our understanding of how racialization functions in planning documents through reading their silences (Hall, 1992). My research found that 17 plans named different social groups as "vulnerable," but only 5 plans mentioned histories of segregation, and 2 acknowledged redlining despite 17 cities having been redlined. Racism is not the only system of oppression operating in cities, and redlining is not the only act of racism that we should address. However, when only 3 plans use the term racism, and 15 cities were redlined but did not mention it, we should think about how these silences collectively contribute to white ignorance (Hall, 1992; Mills, 2007). This is

especially evident in seemingly innocuous discussions of inequality and vulnerability that fail to mention racism and racialized planning practices in manufacturing those outcomes. As an example, studies have found that formally redlined neighborhoods were consistently warmer than neighborhoods categorized as "desirable" (Hoffman et al., 2020; Wilson, 2020). Being silent on the ways our cities have formed through racial oppression and planning's role in those systems does the double work of "forgetting" violence and oppression while also creating a "feel-good history" for planners, city officials, and white residents (Mills, 2007, 30). Conversely, the plans in this study that discussed histories of segregation, redlining, and used the term racism accounted for the majority of adaptation actions that targeted low-income residents and people of color.

We cannot begin to address what we do not acknowledge. I am not arguing that naming racism and other systems of oppression in planning documents or directing resources to communities of color will significantly contribute to the necessary work of dismantling white supremacy and other systems of racism and oppression. Nor am I claiming that targeted adaptation actions will be implemented, effective, or designed to prevent displacement. I suggest that silence on racism and other systems of oppression contributes to their durability and obscures the culpability of planning in racial oppression (Hall, 1992; Mills, 2007). The omnipresent nature of racism is so deeply embedded in our urban landscapes and institutions that racial domination can be maintained by simply doing nothing. Therefore, climate planning that does not address racism at best maintains the status quo or more likely exacerbates the impacts of racism on the health, wealth, and safety of Black, Indigenous, Latinx, and other communities of color and contributes to the durability of systemic racism in planning. Moving forward, planners should take care in extending concepts of vulnerability from indices and GIS maps to deeper structural analyses. This analysis includes starting the planning process with an honest and detailed history and inventory of structural and institutional racism in the city and our role in those systems. Communities most impacted by climate change should lead the planning process and proposed solutions. Plans should align stated commitments to equity or justice with tangible actions rooted in land, infrastructure, and resources. Urban adaptation planning is likely to grow as a field of practice that will significantly impact people's health, neighborhoods, and communities. If adaptation plans and actions are the primary evidence of city efforts to reduce climate impacts, then cities need to maintain accountability regarding how they propose to protect people and places and how those interventions can interrupt or maintain racial, economic, and environmental injustices.

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Chapter 2
Integrating Equity and Justice into Climate Action Planning: Beyond Mere Symbolism

Ann Drevno

Introduction

The terms "equity" and "justice" are rapidly emerging in new or updated local municipal climate action plans (CAP) throughout the USA and especially in California. Inclusivity and fairness are two guiding principles for city climate action planning (Tuts et al., 2015), and numerous guides to developing CAPs devote entire sections to participatory governance (Simpson, 2009; Tuts et al., 2015). While there is widespread attempt to integrate equity and justice parameters into climate action plans, it is unclear when this shift occurred and how, if at all, these plans will reshape communities and spaces to become more inclusive, just, and equitable. Climate governance concerns underscore the importance of academic discussions that uncover the complexities and challenges of cross-jurisdictional environmental planning. The fields of political ecology and geography have made substantial contributions to breaking down barriers between society, technology, science, nature, and politics (Woolgar & Latour, 1986; Harvey et al., 1996; Swyngedouw, 2009). Literature in these intersecting disciplines has opened exciting discourses around scalar and spatial dimensions of climate governance (Okereke et al., 2009; Bulkeley, 2005). Effective environmental policy instruments (Coglianese & Lazer, 2003; Driessen et al., 2012) have provided academics with powerful tools to explore and uncover often hidden power relationships, shifting policy tool choices and competing politics in cities where widespread adoption of CAPs is occurring.

The inadequacies of current climate action approaches, namely, numerically oriented; driven by efficiency, growth, and profits; and heavily reliant on technological fixes and infrastructural redesign, have triggered numerous academic discussions on how to proceed from a wide range of disciplines. Opponents to market-driven

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solutions have questioned the need for growth, usually on environmental grounds (Fainstein, 2014). Some critical geographers claim the impossibility of carbon reduction goals and climate justice within the current capitalist system (Harvey et al., 1996). Environmental economists have questioned the use of cost-benefit analysis, demonstrating the lack of ability to capture moral factors related to climate change (Caney, 2010). Urban planners are reimagining value systems within their decision-making (Houston et al., 2016; Steele et al., 2012). One gap that has been largely understudied, but is of central concern to global climate change, is justice within climate action planning. Scholars have begun to research why equity, democratic governance, and social implications have historically been left out of climate governance planning (Houston et al., 2016). Additional theoretical and place-based research on the coupling of justice and climate action plans is well-positioned to explore the complex relationships within local environmental governance and politics.

This chapter employs a critical theory framework aptly described and employed by Stuart et al. (2020). This framework attempts to understand the relationships between capitalism, the environment, and society while discovering emerging spaces, places, and practices within the existing order that offers alternatives to current irrational conditions and power relations. Assessing institutions as a collection of social and discursive relationships within capitalism has offered the basis for examining new forms of governance, especially ones that are more socially and ecologically just (Krueger & Agyeman, 2005). My aim is to recognize the unjust and problematic institutional structures at play while also allowing for the discovery of oppositional thinking and change within those contradictions and crises (see Stuart et al., 2020). Like others (Steele et al., 2012; Houston et al., 2016), I find emerging relationships are reshaping urban dimensions in novel and surprising ways. This three-part chapter uses historical and mixed social scientific methods to investigate issues of governance, justice, power, and scale relating to climate action planning in California's urban landscapes. The first section traces the history of climate action plans in an attempt to uncover scalar dimensions—geographical, institutional, and roles/issues—of climate action planning, particularly why cities predominantly bear the responsibility of climate action and how they fare. Employing a critical theory framework, the second part assesses the emergence of justice and equity in climate action planning and the unique spaces in which cities and their constituents have creatively embedded these elements across sectors, with unique government and nongovernment partnerships in spite of contradictory institutional structures. A final section concludes by exploring the materialization of justice-oriented alternative forms of governance emerging within and around the limitations of the existing economic and social order, offering openings for change.

The geographical focus of this chapter is on California and specifically the San Francisco Bay Area that is uniquely situated to provide a plethora of case studies on local climate action plans. Over 480 cities and 69 counties have climate action plans in California (CARB, 2020). Of those, 101 are cities and counties in the San Francisco Bay Area (delaminated by jurisdictional boundary of the Bay Area Air Quality Management District). This chapter is empirically informed by actors in

San Francisco Bay Area municipal governments and nonprofit and private sector institutions involved in local climate governance, as well as document review of climate action plans in the region. While California is often viewed as a model for environmental policymaking, much work is still needed to address striking environmental injustice issues. Environmental justice issues in the state include but are not limited to the disproportionate burden of air pollution, water pollution, and toxic siting in communities of color (Morello-Frosch et al., 2002; Huang & London, 2012).

Scalar and Power Dimensions of US Municipal Climate Action Planning

Despite the common framing that climate change policy is a matter of international governance, local actors using a wide range of policy tools have emerged as leaders in climate action. The evolution of climate change policy from national and international to local levels has a number of roots, one of the most prominent of which is the gap produced by federal inaction in the USA (Rabe, 2004). There was much hope that the Rio Earth Summit in 1992, the Kyoto Protocol in 1997, and the many other international climate agreements that followed would materialize into swift, collaborative global action. However, international and national response to climate change has been fragmented and slow (Houston et al., 2016). This failure has left state and local governments with much of the responsibility to act on climate change. Local municipal action has become increasingly important. The International Panel on Climate Change (IPCC) identified cities as most suitably positioned to act faster and more easily innovate (C40, 2018), as they offer a level of engagement that is unachievable at higher scales. City governments have the unique ability to inform, educate, and involve citizens as well as local industries. Because populations are more concentrated in urban areas than ever before, urban residents will experience some of the most severe impacts of climate change (Hobbie & Grimm, 2020). Consequently, cities face pressure from their constituents, forcing them to mitigate and adapt.

With several impetuses to act, cities do so with great limitations—cities are often understaffed and lack power, resources, and authority to make widespread change (Lake & Hanson, 2000). In most states, cities have little or no mandate to control greenhouse gas (GHG) emissions, making their efforts largely voluntary and unfunded. When deciding to adopt GHG reduction goals, local entities are limited to a small set of policy tools due to a complex set of pressures and conditions. Yet despite their constraints, city governments throughout the USA have begun to rapidly develop and implement their own response to climate change in the form of climate action plans, and many have surpassed federal government commitments. For example, in July 2020, the City of Menlo Park became the first city in the USA to set a goal of becoming carbon neutral by 2030. In 2019, the City of Berkeley leveraged its CAP with a landmark decision to ban natural gas hook-ups in all new

construction. Many more cities in the state will follow if California is to achieve its goal of carbon neutrality and zero-carbon energy by 2045.

A dominant strategy employed by local governments is the use and implementation of a framework offered by ICLEI, formerly called the International Council for Local Environmental Initiatives and now known as Local Governments for Sustainability. ICLEI launched in 1990 when 200 municipal leaders converged at the United Nations in New York to take action on climate change. The organization is now widely regarded as the model for carrying out UN Local Agenda 21: global action plans for sustainable development in local communities. ICLEI provides a performance-based five-milestone model for climate action planning: (1) inventory greenhouse gas emissions; (2) establish a reduction target; (3) develop a plan; (4) implement policies and measures; and (5) monitor results (see Fig. 2.1). A similar five-milestone framework is offered for climate adaptation. ICLEI also provides resources, tools, and technical assistance to member governments. Many cities involved in ICLEI's Cities for Climate Protection Campaign have also joined other peer networks dedicated to climate action, including Climate Mayors, C40 Cities, and the Rockefeller's Foundation 100 Resilient Cities.

Such an easily accessible five-step model has been widely adopted by hundreds of local governments throughout the world, resulting in a proliferation of climate

Fig. 2.1 Five-milestone climate action plan. (Source: Adapted from ICLEI USA)

action plans. In 2020, ICLEI's network had over 1750 local government members in 84 countries (ICLEI, 2020). Additionally, over 500 universities and hundreds of businesses in the USA and throughout the world have developed and implemented their own CAPs with a very similar framework, establishing measured actions and strategies to reduce greenhouse gas emissions with targets and dates. While cities pick and choose from a variety of programs, infrastructure investments, and public education campaigns to best fit their priorities and capacity (Long & Rice, 2019), most fit into a few common strategies, including energy efficiency, transportation, and education (Betsill, 2001). The formulaic framework makes published climate action plans appear on the surface to be remarkably consistent in their climate responses (Houston et al., 2016), despite the vast diversity in cultural, political, and geographic contexts in which they are employed. However, a deeper exploration reveals substantial variance in GHG reduction emissions strategies and tactics—some CAPs focus on indirect strategies such as household replacement of LED lights, while others directly attempt to regulate carbon emissions (Andreen, 2008). As I discuss below, the same variance in use of strategies and level of commitment is seen in the integration of justice into municipal CAPs. Some add a paragraph or a few sentences describing the relationship between GHG reductions and equity issues, while others center their entire plan on racial justice, using a racial equity lens throughout the development and implementation process.

Two defining characteristics of most plans across sectors and states are a narrow focus on GHG emissions and the limited number of policy tools: mostly voluntary, market-based instruments with little teeth. Aall et al. (2007) categorized these tools in three ways: policy redressing (old programs are renewed by linking them to climate policy), picking "low-hanging fruit" (measures that are uncontentious, easy to implement, and lucrative), and/or symbolic action. While there has been a proliferation of policy tools over the past half-century (Schneider & Ingram, 1990), several embedded forces restrict local institutions to utilize the full gamut of instruments available to them. Few cities dare to use tools that take on the onus of playing the role of policy actors beyond minimum standards for climate policy (Aall et al., 2007). However, there are emerging examples, such as Seattle's carbon tax (see Rice, 2010) and a few in the Bay Area that I describe below.

The Capitalism-Climate Contradiction and Limited Policy Tool Choice

A look at the urban planning structures and history that bore city climate action plans, as well as the economic and social systems with which they are tightly linked, offers insights into cities' limited tool choice. These same structures are the source of the climate crises—fossil fuel consumption and GHG emissions. Our economic system is one of deregulated capitalisms. Capitalism has a variety of roots, stages, and ideologies, which have been well-documented. The basic premise of a capitalist

economy is to perpetually create profits. One of the more recent evolutions of American capitalism, neoliberalism, has left a legacy of several dialectically related structural challenges and constraints that pertain to climate action planning and justice. Neoliberal restructuring of our economy during the economic crisis of the late 1970s and 1980s emphasized rapid expansion of the economy through lowering trade barriers, privatizing state-operated services, reducing government interventions, as well as rolling back environmental laws, worker health and safety protections, and other regulatory measures seen as impinging on profits (Faber & McCarthy, 2012). Deregulated capitalism did and has continued to create wealth, albeit unequally and at the expense of the environment and the most vulnerable populations, namely, communities of color and low-income communities. Capitalism's unfettered market is heavily reliant on several unsustainable mechanisms, including the fossil fuel economy and the unequal distribution of benefits and hazards, both of which have resulted in their own set of paradoxes. Fossil fuels are the engine driving economic growth within our current capitalist system and are known to be the major source of GHG emissions and climate change (Malm, 2016). The interdependence of capitalism and fossil fuels has created self-destructive conditions or what has been coined the "capital-climate contradiction" (Stuart et al., 2020).

Privatization, deregulation, and market-driven growth based on a fossil fuel economy have trickled down to the most local levels of governance. The rise of dominant neoliberal schools of thought thrusts competitiveness and economic development as the primary objectives for urban planning, claiming growth-promoting cities result in the greatest good for the greatest number of people (Fainstein, 2014). The call to optimize conditions for efficiency and rapid capital accumulation became the focus of city governance and decision-making. As a result, a fixation on standards and measurable outcomes often coupled with technical solutions became conventional urban management. Urban policymakers employed the neoliberal framework to address environmental concerns, such as the use of "sustainable development" to revitalize downtown areas. This trend came to be known as sustainable urbanism—"a broad term that we employ as a catch-all for the various sustainable policy initiatives that popularized urban greening of the late 20th and early 21st centuries" (Long & Rice, 2019). The assumption was that once new "sustainable," "green," and "modern" buildings were constructed, capital growth would naturally accumulate. As we have seen in places like Oakland and San Francisco, these redevelopment projects force low-income families out, perpetuating inequalities, gentrification, and the growth-based system at the heart of the climate crises.

Until recently, climate action responses have largely followed suit. In the age of "climate urbanism" (Long & Rice, 2019), the almost exclusive goal of controlling greenhouse gasses (i.e., carbon or carbon dioxide equivalent "CO_2e") appears logical. It could offer new paradigms, for example, the "territorialization" of carbon at the municipal level (Rice, 2010). The narrow focus on pulling down carbon has been employed at every level. Report after report from the leading international body on climate change, the International Panel on Climate Change (IPCC), focuses

on the simple equation of emissions discharged and emissions removed. Likewise, at the local level, the C40 Cities Climate Leadership Group and the US Conference of Mayors' Climate Protection Agreement identified emissions reductions as the principal tool for climate action. Although many end goals may be synergistic, carbon being the singular object of control has, until recently, overshadowed issues of justice and equity.

With GHG emissions as the primary unit of benchmarking coupled with cost-benefit analysis as the primary means of comparing policy solutions, local decision-makers in California are left with a small arsenal of tools from which to choose. Some have little or no cost to under-funded city governments nor to local businesses, and some rely on private-government partnerships, with tools that create rather than cut jobs and development projects and instruments that are easily measured in carbon reduction and supported by smart technology. This predetermined response is what has been called a "rigidity trap"—institutions and policy-decisions that are self-reinforcing and inflexible (Rogers, 2013). For example, in the implementation process of climate action plan in nearly every San Francisco Bay Area case study described below, meeting minutes describe the importance of not infringing on local business growth, not causing undue burdens to local economies while implementing greenhouse gas reductions. These same systems are giving rise to increasing disparity and the emergence of two unequal populations: "the urban elite—who have the political influence and financial stability to insulate themselves from climate change, and the urban and suburban poor—who will find themselves increasingly vulnerable" (Long & Rice, 2019). Inequality in California is especially wide despite that state being the nation's top economic performer. Income disparities there underscore that the income of families at the ninetieth percentile makes 12.3 times the income of those in the tenth percentiles (Bohn & Thorman, 2020). Such inequality is an inevitable product of capitalist activity (Muller, 2013). As a result, a burgeoning movement of environmental justice groups, concerned constituents, local scientists, and policymakers is coalescing in an attempt to infuse justice and equity into California Climate Action Plans, as well as in many overlapping sectors. The next section describes this phenomenon and illustrates how several cities in the San Francisco Bay Area are reshaping urban dimensions in innovative and surprising ways through the integration of justice and climate action.

Climate Action Plan's Equity Paradox: California as a Case Study

Cities are being reshaped by strategic selectivity of climate policy (While & Whitehead, 2013). Two related elements that have emerged in new city climate action plans over the past decade are justice and equity. To the extent that social, environmental, and political changes mutually shape one another, the rapid emergence of justice within climate governance may indicate a new era of urban

decision-making. Justice is not a new concept for cities. Much research has been devoted to exploring and assessing theoretical and place-based issues of justice within cities (Harvey, 2010; Mitchell, 2003; Fainstein, 2014; Brenner et al., 2012). Neither is justice a new topic in climate governance discussions. At national and international levels, questions of justice have been deeply ingrained in climate change concerns, such as "the relative responsibilities of different nation-states for reducing greenhouse gas emissions, how and by whom adaptation finance should be raised, and the extent to which different private and civil society actors should have a seat at the negotiating table" (Bulkeley et al., 2013). Focusing the climate justice conversation at the global and national scales, however, has left cities to embrace and integrate issues of equity and justice in unique and disparate ways.

In California, despite being the fifth largest economy in the world and nationally and internationally prominent for its environmental justice and climate policies (Liévanos, 2018), inequities abound and are ripe for study in the climate justice context. These inequalities will only become more pronounced as the climate changes. California is a nationally and internationally prominent site for advancing novel cumulative impact analyses (Huang & London, 2012) that are linked to the state's precedent-setting environmental justice and climate policies (London et al., 2008). California continues to face increasingly hotter and drier summers, as well as increasing severity and numbers of fires. As of this writing, the 2020 fire season has been the most destructive on record in terms of acreage burned, and Death Valley in California recorded a high of 130 °F, the hottest August temperature on record in the country. Additionally, increasing sea level rise, increasing droughts, and decreasing freshwater supplies threaten not only California's natural resources but also human health. Fires worsen air quality; water scarcity and saltwater intrusion exacerbate water pollution problems. The threats of this "new abnormal" (Brown, 2018) disproportionately impact the most vulnerable members of society—those with preexisting health conditions and/or no health coverage and those with the least amount of resources to adapt, move, or rebuild. The same communities that will be most impacted by climate change—communities of color and low-income communities—are also the ones that fare far worse than their white, affluent counterparts in nearly every area: housing, health, criminal justice, and employment. The most vulnerable populations are at risk to multiple hazards that create cumulative impacts (Liévanos, 2018).

Dozens of environmental justice organizations are drawing attention to the inequality of climate-related threats. Some of these community-based groups, such as the United Farm Workers (founded in 1965), have a long history of organizing California's marginalized populations around health and the environment. Others are relatively new to the movement, like the California Environmental Justice Alliance that formed in 2001 to advocate for a variety of issue-based policies in communities across the state from energy, land use, and employment. Large organizations like these, and a host of smaller, more local grassroots environmental justice groups, highlight not only the distribution of environmental hazards across race and class but also the white middle-class nature of historic "environmentalist" organizations (Gibson-Wood & Wakefield, 2013). When juxtaposed with the quintessential

environmental nonprofits, such as the Sierra Club (founded in California in 1892) and The Nature Conservancy, these environmental justice organizations are more diverse, inclusive, and engaged in the intersection of ecological health, human health, equity, and access.

The terms equity and justice are being used across sectors with a variety of meanings. Equity can be measured both as an issue of *distribution*, channeling benefits and costs evenly, or *redistribution*, channeling benefits disproportionately to those who lack them (Salamon, 2002). Justice within the urban climate justice context also has several typologies. Two predominant conceptualizations of climate justice are *procedural justice* and *redistributive justice* (Paavola & Adger, 2006; Bulkeley et al., 2013). Regulators endeavoring to distribute or redistribute environmental benefits and hazards in an equitable and just fashion while also fostering inclusive participation, as California and cities across the state are attempting to do, are faced with a paradox: "Equal treatment may require unequal treatment" (Stone, 2013). For example, if environmental benefits and hazards were to be distributed or redistributed equally, those that pose the biggest threat to climate change, such as large fossil fuel emitting industries, could, under this approach, be penalized or regulated more heavily than those that do not. In the eyes of the biggest polluters, bearing more cleanup costs can and has been perceived as "unfair" and "unequal." Such an approach is consistent with the "polluter pays principle," which has received attention in prior environmental policy and environmental economic literature (Nash, 2000; Gaines, 1991; Shortle et al., 2012), including a rich discussion on the most straightforward redistributive mechanism—a carbon tax (Metcalf & Weisbach, 2009; Lin & Li, 2011; Callan et al., 2009). While these tools show much promise, the application of the principle has been variable (Shortle et al., 2012). Historically, such command-and-control policy tools are difficult to employ and enforce, especially at the municipal level, due to budgetary, staff, and jurisdictional limitations. However, cities are discovering novel ways to creatively circumnavigate such limitations by leveraging emerging frameworks of justice and social movements and, in California, employing new state tools and legislative mandates that offer cities newfound agency. The state of California has employed a patchwork of legal frameworks that, together, bring into being a loose set of statewide guidelines for local and regional climate action planning and enforceable mechanisms that instill local power and authority as well as infuse equity and justice. While formal CAPs are optional, greenhouse gas inventories and reductions, which are the building blocks of CAPs, are mandated. With a new (2018) ambitious executive order to swiftly reduce emissions, cities and counties will likely be held to not only implementing a reduction plan but achieving the goals outlined in those plans. It remains to be seen exactly how the California Legislature will enforce these reductions goals.

Reviewing each piece of legislation is beyond the scope of this paper; however a few key bills that guide CAP implementation process include SB 32, which extended and expanded upon its predecessor AB 32, establishing a comprehensive program to achieve technologically feasible and cost-effective GHG reductions—it allows flexibility in measures used to achieve reductions but does require local agencies to account for equity, health, and economic considerations; AB 1771, which

establishes the California Climate Registry to track GHG emissions and adopts standards for reporting and reducing emissions; and Executive Order B55-18 which sets a target of statewide carbon neutrality by 2045. California also enacted laws that enhanced AB 32 and SB 32, including the extension of a controversial cap-and-trade program (AB 398) through 2030. The state passed laws that are specific to environmental justice, including direct funding to environmental justice communities (SB 535 and AB 1550), a community air quality protection program (AB 617), and another that requires environmental justice to be addressed in local government planning (SB 1000). Additionally, the California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment have developed an online tool, CalEnviroScreen, that identifies communities disproportionately burdened by multiple sources of pollution.

Case Studies

California's San Francisco Bay Area, a region rich in diversity with a long history of social justice and environmental movements, hosts dozens of climate action plan case studies.

As racial justice and structural racism concern rise in the USA, cities are giving more consideration to how their policies and programs result in unequal distribution of benefits and burdens both locally, regionally, and beyond. In the Bay Area, over 96 cities and 7 counties have developed and implemented climate action plans (CARB, 2020). Many of these 103 municipalities mention "equity" or "justice" several times in their plan; however the mere mention says little about whether these plans will reshape communities and spaces to become more inclusive, just, and equitable. In Table 2.1, I briefly review key justice and equity features in seven Bay Area CAP case studies. These case studies were carefully selected to highlight variance in climate action plans throughout the region—variance city demographics, such as diversity, wealth, and CalEnviroScreen score, as well as the variance in justice and equity references in the CAP (from zero to 150+). I categorize a city's CAP into one of two groupings—those that are "symbolic" and those that explicitly center their plans around issues of equity and justice or "equity-centered" plans. I argue that even the CAPs that only symbolically integrate justice may give rise to surprising and innovative models. However, I highlight four Bay Area cities that go beyond the conventional framework in an attempt to reimagine climate action planning.

Table 2.1 San Francisco Bay Area case studies that incorporate equity into climate action plans

City	Year CAP(s) adopted	Symbolic or equity-centered?	# "equity" + "justice" mentions	CalEnviroScreen score[a]	% white[a]	Median household income[a]
Oakland	2010, 2020	Equity-centered	153 + 26	1–90%	30	$68,442
Berkeley	2009, 2020	Equity-centered	2 + 3	1–90%	59	$80,912
Menlo Park	2009, 2020	Equity-centered	4 + 1	1–10%	70	$147,842
Palo Alto	2007, 2020	N/A	0 + 0	1–30%	60	$157,120
East Palo Alto	2011	Symbolic	2 + 0	45–90%	30	$64,794
Moraga	2012	N/A	0 + 0	1–5%	74	$149,781
Piedmont	2010, 2018	Symbolic	2 + 3	1–5%	70	$210,889

[a]Based on 2018 US Census Data

Equity-Centered Climate Action Plans

Oakland

Northeast of Palo Alto and East Palo Alto is the city of Oakland, the eighth largest city in California and considered the most ethno-racially diverse in the Bay Area. Oakland's first climate action plan, implemented in 2010, had deeply embedded elements of justice. The next CAP, slated to launch in 2020, centers equity and justice at the heart of its planning and implementation. The infusion of equity in Oakland's first CAP can be partially, if not mostly, attributed to a strong cross-sectoral coalition of 40 organizations called "The Green Oakland Climate Action Coalition" formed by the Ella Baker Center. In town council meetings after town council meetings where the climate action plan was on the agenda, members from this coalition packed meeting minutes stressing the importance of climate action not just in terms of emissions reductions but also affordable and equitable transportation alternatives, affordable housing, self-reliance including investment in urban agriculture, opportunities for local procurement of energy including Community Choice Aggregation, and more. In a 2010 city council subcommittee meeting on the development of the first CAP, a resident described the "climate change driven gentrification machine," referencing the phenomenon by which neighborhoods become more attractive and expensive given their geographic features that make them more resilient to climate-related threats (Keenan et al., 2018). The new 2020 Climate Action Plan 2.0 has been equally engaged by constituents and community organizations voicing concern for a just transition. For over a decade, the City of Oakland

has, and from what can be understood of the proposed CAP 2.0, will continue to be a leader in equitable city climate action planning.

Berkeley

Just east of Oakland and Piedmont is the City of Berkeley. Home to UC Berkeley and known for its politically progressive politics, it implemented its first CAP in 2009. The city's 187-page inaugural CAP was comprehensive, methodical, and far-reaching, as were its planning and engagement efforts that brought it to bear. While the first plan was not centered on equity, the second plan proposed to launch in 2020 aims to "champion and demonstrate social and racial equity" and "be a global leader in addressing climate change, advancing environmental justice, and protecting the environment" (7). Even without equity being at the center of the 2009 CAP, the city was able to leverage the CAP to advance a number of equity-related measures in different sectors, including housing and transportation. For example, Berkeley endorsed a proposed "Reimagining Transportation for a Racially Just Future," citing greenhouse gas emissions and the climate action plan as motivations for pursuing the proposal. Additionally, in an effort to increase housing near transportation, namely, Bay Area Rapid Transit (BART) stations, in 2019 Berkeley became the first city in California to establish zoning standards for transit-oriented development near one of its BART station. In making its decision, it used the climate action plan and other relevant documents, including a commitment to affordable housing.

Menlo Park

As of the writing of this chapter, the most recently legislated CAP in the San Francisco Bay Area is that of the City of Menlo Park, a largely white (70%), affluent community ($147,842 median household income) located in the South Bay. The city approved its third iteration of a climate action plan on July 14, 2020, and became one of the first cities in the USA to commit to becoming zero-carbon by 2030. The plan prioritizes racial justice, driven at least partially by the city's involvement in the Government Alliance on Race and Equity (GARE). Menlo Park's CAP includes measures to phase out fossil fuel use in homes and buildings throughout the city. Given the demographics of Menlo Park and while the city's rigorous goals are notable, what is most surprising is its lens toward equity. In other >70% white, >$130,000 median household income cities in the Bay Area, equity did not become enough of a concern to make it into the climate action plan, let alone become a central concern. As noted in Menlo Park's CAP, the timing of its implementation and the COVID-19 pandemic heightened concerns about equity:

> The COVID crises has shed a light on the shocking inequity in health outcomes for people of color, some of which can be attributed to well documented racial disparities in exposure to air pollution from fossil fuels. Menlo Park must ask itself whether it wishes to continue contributing to this global and local inequity or whether it can strongly prioritize leadership in solving these interconnected problems. (14)

"Symbolic" Climate Action Plans

East of Palo Alto

Just East of Palo Alto is a much smaller city of around 30,000 that is majority Hispanic, the City of East Palo Alto. East Palo Alto adopted its first CAP in 2011, which outlines "23 steps to actions to addressing our changing climate" (1). The CAP is largely representative of CAPs written during this era—outlining baseline GHG emissions and emissions reductions measures by sector. In this budget-strapped city, the cost of implementation for various measures was clearly listed as a factor in project implementation. Each program and action had an associated cost and savings section that not only addressed city budgets but also those of their residents and local businesses. While the term "equity" is only referenced twice, a close examination shows deeply embedded thought and consideration to elements of equal access in terms of project implementation. To make climate action recommendations accessible and affordable to everyone in the community, a heavy emphasis was placed on providing information about rebate and incentive programs for which residents might qualify, for example, low-income weatherization rebates from PG&E (36), low-income youth professional development experiences in the sustainable energy sector (38), as well as Multifamily Affordable Solar Housing or "MASH" (41). While a CAP 2.0 has not been implemented yet, the city has had a continued dialogue on issues of climate action through several unique partnerships, including with Stanford University's (n.d.) Future Bay Initiative and associated yearlong class (*URBANST 164: Sustainable Cities*). The Future Bay Initiative is a research, education, and practice partnership that aims to form new collaborative methods of assessment, problem-solving, and co-production of knowledge alongside cities and communities. The class has collaborated with various government and community organizations within East Palo Alto on issues of climate change and climate action. For example, a 2019 yearlong class project conducted a survey on residents' awareness and knowledge of issues of climate change, with the primary purpose of:

> help[ing] the Climate Change Community Team make important decisions on how to best guide their climate adaptation and resilience work in East Palo Alto and further empower the East Palo Alto community with information in an effort to foster equitable environmental justice. (Kohl et al., 2019, 4)

Piedmont

Oakland's climate action plan is juxtaposed to a city that is surrounded on all sides by Oakland—the City of Piedmont. The city is mostly white (70%) and affluent (median household income $210,889) and passed its first CAP the same year as Oakland's and its second in 2018. The City of Piedmont follows a more traditional framework for GHG reduction goals and strategies. Out of two mentions of "equity" in the 2018 CAP, the second mentions:

> Therefore, while manufacturing of goods does not occur within Piedmont's borders, residents have the opportunity to address issues of equity and environmental justice by taking action to reduce consumption based emissions. Along the same lines, actions such as air travel, which contribute significantly to GHG emissions but seem difficult to address individually, can still be addressed through strategies such as purchasing carbon offsets for trips taken. (54)

The reference offers some perspective on how the City of Piedmont perceives its place in environmental and climate justice—in particular through the lens of consumption practices. First, the city has a sense that environmental injustice does not occur within its boundaries and that consequently the most effective means for "taking action" is through purchases. The example of reducing one's carbon footprint through the purchase of carbon offsets when traveling is illustrative of this market-oriented approach. It is a solution catered to high-income individuals that can afford to add an extra expenditure to air travel purchases while not changing the behavior causing emissions. It represents what Takacs (2009, 524) describes as an attempt to "assuage guilty consciences over profligate lifestyles while corporations mine profits from a scheme supposedly meant to save the planet, but actually sustaining hydrocarbon-based capitalism as usual." The complex impacts of carbon offsets on social equity are well-documented (Wittman & Caron, 2009). Such approaches, while well-intentioned, leave many academics, environmentalists, and others skeptical that a just transition is possible within the context of current cultural and political economic circumstances.

Neither Symbolic Nor Equity-Centered Climate Action Plans

The City of Palo Alto

In 2007, the City of Palo Alto became one of the first to adopt a climate action plan in the state. In 2013 and 2017, respectively, Palo Alto was one of the first to offer carbon neutral natural gas and carbon neutral electricity. The proposed 2020 Plan, while ambitious in its GHG reduction goals, does not mention equity or justice even once. The CAP takes a more traditional approach of focusing on key areas, such as energy, mobility, electric vehicles, water, climate adaptation, and outlines associated with strategies and actions in each area. The reduction of overall greenhouse

gas emissions could reduce health and other burdens on vulnerable communities, but the Plan itself makes little attempt to link these relationships. On the Plan's website, there is one reference to equity, listed as a co-benefit, along with health and cost of living co-benefits.

Moraga (and Lamorinda Towns)

East of Berkeley are three small suburban towns, Lafayette, Moraga, and Orinda, or "Lamorinda." These three towns are predominately white (80%, 74%, and 72%, respectively) and affluent ($157,453, $149,781, $210,288 median household income, respectively). Only one, Moraga, has implemented a climate action plan. Lafayette has an environmental action plan that was adopted in 2006 and updated in 2011. Orinda conducted a greenhouse gas emissions inventory in 2009 based on 2005 data. However, the city never implemented a CAP. Orinda published a 2017 Hazard Mitigation Plan that states that "The City does not currently have a Climate Action Plan so it is unlikely that Climate Change would be integrated into other sections of the municipal code" (6). The Moraga CAP does not mention equity or justice, and the emissions reductions strategies are largely focused on municipal operations, and not residential or businesses.

Conclusion: New Pathways

Cities and local municipalities across the world are bearing the brunt of responsibility for greenhouse gas reduction and climate action. Their ability to innovate and engage with local stakeholders and issues gives them unique strengths to do so. The proliferation of climate action plans in cities, counties, states, universities, and businesses is itself something of a revolution (Rice, 2010). In California, over 480 cities and 69 counties have implemented climate action plans. Within this revolution is an emergent paradigm shift—a fundamental change in urban climate governance distinguished by the infusion or sometimes even the centering of justice and equity.

My study suggests that the emerging trend of coupling equity and climate action planning offers new pathways for city decision-making and more rapid advancement of carbon reduction goals as well as co-benefits. The transforming of conventional, predetermined responses and practices based on profits and technology to base them on justice instead is being expressed in both subtle and explicit ways. Elements that show potential for challenging the current paradigm may show up subtly: a partnership with a university class (e.g., East Palo Alto) or a planning commission meeting to rezone transit areas so they can be developed into housing (e.g., Berkeley). The case of Berkeley's first climate action plan shows that assessing notions of justice in urban climate action may require a finer grained analysis. The type of analysis that was previously employed in sustainability studies to discover

"actually existing sustainability" policies and practices might not explicitly link to the goals of sustainable development, or in this newer case to climate action goals, but has the capacity to fulfill them (see Krueger & Agyeman, 2005). Discovering the actualization of justice in and related to CAPs necessitates a deeper investigation across sectors and beyond the prescribed five-milestone framework. Equity and justice in climate action plans also present themselves much more explicitly, as seen in Oakland, Berkeley, and Menlo Park (as well as San Francisco and Richmond, which were not explored in this chapter). These cities are developing an entirely new model of climate action plans that attempts to center equity throughout planning and implementation.

What is strikingly clear is that a shift to focus more on justice is occurring despite existing irrational conditions and power dynamics. Unsurprisingly, historic "environmental justice" communities, communities most impacted by environmental harms and risks, and, in California, those that score higher on the CalEnviroScreen tool have been and continue to more intentionally integrate equity concerns into their action planning. However, one surprising finding in my study is that even white, affluent cities, such as Menlo Park, with the lowest possible CalEnviroScreen score (1–10%), center their climate action plan on racial justice. As racial justice and structural racism concerns rise in every sector and at every scale, and as laws, such as SB 1000, are employed in California to ensure equal distribution of environmental benefits and hazards, this could indicate a promising shift.

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Chapter 3
Sustainable City? The Search for Social Justice in Flagstaff, Arizona's Climate Action Plan

Brian Petersen

Introduction

In recent decades, sustainability has emerged as an important social goal. Cities have responded by highlighting their sustainability efforts and incorporating sustainability into policy and decision-making (Long & Rice, 2019). The original conceptualization of sustainability included actions aimed at balancing economic, environmental, and social outcomes, as originally espoused in the Brundtland Commission Report (WECD, 1987). Realizing these goals simultaneously, however, has proven elusive (Whitehead, 2012). More recently, sustainability efforts at the city level increasingly focus on greenhouse gas reduction efforts, as the gravity and potential consequences of climate change become more stark (IPCC, 2018). In some cases, climate action plans in large US cities focused on emission reductions in ways that marginalized justice concerns and pitted environmental issues against equity issues (Finn & McCormick, 2011). At the same time, many plans did not prove effective at reducing emissions, prioritizing existing city actions rather than implementing new policies and actions designed to reduce emissions (Millard-Ball, 2012).

Although focused primarily on reducing carbon emissions, many climate-related planning efforts recognized the implications climate change has for residents, and the most vulnerable in particular, and have expanded their scope to include questions around justice and equity.

Early analyses exploring how climate action planning addressed justice showed that the plans invoked justice and equity but in ways that did not elevate them to the same level as environmental, and in particular, economic concerns (Saha & Paterson, 2008). Increasingly, action plans include language on justice or equity, but few have enacted specific climate actions that seek to promote just outcomes (Schrock et al.,

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2015). Many climate-related planning processes start with or include a vulnerability assessment. These analyses draw on scientific information, climate projections, and demographic trends to determine the degree to which ecological and social systems are susceptible to climate change. Although these efforts produce important information and help contextualize the likely consequences climate change poses for cities, they remain problematic in many cases. The notion of vulnerability remains contested, often ignores important social considerations, fails to identify the existing vulnerabilities that climate change will exacerbate, and should not merely focus on risk (Krellenberg et al., 2017). More importantly, legitimate assessment requires "engaging with the often historically complex and politically contentious factors that structure vulnerability more broadly, and the complex trajectories of development" (Krellenberg et al., 2017, 412).

Increasingly, sustainability efforts in cities attempt to simultaneously reduce emissions and increase equity, which poses significant challenges. As the chapters in this volume show, meeting the latter has proven difficult. Sustainability efforts have increasingly shifted focus towards climate urbanism. Long and Rice (2019) suggest that cities represent the most appropriate site for climate action and argue that climate urbanism include actions designed to protect cities, especially those elements crucial for local economies, from the negative consequences posed by climate change. It remains unclear, however, to what extent these efforts affect equity and justice. Plans invariably include detailed actions and goals around emission reductions but do not include similar metrics and objectives related to equity and justice. This chapter places emphasis on an understudied area (small cities) and also contributes to the call by Hodson and Marvin (2017) to broaden research into different urban contexts to better understand whether economic aims overshadow and marginalize other priorities as cities embark on new ways to embody what it means to be a "sustainable city." This chapter also focuses on why climate action planning often fails to sufficiently reduce carbon emissions and at the same time inadequately addresses issues of justice and equity. In this chapter, I draw on my experience with and the preliminary outcomes of the Flagstaff Climate Action and Adaptation Plan (CAAP).

Ideological Denialism: Addressing Growth and Injustice

In common parlance, ideology is understood as someone's worldview, often associated with their political affiliation. More specifically, ideology represents systems that enable social groups to pursue specific interests (Thompson, 1990). Although ideology remains a contested concept, and has fallen out of favor in some disciplines, the term remains relevant to climate change studies. Here, the term is used in a narrow context and draws on the conceptualization put forth in critical theory. Specifically, ideologies "conceal or mask social contradictions on behalf of a dominant class or group," and ideology "duplicates and enforces the status quo" (Held, 1980, 107). This duplication and enforcement happens not through coercive action

but through "hegemonic ideology" (Gramsci, 1971) through cultural forces that lead to social acceptance and acquiescence. Central to conceptions of ideology is the notion of contradictions or a negative conception of ideology (Gunderson et al., 2018). A contradiction occurs when oppositional forces are present at the same time (Harvey, 2014) or when two paths cannot be realized simultaneously.

Focusing on contradictions takes on importance when analyzing climate change actions to see whether proposed actions can realize their stated goals or instead further and support the very social processes that created the problems in the first place (Stuart et al., 2020). Increasing evidence suggests that climate change responses often do not alter the systemic forces driving it and instead reproduce them. Gunderson et al. (2018) refer to this as the capital-climate contradiction, in which responses maintain and expand economic growth, a primary driver of global emissions. Effective responses instead would have to focus on putting forth actions that limit or reduce economic growth. While this position seems to run counter to what is widely considered common sense (economic growth is good), scholars increasingly agree that more growth is not good and is driving us deeper into social and ecological crises (Hickel & Kallis, 2019).

Economic growth, and specifically gross domestic product (GDP), has historically served as the barometer for societal progress and well-being (Schmelzer, 2016). It was used in World War II to measure productive output for the war effort. GDP is the market value of all goods and services produced in a given time period. Rising GDP has led to dramatic increases in material consumption—Parrique et al. (2019) show that per capita resource use globally has doubled in the last 100 years. GDP increase of 1% leads to a 0.6% increase in material use (Wiedmann et al., 2015) and 0.5–0.7% increase in carbon emissions (Burke et al., 2015). This production requires increasing levels of materials and energy and has also resulted in extreme inequality with the wealthiest 1% accumulating 82% of global wealth in 2017 (Oxfam International, 2018). Recent analyses also show that GDP represents a poor indicator of well-being, and economists have increasingly called for different measures (Victor, 2010; Stiglitz, 2019), such as the General Progress Indicator. Additionally, economic growth above levels that meet basic needs does not increase well-being or happiness (Easterlin et al., 2010) and can undermine social and environmental prosperity (Stiglitz, 2019). As GDP has risen in recent decades, 43 million people remain in poverty, and wages remain stagnant (Semuels, 2016). Hickel (forthcoming) argues that, despite tremendous economic growth, Americans had higher wages and standard of living in 1975 compared to the present. Instead of GDP increasing well-being, continued growth has created inequities and vulnerabilities. Increasing evidence indicates we cannot increase GDP and stay within the targets of the Paris Climate Agreement (Hickel & Kallis, 2019; Parrique et al., 2019). In other words, further increasing GDP does not result in social benefits and increases carbon emissions. Climate action planning that fails to address these realities has little chance to meet ambitious equity and emissions goals. Furthermore, too often planners overlook cities as sites of accumulation. Harvey (1973, 1982, 1985, 1989) has written extensively on this point, while Smith and Floyd (2013) have outlined that cities create an urban growth machine. These insights show how

global economic forces and capital accumulation intertwine with urban planning at the local level to affect city planning, resource allocation, rules, participation, and ultimately unjust outcomes.

Multiple factors help explain why governments and society have taken minimal actions to address climate change. The efforts by outright climate denialists, those who argue climate change does not exist and is not caused by humans, have been influential and far-reaching. Denialism has a decades-long track record of relying on scientists, fossil fuel front groups, and well-positioned political insiders that created propaganda campaigns to intentionally mislead the public and thwart action (Oreskes & Conway, 2010). In addition, and counterintuitively, supporters of taking immediate action on climate change have also unwittingly hampered effective action as the examples below outline. Although not as far-reaching as outright denial, ideological denialism has important implications for understanding the inability of society to dramatically reduce emissions. Ideological denialism occurs when climate change is acknowledged as happening and in need of a response but leads to solutions that do not address the actual drivers of emissions (Petersen et al., 2019). This then represents an involuntary denial based on societal ideological preconceptions that mask contradictions.

Examples continue to proliferate that showcase ideological denialism. Perfunctory climate change strategies dominate action plans. Two obvious examples, renewable energy and electric cars, have broad support but conceal contradictions that limit their effectiveness. Support for expanding renewable energy to address carbon emissions rests on the assumption that producing energy through wind and solar technology displaces fossil fuel-based energy production. Limited evidence supports such an outcome. Cross-national analysis has shown renewables only marginally displace fossil fuels (York, 2012) and prove more effective in low-income countries compared to high-income countries where economic growth and carbon emissions are coupled (Thombs, 2017; Jorgenson & Clark, 2012). Recent analyses show that even as renewable energy production increased, so did traditional energy production, empirically showing that renewables do not always replace but often add to overall energy production (York & Bell, 2019). Similarly, electric cars have broad support based on the notion that their use will replace fossil fuel. Due to their recent adoption, empirical evidence supporting this claim remains elusive. However, projections related to electric car production and use in the coming decades warrant examination. To transfer to a low-carbon economy, Sovacool et al. (2020) suggest that electric car production needs to increase from 1.2 million to 965 million cars by 2050. The energy, materials, and transportation required for such production has immense ecological and social implications, not to mention total energy use. In addition, a shift to electric vehicles does nothing to alter the car-based society currently in place and may even exacerbate it.

These examples highlight ideological denialism. Rather than focusing on solutions that fundamentally alter our growth-based society, these examples represent growth-based actions. Building alternative energy and electric vehicles takes place in a growth-based economy predicated on profits. These interventions, “solutions”

that seek to reduce emissions but do so in a growth-based way, mask the capital-climate contradiction inherent in climate action (Stuart et al., 2020).

Overwhelming evidence shows that vulnerable populations face the greatest risks from climate change. This holds for global inequities (Roberts & Parks, 2006), as well as those within the United States (U.S. Global Change Research Program, 2018). Natural disasters, especially hurricanes in recent years, disproportionately affect marginalized communities due to power relations and priorities that insufficiently focus on the most vulnerable (Sovacool, 2017). Decades of racism and discrimination have led to minorities and the poor in the Unites States bearing the brunt of pollution (Bullard, 1990) and to power relations that divert polluting industries towards minority communities (U.S Commission on Civil Rights, 2003). This history has significantly influenced national efforts to effectively respond to climate change. The Green New Deal (2019) gives significant attention to equity and justice, focusing specific attention on "systemic injustices" that "frontline and vulnerable communities" face. It also calls for securing basic necessities like clean air and water, as well as creating jobs to support families. It is also increasingly argued that to successfully push forward climate policy, we will need to bridge coalitions across climate- and justice-oriented groups and constituencies (Cassagard et al., 2017).

Similar to broad responses to climate change, actions to address equity and justice fall prey to ideological denialism. Ideologies focused on growth often invoke equity but ultimately proffer actions that undermine it. Similar to climate change responses, such approaches identify equity and injustice as important and in need of response but then put forth approaches that do not lead to just and equitable outcomes. Alternative energy represents actions that only governments and affluent individuals can pursue. Although alternative energy has the potential to yield broad, societal benefits (Gunderson et al., 2018), it often does not due to equity issues. The poor and marginalized cannot access these technologies, and deploying renewables is not widely aimed at overcoming past discrimination or meeting the needs of the marginalized first and foremost. Similarly, electric vehicles cater to the affluent, many of whom already own functional automobiles (Hirsch, 2014). Perhaps more importantly, a car-centered ideology has historically led planners to privilege affluent car owners and thus indirectly discriminate against the poor and marginalized with few transportation choices (Soja, 2010).

These outcomes do not signify avarice or prejudice among planners: "maintaining these automobile-driven discriminatory practices does not require evil people intentionally making racially biased decisions, just well-trained experts following conventional procedures to make decisions and plans that will almost always favor the wealthier and more powerful segments of urban society" (Soja, 2010, xvi). This insight has direct relevance to contemporary climate action planning. Well-intentioned people, including city council members and transportation planners, continue to put in place policies and actions that extend injustices based on ideologies that mask contradictions and privilege some groups in society over others. Doing so not only leads to or extends injustices, but poses significant challenges for cities striving for sustainability and deep emission reductions.

Climate Action Planning in Flagstaff, Arizona

The City of Flagstaff is a politically progressive mountain town in northern Arizona with a population of over 70,000. The city's proximity to Grand Canyon National Park draws tourists from around the world, and tourism remains an important part of the city and regional economy. A state university, the regional hospital, headquarters for several federal land management agencies, Gore Industries, and a Purina pet food facility represent the primary employers. The 2012 Flagstaff Regional Plan estimates that population in the city will top 106,000 by 2050.

Flagstaff has a progressive reputation, particularly in the context of residing in a historically conservative state. The City Council established the Sustainability Commission in 2008 to advise council members on sustainability-related matters. In 2017, the City Council listed both "Advance social justice in our community" and "Take meaningful action on climate change" as council goals. To work towards the latter, the council directed the Sustainability Section to create a steering committee to advance this work. They also allocated funds and ultimately hired Cascadia Consulting Group to write a climate action and adaptation plan, which involved initially writing a vulnerability assessment and included climate projections for the region. The 16-person steering committee included city staff, academics, and business, nongovernmental, and community representatives. City staff organized and held public forums, which steering committee members helped facilitate, as well as other outreach activities aimed at informing the public and including their comments in the plan. In November 2018, the City Council unanimously adopted the Climate Action and Adaptation Plan, which calls for reducing greenhouse gas emissions by 80% by 2050 and puts in place a road map to do so.

The CAAP outlines recent and projected regional outcomes related to climate change. Data show that annual average temperatures have steadily and dramatically increased in the past 30 years. The plan indicates that the region can expect hotter temperatures, less snowpack, drier conditions, and adverse effects for forests. These trends portend increased vulnerability for "Flagstaff's resources, systems and populations" (CAAP, 2018, 17), including wildfire, drought, flooding, and increased temperatures. The plan outlines community emissions and uses 2016 as a baseline when emissions reached 787,315 metric tons of carbon dioxide equivalents. Transportation represents the largest contributor (~41%), with commercial (20%) and residential (17%) energy as the other primary emission contributors. The plan makes note that the emission inventory does not adequately assess those emissions related to trade or assess consumption-based emissions. The plan also projects that the population in the region will grow 35% by 2050, residential energy demand will increase by 60% by 2030, commercial electricity demand will grow by 50% by 2030, and vehicle miles traveled will increase by 50% by 2030. Lastly, without climate action, the plan projects that emissions will increase by 34% by 2050.

Ideological Denialism and Climate Action

The CAAP has the potential to ameliorate consequences posed by climate change and has raised climate action as an important and identifiable goal for the city. The plan also provides a useful primer on climate change and action. However, the language used throughout and the process that preceded the final plan's adoption conceal contradictions that have significant consequences for both emission reductions and equity outcomes.

The plan has broad language around the linkage between the economy and climate action and emissions. It notes the need to maintain economic vitality, by supporting tourism and aiding businesses in capitalizing on climate change to create high-quality jobs aimed at facilitating climate change solutions. Although well intentioned, these priorities represent ideological assumptions held by climate change advocates not identified explicitly in the CAAP. The CAAP, for example, seeks to support tourism, as well as outline how climate changes may affect local tourism. Tourism represents a crucially important element in the regional economy but also has emission implications. Globally, tourism accounts for over 8% of global carbon emissions (Lenzen et al., 2018) and continues to rise. Promoting tourism helps the local economy but hampers emission reduction efforts. The quest for high-quality jobs has obvious benefits, including economic security for individuals, as well as tax revenue for the city government. Economic growth, facilitated in part by expanding tourism, however, represents the primary driver of global emissions (Schnaiberg, 1980). The CAAP implicitly supports so-called green growth, which includes creating "green jobs" that purportedly enable the economy to grow while simultaneously reducing emissions. To date, no empirical evidence supports such an outcome. Instead, evidence continually shows a strong coupling between economic growth and emissions (Hickel & Kallis, 2019). Steering committee meetings preceding the CAAP spent considerable time on the need to support and grow the economy. Discussions regarding decoupling and the emission implications of a growth-based plan prompted one member to suggest "unless we want to overthrow capitalism we have to pursue growth." This quote provides an example where ideology played an important part in steering the direction of the plan, forestalling conversation around climate actions that would have helped to dramatically reduce emissions but were not even invoked. Ideological denialism creates assumptions and fails to bring to light the contradictions between pursuing economic growth and emission reductions simultaneously.

A similar contradiction emerged in crafting specific actions to include in the CAAP. The plan has seven foci, including natural environment, water resources, energy, transportation and land use, waste and consumption, public health, and economic prosperity and recreation. Here I focus on energy and transportation to highlight how assumptions and ideology affect climate planning and outcomes. Significant time and attention went towards discussing the role technology, especially renewable energy and electric cars, would play in the actions prioritized in the plan. The energy section prioritizes energy efficiency, expanding renewable energy

production and use, and managing energy demand, which focuses heavily on technological change. Implementing these strategies would undoubtedly have benefits, including over time decreased electricity costs for consumers. However, the support for such approaches has a basis in false assumptions that conceal contradictions. Significant evidence suggests that increased efficiency leads to increasing use. Referred to as Jevons Paradox and the rebound effect, efficiency gains often go back into production and activities that increase overall resource use and associated energy use (Polimini et al., 2008; Sorrell, 2009). National assessments show that alternative energy does not displace fossil fuel-based energy one to one (York, 2012) and that shifts to alternative energy increase total energy production with little reduction from fossil fuel energy generation (York & McGee, 2017). As a result, efficiency and renewable energy actions show a clear contradiction in which climate actions do not offset emissions to the degree assumed and in some cases increase emissions. Effectively using renewable energy in the CAAP would require an assessment to see whether the approach taken would actually lead to emission reductions. A failure to start with a conversation in that context highlights the role ideological denialism can play in climate action planning.

The approach taken in the CAAP regarding equity also conceals contradictions. Steering committee discussions weighed different options on how to engage equity in the plan. Arguments to make equity a specific goal were met with resistance. In an exchange about the idea to prioritize justice and equity in the plan, one member stated "This is a climate change plan. Justice is something different." Another member noted that the city already has a department working on equity and that the steering committee needed to focus on climate. This framing and these perspectives reflect the assumptions and ideological predispositions of some of those who support both climate action and justice but who see them as distinct and separate. Such a formulation has important implications for the way in which equity is invoked and acted on in climate action planning.

The ultimate equity impacts climate action planning has on cities depend on multiple factors, including education and planning. In discussions regarding the CAAP, the historic role that redlining has played came up. The majority of the steering committee included highly educated professionals that declared support for addressing both equity and emissions. At one point, someone asked the group to raise their hands if they understood redlining—a systematic denial of mortgages and credit to people of color in cities throughout the United States—and only a couple of people raised their hands. This highlights how the historical reasons for inequity in Flagstaff remain obscure or unknown. Rather than focusing on specific drivers of injustice in the region, the CAAP discussion centered on broad generalities about the types of people marginalized and the broad factors for that outcome. The CAAP identifies equity as a goal, but does not identify the forces and power relations that create injustice. Instead, the CAAP has an "equity checklist" modeled after the City of Portland's Climate Action Plan. The checklist intends to infuse equity throughout the document, as opposed to making it an explicit, stand-alone goal on par with the plan's other foci. The plan does not outline how equity will be

assessed nor identify specific actions to ensure that equity is acted on. It remains to be seen how equity can be achieved without assessment protocols in place.

In addition to not operationalizing equity assessment, the CAAP also uses an approach for emission analysis that leads to injustices. The CAAP analysis uses a sector approach. By creating categories of emissions (e.g., energy, transportation), the process lumps uses together. As Rice (2014, 386) has noted, "carbon reduction campaigns are targeted at the city writ large rather than at the populations or areas with the largest emission footprints." In the context of transportation, for example, this approach fails to differentiate where those emissions emerge from and who or what drives them. In addition, this coarse accounting fails to identify the most important actions that would reduce emissions and overcome historic injustices in the way cities are planned and organized (Soja, 2010). Well-meaning planning and perhaps even climate action may create or exacerbate injustices. The CAAP has no formal mechanism to identify such outcomes, and the steering committee process did not address this potentiality. As a result, contradictions remain in the plan and in city decision-making more broadly, leading to ambiguous emission and equity outcomes.

A local tax initiative provides an illustrative example highlighting how assumptions and contradictions infuse city planning, with consequences for emissions and equity. While the city council supported the CAAP process, it also considered three transportation propositions that would provide 20 years of funds to address transportation projects. The money would support an array of projects that included public transportation and bike infrastructure but overwhelmingly funded bridges and new roads. During city council meetings, it emerged that city staff orchestrating and planning the propositions and associated taxes had not seriously considered the climate consequences despite the council identifying climate action as a priority. The council ended up supporting the propositions, placing them on the ballot, and voters approved two of the three propositions. Beyond the confines of the CAAP, this outcome speaks to city priorities but also to ideological assumptions. Implementing the projects supported by the tax, which include bike infrastructure across town but primarily provide funds for new roads and a downtown overpass across train tracks, continues a transportation focus on single-occupancy vehicles and drivers. This creates injustices for those not well served by a transportation system focused heavily on cars (Soja, 2010). Additionally, opponents of the propositions argued that the projects supported by the tax would increase vehicle miles and congestion and come at the expense of spending those dollars in ways specifically designed to overcome past injustices in the transportation sector and reduce emissions. This discussion showcases how ideologies lead to creating and implementing strategies that undermine equity and emission reductions. It also highlights how ideological orientations around growth and expansion continue to shape local decisions-making, even when a CAAP effort is underway, with clear consequences for climate action.

Taken together, these factors highlight how ideological denialism can influence climate action. The City Council and CAAP steering committee members vocally supported equity; however, invoking and openly supporting equity does not inherently lead to outcomes. Climate action planning, and associated policy, has

professed support for addressing equity but has failed to identify the drivers of injustice and has thus precluded crafting and implementing a climate plan designed to overcome them. This example shows how ideological denialism influences climate action planning intended to promote equity and justice.

Implications and Recommendations for Climate Action Planning

The Flagstaff example of climate action planning provides insights into the challenges cities face in their attempts to reign in emissions and promote equity. This analysis, while critical in nature, is not meant as a criticism of those involved with climate action in Flagstaff. Without question, those working on climate action, especially city staff shepherding this process, remain committed to effective action and to equitable outcomes. This analysis merely points to some reasons why reaching the ambitious goals embedded within the CAAP might prove challenging to achieve—as pro-growth ideologies remain dominant. Based on this analysis, and in the spirit of making the CAAP activities as robust and consequential as possible, while also providing insights that climate action planning efforts elsewhere might find useful, the following recommendations could serve as a guide to making climate action more effective and equitable:

1. *Survey and document the factors leading to vulnerability and injustice*
   The CAAP process identified equity as a goal, and the final document engages equity in various ways. However, the CAAP did not lead to specific language or proposed actions that add up to the task of realizing just outcomes. In particular, the historical and more contemporary factors that create unjust outcomes did not receive sufficient attention and interrogation. To overcome this shortcoming, climate action planning needs to outline and detail the reasons that explain societal injustices. Vulnerability assessments, while providing important insights into the risks climate change poses to cities, do not adequately *explain* why some populations experience and remain vulnerable to climatic perturbations. This requires a historical analysis pinpointing specific policies, ideologies, power relations, and legal mechanisms that have created and perpetuated injustice. Vulnerability analyses, while drawing primarily on biophysical processes, can be used in conjunction with this analysis to more adequately identify existing and likely risks posed to society and particular communities. From that starting point, climate action and specific interventions can be placed in a historical context, providing a more robust means by which to weigh whether specific climate actions will promote more equitable outcomes.
2. *Undertake a more nuanced, historical emissions accounting process*
   As currently construed, emission analyses do not have sufficient nuance to support climate action that can dramatically reduce emissions and lead to equi-

table outcomes. Emission tracking typically uses a sector analysis, aggregating similar sources into broad categories (e.g., transportation). This cataloguing, if used too broadly, fails to identify the variation or the key drivers within those sectors. In addition, these analyses do not interrogate why certain sectors have such large carbon footprints. In Flagstaff, transportation accounts for roughly 41% of total emissions. Obvious reasons come to mind in explaining this outcome—we have a car-based society that has historically privileged automobiles over public transportation, for example. But such a rationale fails to uncover the more specific, and in some cases local, reasons for this outcome. In Flagstaff, like in many other cities, planning and public policy have disenfranchised minority and low-income populations by focusing attention primarily on white, affluent car owners. Far from a historical legacy, transportation policy to the present continues to do so while making gestures to serving broader needs. A richer, historical evaluation would make these processes and decisions visible and help to place contemporary outcomes in a historical context.

3. *Begin the climate action planning process with a detailed needs assessment*

   The undeniability of climate change consequences globally has led to basic assumptions about responding to those changes. Changes will result in fire, floods, heat waves, disease spread, and so on. Climate action plans, including the CAAP, often include responses used generally across different cities despite the local variation and context. Forest thinning, updated stormwater systems, minimizing air-conditioning, and related actions will undoubtedly be necessary and prove effective. However, this approach overlooks local situations and contexts. The argument made here is to invert the typical climate action planning process that uses generalities to assess vulnerability and associated actions and to instead start with the lived experience of residents—what do they need, how are they vulnerable, how might climate action simultaneously address injustice and emissions?

   Rather than start with a vulnerability analysis and then identify actions to meet those vulnerabilities, the reverse should occur. Climate action is predicated on the false assumption that identifying vulnerability will enable cities to meet needs. Instead, cities should start with a needs assessment, independent of climate change. Initiating a needs assessment to reach out and talk with people in the community, especially those marginalized by historic prejudices and planning efforts, and asking what they need promotes action planning with equity at the forefront. Based on the needs identified, climate actions can then be positioned in a way to address emission reductions *simultaneously* with equity concerns. Taking transportation as an example, identifying the actual needs of people across Flagstaff would enable planning and climate actions to more directly address the consequence those actions will have on access and emissions. In contrast, recent planning efforts maintain that more public transportation is better without a clear articulation of what people need or whether the proposed actions and policies serve to meet those needs.

4. *Outline and detail contradictions embedded in the climate action planning process*

   Building on the above recommendations, in many cases climate action plans, and the specific interventions embedded within them, fail to identify their contradictions. As noted above, alternative energy, electric cars, and transportation policy that privileges and extends a car-centric planning focus serve in some cases to not only inhibit carbon emissions reductions but also extend and perpetuate injustices. Proposing electric vehicles as a climate change solution should include a robust analysis as to how doing so will affect local people as well as global emissions. It should also include an analysis and language outlining the consequences of implementing such a policy on poor and marginalized communities. A car-based city has emission and equity consequences regardless of how most cars are powered.
5. *Implement specific, robust measures and benchmarks to meet equity goals*

   Based on this analysis, and the conclusions presented in chapters throughout this volume, equity remains secondary to concerns of carbon emissions in many climate action plans. One reason, no doubt of many, for this outcome has to do with the way in which equity is invoked and acted on. Carbon emissions in every plan have clear data, benchmarks, specific goals, and language centered on realizing a particular outcome. Equity concerns do not. To overcome this discrepancy, climate action plans would have to take a similar approach with equity. Doing so means including elements from the recommendations listed above but more specifically cataloguing inequity in a similar way to emissions. This would include gathering specific data on inequity and trends over time, as well as putting forth specific benchmarks to reach with goals along the way, and specifying the end goal the plan seeks to meet. Without such a framework, equity and justice will remain secondary, if not forgotten, in climate action planning efforts.

   Those involved in climate action planning no doubt have good intentions. And in many cases climate action has had positive consequences. Many climate advocates, however, have ideological presuppositions that influence action plans in a way that undermines their effectiveness. The focus on growth, technology, and broad vulnerability in Flagstaff led to a plan that promotes actions that potentially limit emission reductions and insufficiently address injustice. It remains difficult to overcome historic injustices without a full accounting of the factors and forces that created them in the first place. The CAAP does not do this. It starts with the broad notion that some people remain more vulnerable than others, but does not follow through with meaningful plans. Equity figures prominently in the CAAP, but not in the same way or with the same vigor as emission reductions. The latter are addressed through specific targets, accounting, goals, and actions; the former is not. As a result, even those who view climate change as a problem that cities should address often have perspectives and support actions that reproduce the very processes that created emissions and injustices in the first place. Ideological denialism helps to explain this phenomenon, and more attention to ideology and contradictions is needed if Flagstaff is to truly become more sustainable and climate action planning is to reign in both emissions and injustice.

6. *Acknowledge the link between economic growth, carbon emissions, and injustice*

As this case study shows, Flagstaff, and likely many other cities, move forward with climate action with an assumption that economic growth has to continue. This assumption, and the planning outcomes based upon it, makes reducing emissions unlikely at best. Similarly, the economic growth paradigm maintains and expands vulnerability. As a result, cities and planners need to acknowledge the linkages between economic growth and emissions and vulnerability. Doing so will enable climate action planning to outline and identify the barriers to emission reductions, while also making city decisions more transparent in a way that showcases how priorities of growth will stall or eliminate efforts to reduce emissions. In short, economic growth and emission and justice goals remain incompatible. Climate action plans have to make this clear. Doing so affords an opportunity to broaden climate action discussions that have historically narrowly focused on emission reductions to focus directly on ways to not only address emissions but to more importantly establish a framework upon which to realize well-being. Degrowth, an alternative to the growth paradigm that contracts the size of the economy in order to reduce emissions and maintain society within ecological limits (Stuart et al., 2021), offers an approach that cities can engage to situate their climate action work, as well as a way to focus their efforts more broadly to meet the simultaneous goals of social justice and emission reductions.

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Part II
Climate Justice and Equity

Chapter 4
Why Climate Planning Struggles with Equity

James Sirigotis, Hillary Angelo, Key MacFarlane, and Adam Millard-Ball

Introduction

There has been a growing recognition of the importance of social equity in urban planning in recent years. The American Planning Association now cites equity as one of the six normative principles that should underlie comprehensive plans (Godschalk & Rouse, 2015). And yet, while the language of equity has become increasingly popular, little is known about its inclusion, operationalization, or relationship to existing inequities in specific places, especially outside of "best-practice" cities. How equity is handled by urban sustainability plans is a crucial question for the future, especially as cities prepare for climate change. In placing vulnerable populations at greatest risk, climate change is one area where inequalities and their differential impacts will be keenly felt in the coming years—in cities and beyond them.

This chapter examines the inclusion of social equity within climate action plans (CAPs) produced by local governments. CAPs are strategic documents: programmatic statements that outline sometimes ambitious emissions targets, often with the goal of generating political pressure on higher tiers of government as well as catalyzing local climate mitigation efforts. Despite early optimism about the potential of CAPs to bring about large-scale and equitable emission reductions, more recent studies have revealed the limitations of local planning efforts. From a greenhouse gas perspective, municipal plans tend to do little more than catalog a city's existing efforts, rather than spurring new climate change action (Millard-Ball, 2012, 2013).

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They often favor voluntary rather than regulatory approaches, lack cohesiveness or the specifics to implement broad policies such as smart growth land use planning, and find it hard to go beyond rhetorical and/or symbolic actions (Wheeler, 2008; Kwon et al., 2014; Deetjen et al., 2018).

From a social equity perspective, similar deficiencies are apparent. Recent studies of CAPs in large cities have found that equity has remained the "short leg of the sustainability stool" (Pearsall & Pierce, 2010, 569) and that "though the term 'equity' is often invoked…there is no clear consensus on what equity actually means in this context" (Finn & McCormick, 2011, 400). Research focused on improving equity definitions and heuristics has left unanswered questions regarding what municipal planners, especially in small and mid-sized cities (Lamb et al., 2019), actually *do* at a basic descriptive level: how planners operationalize equity goals in practice, what relationship these policies have to existing inequities in a given location, and what the outcomes of these efforts are (Berke, 2016). A review of recent literature on climate governance has come to similar conclusions, identifying both an ongoing concern with questions of justice and equity and an absence of "a consistent and comparative body of research that addresses the everyday realities of climate action" (Castán Broto & Westman, 2020, 2).

Perhaps in response to these critiques, recent CAPs have increasingly included equity-focused language and/or policies (Schrock et al., 2015; Angelo et al., 2020). Equity is now central to flagship sustainability plans in both New York City (#ONENYC) and the San Francisco Bay Area (Plan Bay Area 2040), the latter "epitomizing" the particular challenge of "reconciling sustainability goals with economic growth and social equity" (Chapple, 2014, 15) at the urban scale. But it remains unclear whether far-reaching equity-focused climate programs are limited to high-profile flagship cities or whether and how they are gaining more widespread adoption among all types of local governments.

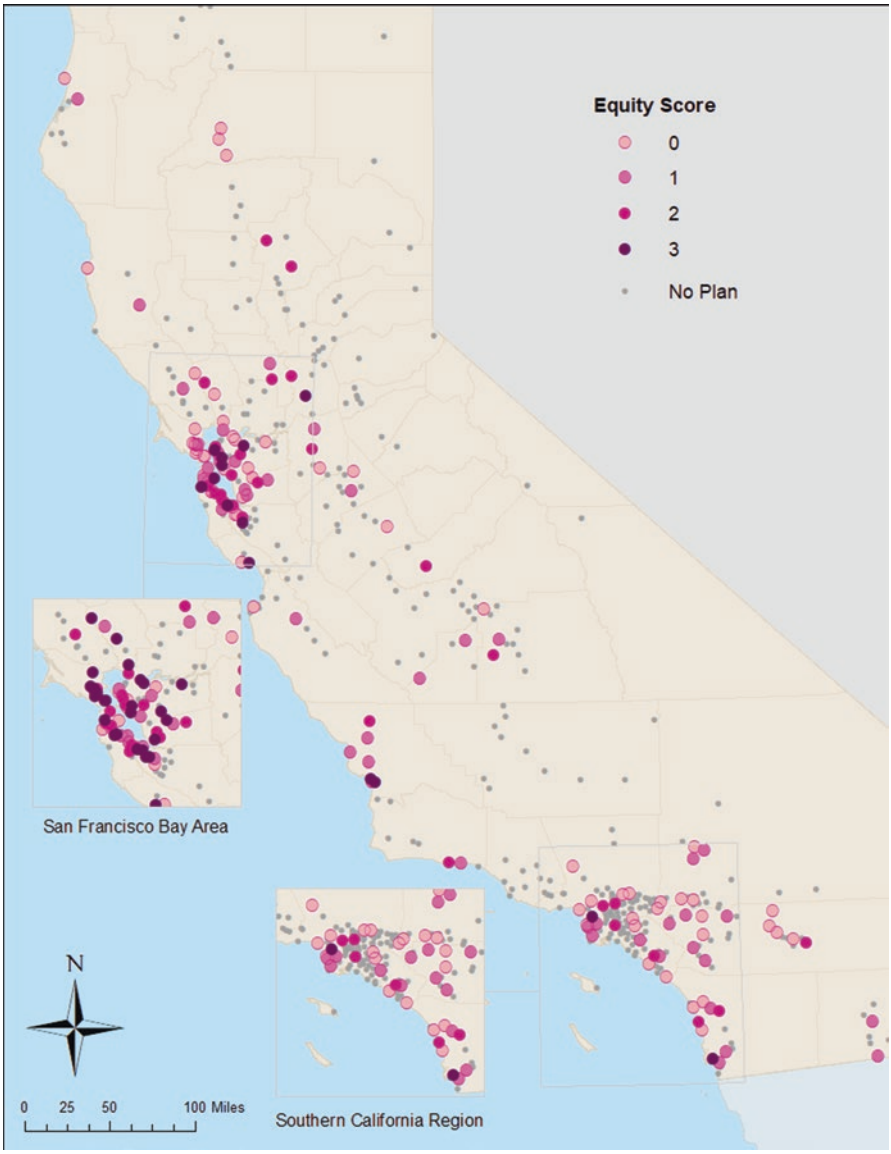
In this chapter, we examine the extent to which equity is being incorporated in climate action plans and how it relates to local needs, the types of policy solutions recommended, and impact. We also explore four dimensions—state mandates, funding constraints, standardization through best practice guides and consultants, and political challenges to local planning—that affect the treatment of equity. We build on our previous analysis using a dataset of 170 CAPs that were adopted by cities and counties in the state of California before 2017 (Angelo et al., 2020; Angelo et al., Working paper). These limitations of the social equity provisions of climate action plans echo earlier critiques. That is, researchers have found fault with previous generations of CAPs for their lack of specificity and the rhetorical nature of their emission reduction policies—and for their neglect of social equity. We find that newer CAPs respond to the second issue while compounding the first—social equity is increasingly included, but equity policies lack specificity and are rhetorical in nature.

Missing the Housing for the Trees

This section provides an overview of our analysis of California CAPs (Angelo et al., 2020, Working paper). California is an important site of study because of its cities' broad implementation of CAPs. This is largely due to statewide environmental policy such as AB 32 (The Global Warming Solutions Act of 2006) and SB 375 (The Sustainable Communities and Climate Protection Act of 2008), which were often interpreted by cities as requiring climate planning and emission reductions (Bedsworth & Hanak, 2013; Haden et al., 2013; Barbour & Deakin, 2012). As a result, an unusually large number of Californian municipalities of widely varying population size, political composition, and demographic characteristics have adopted CAPs. Map 4.1 shows the spatial distribution of plan adopters, along with the equity scores discussed below.

Moreover, California is experiencing an intense housing crisis, both because of its insufficient housing stock and, more importantly, its severe lack of affordable housing (Breidenbach & Dreier, 2000). Transportation emissions, tightly linked to the lack of affordable housing (Newmark & Haas, 2015), remain the number one source of CO_2 in California. Affordable housing investments—particularly along transit corridors—facilitate a more sustainable built environment by (1) reducing emissions from commuting as more urban service workers can afford to live where they work, (2) creating the foundation for a stable community where social cohesion and community resilience may evolve, and (3) transforming cheap market-rate housing that is commonly of substandard condition (which increases the vulnerability of the low-income residents who live there while also exacerbating GHG emissions). Significant investment in affordable, energy-efficient housing, therefore, offers a comprehensive range of solutions to advance California's climate mitigation efforts, as well as improving adaptive capacity. Because California's emissions are implicated in equity concerns regarding housing, and there have been such strong efforts to engage in climate planning, California offers an ideal site to explore questions of equity's inclusion in climate planning and the solutions and challenges to which it gives rise.

We used the California Governor's Office of Planning and Research's list of California jurisdictions addressing climate change in 2016. In order to provide consistency within our sample, the analysis for this chapter is limited to the 170 climate action plans and closely related documents from 2004 to 2017. Previous literature has broken the history of CAPs down into three phases of adoption: 2004–2008, 2009–2012, and 2013–2016 (Angelo et al., 2020; Allison et al., 2016; Bedsworth & Hanak, 2013). We found that the majority of California's CAPs—104 out of the 170 in our sample—included language about social equity and that the presence of equity language in CAPs did correlate with an increased presence of more systemic policy interventions, such as infill and affordable housing, that address both greenhouse gas reduction and equity. However, our findings also indicated that the inclusion of equity *language* was misleading as an indicator of a city's *policy commitments* toward social and economic justice. First, we found little association between



Map 4.1 Spatial distribution of equity scores in climate action plans. Note: Non-integer scores (e.g., 0.5) are rounded up. (*Map drawn by Felix Vazquez*)

existing patterns of local inequality (i.e., need) and a plan's inclusion or operationalization of "equity" goals. Second, cities and counties remained at risk of passing over "gray" interventions such as affordable housing in favor of aesthetically "greener" options like tree planting, increased open space, and recycling. Third, even when "gray" solutions that addressed both equity and greenhouse gas

reductions were included in plans, they tended to either lack the specifics needed to provide a path to implementation or simply repeat existing policy language in existing local-, regional-, or state-level plans.

To reach these conclusions, we coded all 170 CAPs in our sample for the presence of equity language and various "social solutions": recommendations that were explicitly oriented toward "social" (rather than exclusively environmental or economic) outcomes. We identified ten common "solutions" or policy agendas for dealing with climate change as a social problem (see Fig. 4.1). Having created this typology, we then assigned cities a score of 0–3 for their attention to equity and for each of the social solutions identified. A score of "0" indicated that the solution or language was not present, and a score of "3" indicated robust inclusion that included public funding and/or specific policy prescriptions developed at the local level. Figure 4.1 shows the distribution of scores on each solution category, along with the mean score. Map 4.1 shows their spatial distribution. *Recycling and Waste* was the solution included in the climate plans in the most robust manner. The mean score for this category was 2.3, with 43% of plans receiving the highest rating of 3. *Open Space and Trees*, *Participation*, and *Transit* also scored highly. At the other extreme, about half of plans did not consider *Food* or *Jobs*, with a mean score of 0.7 on each. *Equity* also was given relatively little attention. Out of the plans, 38% scored a zero

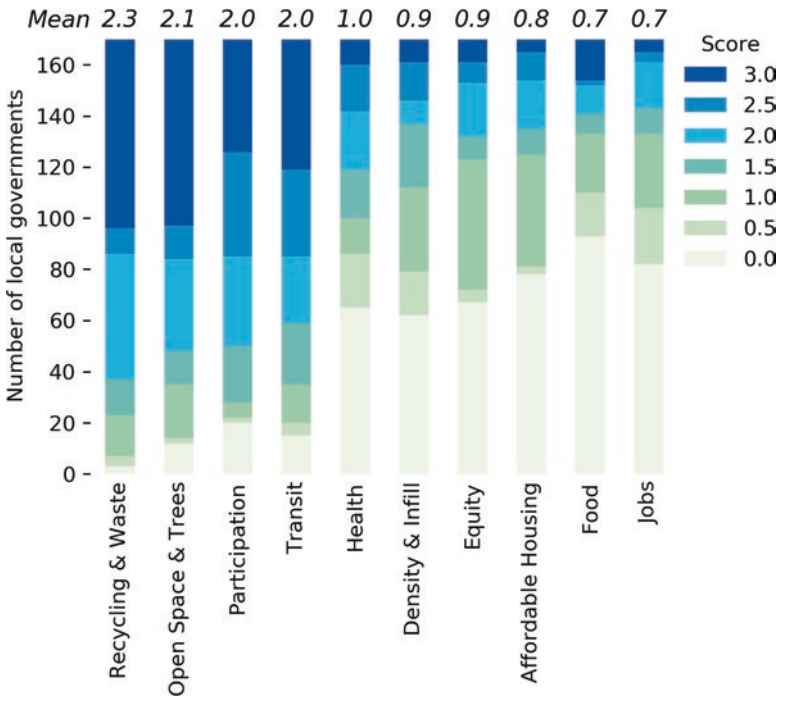


Fig. 4.1 Distribution of scores on each solution. (Source: Adapted from Angelo et al., under review)

and just 5% scored the maximum 3. While more recent plans addressed equity more often than earlier plans, the mean score in 2014–2016 was barely over 1.0.

We also found that *Affordable Housing* had the strongest correlation with equity ($r = 0.51$), meaning that plans emphasizing equity also emphasized affordable housing. All 17 cities in our sample that received high scores on *Affordable Housing* also mentioned equity. On the other end of the spectrum, there was almost no correlation between equity and *Recycling and Waste*. A regression analysis also found that the *Ambition* of a climate plan was strongly correlated with the share of those voting "No" on Proposition 23 (i.e., those who are pro-climate mitigation), and also with population size, while measures of local inequalities had no statistically significant effect on CAP content. That is to say that politics, not need, shapes a CAP's attention to equity.

How do we make sense of these patterns? In general, we found that CAPs address equity in two main ways. On the one hand, there are what we call tree-oriented, "green" plans. These are plans that favor aesthetically "green" policy solutions such as open space, street trees, and recycling that have traditionally been included in CAPs. At the other end of the spectrum are housing-oriented, "gray" plans that emphasize more systemic mitigation measures such as public transit and especially affordable and/or high-density housing (cf. Wachsmuth & Angelo, 2018). Green and gray plans, and the solutions they promote, have very different relationships to equity—especially in California where so many local equity concerns revolve around housing.

Characterizing CAPs in terms of green or gray plans helps us identify a major limitation with regard to their inclusion of equity. While housing-type plans have increased with the presence of equity language in CAPs, equity is most commonly incorporated in CAPs in a relatively low-ambition and/or tree-oriented way. Even the plans with the most "gray" solutions still tend to devote less space to housing than to trees and have housing plans that are relatively less developed than those for trees, open space, and/or recycling. There is a danger therefore, even within "gray" plans, of missing the housing for the trees. In general, plans tended to focus on "green," aesthetically oriented solutions rather than those that addressed systemic inequalities at the local level.

Limits to CAPs

The previous section highlighted three important limitations in how climate action planning has addressed social equity: (1) little congruence between the kinds of policies and actions recommended in the plans and the local needs for such recommendations (a plans/needs mismatch), (2) a discord between aspirations outlined in the plans and outcomes of planning CAPs (a goals/impacts mismatch), and (3) a preference for "green" over "gray" climate solutions. Here, we outline four dimensions of climate planning that appear to shape these limits: (1) the structure of state

policy and mandates, (2) financing mechanisms and constraints, (3) the role of consultants, and (4) political challenges to local climate planning.

State Mandates: Planning as an End, Not a Means

State legislation has provided a powerful motivation for Californian cities to develop and adopt climate action plans. Indeed, nearly all of the plans in our sample cite AB 32 and/or SB 375 as motivations for developing a CAP. Yet while the state effectively required cities to plan, and SB 375 in particular required regional planning agencies to develop a Sustainable Communities Strategy (SCS) focused on community needs, state policies have not mandated a process for identifying local equity needs, nor have they required cities to act on those plans. The state's Scoping Plan—its blueprint for achieving its emission reduction goals—recommends local governments aim to reduce emissions in line with the regional SCS. However, in the structure of legislation and its enforcement, writing a plan has been the endpoint, with little attention paid to whether and how it was implemented—either for greenhouse gas reductions or social equity. State guidance and legal pressure focused on planning for greenhouse gas reductions have not emphasized implementation, evaluation, or enforcement mechanisms. For example, Jerry Brown, as Attorney General of California, went as far as subjecting the city of Stockton to a lawsuit for failing to respond to AB 32. The settlement that the state reached with Stockton officials required that they write a CAP, but did not require them to adopt the plan or implement any of the policy recommendations therein, let alone demonstrate the plan's effects (City of Stockton, 2014, ES-3). Similar settlement agreements were reached with other jurisdictions, and still more cities developed CAPs as a way to head off potential litigation from the Attorney General. In this way, state-level policy, combined with public pressure and the threat of legal action, has resulted in widespread planning at the local level.

Regional-level planning might hold more promise for equity-focused climate action since regional plans are required to focus on housing and transportation, rather than merely trees and open space. The hope was that SB 375's SCS would align regional and local planning of land use, transportation, and housing. Indeed, one of the most equity-focused objectives of SB 375 was to synchronize each SCS with Regional Housing Needs Assessments that outline the housing needs for all income levels in the region. However, we found that CAPs rarely engaged deeply with their regional SCS. While most plans in our sample mentioned SB 375, their engagement with it was limited to general references to regional programs as policy context without developing local policy counterparts. This often amounted to an additive logic where the quantitative emission reductions from regional plans were added to the city's total reductions without more specific policy coordination around land use, transportation, and housing. The town of Atherton's CAP, for instance, states, "[i]n addition to the actions outlined here, regulations aimed at reducing GHG emissions at the state and regional levels will also contribute to emissions

reductions in Town of Atherton [*sic*]" (35). At times, local plans even articulated an explicit break from regional planning efforts. For example, the city of Carlsbad wrote in its CAP, "[a]s the SCS is focused on passenger vehicle emissions on a regional scale, it is considered separate from the reductions outlined in this CAP" (1–7). The disconnect between regional and local planning might be explained by the structure of SB 375, which did not require local plans (CAPs or otherwise) to adopt or even align with the SCS produced at the regional level (CARB Staff Report, 2017; Mawhorter et al., 2018).

This relatively superficial connection between local and regional climate planning efforts might help explain the disjunctures we found between plans/needs and goals/impacts, as well as the preference for green over gray policy solutions. State mandates that required local planning efforts to align with their regional SCS might have produced CAPs with a better match between plans and needs, a greater orientation toward housing needs, and more impact due to the greater support and resources (including funding from cap and trade) available for planning recommendations and programs that meet SCS guidelines. Such a mandate might also have afforded local municipalities the authority and political will to pursue larger-scale housing—and transit-oriented planning, not just politically safer, green solutions such as planting trees.

State Funding: Sustainability as Green, Not Gray

Beyond policy mandates, California's state funding structures also play a part in the misalignments we found between planning, needs, and impact. The relationship between policy and funding is key here. State funding schemes have prioritized planning rather than implementation, just as state mandates have. Further, the state's initial funding priorities privileged green solutions, such as planting trees, that tend to be less expensive and easier to implement. While housing- and transit-oriented gray solutions that focus more on spatial patterns of development are more expensive and difficult to implement, they likely also go further in meeting local needs regarding equity and emissions. While neither AB 32 nor SB 375 themselves provided financial resources to local governments, other programs were available to support particular kinds of local climate action. For example, AB 32 was passed the same year as Proposition 84, the nearly $5.4 billion Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006, which included $580 million for "Sustainable Communities and Climate Change Reduction." Of this $580 million, $90 million was encumbered for "urban greening projects that reduce energy consumption, conserve water, improve air and water quality, and provide other community benefits"; $400 million for competitive grants for local and regional parks; and $90 million for planning grants and incentives to encourage the development of regional and local land use plans. These plans were intended to "promote water conservation, reduce automobile use and fuel

consumption, encourage greater infill and compact development, protect natural resources and agricultural lands, and revitalize urban and community centers."

What is most interesting about Proposition 84 is how closely the funding priorities in the bond measure align with CAPs' focus on aesthetically green solutions. Of the total $580 million awarded for Sustainable Communities and Climate Change Reduction, almost 85% went directly to "urban greening projects" and parks (or, we could say, green climate action). The remaining 15% of funds were for planning grants and incentives. The general orientation toward green rather than gray solutions is central to understanding the plans/needs mismatch we found. While greening projects fit commonsense understandings of sustainability, are perceived to benefit the whole community and improve quality of life, and are often able to sink carbon and address issues of urban heat island effect, they might be less apt at addressing pressing social equity needs on their own. Moreover, the social equity goals set out in many CAPs might not be best served by more trees and parks. As the long history of struggles for environmental justice has demonstrated, there is a pressing need for more green space in low-income communities and communities of color. However, greening projects, when pursued in the absence of affordable housing measures, have been shown to exacerbate local inequalities by increasing property values, rents, and housing costs more generally, often resulting in community displacement (McClintock, 2018).

More recent state programs, however, have made more explicit connections between emissions and social equity, in particular by using new revenue from the state's cap-and-trade program via the California Climate Investments Initiative (CCII). Through fiscal year 2019–2020, the CCII has appropriated more than $2 billion through its affordable housing and sustainable communities program, and by law, at least 35% of all cap-and-trade revenue is directed to projects in low-income neighborhoods and disadvantaged communities (Millard-Ball & Press, 2019). Thus, the combination of environmental justice advocacy and a new revenue stream has enabled a recent broadening of state funding for local climate action to include gray as well as green strategies. The shift at the state level, however, has taken longer to permeate local governments: even among more recently adopted plans in our sample (from 2017 on), few make the explicit connection between affordable housing and climate action. Moreover, the scale of the funding still falls far short of the need, given that a single unit of affordable housing under the Low-Income Housing Tax Credit Program costs $480,000 (Reid, 2020), and only 25.5% ($511 million) of the $2 billion allocated has actually been distributed since the program began in 2015.

Consultants: Best Practices as Boilerplate, Not Local Context

Many of the CAPs' social equity provisions bear striking similarities across plans, even to the point of identical wording. Contextual information on climate science, inventory methodologies, and state legislation are presented in similar ways—frequently verbatim. More problematically, however, the policies themselves are often

similar or identical, making it difficult to conclude that they are responding to a specific analysis of local needs and priorities and helping to explain the plans/needs mismatch. We found that the use of boilerplate language often correlated with the hiring of consultants. For example, one multinational consulting firm, hired by about 20 of the jurisdictions in our sample, used identical language for suggested water management policies in three very different locations: the Central Coast, Southern California, and the Central Valley. Policies were general enough to be applicable in a range of environments, such as:

> A-3: Prepare for anticipated climate change effects on water, including surface water systems, groundwater, flooding, drought, and water supply and limit community exposure to threats such as flooding […] A-3.1: Continue to seek grants and other sources of funding to enhance flood control. A-3.2: Implement the CAP measures that facilitate water conservation and use of recycled water. (Grover Beach, 2014, Madera 2015, Pismo Beach 2014, Morro Bay 2014, San Marcos 2013, Arroyo Grand 2013, Paso Robles 2013)

While these are not bad suggestions, such boilerplate language copy-pasted into plans without a sense of the specific water challenges faced by communities in dramatically different geographies is likely to have only limited effectiveness in advancing the climate readiness of the local water system.

Another consulting firm hired by a score of jurisdictions used similar boilerplate language across their plans regarding equity, stating that "social equity issues related to the unequal distribution of resources and increased costs to address community-wide health risks will need to be addressed proactively to reduce the potential for financial strain on the city" (San Carlos 2009; San Mateo 2015; Santa Rosa 2012; Sunnyvale 2014; Tulare 2011; Vallejo 2012). This language is also found in two plans that were developed by in-house staff, suggesting that one strategy of cities and consulting firms is to copy policies and wording from plans that they find online. Perhaps most problematic is that this generic language about social equity and public health is the *only* sentence in these plans that explicitly addresses social equity concerns. That is, the plans do not follow up this general recognition of and commitment to equity with any place-specific policy suggestions. Table 4.1 gives further examples of near-identical wording across climate action plans.

Boilerplate policies across plans might be a paradoxical effect of the rise of best practice guidance on urban climate adaptation, now produced by myriad nonprofit organizations and professional associations. For example, the California Air Pollution Control Officers Association published a handbook of model policies for greenhouse gas reductions in CAPs and General Plans (CAPCOA 2009), which make their way into city CAPs almost verbatim. The city of Colton reprinted background material and at least five policies almost word for word from CAPCOA, on topics as varied as constructing bicycle and pedestrian trails, establishing a reuse/recycling center, implementing a public education campaign to highlight water-wasting activities, and using parking pricing to discourage driving. Another reason might be the rise in the use of private consultants to develop city or county CAPs (see Fig. 4.2). Consultants were hired for 42% of "early" CAPs (2004–2008), 64% of "middle" period CAPs (2009–2012), and 70% of more recent CAPs (2013–2016)—with CAPs developed by the same consultants often using the same

Table 4.1 Examples of boilerplate language found in multiple climate action plans

Source(s)	Plans	Quote/policy
PMC; Elk Grove; Walnut Creek	• San Carlos • San Mateo • Santa Rosa • Sunnyvale • Tulare • Vallejo • Walnut Creek • Elk Grove	"Social equity issues related to the unequal distribution of resources and increased costs to address community wide health risks will need to be addressed proactively to reduce the potential for financial strain on the city."
Rincon	• Grover Beach • Madera • Pismo Beach • Morro Bay • San Marcos • Arroyo Grand • Paso Robles	"A-3: Water Management. Implement new policies and programs to limit community exposure to threats such as flooding, and support those that encourage water use conservation and efficiency."
Rincon	• Grover Beach • Madera • Pismo Beach • Morro Bay • San Marcos • Arroyo Grand • Paso Robles	"C-5: City Government Tree Planting Program. Establish a tree planting program to increase the number of native, drought-tolerant trees on City-owned property."
AECOM	• Alameda County • Shasta County • Solano County • Union City	"Specifically, the county will work with partners to develop ride-matching systems to use current technologies (e.g., cell phone-enabled ride-match applications), and develop a ride-match social networking website and online electronic payment options."

basic template (Angelo et al., 2020). The fact that many of the plans prepared by consulting firms used templates that mention social equity in their framing as a "best practice" goes some way in explaining the plans/needs mismatch we found. If planners were relying on best practices and templates to create a "one-size-fits-all" CAP that undergoes little adjustment to the local context, we would expect to find misalignments between the policies outlined in the plans and the climate equity needs of the community. These guides and the planning enterprise more broadly conceive of CAPs within a technocratic mold, whereby the planner assembles a series of actions to achieve a target. Yet, there is a risk that a city or its consultants

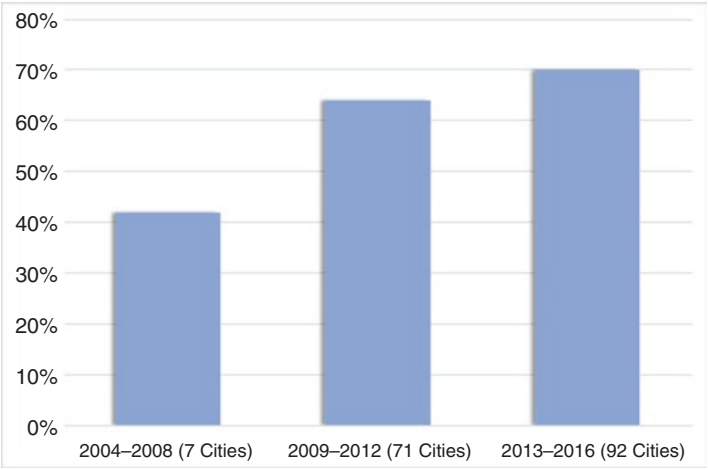


Fig. 4.2 Percentage of CAPs that are consultant-led, over time

will choose policy solutions from a "menu" of best practices that simply do not align with the local context. Moreover, such a "pick and mix" approach is likely to shortcut the planning process—the learning experience through which staff and community members generate knowledge and identify shared goals and values.

The use of boilerplate "best practices" not only sheds light on the plans/needs mismatch we found, but also helps account for what was not included in the plans. While the dataset represents a great diversity of cities with very different needs and politics, the California CAPs hewed to a relatively narrow menu of solutions addressing recycling, waste, open space, housing, and transit. Even those that engaged most substantively with equity goals and challenging issues of housing and transit did not include such possible solutions as inequality assessments, community land trusts, and local cooperatives or reflect more concerted attempts to advance equity-focused climate policies that engage interdependent and long-lasting decisions such as investment in affordable, transit-oriented development.

In sum, the trickling down of language and policies from larger cities with more comprehensive climate plans to smaller cities via best practice guides and the consulting industry may help cities complete plans more quickly and cost-effectively. However, the trade-off is often abstract commitments insufficiently linked to local needs and the shortcutting of local planning processes, resulting in CAPs that are less tailored to the local context and that may gain limited buy-in from residents or city officials. In this way, the structural constraints posed by the relative lack of funds and expertise in small cities and the greater reliance on consultants and best practices may contribute not only to the plans/needs mismatch but also to the discrepancy between goals and outcomes we and others have found.

Politics: Climate Planning as Technical, Not Political

Like almost any other plan, CAPs are political documents: they make implicit and explicit tradeoffs between different policy and public expenditure priorities. Indeed, rather than having direct causal impacts, CAPs tend to reflect already existing politics and preferences in the attendant jurisdiction (Millard-Ball, 2013). Nevertheless, in the CAPs that we examined, climate planning is generally approached as a technical rather than a political problem—which is to say that the political tensions that animate decisions regarding climate planning are often left unsaid. This tendency to overlook the political nature of climate planning is heightened by the avoidance of policy recommendations that are legally enforceable, that create permanent change to the built environment, or that redistribute resources to address local inequities.

Politics rarely make their way, explicitly, into these planning documents. In fact, most of the plans in our study avoided any discussion of political tensions or challenges to equity-focused climate action. For example, Palm Springs, in describing its climate efforts, writes:

> For each sphere of activity, a table summarizes suitable emissions mitigation measures. Later in the text, tables are presented that list measures for each phase of activity. Comprehensive tables ranked by the cost-effectiveness of all measures (with detailed assumptions), and that rank initiatives' cost to the city (as well as kWh savings) can be found in the Appendix (2013, 4).

Palm Springs is not alone in this practice—that of laying out a list of actions to be taken toward the achievement of quantitative reduction targets. Across the plans in our sample, the overarching tenor is one of technical knowhow and straightforward best practice implementation. Meanwhile, the political differences and the messiness of local interest groups vying for influence over the future direction of the city are almost completely absent. While a large number of CAPs include plans for public participation, the known pitfalls and limitations of such processes are not discussed. Nevertheless, local political antagonisms implicitly seep into the CAPs, often in the form of elision.

The Town of Fairfax's CAP only mentions affordable housing early on as it notes that affordable housing is its strongest option for reducing the town's largest emissions source: transportation. Ironically, the plan does not mention affordable housing again; so, there is no policy to advance what they admit would be their most robust possible solution. Walnut Creek's CAP talks about the importance of dense, affordable housing for reducing vehicle miles traveled (VMT) and increasing equity. However, in a CAP planning town hall, the residents in attendance stated affordable housing and smart growth were simply not priorities (the average rental apartment in Walnut Creek costs $2459 per month). Instead, participants emphasized their desire for increasing composting options and employee education programs. Finally, the City of Santa Cruz, consistently ranked as one of the least affordable places to live in the nation (Tugend, 2006; Cox & Pavletick, 2020), does not recommend a single policy to increase affordable housing, despite its shortage being the most common issue raised at city council meetings and in local press outlets.

This glimpse into how affordable housing is discussed, or not, in cities that objectively face affordable housing shortages that propel the displacement of low- and medium-income residents, highlights the political challenges to what is often conceived as a technical problem. Gray solutions are undoubtedly more expensive, permanent, and less resonant with commonsensical notions of sustainability than, say, street trees. Moreover, they are shot through with political tensions as they directly intervene into "business-as-usual" market dynamics that tend to dominate the local trajectory of urban development (Barbour, 2016, 21; Bradley, 2014). Viewed this way, it is not surprising that cities, in response to a top-down policy mandate to plan, might be reluctant to open themselves up to politically contentious debates regarding inclusionary zoning requirements, density, or reallocating road right of way from cars to bicycles and transit, let alone revenue-raising measures such as a carbon tax or congestion pricing, when street trees, composting and recycling programs, and community education on "green" products are, by contrast, both popular and politically safe. Especially when similar political preferences exist at the state (e.g., funding for "greening projects") and federal level (e.g., Trump's Trillion Trees Plan), it may be difficult for local planners and government officials to advocate for and implement the types of solutions that would significantly impact local climate equity needs. These challenges go some distance toward explaining plans/needs and goals/impacts mismatches we found as well as the preference for green over gray solutions. While recent years may be signaling a shift toward greater consensus about the need to mitigate the uneven effects of climate change, both climate change and social inequality remain deeply political issues. Thus, approaching equity-focused climate planning as a technical problem obfuscates one of the most potent forces at play in local climate planning and action: the fundamentally political nature of resource allocation and the spatial patterns of urban development (not to mention, increases in taxation and public investment).

Conclusion

This study set out to understand how social equity was being included in CAPs in California. However, as we encountered the limits described above, we were continually struck by a broader, more fundamental, question: What is it that CAPs can do? The assumption that planning provides a medium to assess the local context and effect change therein persists, as we have seen, in state policy mandates and funding structures. However, our results find little relationship between either planning and outcomes or planning and needs. These patterns suggest that scholars and practitioners ought to question assumptions about the causal impacts of plans, their durability, their role in shaping policy and funding allocation, and their consequences—such as policy mandates and funding structures that prioritize planning without stipulations for needs assessment, implementation, or evaluation of outcomes.

When situated in this broader view, CAPs appear to be incapable of delivering on their promise to tackle the two greatest problems of our age: climate change and

social inequality. The belief that planning results in measurable impacts lies at the center of this promise. International and American institutions that frame the debate around climate action, such as the United Nations and the Rockefeller Foundation, set out in the early 2010s to place cities at the front line, arguing that cities were well-positioned to take the lead in addressing the global problem of climate change (i.e., the Global Covenant of Mayors for Climate & Energy and the 100 Resilient Cities Initiative, respectively). In California, this charge took the shape of state policy that effectively required cities to develop CAPs. As social equity became part of the conversation, and increasingly recognized as central to sustainability, cities, again, were charged with solving a global problem that far exceeds their reach. But in effect, a second global challenge—equity—was added to the expectations for climate action plans, even before it was clear that they could adequately address the first (greenhouse gas reduction). We believe it is critical to understand the limits of local climate planning (or the question of what a CAP can do) amid this scalar disjuncture between CAPs and the problems they have hoped to address.

The limited funds available to cities also play an important role in constraining the possible outcomes of municipal climate planning. The structure of urban finance in California presents planners with a paradox: imagine an equitable, sustainable city, and then advise the government on how to realize that vision but do so within the current city/county budget and without challenging conventional understandings of sustainability. This paradox results in plans that rely on voluntary programs to "incentivize" our way to a sustainable and equitable future while emphasizing aesthetically green solutions at the expense of gray ones. How do planners understand this paradox and how do they navigate it? Future research that explores this contradiction would go great lengths in revealing the nuanced forces at play in the plans/needs and goals/impacts mismatches we found. Moreover, and perhaps more importantly, it would provide a window into how local government actors are attempting to meet the quixotic charge hoisted upon them by supranational institutions.

CAPs may have reached a crossroads: either remain as technical documents primarily concerned with politically neutral changes that might help reduce emissions or grow in ambition by explicitly taking up the political challenges that shape investments in infrastructure, affordable housing, and public transit. Either way, expectations will likely have to be tempered from the "cities saving the planet" narrative (Angelo & Wachsmuth, 2020). If plans remain technical documents, planners, officials, and residents will have to accept that they will not be the source of solutions for either climate change or social inequality. If plans recalibrate toward local needs and become more attuned to political struggle, they will likely be able to achieve more in terms of climate equity but will be up against congealed arrangements of California's urban political economy that have historical momentum on their side.

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Chapter 5
Incorporating an Equity Lens into Local Climate Action Planning in Portland, Oregon

Greg Schrock, Megan Horst, and YunJae Ock

Introduction: Fulfilling the Promise of Equity Planning

Local climate action and sustainability initiatives have been critiqued for their inattention to issues of equity and justice. In recent years, an increasing number of cities have attempted to respond to this critique by making equity a more explicit goal of their climate action plans; Portland, Oregon is among those cities. Portland's 2009 Climate Action Plan (CAP) espoused equity goals but in an underspecified way (Schrock et al., 2015). Since then, as the city's broader equity planning efforts have deepened, sustainability planners in Portland have sought to make the equity and justice elements of their climate plan more tangible. In this chapter, we examine what happens when local government (i.e., municipal, county) agencies endeavor to center equity in their planning processes. We evaluate whether that translates into more equitable outcomes.

The literature on equity planning has emphasized that creating more just and equitable plans is not simply about saying the right words or applying an "equity lens" to decisions; it is also about both the process and the results—or in other words, the procedural and distributive aspects of equity (Zapata & Bates, 2015; Krumholz & Hexter, 2019). Equity planning means building trusted, authentic relationships with marginalized communities to activate and empower their voices—and then training planners in how to hear those voices and respond in ways that lead to different priorities and, ultimately, different outcomes. This is all much easier said than done. Institutionalizing an equity and justice orientation requires planners and their organizations to make long-term commitments to confronting and addressing past harms and to cultivating relationships, sharing power, and creating space. A commitment to equity planning requires planners to commit energy, resources, and,

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above all, a willingness to learn from inevitable mistakes. It also can have significant positive impacts, most notably improvements in outcomes by vulnerable communities who historically have faced oppression from professional planning.

In this chapter, we assess the efforts and outcomes of sustainability planners in Portland, Oregon, to infuse equity into their revision of the Portland/Multnomah County CAP between 2013 and 2015. Through interviews with four public-sector officials managing the CAP process, and four individuals who were involved and/or participated in a workgroup that was created to shape the plan in the direction of equity, we document a process that yielded some promising, but limited and sometimes contradictory, results. It was a process filled with great intentions and relationship building, which led to more robust CAP equity provisions. At the same time, community members expressed frustrations with the process and the lack of accountability and implementation around the equity components of the plan. These concerns are significant, since a plan without implementation is not only a failed plan but also likely to increase future community distrust. But the process, however imperfect, had long-term positive impacts for both frontline community members and agency officials. Community members deepened their analysis around climate justice and planning issues and strengthened advocacy coalitions that have led to subsequent organizing victories. Planners and their agencies have learned from the process as they work to foster more collaborative and inclusive planning processes, which remain a work in progress. An enduring lesson of Portland's experience is that public agencies need to acknowledge where they are and commit to a long-term process of relationship building, learning, and power sharing if they are to truly make better, more just climate action plans.

Climate Action Planning and Equity

The practice of local climate action planning is nearly three decades old, yet it continues to evolve and change (Fitzgerald, 2020). To some extent, this reflects our changing understanding of the drivers of climate change, and how climate change impacts our communities, presently and in the future. For example, early climate action plans (CAPs) focused primarily, if not exclusively, on the reduction of greenhouse gas (GHG) emissions; in the past decade, however, there has been a growing emphasis on climate adaptation to help communities prepare and adjust to extreme weather, as well as to existential challenges like water shortages and sea-level rise (Chu et al., 2017). However, local climate planning efforts remain uneven, with identified barriers including lack of policy mandates from the state, lack of leadership, and lack of resources, climate information, and supportive cultural values among local governments (Shi et al., 2015).

Another important turn within climate planning has been the prioritization of equity. One main reason is that the burdens of climate change and benefits of climate action have been unequally distributed. Notably, Black, Indigenous, and People of Color (BIPOC) communities and low-income people, considered

"frontline communities," are already suffering disproportionately from climate change (Fields, 2016; Morello-Frosch et al., 2012). Recent examples include the Biloxi-Chitimacha-Choctaw Tribe dealing with sea-level rise in the Isle de Jean Charles and the New York City Housing Authority residents whose buildings were inundated by Hurricane Sandy (American Planning Association, 2019). Historically marginalized communities also are likely to be most negatively impacted as climate change intensifies. Paradoxically, those who disproportionately suffer from climate change have the least contribution to it; low-income households generate lower carbon emissions compared to higher-income households, due to less carbon-intensive consumption patterns and lifestyles.

In many cities, including Portland, wealthy, white communities have been the primary beneficiaries of greening efforts and so-called sustainability investments, such as bioswales and bike lanes (Goodling et al., 2015; Lubitow & Miller, 2013). Meanwhile, people of color, most notably Black people, have been displaced from urban core neighborhoods that tend to have high environmental amenities, to outer areas with a lower tree canopy, and fewer sidewalks and other accessibility benefits. Anguelovski et al. (2016) have described this as a "double injustice," in which people of color and low-income people are disproportionately impacted by climate change and, at the same time, are excluded from the benefits of climate change policies and practices.

The call to center equity in climate action planning has coincided with a broader resurgence in equitable approaches to urban planning. In equity planning, planners work from their role as professional practitioners, to promote social justice from inside public institutions, to planning commissions, to politicians, and to the public (Zapata & Bates, 2015). As articulated in the American Planning Association's Planning for Equity Policy Guide (2019), equity planning starts by reflecting on the past and present role the planning profession has played in creating and perpetuating discriminatory practices and by affirming a deep commitment to ethics. However, it also requires a different approach on the part of planners. As Zapata and Bates (2015, 247) put it, "Equity planning is really about a willingness to be an advocate, to develop relationships, and to learn about the topics that matter to communities of color."

This emphasis on the relational dimension of equity planning with respect to marginalized communities reflects ongoing debates about the appropriate justice framework to guide these efforts. The most common approaches focus on distributive justice and procedural justice (Liao et al., 2019). Distributive justice focuses on achieving a just distribution of public services, rights, resources, and benefits (Anguelovski et al., 2016). From the distributive justice perspective, disadvantaged groups or low socioeconomic status groups should be protected from future environmental and economic harms (and past ones should be healed/addressed) and given prioritized access to climate resilience investments such as renewable energy and urban tree plantings (Agyeman, 2005). Procedural justice focuses on participation of the community in the decision-making process. Some describe this as a focus on "who is at the table." Procedural justice seeks equitable and transparent decision-making processes with wide community participation, especially from

people most impacted by a problem. In terms of climate action planning, procedural justice requires that frontline communities be engaged and have decision-making influence and power.

An important component of procedural justice that is often overlooked or not explored deeply is recognition justice (Bulkeley et al., 2014; Dillon & Sze, 2018; Martin, 2018; Young, 2011). Recognition justice moves beyond reflecting on who is at the table, to addressing historical and ongoing inequities in who is setting the table or the agenda, which questions are being asked, and what possible actions are up for negotiation. Recognition justice calls on the importance of cultural recognition, including the recognition of multiple ways of knowing and governing, including indigenous ways. It requires a decentering of white Euro-centrism. Notably, the components of justice must not be addressed separately, but must be understood and addressed together in social, cultural, and political processes.

While there are critical reasons to prioritize equity in climate action planning, the reality is that many communities continue to overlook it. Schrock et al. (2015) found that a minority of US cities prioritized or identified equity as the main theme in their climate and sustainability plans, although there was a discernible trend toward equity after 2009, especially among cities with more established sustainability agendas. However, more recently, Liao et al. (2019) found that, as of 2015, only 26% of municipal governments in the USA prioritized equity in their sustainability efforts. They did find that communities utilizing formal engagement mechanisms like task forces were more likely to prioritize social equity, suggesting a connection between procedural and distributive dimensions. As more local governments begin to foreground equity and climate justice in their climate action planning, it is important to examine how and to what extent they emphasize procedural, distributive, and recognition justice. We explore these aspects through a case study of Portland, Oregon.

Portland, Oregon: Leading on Climate, Amid a Climate of Inequity

Portland, Oregon, has been a site of innovation in the fields of sustainability and urban planning for decades, dating back to the state's pioneering efforts around growth management in the 1970s (Adler, 2012). Portland was the first US city to develop a municipal plan to address carbon emissions, in 1993, and subsequently developed two comprehensive "climate action plans," in 2001 and 2009, that reinforced the city's status as a leader among a growing cadre of cities globally that were stepping in to address the climate crisis in ways that national policies were not. The 2009 Climate Action Plan, for example, began to address challenges of community adaptation to climate change and not simply mitigation efforts (Schrock et al., 2015).

In the past decade, Portland planners have foregrounded social and racial equity more significantly. Equity planning attempts to address the structural causes of persistent disparity between white and BIPOC communities that have persisted and even worsened in Portland in recent years, as waves of migration to the region have fueled residential and commercial reinvestment in core neighborhoods. These dynamics of racial inequity have been most stark within areas like North/Northeast Portland, where decades of segregation and disinvestment have been followed by gentrification and displacement, especially of the Black community (Gibson, 2007; Bates, 2013). Meanwhile, as noted earlier, the benefits of recent environmental sustainability investments have accrued to wealthy residents and close-in neighborhoods, while poorer neighborhoods in East Portland (with higher proportions of low-income and BIPOC residents) experience fewer environmental amenities, like urban trees, and greater environmental burdens, like a more intense urban heat island effect (Voelkel et al., 2018). By the late 2000s, BIPOC communities in Portland were organizing to call attention to the "unsettling" depth and breadth of disparities between white and BIPOC (Curry-Stevens et al., 2010). Oregon's history of racial exclusion and ongoing status as one of the whitest major metropolitan regions in the USA added to these challenges.

Local planning efforts in the past decade have sought to respond to these concerns. The 2009 Portland/Multnomah County Climate Action Plan was the first official planning document to raise social equity as a core objective, albeit in a superficial way that reflected its post hoc addition to the plan (Schrock et al., 2015). The subsequent "Portland Plan" process led by the City of Portland's Bureau of Planning and Sustainability (BPS), a general plan intended to outline broad strategic objectives for the City, represented a more meaningful effort to address equity. As Bates (2019, 25) describes it, the Portland Plan "would ultimately adopt, at its core lens for all goals and strategies, an equity goal that calls for an end to disparities for communities of color in particular." The plan, completed in 2012, was meaningful and path-breaking in how it engaged and empowered community voices and built relationships between planning staff and community members through the process. Yet subsequent challenges in carrying that equity focus through into the Comprehensive Plan update that began in 2013 demonstrated the difficulties of institutionalizing an equity focus within the city's planning apparatus.

Around this time in 2013, Portland BPS and Multnomah County staff initiated the process of revisiting the 2009 CAP. Staff overseeing the CAP viewed it as a relatively limited "update" and not a full-scale effort to complete the plan anew. In practice, this meant that the CAP's overall framework of mitigation and adaptation measures was already established and not open to revision. However, the success and momentum of the Portland Plan, combined with high-profile city and county-level efforts to elevate racial equity more broadly, inspired staff to think more extensively about how to deepen attention to social, and particularly racial, equity, within the CAP. Recognizing the importance of engaging BIPOC

communities, BPS and Multnomah County decided to create an "Equity Working Group" (EWG) comprised of representatives of community organizations based in BIPOC communities that would operate in parallel to the overall CAP "Advisory Committee," which included more established representatives within the sustainability field.

In establishing the Equity Working Group, BPS and Multnomah County staff sought out community-based organizations that worked directly with "frontline" communities—BIPOC communities and low-income communities. The EWG had a total of 14 members representing 6 different community-based organizations (Table 5.1), some of which had previous direct experience with issues related to environmental and climate justice, but others did not. Part of the design of the work group was to build capacity among organizations that served culturally-specific communities to work on climate justice. In fact, one of the few local organizations with significant experience in the climate equity space, Verde, opted not to participate in the EWG itself, but rather to support BPS and Multnomah County staff in the process of selecting EWG members. The most notable departure from their standard practice, though, was that they provided stipends to EWG participants. Although the stipends were relatively minimal, EWG participants noted they were critical to enable their participation. The funding for most of the stipends came from a grant from a private foundation that was active in the sustainability area; additionally, Multnomah County provided funding that enabled them to support a sixth participant.

Table 5.1 Community organizations represented on the equity working group

Community organization	About (brief)
Asian Pacific American Network of Oregon (APANO)	A statewide, grassroots organization, uniting Asians and Pacific Islanders to achieve social justice
Coalition of Communities of Color (CCC)	Alliance of culturally specific community-based organizations. The CCC supports a collective racial justice effort to improve outcomes for communities of color through policy analysis and advocacy, environmental justice, culturally appropriate data and research, and leadership development in communities of color
Groundwork Portland (no longer in existence)	Network of organizations and individuals focused on the principles of environmental, social, and economic justice
OPAL (Organizing People/Activating Leaders) Environmental Justice Oregon	Community organizing and advocacy organization working with low-income and communities of color to educate, engage, and empower
Upstream Public Health	Advances policy solutions designed to change the systemic conditions that contribute to poor health
Wisdom of the Elders	Native-run nonprofit that records and preserves oral history and cultural arts of exemplary Native Americans and shares it in multimedia productions and public events

Assessing Equity Planning Impacts: Our Research Approach

We drew upon primary and secondary data sources to assess the short-term and longer-term impacts of Portland's efforts to incorporate social and racial equity into their 2015 CAP update. Our primary data source is eight semi-structured interviews conducted in April and May 2020. Four of these interviews were with individuals who were staff at BPS or Multnomah County at the time of the CAP update and played instrumental roles in the process, including engagement with the EWG. In addition, we interviewed four individuals from four different community-based organizations who were involved in the CAP update process; three were EWG members, while one played an instrumental role working with BPS staff to develop the EWG concept and membership.

The specific question that shaped our inquiry was: to what extent did Portland's utilization of an Equity Working Group advance climate justice/equity in its Climate Action Plan update? The interviews lasted approximately 60 min and contained roughly ten open-ended questions regarding respondents' participation in the EWG process, their assessment of the CAP's prioritization of equity in the short and long term, the impact of the EWG on their work and/or their agency/organization's work, and overall lessons learned/takeaways from the process. We recorded the interviews and developed detailed interview summaries, with direct quotes where appropriate, and analyzed those notes for important themes related to our overall research question.

Although we were successful in interviewing all four of the key public-sector principals in the CAP update process, our coverage of EWG membership was more limited. We focused our recruitment on EWG members who represented community-based organizations based in BIPOC communities. However, some members had moved or changed positions since 2015 and were unable to be reached or did not respond to multiple interview requests. Most of the interviewees were individuals with whom the lead authors had some kind of prior professional relationship. Although we recognize this as a limitation, we found sufficient convergence among the responses of those EWG members to give us some confidence about the generalizability of their perspectives. We recognize another limitation that comes from our own positionalities. We are a research team consisting of two white researchers/academics and an international student/graduate research assistant from Korea. It is likely that our identities limited the willingness of community members to respond to our interview request and share deep reflections with us. It is also possible that our own internal framings of justice—and our professional commitment to the role of planners as "good" actors—biased our explanation of the case, although we tried hard to portray what we heard fully. In addition to these interviews, we drew on a published case study of the EWG process that was completed by BPS staff in 2016, soon after the CAP was completed (Williams-Rajee & Evans, 2016). This document was particularly useful for documenting the EWG process and its impact on the CAP, but is limited in understanding the longer-run impacts of EWG participation, which is an important concern here.

Findings

In this section, we organize our analysis around the EWG process itself; the impact of that process on the prioritization of equity in the CAP; and subsequent impacts on community and public agencies. We highlight the points of similarity and difference between the perspectives of staff and EWG members.

EWG as a "Mutual Learning Process"

At the most basic level, the experience of the EWG was an improvement over most past public engagement efforts by the city and county. The community members noted that the stipends were critical to making it possible for them to engage meaningfully over time. As one community member summarized, "If we want participation from many communities—we advanced that as a concept, albeit imperfectly." The EWG process involved a certain amount of improvisation and adaptation as it proceeded. The original timetable for the EWG's work was only 9 months, which BPS staff quickly realized was insufficient. The original model for EWG participation was also discarded. At first, EWG meetings followed a template where agency staff would present on specific topics (e.g., urban forestry and tree canopy) and EWG members were expected to review and provide feedback on CAP drafts to identify equity issues. Community members described this process as "boring," "very technical," "confusing," and a "culture clash." Indeed, for many BPS staff members with deep expertise around environmental issues, presenting to a diverse, lay audience was somewhat unfamiliar to them, but more importantly, EWG members felt that the process was poorly designed to capture their expertise. As one member put it, "it's not that I, or community members, don't understand the merits of long-range planning, it's actually that (the professional planners) are asking in such limited ways about how we can plan." Another said, "if you want to just ask me about the built environment, landscape, and green energy, and how it affects my community, I will have a lot to say."

After a few months of "a lot of not great meetings," according to one community member, the agency liaisons from BPS and Multnomah County to the EWG recognized a critical need to reboot the process. One of the staff members in particular, who herself is a member of a frontline community and had prior connections to many of the EWG members and their associated organizations, was viewed as someone that listened well and was a good steward of the process. One EWG member described the staffer as "empowered and responsive." That staffer described constantly telling EWG members "look, I'm taking my government hat off…, this is what you need to know, what it's actually telling you…, okay, government hat back on" as a way to help them make sense and shape their expectations of the process. However, it was a two-way street—EWG members related their concerns about the process, and staff made adjustments in response. Agency staff changed the

meeting structures so there was less siloing by topics and fewer formal presentations by technical experts. Instead, EWG members were given a prompt and invited to speak more openly about issues and how they related to their communities. This yielded more generative conversations that touched upon the intersectional character of the climate justice issues facing BIPOC communities, which staff then categorized into themes that fit the climate action planning buckets already used within the CAP.

Both agency staff and community members felt like the EWG process was ultimately meaningful as a space for mutual learning, though it took a lot longer than was originally intended. Agency staff noted that the EWG was a major reason for the delays in the completion of the CAP, which was scheduled to be completed in 2013 but did not actually get finalized until 2015. This delay meant that the EWG stipends, which were an important part of securing community participation, had long been exhausted by the time that BPS staff circled back to EWG members to review final plan drafts in late 2014. Some of the community interviewees described being too busy with other efforts by then to be meaningfully involved in the final steps, but BPS leadership was supportive of the extended timetable, recognizing that it was necessary to slow down and take time to get the process right. Although both agency and community staff considered the process "groundbreaking" in many respects, they all recognized that they would do it differently—better structured and facilitated, with more resources, and more groups at the table—if they were to replicate this in the future. Community members emphasized that expectations today would be much higher. One explained, "That process—I don't think there is a tolerance for that now. Advocates have much higher expectations of the processes that are run by well-resourced bureaucracies." In particular, the community member noted that "We expect planners know of this (racist) history, and us not to have to reshare every time we start meeting or start a process." While other interviewees shared similar reflections on the process, there was a general sentiment that, as one interviewee put it, "it was probably the best project we could come up with (at the time)."

Stronger CAP Language on Equity, but Lacking Follow-Through

There was broad agreement between agency staff and EWG members that the EWG process led to stronger equity language in the subsequent 2015 CAP. Notably, "equitable" was identified as part of the 2050 vision for Portland and Multnomah County in terms of climate action and defined as:

> Every resident, regardless of socio-economic status, has easy access to a walkable and bikeable neighborhood that includes retail, schools, parks, jobs and affordable housing.
>
> There are plentiful employment and small business opportunities led by and employing under-served and under-represented communities. Communities of color and low-income

> populations are involved in the development and implementation of climate-related programs, policies and actions.

The CAP also had a stand-alone chapter focused explicitly on equity, which outlined the climate equity challenges (including data about existing inequities and a focus on East Portland, which has a high percentage of people of color and low-income residents and fewer amenities like sidewalks and street trees) and specific equity-related goals for the Portland community (City of Portland and Multnomah County, 2015, 42–49). Interviewees also pointed to a set of nine "equity considerations" identified in the Climate Equity Implementation Guide, a companion document to the CAP, as the most direct result of the EWG's efforts. The intention was that every proposed action in the CAP was assessed according to these nine considerations—including disproportionate impacts, shared benefits, accessibility, engagement, alignment and partnership, relationship building, capacity building, and economic opportunity and staff diversity and accountability (Fig. 5.1).

EWG members were glad to see the attention to equity, but noted that it felt like an add-on, and not central to the entirety of the plan and the individual topics (Buildings and Energy; Urban Form and Transportation; Consumption and Solid Waste, Food, and Agriculture; Urban Forest; Natural Ecosystems and Carbon Sequestration; Climate Change Preparation; Community Engagement, Outreach, and Education; Local Government Operations; and Implementation) and their associated objectives and action items. Equity considerations were prioritized most clearly in the below two mentioned objectives:

- Community engagement, outreach, and education: Engage communities, especially impacted underrepresented and underserved populations, in the development and implementation of climate change-related policies and programs.
- Implementation: Build city and county staff and community capacity to ensure effective implementation and equitable outcomes of climate action efforts.

However, many of the other topics, and their associated objectives and action items, lacked any clear prioritization of equity. The two examples below are objectives that focus on reducing consumption without attention to existing underlying inequities in consumption:

- Buildings and energy: Reduce the total energy use of all buildings built before 2010 by 25%.
- Consumption and solid waste: Reduce per capita solid waste by 33%.

The mentioned equity chapter was relatively thin, with most of the substance relegated to an appendix and/or a companion document, rather than central to the CAP itself. One explained, "equity stuff is in the appendix, it is not hard to see that as a peripheral add-on. It was more than in the plan before, but not as central as it needs to be." Agency staff noted that the equity framework did not dramatically impact the majority of the specific mitigation and adaptation action items that were included in the CAP, but it did push them to think through and articulate how

Fig. 5.1 Equity considerations developed by the equity working group

particular actions might be done in ways that would support social and racial equity goals.

The EWG process surfaced tensions around issues that community members felt were connected to climate justice, but agency staff did not—at least initially. The clearest example of this related to affordable housing. Around this time, many EWG members were active in advocacy efforts to overturn the State of Oregon's ban on inclusionary zoning (IZ), which would allow municipal governments to require new private developments to incorporate affordable housing. EWG members lobbied for provisions in favor of IZ as a tool for BIPOC and low-income communities to avoid further displacement from low-carbon "complete" neighborhoods that the CAP envisioned. Lamenting the resistance of agency staff to this provision, one EWG member said it was "illustrative of the tension between—which is in every space—when equity groups say 'this is what we need' and the process leaders do something else." Although some pointed to the CAP Advisory Committee as the source of resistance, agency staff themselves conceded that their own vision was too narrow. As one manager recounted:

> I literally remember saying on multiple occasions, "well, that's not climate, that's housing," or "that's not climate, that's something else." (…) Now, of course, I don't think that way (…), those (EWG) conversations helped to expand my thinking about those intersections between climate and what I thought of as "equity."

Ultimately, the CAP included language supporting legislative repeal on the IZ ban—which happened in 2016—although it was added much later in the process. Despite the strength of the equity language in the CAP document, EWG members felt disappointed by a lack of implementation follow-through and accountability. During the process, EWG members sought to elicit written commitments from agency officials about specific implementation measures and investments in BIPOC communities, but that level of commitment was not included in the plan or subsequent monitoring and reporting. And once the EWG process was completed in 2014 and the plan was released in 2015, the public agencies did not maintain their engagement with the frontline communities represented by the EWG. As one member described it:

> The problem, not with just climate plans, but with literally every plan… is how are you tracking success and impact, especially how are we taking on the equity measures, and how are communities being informed about success or failure? So, either report the success, like "yeah, y'all gave us input and here is how we are following through"…. Or say "no, we are not following through, and you have to hold us accountable." We really want benchmarks, how much are we spending on equity-focused work. Nobody wanted to commit to a dollar amount… And our response was: if you don't do that, then we don't know what our progress is.

Agency staff published a comprehensive 2-year update on CAP implementation in 2017, but despite multiple efforts, they struggled to develop operational equity metrics of CAP outcomes and impacts, and eventually deferred the project, which they intend to revisit in the near future. Although BPS staff has continued to partner with groups like Verde and Coalition of Communities of Color, there has not been a sustained effort to maintain relationships with the broader array of community-based

organizations that participated in the EWG. This is perhaps not surprising, since BPS and Multnomah County staff do not typically sustain formal engagement with advisory groups after a plan's completion. However, agency staff recognize that relationships with frontline communities require a different approach, and their lack of follow-through has been a fundamental institutional failure on their part. Although there were a variety of explanations given for this failure—such as the departure of a key City staff member involved in the CAP and BPS' need to shift staff resources toward its state-mandated comprehensive plan update—agency staff and community members all recognized that it threatened to undermine the progress and trust that had been built through the EWG process.

Building Capacity for the Future

Despite general disappointment with CAP implementation, both community members and agency officials considered the EWG process to be an important step in their development—individually as professionals but also institutionally. Interviewees described the expanded capacity of community-based organizations to engage and drive climate equity work, as well as planners and public agencies engaging frontline communities in collaborative processes. For community members, EWG participation had at least three discernible impacts. One was heightened engagement around issues of climate change and climate justice. One EWG member said, "(Our organization) didn't have any climate or environmental programming at that time; that has grown very substantially since then. Climate action became more embedded in our programming." Another EWG member had a similar reflection, that "had we not been in the CAP process, I don't think we'd be doing this level of climate work." This had been one of the objectives in creating the EWG, and it appears to have been successful. The second was deepening community members' exposure to governmental planning and funding processes. Multiple interviewees described how the EWG process opened a window into how public decision-making and resource allocation takes place. As one put it:

> If you do basic community engagement, you get "the rents are too damn high, and there are no sidewalks" … that is fine, but that doesn't lead to solutions. Instead of "the rent is too damn high," now (our organization) knows how to build affordable housing. It now knows how to access Fix-a-Street dollars, (regional transportation fund) dollars—it knows where the pots of funding are.

Finally, the EWG process led to a deepening of trust and relationships among EWG members and their organizations, which has fueled subsequent organizing efforts. On a certain level, the frustration of the CAP process provided an impetus for community members to take the initiative and not wait for the city to drive the agenda. Several of the EWG members and/or their organizations were primary leaders of a coalition that passed a successful municipal ballot measure, the Portland Clean Energy Community Benefits Fund (PCEF), in November 2018. PCEF will award

about $40–60 million per year annually, raised from a surcharge on large businesses to a City-managed fund, in grants to nonprofit organizations to implement green energy and climate resilience projects that benefit frontline communities. Multiple interviewees commented that momentum from the EWG was a factor in the PCEF coalition, although they also identified other activities, including several years of subsequent organizing around anti-displacement, housing justice, and other progressive causes, that were significant. As one interviewee put it, "none of this is a straight line, more like water, a stream starting to come together." Meanwhile, community members noted that in addition to PCEF, they are collaborating on advocacy and other fronts to continue to push for more attention to and resources for climate justice. As one interviewee said, we "continue to think about what's possible."

For the public agency officials, the EWG process has contributed to a longer-term cultural shift in how the agencies view their role as planners and their relationship with frontline communities. The failure to sustain their engagement with EWG members, their organizations, and their communities more broadly following the completion of the CAP in 2015 has served as a stark reminder that the progress and trust that can be built between government agencies and frontline communities through a planning process can easily erode if the networks are not maintained. And on a more individual level, agency staff recognized the importance of reorienting conversations with BIPOC communities in ways that center and foreground those communities' experiences and knowledge around the issues impacting them. Although this is important institutionally for agencies like BPS, it is especially important for their planning staff—which remains largely white—to build the capacity to engage in more reflexive, culturally responsive ways. An agency manager described it as "profound" and "exciting" but still challenging to implement in practice, saying:

> It's still sort of abstract. The idea that we need to do the work differently, we need to follow the lead of community differently, to relax our hold on that power. And particularly sustainability staff (who) are so mission-driven and hold so tightly to that "there's one way to make the world a better place—and it's this way." To find a way for them to relax that a bit (…) to see that there are ways to do impactful work but in a way that shares that power and decision-making.

Through the experience of the EWG and the 2015 CAP, and the more recent implementation of PCEF, which BPS manages, agency officials were hopeful about the prospect of forging collaborative planning processes that engaged and empowered BIPOC communities much earlier, more deeply and broadly, and in a more sustained way. Time will tell whether they are successful or not, but either way, expectations have been raised all around.

Conclusion

In this chapter, we related the experiences of Portland, Oregon, and its intentional incorporation of equity in its 2015 CAP update process. Portland has been, and continues to be, a leading city around local sustainability initiatives and, through its 2015 update, attempted to raise the bar for how cities can use these efforts to pursue climate justice. Our case study finds both positive and less-positive outcomes from these efforts and lessons for other communities on how to advance the field of climate equity planning. Upon reflection, interviewees thought the efforts described in this chapter were an important step, but by no means transformative, in terms of climate justice planning.

The efforts to make the 2015 CAP more equitable through the creation of an Equity Working Group had positive impacts in several regards. From a distributive justice perspective, the EWG helped to sharpen the plan's attention to the inequitable burdens and benefits of climate change and climate action and highlight linkages to broader community inequities, such as the lack of affordable housing within a city experiencing waves of private investment and gentrification. It fell short, however, in substantively changing the mitigation and adaption measures and in ensuring implementation and adequate resources. In terms of procedural equity, the EWG was an important advancement in equity planning and in climate action planning in Portland. The model of compensating community members established a norm of valuing the expertise of community members from frontline communities and making it more possible for them to engage. While the process had some hiccups, the interviewees appreciated staff's commitment to hearing community members and to making changes to make the process more inclusive and empowering.

The efforts had longer-term impacts, both for the community and the public sector. For the community, the EWG process helped to expand collective capacity around climate equity, helping them to see where they can do things from their own power base, rather than being stuck in a more consultative approach. For example, many pointed to Portland Clean Energy Community Benefits Fund as one example where diverse communities built power and pushed the city to do something it would not have done on its own. For agency staff involved, the experience seems to have been profound, though in different ways for each interviewee depending on their positionality, previous experience and confidence in equity planning, and their existing relationships with community groups. Perhaps one of the key lessons for agency staff is that of the importance of nurturing long-term, mutually respectful relationships and of more humility and respect for community knowledge and power. For both community and the public agencies, the expectations are much higher now for how deeply and effectively they will engage the community within planning processes.

Yet there were aspects of Portland's experience that cause us to view their success in more limited ways. For one, the case was not a model of recognition equity. While community members were invited to the (EWG) table, and agency staff were responsive to the issues they raised, community members did not have a whole lot

of influence over which questions were asked or what the overall priorities were in the CAP. This is not necessarily a critique, as staff fully acknowledged that the effort was supposed to be simply part of an "update" rather than an entire planning process. In addition, the process was never thought of as a true collaborative governance model, but rather one in which community feedback would improve the equity focus within the CAP. We point out this gap to illuminate the reality that future climate equity planning should start by focusing on recognition equity and taking steps earlier on to decenter the process away from the perspective of white and middle class-dominant, professional bureaucracies and toward frontline communities.

And finally, our case highlights the difficulty—but critical importance—of plan implementation and follow-through. This is important for planning in general, but especially when working with frontline communities that have been historically marginalized, both distributively and procedurally. The EWG served an important function in helping to build relationships between public agencies and frontline communities, but when the workgroup was dissolved and the plan was published, public agencies moved on to other priorities and left those relationships to wither. The lack of feedback about how the CAP was being implemented—for example, how much investment was happening in their communities and who was benefitting—bred frustration and distrust, which the agencies have only recently begun to address and remediate. But it represents a critical lesson for planners that efforts to engage marginalized (e.g., BIPOC) communities should be conceived as a form of social infrastructure—one that needs long-term investment, with attention not just to its construction but also its maintenance over time.

We anticipate that the movement to bend the arc of climate planning toward equity and justice will continue in the years to come, especially given the recent trends toward climate activism within BIPOC communities. How should public officials and agencies meet these challenges? Ultimately, one lesson from Portland is that, as one interviewee put it, "justice costs money." Local governments that want to engage frontline communities need to invest resources, including by offering compensation to participants for deep engagement in planning processes. This not only makes it possible for otherwise resource-strapped organizations and residents to have a say but also is a way of honoring their lived experience and trusting their community expertise. But climate justice also demands that public agencies direct money spent on implementing climate action plans in ways that explicitly and measurably prioritize frontline communities. Officials also need to start from where they are, in terms of their capacities and relationships with frontline communities, experiment, and be prepared to listen and learn from those communities and, critically, from their own (inevitable) missteps along the way. To increase the potential for planning to enhance climate justice, planners must give attention to aspects of procedural, distributive, and recognition justice.

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Chapter 6
Learning to Lead with Equity: Advancing Climate Resilience Planning to Address Urban Flooding Across Multiple Sectors and Scales

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Introduction

The ways in which communities try to achieve equitable climate planning in the water sector generally have not been well documented or fully conceptualized. The complex intersection of water, climate resilience, and equity issues are generally not well understood, but awareness of and attention to the myriad challenges at this intersection are increasing due to extreme rainfall events that have exposed economic and racial disparities associated with the impacts of urban flooding across the United States (The Meridian Institute, 2019). A review of the community flood risk management literature in the United States underscored that socially vulnerable populations—typically characterized as having a combination of higher poverty rates, lower median household incomes, and higher percentages of non-Hispanic white residents, among other factors—face unique challenges when it comes to flood risk management. They are less prepared for flood disasters, face higher risks, are significantly overrepresented in inland flood zones, suffer disproportionately in terms of flood injuries and deaths, lack the financial capacity to prepare and respond to disasters, have limited access to social and political resources, and are less likely to receive disaster information and obey evacuation warnings (Tyler et al., 2019). The study notes that one of the best practices—in addition to increasing nature-based solutions to mitigation flooding, robust flood modeling practices and ensuring mitigation plans are implemented—includes engaging community members in flood planning and investing in flood management activities specifically for socially

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vulnerable populations before, during, and after flood events (Tyler et al., 2019). A community-driven and equitable climate resilience planning process allows the residents of vulnerable and impacted communities to define for themselves the complex climate challenges they face and the climate solutions most relevant to their unique assets and threats. When climate resilience plans are developed without community capacity to drive the vision forward and to build power, they can become empty investments (National Association of Climate Resilience Planners, 2017).

The Kresge Foundation, a private, national foundation that works to expand opportunities in America's cities low-income people, works to change that dynamic. Through grantmaking and social investments, Kresge's Environment Program helps cities combat and adapt to climate change while advancing racial and economic equity. The program defines "climate resilience" as addressing climate change mitigation, adaptation, and social cohesion concurrently. By factoring climate change into decisions about infrastructure investments, land-use, public health, and other planning issues, urban leaders can make communities stronger and more equitable. Kresge's concept of equity is informed by definitions from leaders in the equity space, *Race Forward* and *PolicyLink*. Equity means fairness and justice and focuses on outcomes that are most appropriate for a given group, recognizing different challenges, needs, and histories (Race Forward, 2015). *PolicyLink's* equity manifesto provides an expanded definition of equity: "just and fair inclusion into a society in which all can participate, prosper, and reach their full potential. Unlocking the promise of the nation by unleashing the promise in us all" (PolicyLink, 2020).

Historically, some planning practices and federal policies have been inequitable, causing more low-income communities and communities of color to be at a higher risk for the negative consequences of climate change. Due to a long-standing history of structural racism in the United States where low-income, Black, and immigrant families were intentionally segregated by local laws and social practices, people of color are more likely to live in neighborhoods with higher levels of pollution, increased flooding, and power outages caused by heat waves—all directly connected to climate change (US Water Alliance, 2020). As an example, redlining, an official federal policy designed to encourage white homeownership and reinforce existing boundaries of segregation in American cities, was officially codified into law in 1933. Neighborhoods of color and those with high numbers of immigrants saw property values drop or stagnate, and with that, resident- and city-led improvements to infrastructure—such as water management systems and community greening—also stalled. While not an explicit active policy, the effects of redlining persist to this day. In fact, the same communities that have a higher risk of flooding are also in neighborhoods with lower-quality services, exposed to more environmental hazards (such as wastewater treatment plants, toxic dump sites), and lack critical resources like savings, insurance, etc. to be resilient, particularly those that experience repeated flooding and the cascading losses that result (University of Maryland, 2018). In fact, from 1980 to 2019, severe storms and flooding have caused the highest number of billion-dollar disasters in the United States (Climate.gov). While people generally understand the necessity of water, there is a research gap around flooding and climate impacts on urban communities, which leads to a messaging

gap in communities and among decision-makers at the local, state, and federal levels, regarding the importance of functional stormwater and wastewater infrastructure (Tyler et al., 2019).

A recent study by the National Academy of Sciences demonstrates that impacts from flooding tend to fall disproportionately on the most vulnerable and resource-constrained members of society (Table 6.1). Importantly, some individuals have multiple characteristics that increase their vulnerability.

The typical adaptations and protections that are present in white, or wealthier, communities—investments in green storm water infrastructure, pervious surfaces, adequate treatment facilities to manage water systems—are not equitably distributed in communities across the country, perpetuating repeated water disasters in places where there are the fewest resources to fund solutions. Similarly, immediate aid and relief funding flow more freely to white and affluent communities as opposed to other communities (US Water Alliance, 2017). This chapter shares case examples

Table 6.1 Profiles of populations socially vulnerable to floods (adapted from National Academy of Sciences, 2019)

Characteristic and experienced impacts from flooding
Age—children and elderly
• Higher mortality
• Higher morbidity
• Higher mental trauma during and post-flood
• Lower recovery rates
Race, immigration status, language—non-white, recent immigrants, undocumented immigrants, non-native English speakers
• Higher death and injury rates
• Negative post-flood health outcomes
• Less flood insurance
• Lower trust in authority for post-flood assistance
Income—at or below the poverty level
• Limited mitigation and recovery resources
• Limited post-flood housing
• Higher post-flood health impacts
• Disproportionately reside in flood-prone areas
• Differential rates of flood exposure, evacuation, and return
• Lower recovery rates
Housing tenure—renters
• Limited flood mitigation funding
• Less access to post-disaster housing programs
• Lower post-flood return rate
Transportation—household lacking vehicle access
• Evacuation barriers
Education—low educational attainment
• Lower flood awareness and understanding of flood mitigation
• Lower rates of flood insurance coverage and settlements

that represent strategies that are emerging and promising practices for achieving equitable climate planning based on the experiences and efforts of the Kresge Foundation's Climate Resilient and Equitable Water Systems (CREWS) Initiative partners. These strategies will demonstrate how much of their work is laying the groundwork for improved and equitable water systems.

The Kresge Foundation's Climate Resilient and Equitable Water Systems (CREWS) Initiative

The Kresge Foundation—a private, national foundation that works to expand opportunities in America's cities through grantmaking and social investing in arts and culture, education, environment, health, human services, and community development in Detroit—is responding to the inequitable systems and institutions that exacerbate social vulnerability due to flooding. In 2016, the Foundation's Environment Program began exploring a new approach to grantmaking at the intersection of water, climate change, and equity, with a specific emphasis on the impacts of climate-driven flooding on low-income communities. The Climate Resilient and Equitable Water Systems (CREWS) Initiative was created to transform urban stormwater and wastewater systems to provide reliable, equitable, and innovative services to communities despite the uncertainties introduced by climate change (The Kresge Foundation, 2019a, b). The CREWS Initiative includes a diverse set of leaders from more than 40 organizations—water utilities, community-based organizations, environmental advocates, researchers, municipal leaders, equity advocates, policy-focused organizations, and others—who work at multiple scales and geographies across the United States.

Water equity is realized when all communities are resilient in the face of floods, drought, and other climate risks; have a role in the decision-making processes related to water management in their communities; and share in the economic, social, and environmental benefits of water systems. Kresge's CREWS grantee partners use a variety of tactics to promote water equity, as depicted in a graphic recording of the initiative's first in-person convening (Fig. 6.1). Over the past 4 years, evidence collected from conversations with expert partners advancing social change in communities and policies, grantee experiences and achievements, and an evaluation of the Initiative have helped Kresge identify a set of seven strategies that are promising practices for achieving equitable climate planning:

1. *Advocacy and solidarity*—Creating significant changes in systems often requires advocacy both within and outside those systems, and this strategy focuses on aligning stakeholders to create an equitable climate plan using messaging, education, public will, and pressure to effect change.
2. *Applied learning*—Bringing together a diverse set of stakeholders to learn about how to use climate data and improved water management practices to effect

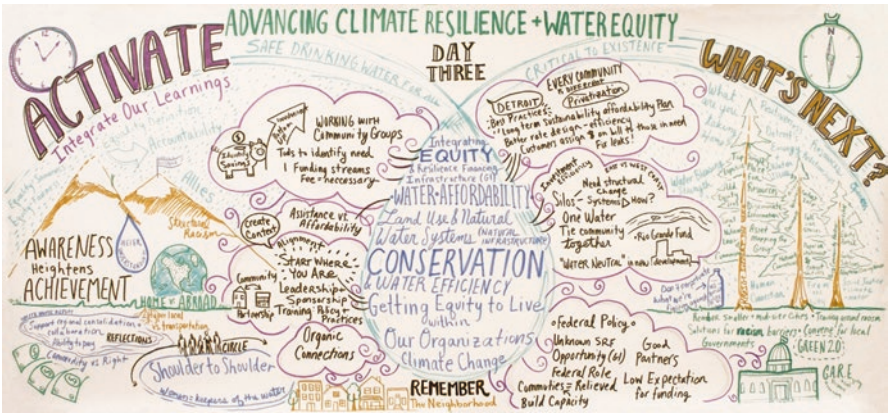

Fig. 6.1 Graphic recording from the first annual CREWS grantee convening held in Detroit, Michigan, 2017

change (stakeholders include utility leaders, community leaders, residents, local and state government leaders, community-based organizations, advocates).

3. *Applying critical data sources*—Using data actively and intentionally, including data on climate, historical racist policies and practices, demography, socio-economics, and other relevant sources to develop plans to manage water more effectively.
4. *Expanding the toolbox and technical assistance*—Creating places where information is aggregated and easily accessible, along with practitioners who can help apply knowledge, is vital to helping communities create a strong and equitable climate plan, as finding knowledge about how to plan equitably is disconnected and limited.
5. *People-centered*—Prioritizing all people affected by the water system must be included and considered, and not just those who have the greatest wealth or the loudest voice, for climate planning to be equitable.
6. *Shared learning*—Creating opportunities for stakeholders to learn from each other's experience and promising strategies given the lack of a gold standard for equitable climate planning.
7. *Using racial equity analysis*—Considering the combination of characteristics that can place an individual or place at risk of experiencing more negative consequences of flooding will create more comprehensive, effective, and equitable solutions. A racial equity analysis is a systematic examination of how different racial and ethnic groups will likely be affected by a proposed action or decision (Race Forward, 2015).

If used effectively and in concert with one another, these strategies can create comprehensive and equitable water management systems. Though these strategies are not uncommon to movements working to effect social change, applying them in the context of local water systems is unique. We identify several CREWS partners

whose work exemplifies the strategies shared above and detail how these organizations are working to advance climate resilience planning by addressing systemic and institutional racism in their unique social and political environments under these key elements of equitable climate planning (Table 6.2). We also highlight barriers that continue to inhibit equitable climate planning. Table 6.2 provides some background information for each organization that will be featured in the following narrative.

Advocacy and Solidarity

The voices of climate-vulnerable communities through place-based organizations and national coalitions are becoming strong influencers in climate planning through advocacy and solidarity efforts. GreenLatinos, the only national environmental nonprofit organization focused on the priorities of Latinx in environmental policy, ensures the needs of low-income communities (LIC) and communities of color (COC) are met by informing and shaping the conversation of mainstream environmental coalitions. Historically, these coalitions have been white-led organizations that typically have not elevated the concerns and needs of, or collaborate with, LIC/COC. Large financial resources and state priorities are often set through federal environmental policy that can help or hinder communities and local leaders to engage in planning. The Clean Water Act—the main federal rule that governs water policy and resource distribution—did not include ethnically diverse voices and needs, keeping certain groups at risk. GreenLatinos was asked to join The Clean Water for All Coalition, a national coalition formed by several DC-based environmental groups shortly after the 2016 election to safeguard national water regulations. At the start of the coalition, the policy and planning discussions lacked a strong foundation of equity principles and equitable representation. GreenLatinos—and other social justice/environmental justice organizations—advocacy within this coalition has created a process to ensure diverse leadership and engagement and to ensure environmental justice considerations in all proposed policy and planning solutions related to water infrastructure, water affordability, and green jobs.

The Milwaukee Water Commons (MWC) also has a long history of building partnerships and solidarity in communities and with municipal and state government, utility, environment, and health stakeholders. Historically, Milwaukee's low-income communities and communities of color have been excluded from decision-making processes around the use and care of local waters and have borne the brunt of inequitable planning, including lack of water infrastructure, lack of tree coverage, urban heat islands, urban flooding, and a crisis of lead in the city's drinking water. MWC works to build engagement and power of low-income communities and communities of color that is commensurate with the climate challenges they face to improve the city's water infrastructure. Building solidarity has been a tactic of MWC to advance equitable climate planning. MWC is known for convening and spearheading city-wide initiatives, bridging conversations and building community

Table 6.2 Organizations representing case examples

Organization and focal geography	What they do
Anthropocene Alliance—Higher Ground (https://anthropocenealliance.org/) In 20 states and Puerto Rico	Anthropocene supports grassroots organizations to organize communities to stop flooding, mitigate global warming, and end environmental injustice and connects those organizations to scientists, legal experts, and planners
Deep South Center for Environmental Justice (DSCEJ) (https://www.dscej.org/) Houston, TX; Mobile, AL; New Orleans, LA; Gulfport, MS; Pensacola, FL	DSCEJ leads the regional learning network for the Gulf Coast to solidify partnerships to define and influence flood-related water management policies at local, state, and regional levels. It also provides formal courses and hands-on training in stormwater management and water planning
Earth Economics (https://www.eartheconomics.org/) National	Earth Economics specializes in quantifying and valuing the benefits that nature provides and provides technical assistance to CBO and nongovernmental organization partners to accelerate investment in green infrastructure and achieve greater resilience and equity in urban areas
Freshwater Future (FWF) (https://freshwaterfuture.org/) Midwest	Freshwater Future supports community-based organizations in the collection and use of real-time flooding data to ensure the equitable placement of green and gray infrastructure to address urban flooding and affordability issues in multiple neighborhoods in Detroit, Michigan, and Toledo, Ohio
Georgetown Climate Center (GCC) (https://www.georgetownclimate.org) National	The nonpartisan Georgetown Climate Center seeks to advance effective climate and energy policies in the United States and serves as a resource to state and local communities that are working to cut carbon pollution and prepare for climate change
Green Infrastructure Leadership Exchange (GIX) (https://giexchange.org/) National	GIX is a national network of over 90 municipal leaders working to achieve more equitable green stormwater infrastructure delivery in cities experiencing repeated flooding
GreenLatinos (http://www.greenlatinos.org) National	GreenLatinos educates, mobilizes, and trains Latino communities to advocate for equitable policy-making, actions, and solutions that address the impacts of climate-exacerbated flooding and works towards creating more environmentally just and climate-resilient communities
Greenprint Partners (GPP) (https://www.greenprintpartners.com/) National	GPP is a Chicago-based green stormwater infrastructure delivery partner that helps cities build high-impact, community-driven green stormwater infrastructure at scale. They support community-focused green stormwater infrastructure planning processes and implement innovative financing mechanisms

(continued)

Table 6.2 (continued)

Organization and focal geography	What they do
Groundwork USA (https://groundworkusa.org/) National	Groundwork USA is the only network of local organizations devoted to transforming the natural and built environment of low- and moderate-income communities working at the intersection of the environment, equity, and civic engagement. It created five local "trusts" that develop programs of community action to define and implement strategies for meeting the climate safety needs of vulnerable neighborhoods
Milwaukee Water Commons (MWC) (https://www.milwaukeewatercommons.org/) Milwaukee, statewide	Through water stewardship, access, and shared decision-making, Milwaukee Water Commons helps to catalyze Milwaukee as a model water city—where all have a stake in the health and care of their waters. It brings a people-centered approach to influence change
New Jersey Future (NJF) (https://www.njfuture.org/2018/12/18/sewage-free-streets-rivers/) Multiple cities, statewide	New Jersey Future is a nonprofit, nonpartisan organization that promotes sensible growth, redevelopment, and infrastructure investments to foster vibrant cities and towns; protect natural lands and waterways; enhance transportation choices; provide access to safe, affordable, and aging-friendly neighborhoods; and fuel a strong economy
Southeast Sustainability Directors Network (SSDN) (https://www.southeastsdn.org/) National	SSDN is a member-driven network of over 50 local government sustainability professionals located in 9 states throughout Southeastern United States, designed to accelerate the adoption of sustainability best practices and influence the regional conversation about sustainable local policy in the Southeast
US Water Alliance (http://uswateralliance.org/) National	The US Water Alliance network provides an opportunity for cutting-edge water leaders to participate in exclusive peer-to-peer exchange opportunities, enhance organizational effectiveness, and play an influential role in water policy and stewardship
Water Equity and Climate Resilience Caucus (WERC) (conveners: PolicyLink and The Gulf Coast Center for Law and Policy) (https://www.policylink.org/our-work/community/water-climate) National	WERC is a national network of organizations that work together to address water equity and climate resilience, centering the voices and solutions of frontline communities of color and low-income communities. The Caucus promotes peer learning, tool and knowledge development, and shared local, state, federal, and tribal advocacy with leaders from over 80 organizations across the nation

through relationships. MWC is the convener and facilitator for the Milwaukee Community Water Assembly (CWA), a community-led forum for community members and organizations to engage around water issues. The CWA includes a diverse group of 21 individuals coming from a wide range of organizations and communities. The assembly is based on a collective impact model that involves individuals, organizations, and institutions from the nonprofit, government, and private sectors that are collectively taking responsibility for and resourcing its initiatives. One of the many results of their solidarity work has resulted in being appointed by the Governor of Wisconsin to serve as a member of the state's climate change task force that is charged with developing a set of recommendations to help chart a path and plan to meet Wisconsin's goal of 100% carbon-free energy by 2050, improve the state's economy and environment, and address land and water resources. As part of the planning process, MWC has been called on to ensure this work maintains a lens of environmental justice. For each working group of the Governor's task force, MWC provides training and guidance to ensure that as the members of the task force are finalizing elements of the climate plan, the process, input, and analysis include a strong equity frame.

An illustrative example of both advocacy and solidarity can be seen through the work of the Water Equity and Climate Resilience Caucus (WECR). Before the Caucus, there was no national network—led by advocates from low-income communities and communities of color—to convene and build a collective movement on water equity issues (PolicyLink, 2020). With over 100 members, partners, and allies, the Caucus' strategies for equitable climate action and planning in the water sector have proven an effective and needed platform, at the federal, state, and local levels. Solidarity among the diverse sets of partners, in addition to shared policy and planning platforms, has led to many successes: being asked on several occasions to educate federal, state, and local policy leaders on provisions and resources for equitable climate planning and implementation; organizing discussions and briefings with, for example, the US Senate Environmental Justice Caucus and the House United for Climate and Environmental Justice Congressional Task Force; and partnering with the Congressional Special Committee on Climate Change, which led to a win in increased funding for clean water in 2019 and contributed to pending legislation that would prohibit water shutoffs for low-income households during the COVID-19 pandemic. The concerted effort to build solidarity, draft shared policy, and plan platforms around key water issues, coupled with layered advocacy at all levels, will not only result in much needed policy changes but also greatly influence how funding decisions and authorizations are made. Overall, these efforts directly impact how financial resources are distributed by states to address climate change.

Applied Learning

The diverse set of leaders that compose the water sector—water utility leaders, residents/customers, local community leaders, green stormwater infrastructure professionals, and many others—have fortified their climate planning through creating avenues to learn together and share best practices on ways to operationalize equity and climate data. The Green Infrastructure Leadership Exchange (The Exchange) convenes municipal leaders working to advance innovative solutions to address climate-driven urban flooding. In addition to the landmark reports, guidance, and tools they have developed, The Exchange is advancing equitable practices through training, support, and cohort-style learning. This work is done specifically through their Collaborative Grant Program, which provides Exchange members an opportunity to solve problems together focused on improving the speed, cost, or effectiveness of green stormwater infrastructure (GSI) planning and programs. As shown in Fig. 6.2, The Exchange provides examples of how to explicitly integrate equity into proposals, defining the key elements of the different forms of equity that result in strong planning outcomes that benefit climate-vulnerable communities.

The US Water Alliance uses applied learning to help nine communities build cross-sector capacity to create equitable climate resilience strategies that address urban flooding by hosting a "Bootcamp." Utilities, city agencies, community-based

Examples of ways to integrate equity into a project include:

Project type	Procedural equity	Distributional equity	Structural equity	Intergenerational equity
Collaborative research	Engage frontline community-led groups to inform a research design that addresses equity impacts	Design research with frontline community-led groups so community members with the highest need are not overlooked	Identify existing decision-making structures of the topic and ways to fill gaps so that decision-makers are accountable to all community members	Forecast downstream impacts of the research topic and identify how to improve conditions for future generations
Expert training	Invite equity experts, including those with lived experience, to discuss the equity impacts of the topic	Incorporate local demographic data and key community points of need into a training content	Hire an equity expert to identify past harm caused by the subject matter and present ways to make decision-makers more accountable	Build a training session to address how the subject will impact future generations and steps needed to improve outcomes for all
New program approaches	Request feedback from frontline community-led groups on the impacts that new work will have on the community and best approaches	Determine with frontline community-led groups any equity gaps in program approach, to ensure these are filled prior to program roll-out	Determine with frontline community-led groups ways to improve accountability in existing decision-making structures	Identify long-term impacts of programmatic approaches on future generations
A custom concept	Ask frontline community leaders to weigh in on the development of a custom concept and the ramifications it will have on the community	Identify with frontline community-led groups any needs associated with the concept and identify ways to ensure resources / burdens are fairly distributed	Identify decision-making structures needed to implement the custom concept and determine ways to add accountability to the process	Determine the long-term impact of custom concepts on future generations and adjust the concept accordingly
In-depth peer learning	Compensate frontline community representatives to join discussion that shed light on the equity impacts of the topic	Build an equity and community impact discussion component into each learning session	Engage frontline community-led groups in a discussion about existing decision-making structures for the topic and ways to increase accountability	Discuss ways to improve long-term impacts of the topic on future generations with community stakeholders

Fig. 6.2 Green Infrastructure Leadership Exchange Collaborative Grant Program, examples of how to integrate equity into proposals

organizations and climate justice advocates, and environmental groups gathered to learn the latest science on climate change and flooding and to discuss how to address urban flooding through infrastructural and community-based solutions. Alliance staff arranged to have each local team visit a site in their city that floods frequently and faces flooding inequities, giving city agencies the opportunity to learn directly from residents most vulnerable to climate-related flooding challenges before convening as a full, national group (US Water Alliance, 2020).

Applied learning is effective when used in specific places. The Sewage-Free Streets and Rivers Campaign, run by New Jersey Future (NJF), uses applied learning to build the capacity of communities to influence state regulatory processes. The campaign's purpose is to build a coalition to connect organizations that have deep roots in community with larger statewide organizations that have histories of working on water and wastewater infrastructure and climate change (New Jersey Future, 2020). The capacity building arm of this campaign shares action-oriented tools and technical resources through workshops, training, and specific technical assistance, both in-person and online to community members. For instance, NJF held a forum on "Climate-Ready Combined Sewer Overflow (CSO) Plans" to publicly make the connection between climate change planning and developing solutions to combined sewer overflows. This foundational effort gave communities an opportunity to engage in the current permitting process led by the New Jersey Department of Environmental Protection (NJDEP). The NJDEP, the state regulating agency, issued a permit that requires these communities to develop plans by 2020 to reduce sewage in nearby waterways. Implementing these plans will cost billions of dollars over the coming decades but will have significant effects on residents and business owners for generations to come. This planning process has been more inclusive, pulling in community organizations that have deep on-the-ground knowledge of the impacts of flooding and climate change on their communities, as well as policy and planning knowledge that helps strengthen their interactions with local decision-makers. In fact, these efforts have made a difference: The Mayor of Jersey City connected the need for sewer upgrades, green infrastructure, and public engagement at a town hall on climate change, and the City is adopting policies in advance of the CSO Long Term Control Plan to address flooding and stormwater issues. The Newark City Council formed a committee specifically to focus on stormwater and the plans to address CSOs after a presentation by Newark DIG (Doing Infrastructure Green), a partner of the Sewage-Free Streets and Rivers campaign. The City of Elizabeth sponsored the Climate-Ready CSO Forum, and the Mayor of the City of Elizabeth spoke about the importance and challenges of addressing climate change and combined sewer overflows at the forum.

Applying Critical Data Sources

Flooding-related adaptation projects in cities often lack the appropriate granular-level data to create climate adaptation plans, specifically as these plans include the placement of physical infrastructure to prevent or manage localized flooding at the neighborhood level. Freshwater Future (FWF) has supported community leaders

interested in implementing green stormwater infrastructure (GSI) solutions to local flooding in the Great Lakes Region for many years. By partnering with Earth Economics, the organization developed a participatory flood mapping tool that would apply critical data sources by supplementing local city-generated flooding data with community-sourced knowledge while empowering community members to build knowledge of flooding issues and identify appropriate solutions. These geospatial tools have proven critical in defining both the problems and solutions to building climate resilience. Earth Economics worked with FWF staff and community volunteers over the course of 2019 to develop and pilot a flood mapping tool with Detroit residents. The tool allows users to enter the location of flooding, a description of approximate depth and duration of the flooding, as well as a photo via mobile phone. FWF staff and partner organizations then access the database of entries through the online tool and create maps for select time periods to share with community members and eventually local decision-makers to improve planning.

To acknowledge and begin to reconcile the historical practices that multiplied the climate and health risks for communities, Groundwork USA launched the Climate Safe Neighborhoods Partnership (CSN) (Groundwork USA, 2020). Through the CSN, five local Groundwork Trusts—Groundwork Denver (CO), Groundwork Elizabeth (NJ), Groundwork Rhode Island, Groundwork Richmond (CA), and Groundwork RVA (Richmond, VA)—partner with residents to advocate for a more equitable distribution of resources and equitable planning practices to reduce the social, health, and economic impact of extreme heat and flooding.

Groundwork Trusts and partnering organizations leveraged historical data and geographic information systems (GIS) to advance a data-driven, community organizing strategy that provides residents with the tools to overcome many of the biggest barriers to equitable climate planning. By digitizing and combining historical redlining maps, heat-island locations, and flood vulnerability data (see Fig. 6.3), Groundwork Trusts and its partners were able to create shared language for understanding challenges and help move forward equitable policy solutions. This layered analysis work in Richmond, VA, has been used to inform multiple planning processes and inputs into the Richmond 300 Master Planning Process, RVA Green 2050 Sustainability Plan, and a Climate Equity Index. This process has been recognized nationally as a model that has helped move forward several policy processes in Trust cities.

Expanding the Toolbox and Technical Assistance

Good climate planning requires an understanding of the multiple legal and policy barriers that can inhibit equitable adaptation, and Georgetown Climate Center (GCC) created a tool to help. Its Adaptation Clearinghouse (Georgetown Climate Center, 2017) is a state-of-the-art database of resources for communities, policymakers, and adaptation professionals to help plan for the impacts of climate change and expands the adaptation toolbox. For example, if amendments and/or revisions

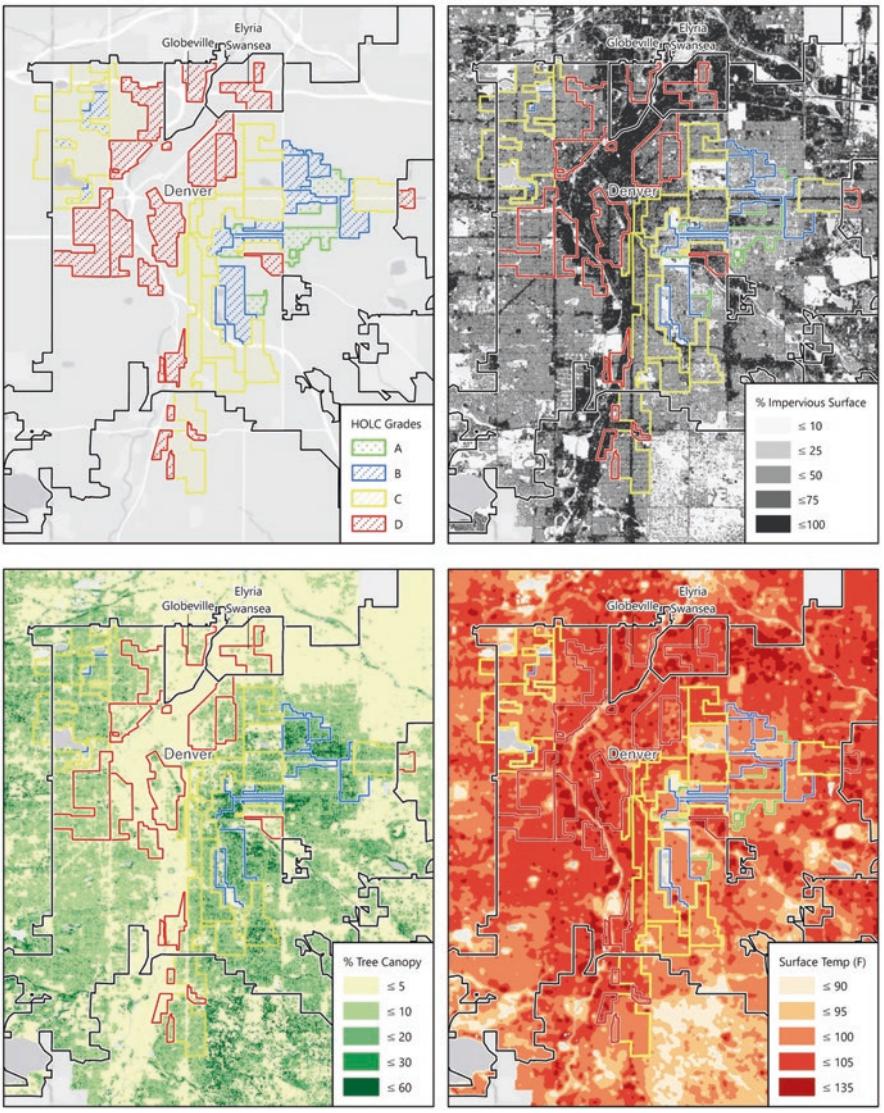

Fig. 6.3 Clockwise from upper left. Denver overlaid with a digitized redlining map (colored shapes), impermeable pavement (NLC 2012), tree canopy (NLC 2012), land surface temperature (Landsat-8 2018). (Map Credit: Lawrence Hoffman)

to local ordinances or plans are not analyzed with an equity lens, the resulting "climate resilience policy" could cause more harm, such as gentrification. At the same time, policies can avert inequitable outcomes, by promoting items such as tenant-protection provisions and establishment of community land trusts that prevent the displacement of front-line, low-income communities, and/or communities of color.

The Clearinghouse's network pages highlight the potential for organizations to partner with others, create their own mini-clearinghouse, share resources on external websites, and connect with other adaptation professionals. GCC recently released its Equitable Adaptation Toolkit as part of the portal to provide legal and policy solutions to the most pressing questions about how communities can ensure an equity-centered approach to adaptation planning and implementation processes.

Anthropocene Alliance (AA) has helped build collaborative partnerships with CBOs by connecting them to scientists, legal experts, planners, and others to build strong equitable climate plans through technical assistance. Through AA's relationship with the Thriving Earth Exchange of the America Geophysical Union—a group of scientists who co-develop projects that address community priorities—AA was able to match Community In-Power and Development Association, Inc. (CIDA), an award-winning nonprofit that works to empower residents in low-income communities of color in Port Arthur, Texas, with a pro bono scientist to develop a hydrological model to help residents understand their flood risk and access federal funding for planning home buyouts and/or adaptation measures such as elevation.

People-Centered

Centering people who will be affected by the water system is imperative to achieving equitable climate planning and requires the deliberate inclusion of their voices and needs throughout the process by those affected, not only using research or statistics. Greenprint Partners (GP) is a green stormwater infrastructure (GSI) delivery partner that advances equitable climate planning in two ways: making equity and including those affected by the water system as a central part of the GSI design process and developing mechanisms to address financial challenges that encourage GSI projects in low-to-moderate-income communities. While the main goal of GP is to upgrade aging water infrastructure using natural solutions to adapt to climate-driven flooding, GP uses what they have termed the GP's Benefits-Driven Design approach to project development, which centers the voice and opinions of people in the planning process and requires any partners to be community-focused and mission-driven. The planning process empowers community stakeholders to prioritize the outcomes they wish to achieve through GSI designs and draws upon a core menu of benefit-specific design principles that were developed based on the research between landscape design choices and co-benefit impacts. Using this menu with community members enables GP to apply a benefit-specific lens to every site, optimizing the design for the benefits prioritized by the organization's community. In this way, GP has developed a holistic service to promote the scalability of GSI in an optimal and equitable manner. Moreover, moving from planning to implementation requires financing. With larger-scale GSI projects—usually in the million-dollar range—the landowners GP targets cannot participate without bridge financing. To address this, GP secures project financing from mission-driven lenders and works

with construction firms that can float construction costs, thereby allowing the project team to carry all upfront project costs on behalf of landowners.

A project with Catholic Charities of St. Louis is a good example of these approaches in action. Located in the Central West End neighborhood, Catholic Charities oversees the Cathedral Tower and Queen of Peace Center, which offer clinical and therapeutic services for women with substance abuse disorders and provides affordable assisted living to senior adults. Catholic Charities sought to enhance their current services through the restorative benefits of GSI by increasing physical and mental health and enhancing community pride and site beautification. Catholic Charities was able to participate in the Metropolitan St. Louis Sewer District's GI2 program because of GP's bridge financing, technical expertise, and project support. Using its Benefits-Driven Design approach, local representatives were able to articulate what changes they wished to see through GSI, which informed the final designs. The GSI project will manage about 560,000 gallons of rainwater annually over 4.1 acres through permeable pavement and native rain gardens, and enhanced vegetation will offer visually interesting focal points encouraging residents to exercise and relax in nature while also increasing the property's curb appeal.

Shared Learning

In the South, city and county sustainability efforts are chronically under-resourced, limiting the number of staff working on sustainability and resilience and restricting the resources for project implementation, partnership development, and access to research. There are also systemic structural barriers that inhibit collaboration between city and county governments such as different political agendas and the presence of departmental and governmental silos. Additionally, traditional local government approaches are not accustomed to out-of-the-box partnerships that promote more equitable outcomes. To address these challenges, Southeast Sustainability Directors Network uses a shared learning approach to advance its members' approach to equitable climate planning. The power of SSDN's network model lies in its capacity to identify what is working by using the experiences of its members and quickly sharing it broadly with a diverse set of stakeholders to further test emerging best practices in other places. In fact, it created the Southeast Sustainable Communities Fund (SSCF) to invest in opportunities for cities and counties to develop regional best practices around equitable climate planning and actions and then to collaborate and learn from each other via a cohort model. Out of these learning conversations, an issue members have raised to help equitable climate planning is finding ways to demonstrate how racial equity can be at the center of all government operations, plans, policies, budgets. In the past 2 years, cities like Atlanta and Asheville and Athens-Clarke County have created an Equity Officer (or similar) position to establish baseline expectations and practices for any climate and

resilience planning effort, as well as other planning efforts throughout city and county government operations.

Sharing learning beyond the institution and within a community is crucial to advancing equitable climate planning. Deep South Center for Environmental Justice (DSCEJ) is a nonprofit organization that supports Gulf region communities facing disproportionate pollution burdens and climate vulnerabilities. DSCEJ engaged Earth Economics to research and produce fact sheets that highlight the historical and current water-related concerns of five gulf-coast communities. These fact sheets were not only used to help inform and make the economic case to local officials for investing in existing natural assets and/or new stormwater infrastructure. They were also used as communication tool to engage with residents to raise awareness of the issues they face on the ground, advocate for nature-based solutions, and interpret local knowledge, concerns, and ideas in economic terms that could be used in future planning scenarios for each community.

Using a Racial Equity Analysis

Considering the combination of characteristics that can place an individual or place at risk of experiencing more negative consequences of flooding amplifies the need to bring together multiple perspectives across the water sector to create solutions that address the multiple and compounding risks of people and place. The US Water Alliance (USWA) has been a critical forum for bringing together the highly fragmented water sector to promote solutions and applied learning that considers the full spectrum of issues that can influence water policies and planning. Helping to spur the "One Water Movement," the USWA has accelerated the adoption of innovative, inclusive, and integrated approaches with the aim of accelerating the development and adoption of sustainable and equitable water policies and practices. To better understand and articulate the necessary connections between water issues and equity, particularly for an organization that had historically been composed of only water utility leaders, the USWA made intentional efforts to build knowledge around water equity and climate planning and broaden their members and partners in the sector. To do so, the USWA conducted a national scan aimed to understand how various stakeholder groups—including water, wastewater, and stormwater utilities, community-based organizations, national nonprofits, private sector companies, governmental agencies, philanthropic organizations, research institutions, and investors—are working on issues related to water and equity to inform the development of a national briefing paper and online clearinghouse. Stakeholder discussions, surveys, and national listening sessions helped inform and develop a national framing paper, An Equitable Water Future, that defined water equity and framed three water equity pillars for a diverse set of stakeholders. To support one of those pillars, "community resilience in the face of a changing climate," the USWA launched an online, searchable database as a resource for practitioners to learn from each other and build partnerships across sectors and geography. The Alliance applied an

intersectional lens directly into planning through the Water Equity Task Force. This task force, composed of water utilities in seven cities (Atlanta, Buffalo, Camden, Cleveland, Louisville, Milwaukee, and Pittsburgh), was tasked to create a Water Equity Roadmap—a document that articulates the challenges, opportunities, and promising practices related to water management and planning to support vulnerable communities in their city or region. The city-level learning teams in the task force convened for over 2 years and consisted of local water utilities, community-based organizations, environmental groups, city government, and philanthropy. Roadmaps highlighted the existing assets and initiatives that can be leveraged to advance water equity, point out gaps and needs in the local context, and set shared priorities for action and planning. For example, the Cleveland Team created a roadmap with specific recommendations for action focused on affordability, community engagement, climate resiliency, and workforce development. One of the key recommendations in the roadmap was to establish a Water Champions program, which will hire and train ambassadors from Cleveland's vulnerable communities to serve as liaisons between the water utilities, community members, and frontline community organizations.

Using a racial equity analysis goes beyond the various perspectives of people brought together but includes also the sources of data that are brought together to inform planning, as there is no single data source that is sufficient to build equitable solutions. SSDN cities and counties are using climate data, census data, health data, and economic data to fully understand the big picture of human stressors. Cities and counties are learning to leverage demographic data to show where frontline communities will be affected by climate change and how cities can work with those communities first. Several cities, including Charleston, South Carolina, Raleigh, North Carolina, and Asheville, North Carolina, are working with the National Environmental Modeling and Analysis Center (NEMAC) at the University of North Carolina Asheville to assess climate threats and vulnerabilities throughout their communities and realizing the correlation between equity and potential risks. Many cities are coupling this sustainable research with equity assessments.

Barriers to Equitable Climate Planning

The case examples and tactics described above are promising and have provided unique pathways to equitable climate planning. Two years into the initiative, CREWS engaged in a developmental evaluation study to better understand the experiences of its grantee partners and identify opportunities to better support them (Arabella Advisors, 2018). The study found evidence of partnerships among stakeholders being formed that have not occurred in the past and greater use of GSI and other innovative water management approaches that will help support improved equitable planning. However, these tactics are met with significant barriers that delay or limit progress and threaten better practices. Evaluators conducted interviews with a sample of grantee partners, some of which are included in this chapter,

to learn about barriers and how they impede progress. Below are common challenges experienced by equitable water advocates and organizations in the water sector infrastructure when implementing approaches to promote equitable climate planning and reducing environmental injustice.

Lack of a consistent institutional direction requires relationship-building, which takes time. While strong support from powerful decision-makers such as mayors and utility leaders can be instrumental in advancing change, leadership and staff turnover at those institutions can slow or disrupt progress. When such events occur, outside partner organizations are forced to rebuild relationships with new decision-makers and educate them about the benefits and purpose of community involvement and green infrastructure.

Changing the culture of water decision-making: sharing power. Once equipped with the tools and knowledge to be change agents in their communities, community members can face difficulty when attempting to use their power to influence water decision-makers. Too often decision-makers are defensive in response to community input. According to CREWS partners, in certain cities, city administrators are skeptical or fearful of community pressure due to personal beliefs, biases, or fear of being sued. Change agents' work can be particularly challenging when decision-makers fail to recognize that inviting them to influence policy is an acceptable practice.

Limited institutional capacity influences whether improved practices can be adopted. It can be challenging to work with water utilities and other decision-making bodies that lack strong leadership or capacity to innovate and adopt new practices. With limited staff and resources, utility staff do not always have the knowledge or awareness that is necessary to assess and adopt innovative practices and might instead rely on old solutions (gray infrastructure). Though limited capacity creates an opportunity to build strengths, there must be a will and resources within an institution to do so.

Lack of financial resources affects solutions even if there is will for change. State and city budget crises and general lack of financial resources are significant barriers to change, which means that even if there is a vocal set of organizations pushing for change, progress can be slow. For instance, in places where there is a shrinking tax base, municipal leaders are left without the resources to improve water infrastructure and promote economic development, creating a vicious cycle of underinvestment and repeated water disasters, despite outcries when such disasters hit.

Inequity is embedded in social, economic, and political structures that influence water system decisions and cannot be addressed solely within the water sector. In the majority of CREWS cities, inequity issues are expressed through the disproportionate impacts and costs of urban flooding on marginalized communities and people of color. However, these inequities commonly have deep historic roots and are embedded in social, economic, and political circumstances that extend far beyond water issues. Effectively advancing equity requires knowledge of this much broader (and deeper) context.

Conflict and disunity among stakeholder groups and with city officials works against change. Advancing equity and climate-smart water management is a society-wide effort that requires collaboration, commitment, and unity among diverse social and cultural groups and between city residents and their elected and appointed officials. In circumstances where conflict and disunity exist, building alliances and forging collective progress may not be achievable without first getting past prevailing differences. Ignoring such issues will undermine the pace of progress and may preclude success in building equitable and climate-resilient water systems.

Conclusion

These case examples highlight just a few of the organizations that are working to advance climate resilience and equitable water planning, addressing barriers of institutional and structural racism alongside other challenges that further environmental injustice. Despite these barriers, climate change demands that a diverse set of water leaders operationalize multiple tactics and strategies to ensure the safety, health, and well-being of low-income communities, communities of color, and those that are highly vulnerable to climate-driven urban flooding. The seven strategies that we outlined can help to create participatory and inclusive ways to fix our water infrastructures and move towards more inclusive climate action planning. The problems associated with a warming climate and aging infrastructures are not going away, and it will take intentional and committed planners to implement equitable and resilient solutions.

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Part III
Resilience

Chapter 7
Downscaling Resilience from Los Angeles to Watts: Contestations, Appropriations, and Opportunities

Nicole Lambrou

Introduction

In the past two decades, interest in climate justice at the urban scale has become more prominent, and resilience remains a central, albeit contested, aspect of that discussion. Cities worldwide continue to adopt resilience plans, finding promise in the ability of the concept to intersect social and environmental goals with climatic concerns. What sets resilience plans apart from climate action plans is that they adopt a systems-wide approach to addressing climate change risks, so that the goals outlined in resilience plans may not necessarily explicitly or solely address climate-related impacts (Woodruff et al., 2018).

Despite recent attention to resilience, how resilience scales down from plans developed at and targeted from the city level to the scale of the community is a question that remains unanswered. How the act of downscaling affects marginalized neighborhoods within a city more specifically, and how it addresses equity, are also unclear. While there has been, more recently, a great deal of attention on the ways in which increasing extreme weather events affect marginalized populations, for example, rarely do resilience plans and proposals acknowledge the historic and ongoing systems by which some communities face such risks in the first place. Taking Los Angeles (LA) as an example, this chapter discusses how resilience goals and strategies conceived of and generated at the city level are adopted, understood, implemented, and contested at the finer scale of the neighborhood.

Considering the diversity of populations, microclimate conditions, risks, vulnerabilities, and capabilities that different communities within a city face, downscaling resilience from strategies adapted at the city level to the neighborhood will presumably take different forms. To better understand this process, I look at how residents

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of Watts, a community in South LA, adopt and appropriate resilience principles and goals into their neighborhood's planning efforts. Watts is a community facing multiple and intersecting vulnerabilities but also possessing a strong identity and social networks. The question of how this community, within the larger LA landscape, adopts resilience language and towards what end is a critical one in terms of climate justice.

Climate justice is defined at multiple scales and through different frameworks: the responsibility developed nations have for the effects of their development and industrialization on developing and poorer nations; a developments-rights approach of non-industrialized nations; fostering a just transition from fossil-fuel dependence; and a specific focus on the local impacts of industrial and energy pollution (Schlosberg & Collins, 2014). To understand climate justice beyond questions of distributional impacts and procedural rights, however, the historical and cultural context of an urban setting needs to be central. In this research, I rely on this framework that a comprehensive approach to climate justice is a function of *recognition* at the urban scale. Although there is overlap and interdependence between redistribution and recognition justice, in that the former involves socioeconomic inequalities and the latter engages with the marginalization and non-recognition of certain populations, recognition can be a useful analytical framework if separated from redistribution (Fraser, 1995). Doing so allows us to ask the question of how addressing recognition can achieve redistribution.

Climate justice at the urban scale should consider the idea of justice as recognition of existing, historic, and systemic inequalities so that climate change policies avoid exacerbating climate risks in vulnerable communities (Bulkeley et al., 2013). The recognition of systemic inequalities is necessary in order to avoid implementing policies and designs that are meant to address resilience but which end up reinforcing underlying vulnerabilities and risks faced by communities. Building on this framework, this chapter focuses on how a particular vulnerable community takes on, challenges, appropriates, and deals with the principles outlined in the resilience plans adopted by their city.

Resilience in Climate Justice

The majority of early environmental justice (EJ) work, particularly from the 1980s onwards, focused on the unjust distribution of environmental harms and amenities as well as the underlying racial and class structures that facilitate such unevenness (Schlosberg, 2013). In more recent years, EJ scholarship began incorporating critical race studies in order to reveal environmental injustices as a function of larger pervasive racialized systems of oppression (Pulido, 2015). This move, from exposing a correlation between a polluting source and a minority neighborhood to the entanglement of a racialized society in producing and perpetuating environmental and social inequalities, is taken up explicitly by environmental justice scholar Laura Pulido: "interrogating the underlying conceptions of racism informing these (EJ)

debates, I showed how most US researchers conceptualized racism as a highly conscious and deliberate set of acts infused with racial animus or intent. In short, they saw racism as a form of personal prejudice rather than in structural terms" (Pulido, 2015, 809). Moving beyond race as a fixed category, Pulido positions institutions as active manipulators in creating racialized communities through their unequal enforcement of environmental protection regulations (Lombardi et al., 2015). The association of race with environmental and social degradation is, in this later EJ work, a political act that involves institutional and systemic oppressive efforts to move or keep environmental harm in minority neighborhoods (Bullard & Johnson, 2000).

While EJ studies have focused almost exclusively on social injustices, whether in terms of exposure to a polluting source or in relation to vulnerabilities and risks associated with climate change (Raymond et al., 2018), climate justice not only elevates the importance of climatic concerns but frames inequalities and vulnerabilities as interrelated, interdependent, and co-constituted. Climate justice encompasses more than climate risks. It has been associated with housing justice (Lockwood, 2017) and food insecurity (Ranganathan & Bratman, 2019), among other, and is multidimensional, intersecting with a number of social and environmental facets (Hardy et al., 2017). The broad reach of climate justice may seem like a weakness, unable to precisely measure risk or vulnerability given how entangled climate is with other social issues, such as housing, employment, and education. But this is exactly where its strength lies; namely, in its refusal to focus solely on climate, climate justice has the opportunity to address historic and structural injustices.

Processes that give rise to injustice in urban spaces are entangled with the construction of gender, race, class, and the environment (Braun, 2005). Recent scholarship argues that the specific intersection between race, space, and nature offers particularly insightful research trajectories that challenge strictly Marxist explanations for injustice (Brahinsky et al., 2014). At the intersection of the social construction of race and of the environment is the recognition that "cities have been produced through racialized logics that have been engineered into their building blocks, facades, plumes of dust, streams, forests, and air circulation" (Heynen, 2016). It is therefore impossible to separate housing, education, economic development, and public health, among other, from strictly environmental concerns.

Centralizing race and discrimination, as opposed to the question of the distribution of climate risk, positions climate justice as an analytical framework that scrutinizes politics, capitalism, and power in producing racism. The systemic and systematic actions that privilege certain groups and marginalize others are no longer passive and hidden, but can be understood as actively produced and re-produced (Pulido, 2000). And by understanding justice as specific, embedded, and place-based, climate justice can uncover the multiple and intersecting ways in which injustice is produced and perpetuated. Climate justice is enacted rather than assumed. Justice itself is to be understood not as something to be dispatched and applied to a site or condition, but "an open egalitarian ideal that movements across

the world continuously redefine in embodied and performed ways which are historically and geographically distinct" (Velicu & Kaika, 2017, 305).

As cities turn to resilience to address inequalities in their communities, whether resilience policies and projects address historic racial injustices is a question that needs to be asked. The turn to resilience planning as a way to address climate change unpredictability was initially based on the idea that ecological processes are better suited for dealing with both slow and extreme weather events than our traditional reliance on hard infrastructure and engineering. Resilience in urban settings is also a function of exposure to risk, a framing that departs from the strict ecological definition of resilient systems as complex and adaptive (Folke et al., 2010). As a result, resilience takes on a specific meaning in urban settings—where an adaptation or mitigation measure, for example, against wildfire risk involves regulating setbacks, building materials, and strengthening evacuation routes; a resilience approach potentially addresses systems-wide and interdependent links between housing, exurban development, and forest management.

Urban resilience now encompasses more than environmental concerns, and resilience plans adopted by cities across the USA include a number of social considerations, from economic development and education to housing and public health (Lambrou & Loukaitou-Sideris, 2021). This seemingly ever-expanding resilience framework is facilitated by the fact that resilience does not have a clear definition when applied to urban studies, in part because the definition of urban is unclear and in part because of the ambiguity between adapting to a specific threat and the more general approach of strengthening adaptive capacity (Meerow et al., 2015). In the absence of a clear definition that takes into account socio-environmental inequalities, resilience can be a tool for institutions and agencies with the power to define and narrate it for their purposes.

Though resilience is a seemingly neutral response to the problem of climate change, parsing through resilience plans to understand whom resilience is for, especially when resilience calls for changes in governance, regulations, and the form of urban landscapes, is an important task. Researchers Meerow and Newell explain that socio-ecological systems as a unit of analysis "can obfuscate inequalities within the system, fail to account for the range of social actors involved, and pay insufficient attention to social dynamics" (Meerow & Newell, 2016, 4) and rightfully call for "advancing a politics of urban resilience, which entails confronting inherent political and scalar complexities and trade-offs" (Meerow & Newell, 2016, 16).

Decisions on how to mitigate climate and social risks are made at multiple levels and are driven by a number of factors with embedded and unstated values: how we frame an issue and the ends we want to achieve, and the selection criteria and alternatives we identify as important in determining an outcome and establishing the guidelines that are best deployed to achieve those goals (Davidoff & Reiner, 1962). Insofar as the goals of resilience include strengthening the adaptive capacity of an urban system as an end in itself, the nature of resilience becomes critical especially for questions of justice and equity (Chu et al., 2017). If resilience plans promote our adaptive capacity to an unknown future, not just to a specific and foreseeable event,

it also matters whether and how we plan for debate, questioning, and contestation at different scales of governance and lived experiences.

In the context of the broad nature of the resilience framework and the need for climate justice to consider equity at different scales, I ask whether and how resilience can strengthen the pursuit of climate justice. Can climate justice encompass addressing risks and oppressive structures that are related but not yet central to the work of most climate activists within its framework? What, if any, is the potential role of resilience in this? In this study I attempt to answer these questions by looking specifically at how urban transformations proposed for a community in South LA are appropriated and contested by the Black American residents of that community in their pursuit of climate justice. In doing so I describe how the language of resilience is used to support their arguments for expanding the scope of these proposed projects to include strengthening social networks that will mitigate the out-migration of younger Black Americans from the neighborhood.

Research Design

Research for this chapter took place between 2018 and 2020 and involved a series of in-depth interviews with city planners, residents, and grassroots organizations; content analysis of LA's resilience plan; research on social and environmental vulnerabilities across the city of Los Angeles; a neighborhood survey (n = 128); and participant observation through attending the various workshops that residents and neighborhood representatives in Watts organized around how to address the urban projects at hand.

Planners from the Housing Authority of the City of Los Angeles (HACLA) were tasked with engaging community organizations and residents, along with other agencies, in implementing a set of 24 projects in Watts. These projects varied in scale and scope, but they all meant to create a more resilient and sustainable neighborhood. HACLA was required to engage with Watts organizations, churches, and other community-based organizations (CBOs) and other working groups. Many of the interviews and participant observations took place with members of these CBOs, including the Watts Clean Air and Energy Committee, the Neighborhood Council, and the Watts Rising Collaborative.

Much of this research also relies on a set of meetings that took place in the latter half of 2019 by representatives from a number of organizations within Watts, along with Watts residents, who formed the Watts Consortium. The Consortium acted as a task force whose goal was to direct how planners were handling the implementation of proposed urban transformations in the Watts community. Members of the Consortium represented various advocacy groups in Watts who focused on environmental and social issues that spanned from air pollution to urban agriculture and from economic development to housing. The intention of the Consortium was to interface with city planners tasked with implementing a series of 24 projects in the

Watts neighborhood. Members represented the community's needs, which often challenged the framing of those projects.

I begin by discussing social and environmental risks and vulnerabilities specific to Watts as compared to the larger city of LA. I discuss the specific resilience frameworks, goals, and implementation strategies outlined in the Resilient Los Angeles document, the official resilience plan adopted by the city of LA. I then analyze how the concept of resilience influenced the framing of projects presented by city planners to Watts residents and how those framings were then contested and challenged by Watts activists. Through this process of tracing resilience from city to neighborhood level, I extract two main frameworks—first, opportunistic resilience which uses the language of resilience in order to expand the narrow scope of each project by incorporating multiple risk-mitigation strategies, and second, embedded resilience which reveals how resilience can address intersecting vulnerabilities faced by residents by refocusing attention to the systems that perpetually devalue their communities.

Watts and South LA

LA's Watts neighborhood, made up of about 35,000 people, is significant in the larger context of Los Angeles in part because of its central role in racial tensions that materialized in riots at two different times: the neighborhood is home to the Watts riots of 1965 and the Rodney King riots of 1992, both of which were triggered by violence inflicted by the LA Police Department on the Black American community. Neighborhoods near industrial corridors, such as those in South LA where Watts is located, were racially unrestricted during the second Great Migration during the early part of the twentieth century and attracted Black Americans from states where segregation was still upheld. During World War II, there was an influx of manufacturing in the region; with increasing suburbanization after the war, white residents moved out of the South and Southeast LA region to outlying suburbs. A few decades later, during the 1980s, many Black Americans moved out of Watts because of rising housing and living costs. Today, nearly three-quarters of Watts residents are Latinx and only one-quarter Black (see Fig. 7.1a, b).

Watts faces multiple intersecting vulnerabilities resulting from a history of disinvestment and environmental pollution, compounded by climate risks. One major source of air pollution is the freeways that enclose Watts—the Alameda Corridor to the East, the I-105 along the South, and the I-110 to the West. In the context of rising temperatures, and given Watt's urban form, dictated by a density of asphalt and concrete and a general lack of street trees and overall greenery, extreme heat events are predicted to have an especially severe effect on the Watts residents. Air pollution, and proximity to other environmental toxicities, continues to be a major public health issue in Watts, whose effects are expected to have an even greater adverse impact on Watts residents, as increasing heat days are spurred on by climate change (Singh et al., 2020; Vahmani et al., 2019).

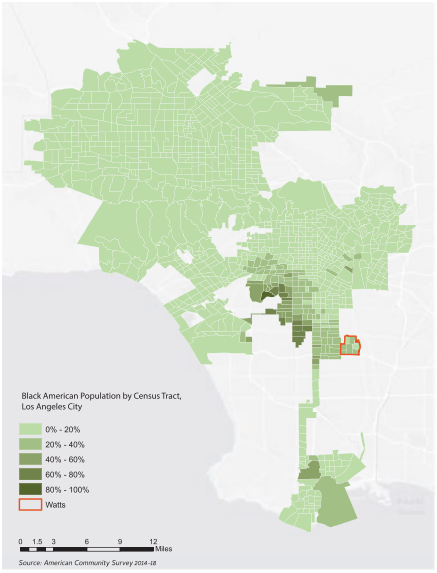

Figure 1a. Black American Populations by Census Tract, Los Angeles City

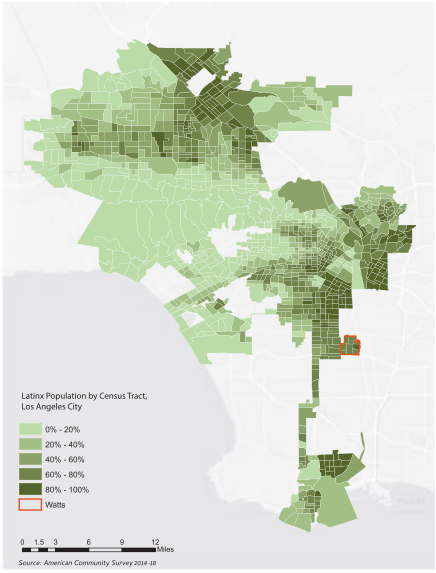

Figure 1b. Latinx Populations by Census Tract, Los Angeles City

Fig. 7.1 (**a**) Black American populations by Census Tract, Los Angeles City. (**b**) Latinx populations by Census Tract, Los Angeles City

Just over 75% of Watts households do not have a college education, while in LA City just over 42% lack a college education (see Fig. 7.2a). The poverty level for the majority of Watts residents is many times that of LA City (see Fig. 7.2b), with 40% of Watts households under the poverty level compared to less than 15% of LA City households. Most households in Watts are renter-occupied, and most residents are considered severely rent-burdened, defined as paying more than half of their income on rent (see Fig. 7.3a, b). The Watts neighborhood is also ranked highly on the CalEnviroScreen index, whose index factors in air pollution, asthma rates, and a number of other environmental threats, an especially critical issue given that a large percentage of Watts residents do not have access to health insurance (see Fig. 7.4a, b).

In analyzing whether South LA, of which Watts is a part, changed from 1960 to 2019 across housing, employment, and transportation, researchers Comandon and Ong (2019) found that investment in the region has not translated to increased prosperity for its residents. They note that South LA's narrative is an example of how "stigma is uneven and interacts with class and race in ways that are difficult to separate" (Comandon & Ong, 2019, 21). Resilience planning in Watts is as much about race as it is about dealing with climate risks—these are inseparable, and they not only inform but define one another. How resilience is taken up by a municipality, how planners frame potential projects in a particular neighborhood through their understanding of resilience, and how residents of that neighborhood contest or appropriate those framings through their lived experience are all questions that are indelibly tied to race and ethnicity. Whether, and in what manner, LA's resilience

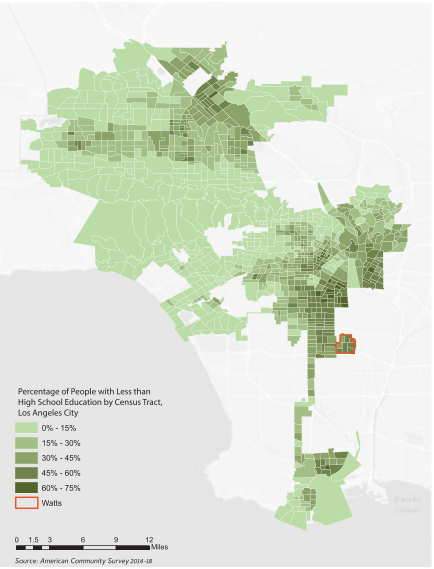

Figure 2a. Percentage of People with Less than a High School Education Levels by Census Tract, Los Angeles City

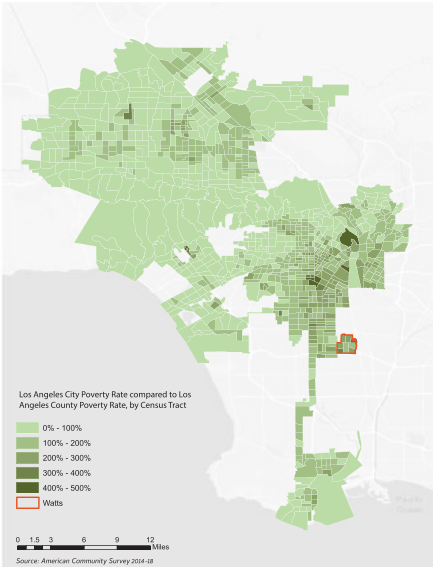

Figure 2b. Los Angeles City Poverty Rate Compared to Los Angeles County Poverty Rate by Census Tract, Los Angeles City

Fig. 7.2 (**a**) Percentage of people with less than a high school education level by Census Tract, Los Angeles City. (**b**) Los Angeles City poverty rate compared to Los Angeles County poverty rate by Census Tract, Los Angeles City

plan takes on the systemic disinvestment and discriminatory practices of marginalized populations, defined by race and ethnicity, is therefore a crucial consideration.

LA's Resilience Plan

The LA resilience plan, issued in 2018, is broken up into four main chapters, or major frameworks, each of which contains three to four goals and a number of action items to meet those goals (Resilient Los Angeles, 2018). The first framework calls on individuals, families, and business and property owners to educate themselves around risk preparedness, to provide financial networks of support to vulnerable residents, and to cultivate leadership in a younger generation. The second framework aims to build social cohesion by fostering collaborations and partnerships across communities and prioritizes mitigating exposure to extreme heat and addressing health and wellness disparities. The third framework focuses on creating a responsive city through post-disaster recovery pathways, upgrading infrastructure, providing affordable housing, and integrating government with resilience principles. Finally, the fourth framework more specifically discusses the role of collaborations, along with public, private, and other forms of partnerships, in strengthening local resources and critical infrastructure.

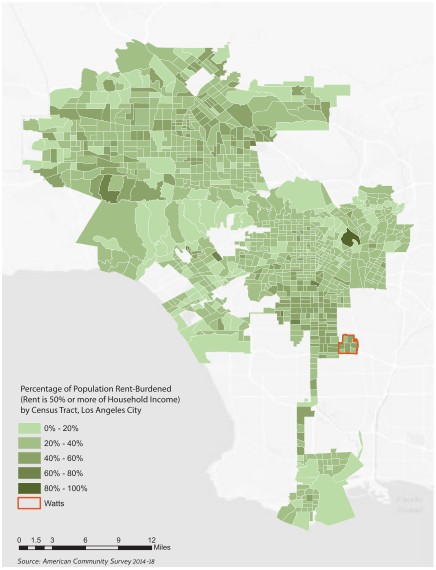

Figure 3a. Percentage of Population Rent-Burdened (Rent is 50% or more of Household Income) by Census Tract, Los Angeles City

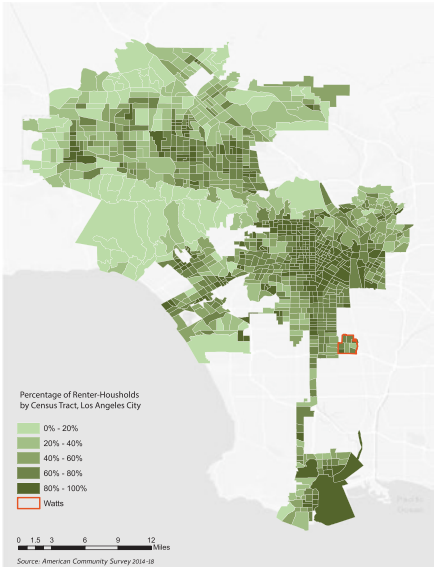

Figure 3b. Percentage of Renter-Occupied Households by Census Tract, Los Angeles City

Fig. 7.3 (**a**) Percentage of population rent-burdened (rent is 50% or more of household income) by Census Tract, Los Angeles City. (**b**) Percentage of renter-occupied households by Census Tract, Los Angeles City

The majority of goals listed in the LA resilience plan subtly place responsibility for mitigating exposure to socio-environmental risks on communities and residents: relationships need to be strengthened, new partnerships forged, collaborations and networks revealed and fortified, and so on. However, it is precisely those communities most vulnerable and most exposed to risks that lack the resources to circumvent vulnerability and risk in the first place. The ability to have an affordable home, secure and long-term employment, access to healthy food, transportation, clean air, and education are all conditions that must be met by systemic investment. To prepare and protect people most vulnerable to extreme heat, for example, the conditions that place people in that vulnerable position in the first place must first be understood; they involve contending with healthcare, education, air pollution, zoning of industrial land uses, and housing, among others. These intersecting vulnerabilities, and systems that give rise to risk, require contending with the ongoing history of systemic racial discrimination. These systems and histories are not fully acknowledged in resilience frameworks, which makes the implementability and efficacy of resilience goals questionable.

To varying extents, many of the strategies discussed by city planners and by Watts residents echo the aspirational nature of the resilience frameworks outlined in the Resilient Los Angeles plan. But when these resilience goals translate into implementable projects, contention arises because local histories, existing networks, identities, cultures, and social vulnerabilities are not visible or taken into account.

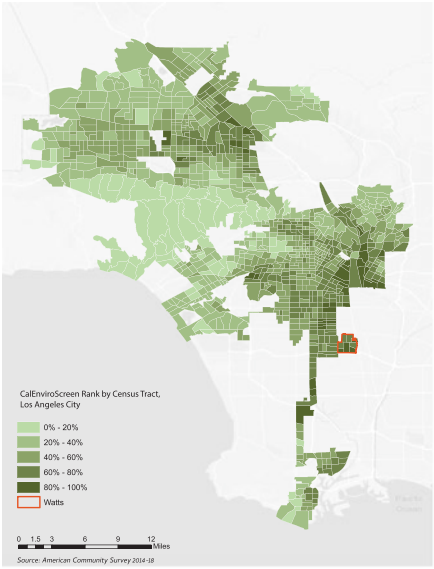

Figure 4a. CalEnviroScreen Rank by Census Tract, Los Angeles City

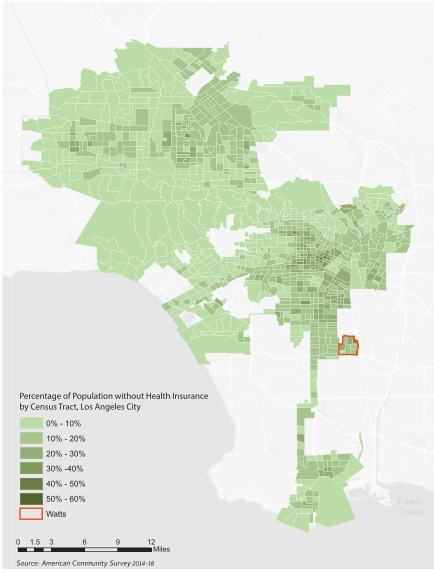

Figure 4b. Percentage of Population without Health Insurance by Census Tract, Los Angeles City

Fig. 7.4 (**a**) CalEnviroScreen Rank by Census Tract, Los Angeles City. (**b**) Percentage of population without health insurance by Census Tract, Los Angeles City

In other words, it is not the resilience goal itself that is questioned or contested, but whether the larger context giving rise to vulnerabilities and risk are acknowledged when proposing projects aimed at achieving resilience. The Resilient Los Angeles plan does acknowledge the inequitable distributional nature of risk and vulnerability: "inequities in access and opportunities, both generationally and suddenly, strain the community fabric on a daily basis—worsening disparities and impacting Angelenos' health, wealth, and quality of life" (Resilient Los Angeles, 2018, 23). Notable is the city's tacit acknowledgment that to discuss resilience, we must discuss equity, as researchers have shown that adaptation strategies tend to affect vulnerable populations either directly, through acts such as displacement, or indirectly, by omitting their consideration in adaptation plans (Anguelovski et al., 2016). It is not enough, however, to acknowledge the distributional impacts of inequities; planners and policy makers should incorporate directed ways to change it in order to turn resilience goals and actions from aspirational to implementable and transformational.

Downscaling Resilience

In 2018 the California Strategic Growth Council (SGC) awarded Watts $35 million dollars, the Transformative Climate Communities (TCC) grant, to address climate risks in this neighborhood. The TCC grant is funded by California's cap and trade program, directing investments to low-income communities that have borne the majority of air pollution effects resulting from transportation infrastructure and industrial activity. According to SGC, the TCC grant is awarded to a neighborhood that is severely impacted by pollution and is meant to give those neighborhoods the opportunity to identify their own goals, implementation strategies, and projects that will both reduce air pollution and greenhouse gas emissions (SGC, 2020). The projects that city planners propose in Watts therefore focus on producing measurable results for greenhouse gas emissions.

The influence that funding has on climate-related projects is an important part of any discussion on urban transformations. The void left by a lack of implementation guidance on resilience planning is then filled by the narrator of a particular resilience project. In this case that narrative is driven by the requirements of the funding source, namely, the need for measurable greenhouse gas emissions reductions. Watts Consortium members framed what they considered a too-narrow scope of Watts projects proposed by planners as an issue rooted in the source of funding for the grant. Specifically, the fact that the funds are available through California's cap and trade program in turn requires that their implementation would aid the state's goal to reduce greenhouse gas emissions, a main goal of the California Strategic Growth Council who is administering the funds. Since the main goal is greenhouse gas emission reduction, planners prioritize projects that involve tree planting and incentivizing electric vehicle ownership over what the Watts residents, as discussed in Watts Consortium meetings, consider much more fundamental to their neighborhoods.

Particularly noteworthy was the Watts Consortium's efforts to create and command leadership based on the existing expertise that community members brought to the negotiating table. The Watts Consortium was formed by representatives from local CBOs, at least some of whose members were well-informed on environmental and social issues, with access to technical data and tools to measure and represent that data. One Watts Consortium member explained that HACLA's attempt to form partnerships with other institutions outside of Watts was evidence of their distrust in Watts and in the resources already in the community and in the ability of the community to take care of itself. Cultivating leadership was therefore a fundamental aspect of the group, arguably an effort that should have been fully supported by city agencies and planners insofar as building on existing community resources and promoting leadership roles are an explicit goal in LA's resilience plan. Though resilience involves capacity-building and, by extension, strengthening existing and new stewardship relationships (i.e., Tyler et al., 2016; Ziervogel et al., 2016; Hölsher et al., 2019), leadership taken up by Watts residents was equally about self-empowerment as it was about preparing for climate risks. As one Watts Consortium

member and long-standing Watts resident noted, referring to the knowledge that the Watts Consortium represented on behalf of the community—"We don't bow down. You guys got so much expertise, we could use that, right? Are we capable of rolling out that level of expertise, in a position that is supportive, not authoritative?"

Notably, planners expressed ambivalence about the term resilience. One planner in particular, a Latinx resident of Watts, admitted that though resilience planning needs to recognize the historical context within which it is applied, it fails to do so. In the case of Watts, she noted as an example, tree planting is a charged issue because canopies were deliberately withheld from South LA in order to increase visibility, and therefore surveillance, along streets. Though planners understood the neighborhood with which they were working quite well, their reach was limited because they were situated in broader networks: funding streams, conflicting accounts from residents, and the separation of environmental and social knowledge areas into different planning offices at different levels of governance. This reinforces existing literature, which argues that participatory governance may not be as effective as its promise holds given entrenched institutional dynamics (Healey, 2003; Innes & Booher, 2010). More recent literature on the transformative potential of co-planning and co-creating urban change also reveals similar implementation obstacles (Scholl & Kemp, 2016; Bisschops & Beunen, 2019).

With limited implementation guidance for resilience plans, the source of funding for projects that are meant to increase resilience in communities ends up dictating the shape urban transformations will take. Such transformations privilege certain projects and framings over others. In the case of the TCC fund, since those framings are singular and focused on the reduction of greenhouse gas emissions first and foremost, they face opposition by residents of those neighborhoods where those projects will take place. These residents approach resilience in a more comprehensive and holistic way, one that recognizes the complexity of a lived urban experience that is compounded by a history of disinvestment and overt racial aggression by institutions and structures in power. For residents, the effects of projects are interconnected and should be understood and framed as such. This recognition is what drives the opportunistic nature of their counter-resilience planning. Residents who face multiple and intersecting vulnerabilities identify and see those vulnerabilities as interconnected and find opportunities to address more than the single aspect of social or environmental intervention presented to them. They do so by bringing those connections to light and by attempting to expand the scope of the singular resilience project towards a multi-faceted and complex set of dependencies that constitute a racialized landscape facing present and future climate risks.

Opportunistic Resilience

Watts residents identified risk in their communities as involving issues beyond strictly environmental ones. Namely, they advocated for projects that promote technology use in schools, safer public transportation routes, transitioning to solar

energy for each household, and access to high-speed internet as critical for their community. Watts Consortium members capitalized on the fact that planners were expected to engage the community, a fundamental component to securing and administering the TCC fund. They consistently reminded planners of this fact during their monthly meetings with them and actively sought to reframe how planners approached suggested projects. For example, where planners outlined a tree-planting project, Watts Consortium members strategized on which streets would be the most appropriate ones for tree planting based on the ones most frequently traveled by students to and from elementary and high schools in the neighborhood, referring to this expanded approach as the "Safe Routes to School" project. The low rate of education in this neighborhood makes the education of the younger generation a central concern for Watts residents. Ensuring the safety of students not just while they are in the classroom but also on their way to and back from school is especially important. In the words of one community member, this is a discussion that is as much about the nature of community engagement as it is about where to plant trees:

> The takeaway is that they just want to get these projects done and the less that the community is involved the easier it is for them. They said—let's be honest, we put a tree over here (or) we put a tree over here, it's going to do the same carbon sequestration, so why should we ask them what they think? And my position is if you put the tree here and you ask the community, then that tree means something to them. That's what engagement means.

When discussing pilot projects presented by planners to the community, Watts Consortium members often attempted to widen the scope of each narrowly defined proposal so that it could incorporate what they felt were pressing needs. Assuring the energy independence of households through renewable measures, for example, was a matter as tied to the economic insecurity of the area as it was to sustainability concerns. Such attempts were meant to mitigate more than climate risks. They were meant to mitigate the inequalities caused by systemic disinvestment and racism in their community. The goal to provide renewable energy, to retain stormwater, and to upgrade the insulation capacity of each household was as much a sustainability concern as it was an economic one, mitigating the taxing percentage that energy use takes up from each household's income.

One of the more interesting results from the survey, in which 71% of respondents identified as Latinx, was that residents cared the most about "cleanliness and/or local culture" when it came to Central Avenue, a central historic corridor in the neighborhood slated for major street improvements through a separate grant by the city. "Sustainability and environmental preservation" received one of the lowest ratings by respondents (9% of votes), whereas "encouraging economic growth and supporting local businesses" and "accessibility and safety" both received one of the highest ratings (15% of votes each). In discussions with residents as they were filling out the survey, they repeatedly brought up safety as a serious issue that keeps the community from creating the social and communal relationships they were hoping for from such a public street. Upgrades, they explained, should focus first and foremost on physical infrastructure, reducing car speeds and associated gang activity,

and on promoting small business expansion. The connection between social cohesion and people's ability to mitigate climate vulnerabilities is well established (Klinenberg, 2002), so the need to create a public space that can foster and strengthen social relations that this survey revealed must be seen as a central component to climate justice.

In interviews with Watts Consortium members and other residents, it also became clear that empowering community residents was not a question of, for example, simply upgrading central commercial corridors, unless that upgrade was accompanied by an assurance that broadband would be laid down underneath the streets that were slated for renovations. Watts Consortium members specifically advocated for laying down fiber-optic infrastructure on church land, allowing the church to then provide internet service and to pay back a portion of any revenue earned to the fiber-optic owner. This proposal would allow churches to make themselves financially secure so that they can continue their presence in the neighborhood, as important social institutions for residents, while concurrently acting as an internet service provider. Watts Consortium members proposed to couple this important infrastructural upgrade with ongoing efforts to upgrade neighborhood churches through sustainable initiatives.

These examples show that social and environmental concerns are inseparable, and they are issues that residents attempt to address through opportunities provided by the otherwise strictly environmentally oriented projects to be implemented in their community. Environmental and social issues cannot be discussed, understood, or analyzed separately. Watts residents similarly discuss their inseparability in workshops and meetings, both internal to themselves and in conversations with city planners. "Because it's 54 years later (referring to the Watts riots of 1965) and we're rebuilding it ourselves," a prominent reverend in the neighborhood noted repeatedly, a sentiment echoed by many others during nearly each of the Watts Consortium meetings.

Most effectively, Watts Consortium members argued for a reframing of how climate knowledge, and accompanying projects based on that knowledge, is handled at different levels of governance. Climate knowledge should not be something that exists a priori and separate from the projects that planners bring to residents. Rather than view climate knowledge as untouchable, Watts Consortium members discussed, it should be embedded in the community itself, something that is learned, altered, and wrestled with in workshops and in school classrooms. Watts Consortium members argued that funding should go towards supporting building climate knowledge and supporting projects from the ground up. In the words of one prominent member of both the Watts Consortium and the Watts Clean Air and Energy Committee:

> They are so interested in data to show how Watts and South LA have been done wrong. But we know how we've been done wrong, and the wheels keep rolling. Where is our data to help us make our decisions for this community?

In this sense, climate knowledge needs to be funded by supporting the proliferation of technology, public platforms, spaces, and programs through which community

members can define risk for themselves and generate their vision for a resilient future. At the scale of the city, evidenced through both the LA resilience plan and the city planners who conceived of the projects for this specific neighborhood, resilience is vague, broad, and largely aspirational. Where its action items are specific, such as the effort to capitalize on existing networks and resources, there is opportunity to test whether those action items do indeed lead to resilience. In at least this case, however, residents argued that their existing networks, resources, and knowledge were sidestepped, in large part because of the requirements set by the funding source for the proposed projects and because of the fragmented nature of planning agencies and jurisdictions. Given these constraints, residents actively sought to be opportunistic by taking advantage of the language of resilience, which assumes a comprehensive and holistic approach, in order to broaden the breadth and scope of each proposed project. Importantly, residents sought to expand each project's original intent by capturing efforts to mitigate risk and vulnerabilities that are a direct result of historical trauma.

Embedded Resilience

Community members defined risk for themselves to include more than environmental concerns, extending well beyond the need to reduce greenhouse gas emissions. Risks, and the resulting proposals to help mitigate them, were the result of this community's history of oppression and a desire to overcome that oppression, particularly for the younger generation. Those histories were not acknowledged by planners, evidenced by their adherence to narrowly defined projects whose effectiveness could be measured as a function of a reduction in greenhouse gas emissions, such as tree planting and incentivizing electric vehicle use.

In discussing how to embed social considerations into resilience projects in Watts, such as creating a sense of safety in routes to schools and bringing broadband access into the neighborhood, residents were equally concerned with maintaining a Black American identity in this community. The displacement of Black Americans into surrounding neighborhoods and into cities outside of LA was seen by Black Americans in Watts as forced, and the subsequent effect this had on the long history of Black identity in South LA was brought up repeatedly by Watts Consortium members. Though Watts Consortium does not have a set number of members, only a set number of CBO involvement, the vast majority of members during its biweekly meetings were Black.

Resilience was tied to maintaining the Black culture in Watts, especially critical because nearly three-quarters of residents there are Latinx and because one of the main city planners tasked with executing the TCC projects is a Latinx resident of Watts. Safety, education, access to technology, adding trees, and transitioning to renewables, among others, are all projects that were seen as critical to creating spaces for Blacks to stay in place. A challenge for planning in multiracial neighborhoods is attempting to find unity in worldviews that are embedded in different

histories, cultures, and collective memories (Umemoto, 2001). Though the projects, largely promoting environmental and social benefits among Watts residents, were sought after and supported by Black Americans and Latinx residents of Watts, the Watts Consortium specifically framed them as potentially empowering the Black American community to stay in place.

Economic opportunities to keep people in the neighborhood were also critically important to Watts residents for similar reasons. Economic empowerment was discussed as a long-term wealth-building strategy, spanning many generations.

> They're going to bring all these cities into this new paradigm. And they only use the term jobs, they really don't use the term careers. What are the businesses that come out of these types of ideas? How do we build those businesses? Because those business then become the multi-generational wealth generations. We don't see that in any of the public documents.

Crucially, residents discussed economic opportunities as something to be tied to the development of public space. Main commercial corridors in the neighborhood, currently comprised of largely vacant storefronts, are slated for redevelopment by planners. Watts Consortium members discussed how the language surrounding those projects, such as the city's Great Streets initiative, does not ask the important question of what constitutes public space for this particular community.

> And they do not think businesses because they don't think sustainability. They do not want to look at that. And so when you look at developing these boulevards, is it fair to say a Great Street or a Complete Street is actually a public space? Is it going to build a community?

These are pursuits that fall outside strictly constructed ideas involving risk and resilience but are absolutely essential in pursuing climate just futures. The issue of education is one such example and was a critical part of every discussion Watts Consortium members had. Each project proposed to Watts by city planners was an opportunity that Watts residents used to extract the main themes from them and advocate for its inclusion into the public education curriculum. Watts Consortium members formed relationships with the Los Angeles Unified School District in order to allow these projects to be discussed in high school classrooms and for students to get involved in considering their implementation in their communities. Education was seen as a way to empower the younger generation, to cultivate leadership potential in their communities, and to ensure a resilient, just, and persistent Black American identity in the neighborhood. As one Watts Consortium member put it:

> It's as much about education as it is about leadership. So we got people in the community that will take leadership responsibility but may not have all the knowledge. They're in a position of authority without any knowledge. So us coming with more knowledge or coming with more professionalism is very threatening. And they're young—they're probably 30 years old. So it's a little bit to their disadvantage that their arrogance with their skill trumps their ability to accept other people to come in and really try to help them.

Rather than push against the limitations imposed by planners and the funding source of the proposed projects, the act of reframing those proposals to incorporate more than their original intention was an act of resistance whose ultimate goal was to achieve a more resilient and just future. In doing so, residents not only claimed

authority over how resilience projects should be implemented in their community but also sought to address historical trauma through an emancipatory vision that foregrounded acknowledging structural racism. If resilience is to be just, it must be understood as embedded, growing out of and contending with past and present histories. Beyond the conclusion that adapting to climate change requires an ongoing negotiation between past and present understandings of risk and vulnerabilities, discussions held by Watts residents also revealed that the past is always present. Dealing with the past's material urban manifestations is a way to deal with injustices that are felt at multiple scales and across multiple timeframes.

Conclusion

Resilience is not a moment we arrive at; it must be understood as a process that involves more than present or future exposure to climate risks. The case study discussed here has implications for climate justice through a resilience planning framework in a number of distinct ways. First, resilience must include the ability of residents to contest how the idea of risk is handed down and to define it for themselves. Who assesses risk and resilience, and the process by which it is defined, has implications for how risk is controlled (Holifield, 2009). As discussed through the specific example of the Watts neighborhood in South LA, risk can be as much about a lack of a tree canopy as the lack of access to the internet and as much about retaining stormwater as reviving local churches. Importantly, these issues are not to be understood as separate, categorized into either environmental or social goals, but as part of a socio-environmental relationship, dependent upon and defining each other.

Second, resilience can be a powerful promise whose language communities can use to fight for the more than strictly climate-related goals of climate justice. I refer to this as opportunistic resilience and deliberately characterize the act of appropriating the resilience framework towards a climate justice goal as positive. Resilience's broad scope, much of which has been researched and theorized as reason to challenge and replace the term (i.e., MacKinnon & Derickson, 2012), can be capitalized on to expand an otherwise narrow climate goal by focusing on the necessary social and environmental rights, otherwise considered tangential to climate-related risks, required for a community to become resilient.

Third, and relatedly, recognizing that resilience is embedded entails a constant negotiation between past, present, and future entanglements of social life and its material urban manifestations. Embedded resilience implies that when a resilience framework touches the ground, it inevitably gets entangled in local politics, and sometimes conflicting histories, of residents. For Watts residents, caring for people in the Watts community meant restoring social ties through promoting safety, inclusivity, and financial empowerment, as well as securing the future education and career success of children, in order to create opportunities for Black Americans to remain in the community.

These arguments assume that climate justice depends on seeing climate risks and vulnerabilities as inseparable from social injustices. Strategies to contest and challenge how proposed urban transformations will yield a climate-just future often give rise to solidarities that potentially shift the way we discuss and deliberate on climate change (Chatterton et al., 2013). The link between climate change and local environmental inequities, such as the effects that fossil fuels have on atmospheric greenhouse gases globally while polluting the air locally and at the source, has connected environmental and climate justice movements worldwide (Mendez, 2020). Researchers and activists have also repeatedly shown that environmental inequities are a function of race, ethnicity, gender, and socioeconomic status. Climate justice, then, cannot be achieved outside of racial, ethnic, gender, and social equity. This is not to say that such categories are fixed. On the contrary, categories of gender, socioeconomic status, and ethnicity are increasingly understood as malleable, open to different interpretations depending on what actors are making those claims and are able to make those claims heard (e.g., Young, 2002; Butler, 2004; Gregson & Rose, 2000). Still, the act of producing categories such as black, woman, and minority reveals inequalities by politicizing those terms, even while acknowledging that what defines those categories are movable and fluid notions whose meaning and value changes alongside specific interests and dominant voices.

Interrogating systemic and pervasive racial issues is central to climate justice work. Beyond pointing out the correlation between marginalized populations and the distribution of environmental and climatic harm, taking on the question of structural racism in order to achieve climate justice involves revealing deeper and broader contexts that give rise to vulnerabilities. As the residents of Watts persistently and consistently declared, the environments in which we live are more than a series of discrete social, environmental, and climate concerns. Planting trees along central corridors and providing permeable pavers for stormwater retention may be significant and relevant, but people's concerns reach forwards and backwards in time to capture housing, economic, and education risks whose repercussions are multigenerational.

Paying attention to the embodied experience of place is therefore fundamental to climate justice. Justice, in this sense, ought to be thought of as an act, a deliberative process, and is not an assumed objective shared universally. In order to deliberate on the distinctive path towards justice each case demands, climate justice work would benefit from remaining open to the specific ways in which socio-environmental meanings and relations are formed from one context to the next. By remaining expansive, climate justice goals are not diluted, as may be the fear, but are understood as situated, relational, and embedded in different ways that call for different action.

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Chapter 8
Addressing Individualized Risk Response to Climate Resilience Assessment by Fostering Adaptive Capacity

Geoffrey Habron

Introduction

This chapter seeks to utilize an applied case study of municipal climate resilience planning to illustrate issues related to climate resilience and social justice. It does so by focusing on climate action planning in Asheville, North Carolina. To fully grasp the complexities and intersection of these issues, it is important to review some undergirding concepts. Climate resilience reflects the interplay of social capital, adaptive capacity, and risk as it applies to socio-ecological systems. Social justice serves as an intervening component that affects and is affected by climate resilience efforts.

Resilience

There is a rich history and discourse around the concept of resilience. From the perspective of socio-ecological systems (Folke et al., 2005; Gotham & Campanella, 2011; Gunderson & Holling, 2002; Resilience Alliance, 2010), resilience represents the capacity of a system to withstand a disturbance and return to previous functions or bounce back to a pre-disturbance state. These components represent ecological dimensions as well as social dimensions and how the system overall interacts and displays behaviors. Resilience in socio-ecological systems recognizes that some components and variables of the system may change and respond at different scales of time and space (Gotham & Campanella, 2011) and that a systems success at resilience may depend on the alignment of social responses to such ecological scale

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differences in order to avoid mismatches (Cumming et al., 2006). Examples might include decisions made within 4-year election cycles to address problems such as forest management that encompass decades or even centuries. Some view resilience as a component of individuals and psychology (Cadimaa et al., 2016), while others view resilience as an attribute of populations and communities. This can apply to both ecological and social systems. From an individual perspective, resilience can represent the "flexibility through which individuals can cope with and adapt to changes in environmental conditions" (Smith et al., 2012, 381). From a community or institutional perspective, it includes an ability to cope with external pressures and stress (Adger, 2000). Community resilience depends on the ability and capacity for social learning among and across individuals in order to engage in behavioral change to respond to disturbances and change (Smith et al., 2012). While the aspects of resilience have generated a lot of attention and focus, several critiques of the concept remain (Weichselgartner & Kelman, 2014). For example, resilient systems are generally imbued a positive connotation; however, resilient systems can also lead to perpetuation of negative social outcomes such as structural and systemic racism.

Social Capital

Social capital has been identified as a key contributor to fostering resilience by representing the ability of individuals and communities to mobilize resources accrued through networks (Adger, 2003; Colburn & Seara, 2011). Social capital can be viewed as a measurement of the values of resources and information that is generated through flows and exchanges in the network. Network flows then are influenced by the levels of social ties and bonds (Granovetter, 1973; Putnam, 2000), as well as the level of trust among network participants (Coleman, 1988; Portes, 1998). Social capital focuses on fostering networks, trust, and most importantly reciprocity to act in mutually beneficial supportive ways. Social capital exists at multiple scales of bonds and ties. Bonding social capital represents strong social ties within a group. Bridging social capital represents weak social ties that connect one group to other groups. Linking social capital (Lin, 2001) represents connections and ties between groups and entities at one level to groups and entities at higher organizational levels such as between a neighborhood association and city council. Lack of social capital can negatively impact "individuals' ability and willingness to obtain access to information and resources through their existing social ties" (Smith et al., 2012, 381). Without individual and collective agency to "influence broader social relations (or structures) or to actively control its own well-being," resilience is thwarted (Dwiartama & Rosin, 2014) as limited access to resources and mutual exchange can constrain the ability to both withstand disturbance as well as recover from a disturbance. This particularly applies to issues of community climate resilience (Adger, 2003; Colburn & Seara, 2011; Smith et al., 2012).

Adaptive Capacity

If resilience represents the ability to withstand or bounce back and social capital represents a stock of available resources generated through trust and reciprocity, adaptive capacity represents the ability to mobilize that social capital and to adjust to change. In particular, since adaptive capacity focuses on the ability to act collectively (Johnson et al., 2020), social capital has been viewed as the critical glue for adaptive capacity (Adger, 2003; Colburn & Seara, 2011; Johnson et al., 2020; Smith et al., 2012). Adaptive capacity can indicate:

- The ability of institutions and networks to learn and store knowledge and experience
- Creative flexibility in decision-making and problem-solving
- The existence of power structures that are responsive and consider the needs of all stakeholders (Colburn & Seara, 2011)

Increasing community social capital has been identified as key to fostering climate resilience and adaptive capacity (Adger, 2003) by improving coping mechanisms and resources (Colburn & Seara, 2011; Smith et al., 2012). Adaptive capacity has individual and societal/community dimensions. While resilience is "the ability of groups or communities to cope with external stress and disturbances as a result of social, political, and environmental changes" (Adger, 2000, 347), adaptive capacity relates to building financial, knowledge, and most importantly social capital (Adger, 2003).

Risk

Risk provides the likelihood, probability, and consequences of disturbance and harm (necessitating conditions to bounce back as measured through resilience) that can impact human, natural, and socio-ecological systems (Renn, 2008; Lidskog & Sundqvist, 2012; Krimsky & Golding, 1992). It is the community ability to respond to risk as well as the scale of that risk that denotes the benefit of adaptive capacity (Adger, 2003). While risk can be narrowly viewed in terms of probabilistic scientific risk (Slovic, 1987), a range of risk approaches exist. In particular, scholars have noted the role of uncertainty of events and risks (Rosa, 1998) that necessitate a more cultural approach (Wynne, 1989) to risk that considers the psychological and cultural dimensions (Douglas & Wildavsky, 1982) of risk creation, perception (Fischoff & Bostrom, 1993), and communication (Kasperson et al., 1988). This requires recognizing the ways in which communities engage with and make meaning of risk and threats, how they respond to them, or whether they respond to them. Certain approaches also recognize the larger role of modern societal structures and science itself in generating the ever-increasing and uncertain conditions for a risk society (Beck, 2008). Further, those aspects of modern society Renn (2008) focuses on are

the cumulative set of practices, procedures, and systems that are necessary for institutions and society to navigate risk through governance.

Social Justice

The unequal distribution of risks and impacts can lead to issues of equity and justice especially when those risks to communities or socio-ecological systems confer greater risks to populations with less power, marginalized populations, or those already suffering from other threats and impacts that may lead to cumulative effects (Gotham & Campanella, 2011). Environmental justice often focuses on disproportionate negative impacts of environmental harms and risks on minority populations with respect to threats such as landfills, air pollution, water pollution, and various forms of mining (Bullard et al., 2008; Pellow, 2016). Three recognized forms of justice include distributive, procedural, and recognition justice (Walker & Day, 2012). Distributive accounts for the spread of impacts across space, time, or population groups. Procedural justice relates to ability for populations to participate in decision-making related to the environmental risk in terms of either the generation of the risk or the mitigation and cleanup of the risk. However, recognition justice entails the extent to which certain groups are acknowledged as salient and relevant impacted populations at all. For example, the US Environmental Protection Agency (n.d.) characterizes environmental justice as relating to fair treatment (distributional impacts) and meaningful involvement (procedural) regarding environmental laws and regulations (USEPA).

Context

Asheville, North Carolina (USA), is a city of 92,452 people (U.S. Census, n.d.) in the region known as Western North Carolina nestled in the southern Appalachian Mountains. It serves as the county seat and largest city in Buncombe County and the largest city and metropolitan area in Western North Carolina. The city operates on a council-manager system, whereby a full-time city manager serves as the operating officer who is selected and governed by a six-member part-time city council and Mayor that serve 4-year terms selected in staggered elections every 2 years. Asheville selected its first full-time Sustainability Officer in 2008 to run the Office of Sustainability. Between 2014 and 2019, full-time equivalent staffing ranged from 1 to 2.5, with additional staff serving in the role of programs manager. In the 2019–2020 budget cycle, the city council approved an increase from two to three full-time staff starting April 2020. To provide citizen input and guidance, the city council appoints residents to the Sustainability Advisory Committee on Energy and the Environment (SACEE). These members serve staggered 3-year terms capped at

two consecutive terms, including the author who served on the committee since 2015-2020.

Asheville has garnered attention for its progressive politics and setting. It passed a series of resolutions with a goal to continuously reduce annual municipal carbon emissions by 2% in 2007 and 4% in 2011 (City of Asheville), which the city has generally met. It developed its Sustainability Plan in 2009. Asheville garnered a first-place award in the 2013 Mayors' Climate Protection Awards from the US Conference of Mayors in recognition of its climate efforts. In 2016 the city entered into a joint Energy Innovation Task Force with surrounding Buncombe County and Duke Energy (the regional energy utility) to improve energy efficiency and reduce electricity demand. More recent resolutions included a 2018 commitment to 100% renewable energy for municipal operations by 2030 and declaring a Climate Emergency in January 2020 (City of Asheville, n.d.-a). In 2018, the city launched its comprehensive plan called *Living Asheville* (City of Asheville, 2018). The plan included six themes: A Livable Built Environment, A Resilient Economy, Harmony with the Natural Environment, A Healthy Community, Interwoven Equity, and Responsible Regionalism. The plan also included an appendix and reference to Asheville's Climate Resilience Assessment.

Nonetheless, Asheville has recognized a fundamental flaw in terms of issues of equity in the city that has led to disparities in conditions between the African-American and the white populations, hence the inclusion of the Interwoven Equity theme in the comprehensive plan. Those disparities have been outlined in a series of reports on the State of Black Asheville (2020) (https://stateofblackasheville.com/) launched by faculty and students at the University of North Carolina Asheville with respect to education, health, economic mobility, income, and wealth (State of Black Asheville, 2019; Walton, 2015). For example, while African-Americans comprise 13% of the population, they represent 52% of public housing residents (Walton, 2015). Further, African-American mothers in the surrounding county were three times more likely to deliver stillborn babies than white mothers (Walton, 2015). Additionally, the Asheville City School District earned the ignominious recognition of having the highest educational attainment gap between black and white students of any district in North Carolina (Daffron, 2019). That meant that while 20% of African-American students in grades 3–8 achieved proficiency in mathematics, 75% of white students met proficiency (Walton, 2015). Like other US cities (Urban Sustainability Directors Network, 2017), Asheville engaged in the practice of redlining black neighborhoods starting in the 1930s, whereby residents in these neighborhoods were unable to obtain loans to improve homes and businesses due to lower ratings assigned by the federal government (Calder, 2020). The city also joined other cities by engaging in urban renewal projects in the 1960s and 1970s that removed or bifurcated African-American neighborhoods that led to lack of home ownership and a significant rise in public housing occupancy across generations. All of these practices have led to the poor outcomes revealed in the State of Black Asheville reports. As a result, the city launched an Office of Equity and Inclusion (https://www.ashevillenc.gov/department/equity-inclusion/) in 2017.

Asheville Climate Resilience Process

Climate Resilience Assessment

After a 2016–2018 multijurisdictional team engaged in a process led by the National Environmental Modeling and Analysis Center (NEMAC) at the University of North Carolina, Asheville, the city released its final assessment report in April 2018 called *Planning for Climate Resilience City of Asheville, North Carolina*. The document outlines climate resilience and then follows the four-step national approach in the US Climate Resilience Toolkit: Explore Hazards, Assess Vulnerability and Risks, Investigate Options, and Prioritize and Plan (United States Global Change Research Program n.d.-a, n.d.-b, n.d.-c). In summary, the report indicates that "Asheville is vulnerable to multiple climate-related threats and hazards—including flooding, landslides, and wildfire—caused by extreme weather events such as extreme precipitation and drought" (City of Asheville and NEMAC, 2018, 3). The document defines resilience, "as the capacity of a community, business, or natural system to prevent, withstand, respond to, and recover from a disruption" (City of Asheville and NEMAC, 2018, 6). It goes further by identifying climate resilience as, "the efforts taken to cope with and withstand the impacts associated with existing climate-related hazard events or events attributed to climate change" (City of Asheville and NEMAC, 2018, 6). As a result, it states that efforts to foster climate resilience involve "(1) building resilience to current climate variability or past hazard events; (2) building resilience to recently observed changing trends in climate; and (3) building resilience to future projected or expected changes in climate" (City of Asheville and NEMAC, 2018, 6). After further defining exposure, vulnerability, sensitivity, and adaptive capacity, the report identifies a set of 14 community assets that could be threatened such as bridges, infrastructure, food infrastructure facilities, city-owned properties, parks, transit and greenways, energy supply chain, water supply, and people (City of Asheville and NEMAC, 2018, 21). The analysis also identifies seven potential climate threats: flooding, landslides, wildfire, water shortage, nuisance flooding, extreme heat, and multiple supply chain threats (City of Asheville and NEMAC, 2018, 14). The report then evaluated the most important asset-threat pairs to the city overall (City of Asheville and NEMAC, 2018, 22) in terms of which kinds of threats are more likely to impact each kind of asset.

A critical feature of the analysis included determination of socioeconomic vulnerability. Such an analysis drew upon metrics derived from demographic and economic data from the US Census in terms of poverty, participation in supplemental nutrition assistance programs (SNAP), unemployment, and reliance on public transportation at the US Census block group level (City of Asheville and NEMAC, 2018, 27). The final matrix integrated the risks identified in the asset-threat pairing with the vulnerabilities into classifications of low, medium, or high (City of Asheville and NEMAC, 2018, 27). For example, assets like bridges were more susceptible to flooding than to wildfire, whereas energy supply chain was more at risk for wildfire than extreme heat. The analysis yielded results for the city overall and for various

geographic regions within the city. As such, some areas in the city held high risks for flooding, others for wildfire, and some for threats to road infrastructure. Some sections of the city contained multiple risks such as high landslide risk and high wildfire risk.

In Step 3 Investigate Options, the ultimate goal is:

> to have actionable options to build resilience for the assets that are determined to be most vulnerable and at-risk. To be actionable, an option should have the potential of building resilience by either (1) reducing exposure (removing assets from harm's way), (2) increasing adaptive capacity (increasing the asset's ability to cope with impacts), or (3) supporting response and recovery. Options also may build resilience by being proactive in dealing with future change. (City of Asheville and NEMAC, 2018, 85)

As a result, the process led to 125 possible options and strategies.

During the June 2019 public information session, the team categorized the number of strategies into six general topics (City of Asheville, 2019a):

- Ordinances and design standards (30 strategies)
- Hazard mitigation and disaster response (20)
- Infrastructure and natural areas (20)
- Further analysis (14)
- Communication, education, and outreach (13)
- Supply chains (7)

In order to prioritize those options, a set of prioritization workshops narrowed the choices based on four criteria: cost/benefit, synergy with the city comprehensive plan, political feasibility, and financial feasibility (City of Asheville and NEMAC, 2018, 87). Ultimately those options fell into three categories: (1) strategy identified as currently having a high priority for building resilience and that can be implemented based on current resources; (2) strategy identified as currently having a high priority for building resilience, but will require more stakeholders or resources; and (3) strategy identified as currently having lower priority for building resilience and will require more stakeholders or resources. Some of those highest-level strategies included sharing the information with those updating the city hazard mitigation plan, conducting studies to better identify flooding and landslide mitigation strategies, improving stormwater control measures, continuing to improve water supply and distribution systems, promoting regional partnerships, and promoting "climate resilience concepts and best management practices through public education and communication strategies" (City of Asheville and NEMAC, 2018, 90).

Climate Resilience Resource Guide

The first action that emerged from the completion of the Climate Resilience Assessment resulted in the development of a Climate Resilience Resource Guide launched in 2019 with an accompanying public event. The guide informs city residents that the document "provides strategies to help you become more resilient to

extreme weather impacts" (City of Asheville, 2019b, 1). The Resource Guide begins with a summary of the main threats to Asheville overall and then addresses the threats region by region within the city. It outlines preparatory strategies applicable for all threats whereby residents should: Be Informed, Make A Plan and Build a Kit, Sign Up for Hazard Alerts, and Post Emergency Contact Information. Then the document recommends threat-specific strategies (Table 8.1) along with rating their relative cost (low, medium, high), focus (personal, financial, property), and time commitment (low, medium, high).

Then the document provides one page that outlines the following city-led strategies:

- Hazard mitigation and emergency response planning.
- City-led initiatives for further analysis.
- Development ordinances and design standards.
- Partnerships and programs to further water conservation.
- Plan and respond to protect homes and critical access points on steep slopes.

Table 8.1 Residential strategies to address the key climate threats in Asheville

Threat	Strategies
Extreme heat	• Create shade • Cool the air • Be a good neighbor • Check the back seat • Recognize the signs of heat-related illness • Know where you can go to get cool
Flooding (major)	• Be informed, make a plan, build a kit, and sign up for hazard alerts • Purchase flood insurance • Floodproofing (emergency) • Floodproofing (permanent) • Remove or secure toxic materials • Elevate critical equipment and important personal property • Elevate your home or building
Flooding (minor)	• Reduce runoff and redirect stormwater • Install "green" infrastructure and store rainwater • Maintain natural vegetation • Clear stormwater drains • Protect stream buffers
Landslides	• Be informed, make a plan, build a kit, and sign up for hazard alerts • Be aware of surface water runoff and keep ditches and culverts clear • Recognize the signs of slope instability • Maintain natural vegetation to prevent erosion • Stabilize slopes
Wildfire	• Be informed, make a plan, build a kit, and sign up for hazard alerts • Purchase/review insurance coverage • Use fire-resistant building materials • Consider neighborhood strategies • Manage vegetation and fuels

The initiatives highlight the efforts for a tree canopy study led by the Tree Commission, the efforts of the multijurisdictional Energy Innovation Task Force working to increase residential energy efficiency and reduce residential energy demand, and the Flood Damage Reduction Task Force.

Discussion

The next stage then is to review both the Climate Resilience Assessment and the Climate Resilience Resource Guide with respect to the principles of resilience, risk, adaptive capacity, and justice. The following discussion will analyze each of the documents with respect to this endeavor, especially with respect to addressing causal mechanisms and effects within socio-ecological systems.

Climate Resilience Assessment

While the Climate Resilience Assessment follows the US Climate Resilience Toolkit, it differs from other approaches to resilience in some of its characterizations. For example, it defines adaptive capacity as "the ability to cope with identified impacts with minimal disruption or cost" (City of Asheville and NEMAC, 2018, 8) and explores adaptive capacity through the guiding question of "How are assets able to cope with potential impacts?" (City of Asheville and NEMAC, 2018, 7). The press release accompanying the conclusion of the Resilience Assessment process states: "What does adaptive capacity look like? It is another term for planning for change. For example, increasing the diameter of culverts that channel stormwater away from roadways enhances the adaptive capacity of places that face flooding from increasingly heavy rainfalls" (City of Asheville, 2017).

Asheville's approaches focus on the physical structural adaptation (learning to cope) to the consequences side to climate change and less on the sociocultural structural resilience (Adger, 2000; Smith et al., 2012) portion of climate change strategies that would include increasing capacity to decrease the causal mechanisms that lead to vulnerability (Adger, 2003). These have important implications on distributional justice (Walker and Day 2012) in terms of apportioning benefits and costs and attributing and reducing causes (Parks & Roberts, 2010). While one might not be able to mitigate the causes of climate change per se in these local resilience efforts (different set of goals and processes), one can mitigate the factors and stressors (social and economic inequality) that undermine adaptive capacity and mitigate the underlying conditions that create the need for and ability to develop resilience (Urban Sustainability Directors Network, 2017). As such, there is a need to identify and address those causal and structural factors that result in the existence or prevalence of dilapidated houses that are hence more vulnerable to flooding or that lead to some people's reliance on public transportation or food assistance. These

differences also indicate a difference between focusing on individuals and a more collective approach to adaptive capacity and resilience (Adger, 2000; Johnson et al., 2020; Ungar, 2018). However, while the Climate Resilience Assessment does identify socioeconomic structural features that contribute to vulnerability such as poverty, age, and public transportation dependence, the Climate Resilience Assessment analysis fails to address issues of distribution of possible impacts related to race or ethnicity (distributive justice). The lack of analysis reflects an omission of potential issues of equity and justice, despite the long-running issues and concerns with racial equity in the city especially with respect to disproportionate impacts on African-Americans in general (State of Black Asheville, 2019) and on certain sections of the city due to impacts of urban renewal and redlining (Calder, 2020). It is clear that ethnicity and race are often linked to these other demographic factors that can increase vulnerability to certain groups (Urban Sustainability Directors Network, 2017). Ignoring such potential differences reflects a failure of recognition justice (Walker and Day 2012). While the analysis does address spatial differences among regions within the city, it fails to move further with the analysis to address neighborhoods with existing US Census data particularly in terms of the ethnic and racial composition of neighborhoods, a move that could assess issues of distributional justice.

Climate Resilience Resource Guide

A striking aspect of Asheville's approach to acting on the Climate Resilience Assessment in the form of the guide is twofold. The first action item that the city took was to launch an effort focused on individual response to climate resilience. The second is reflected in the actual document title, "Building a Climate-Resilient Asheville: Personal Action Guide." This is not a personal guide to climate resilience, or even a personal guide to navigating Asheville's Climate Resilience Assessment, but a guide for individuals to take action to address climate resilience. While fostering individual adaptive capacity and resilience is indeed a valued component in addressing climate resilience (Smith et al., 2012; Ungar, 2018), the approach does not attribute any weighting to individual vs. city-scale efforts in terms of ability to, or likelihood of, achieving success in building or increasing resilience (Resilience Alliance, 2010). With the silence toward weighting individual vs. city-scale efforts, it treats individual actions as equally likely and impactful as city-wide efforts, when in all probability there are larger structural forces that led to the conditions and larger forces required to remediate those conditions to actually bolster resilience. Resilience thinking acknowledges cross-scale linkages (individual vs. city), differences in scales, and how actions at one scale may also vary in response times compared to actions taken at other scales (Resilience Alliance, 2010).

The focus on individual responses to threats in the Personal Action Guide differs from the focus of the Climate Resilience Assessment that states the need for actionable options that lead to "(1) reducing exposure (removing assets from harm's way),

(2) increasing adaptive capacity (increasing the asset's ability to cope with impacts), or (3) supporting response and recovery." The socioeconomic vulnerability analysis indicates structural features that lead to both exposure and larger potential impact. The Resource Guide focuses on individual adaptation to or development of coping mechanisms that respond to events instead of mitigating the underlying situations and forces that lead individuals to fall into such exposures. As such, it fails to "account for resilience as a sequence of systemic interdependent interactions through which actors (whether persons, organisms, or ecosystems) secure the resources required for sustainability in stressed environments" (Ungar, 2018).

Another concern is that the Personal Action Guide does not address the need to build adaptive capacity by improving coping and resources through increasing community social capital (Adger, 2003) which has been identified as key to fostering climate resilience (Colburn & Seara, 2011; Smith et al., 2012). It is the development and presence of "strong social networks, coordination and deliberation among diverse stakeholders, mechanisms for experiential feedback, and emphasis on social learning" (Johnson et al., 2020) that instead provide keys to fostering adaptive capacity. This indicates that the approach to addressing the Climate Resilience Assessment as the first public steps as manifest through the Personal Action Guide squarely places the burden of the response on individuals instead of collective action by society or municipal actions (Lidskog & Sundqvist, 2012). Ignoring those mechanisms or processes fails to address resilience and is simply an approach to adaptation. As such, it falls into the trap of "studies of psychological resilience that describe family or school interventions to improve a child's self-regulation (Cadimaa et al., 2016) while ignoring other aspects of the various systems that must be transformed to make individual-level change sustainable" (Ungar, 2018).

In contrast, social capital can mitigate the lack of other forms of missing capital (financial, manufactured, natural). Poor communities (Adger, 2003; Woolcock & Narayan, 2000) can survive and even thrive during normal times and during stressful events by sharing resources (material, knowledge, emotional, etc.) (Brisson & Usher, 2005; Lukasiewicz et al., 2019; Woolcock & Narayan, 2000). Further, residents in poorer neighborhoods may spend more time in their own neighborhoods (Forrest & Kearns, 2001; Pols, 2003) providing opportunities to interact and build relationships with others. Wealthy communities, especially those characterized as suburbs, may have access to financial capital and resources yet lack social cohesion and represent aspects of fragmentation and isolation even in the midst of perceived order and social harmony (Forrest & Kearns, 2001; Lupi & Musterd, 2006; Pols, 2003). As a result, income levels by themselves do not dictate the ability for social cohesion and mobilization among neighborhoods and communities. Therefore, one can envision that a wealthy suburban community might struggle during stress when cooperation fails, while a poorer more marginalized community with strong cohesion and social capital might exhibit resilience (Kuhl et al., 2014) under a given stress (flood, fire, hurricane, tornado) since it has existed in the absence of those resources so it is used to operating without those resources. So, despite the lack of financial resources, a poorer community may still possess adaptive capacity. However, a wealthier community may have access to other resources (financial,

political, knowledge, human) that negate the need for high levels of social capital or at least not have the need for the tight kinds of bonding social capital that is manifest through strong social ties evident in strong cohesive communities and networks (Putnam, 2000; Lukasiewicz et al., 2019). For example, wealthier individuals can more easily flee situations (Kuhl et al., 2014) or build their way out of vulnerability such as hardening luxury condominiums in Miami, Florida (Tarmy, 2017). Building and summing individual capital does not equate to building community social capital or community adaptive capacity, especially when those threats are not driven by or caused by individuals (Urban Sustainability Directors Network, 2017). Similarly, a high level of bonding social capital whereby neighbors, families, or communities cooperate well together (Adger, 2003) cannot negate the lack of bridging and linking social capital (Brisson & Usher, 2005) that brings access to more resources (finances, jobs, political capital, and influence) so that communities can do more than just survive or get by, but instead thrive, get ahead, and move up (Lukasiewicz et al., 2019; Woolcock & Narayan, 2000). This illustrates a scale mismatch problem (Cumming et al., 2006). Scale mismatches "occur when the scales of ecological dynamics and the scales of social organization for management are aligned in a way that negatively affects the ecosystem" (Cumming et al., 2006). Among other things, incomplete knowledge of ecosystem dynamics and institutional constraints frequently leads to institutional frameworks for management that do not match the scales of ecological patterns and processes (Borgström et al., 2006). The vulnerability and risk materials that were generated in Asheville fail to address these dimensions because they fail to align with the larger scope and scale of the ecological climate crisis as well as the causal factors underlying the socioeconomic vulnerabilities.

Asheville's approach shifts the burden of risk management from society toward an individualized approach that Ulrich Beck called "institutionalized individualism" (Beck & Beck-Gernsheim, 2002).

> Ulrich Beck emphasizes that the current society is increasingly individualized, in the sense that individuals are seen as being responsible creators of their own lives and are therefore constantly required to make their own decisions. The choosing, deciding, shaping human being who aspires to be the author of his or her own life, the creator of an individual identity, is the central character of our time. This individualization, however, does not necessarily mean the achievement of greater personal freedom. Beck grasps this development with the term institutionalized individualism. (Lidskog & Sundqvist, 2012, 1022)

The Resilience Guide does not provide relative risk and benefits among individual actions or between individual and city actions as suggested by resilience best practices (Resilience Alliance, 2010). It asks individuals to make decisions (plant a tree, clear a storm drain, check on neighbors) even when they lack full knowledge of the relevant relative consequences. Therefore, the Climate Resilience Resource Guide provides an example of larger societal risk problems such as how "individuals are continuously ascribed responsibility for risks that are impossible for them to manage" (Lidskog & Sundqvist, 2012, 1022).

As an example, up until September 2020, Asheville lacked a tree protection or tree canopy plan or any ordinances that prevent the cutting of trees (City of Asheville,

n.d.-b). Loss of trees and increased development and spread of impervious surfaces leads to urban heat island effects (City of Asheville and National Environmental Modeling and Analysis Center, 2018). This only exacerbates the impacts of climate projections for increased number of above 90° days and higher summer nighttime cool temperatures (Convergence of Climate-Health Vulnerabilities, n.d.; National Climate Assessment, 2014; United States Global Change Research Program, n.d.-b). Yet the Resource Guide suggests that individuals "check in on family members and vulnerable neighbors twice a day, especially if they're aged 65+," stay in air-conditioning, or go to a mall or public library. These suggestions fail to address the fact that the Resilience Assessment clearly identifies certain sociodemographic factors as increasing vulnerability, all of which reduce the likelihood of someone having air-conditioning, being able to afford the energy cost of running an air conditioner, or having access to public transportation to get to a mall or public library. Those low-cost solutions of checking on neighbors, recognizing the signs of heat distress, or seeking shelter in malls or libraries indicate issues of climate and energy justice (Hall, 2013; Parks & Roberts, 2010; Walker & Day, 2012). Environmental justice scholar Robert Bullard states, "If it's going to be too hot to work outside, we know who's going to be affected. If we're talking about urban heat islands, we know who can't afford to run their air-conditioners 24/7" (Sengupta, 2020). These institutional and structural problems (Urban Sustainability Directors Network, 2017) illustrate the limits to bonding social capital if neighbors lack financial capital to own and operate air conditioners. As Brisson and Usher (2005, 646) state: "even though social capital in low-income neighborhoods has the potential to transform family outcomes, it is important to remember that low-income neighborhood conditions are products of systemic forces including discrimination and exploitation…These systemic forces present families with impediments to self-sufficiency and self-reliance. Therefore, individuals with strong bonded relationships will still need support and assistance in influencing institutional-level change."

However, the proposed coping strategies highlighted in the Resource Guide also illustrate the need to foster some level of bonding social capital that fosters trust and neighborhood connections so that at minimum neighbors might indeed be able to and willing to look after each other. The issue becomes even more salient when during the public information session, the staff from the National Environmental Modeling and Analysis Center (City of Asheville and National Environmental Modeling and Analysis Center, 2018), NASA (2019), and Asheville's own consultants (Davey Resource Group, 2019) clearly indicated that the most clear, win-win strategy is to protect the urban tree canopy. While shading provides direct benefits in the immediate location of trees, even when tree planting occurs off-site, cumulative tree canopy has collective benefits to address urban heat islands in vulnerable communities.

Yet, in the months since the release of the 2018 assessment and the 2019 presentation, the City rejected calls to pay for an urban forest plan or to hire an urban forester or to pass any tree protection ordinance (Burgess, 2020a). This occurs even though protecting tree cover appears as a strategy to achieve multiple goals in the 2018 Comprehensive Plan (City of Asheville, 2018) as well as address many of the

risks in the Climate Resilience Assessment. However, talks during 2019–2020 to develop some voluntary incentives for tree protection (City of Asheville, n.d.-b) eventually resulted in a unanimous City Council approval in September 2020 (Burgess, 2020b). Increasing tree canopy cover represents a slow variable that takes a long time to affect, even while getting neighbors to check on each other during a heat event might be characterized as a fast variable. As such, it is more important to prevent existing tree canopy loss than to enact measures to increase tree canopy through measures such as planting or replanting. Resilience thinking should instead recognize the existence and interplay of slow and fast variables across scales (Resilience Alliance, 2010). A similar process occurred with ongoing struggles to improve the public transportation system in terms of fully funding the Transit Plan to expand bus routes, frequency, and times (Davis, 2019). Slow improvements to public transit fail to reduce the vulnerability of those identified in the Climate Resilience Assessment.

The guide encourages residents to plant trees, to install awnings or window shades to thwart increased heat, and to flood proof their homes. It provides these individual homeowner actions instead of (or at least not in comparison to) increasing stormwater protection ordinances, moving to reduce impervious surfaces, or preventing the loss of tree cover that can mitigate stormwater runoff. Therefore, these recommended actions illustrate the larger concern in the risk community that "responsibility is placed on citizens to govern themselves, to act upon themselves, and be responsible 'for the security of their property and their persons, and that of their families'" (Rose, 1999, 247; Lidskog & Sundqvist, 2012, 1023). Further, while individuals are encouraged to install green infrastructure, maintain natural vegetation, and clean stormwater drains, the section on city-led efforts indicates a lack of sufficient city policies and actions to address these very same issues. It suggests that the climate threats and risks identified in the assessment "are thereby de-socialized, privatized, and individualized; they become a responsibility of the individual" (Lidskog & Sundqvist, 2012, 1023). This occurs despite the presence of a range of goals and strategies in the 2018 Comprehensive Plan such as the theme of a Livable Built Environment (Table 8.2).

A similar disconnect occurs throughout the Comprehensive Plan, whereby the structural and natural systems components of the themes of Harmony with the Natural Environment and Livable Built Environment lack connection to the goals and strategies within the theme of Interwoven Equity (Cohen & Habron, 2018). While city-led strategies (Table 8.2) potentially could have a larger role in providing resilience and adaptive capacity, the resource guide provides no information to residents about how to engage in the very processes that might lead to adoption of such policies. True adaptive capacity would also facilitate mobilization of communities, especially those most vulnerable to the very threats revealed in the assessment, so that they could participate in the very policies that might best protect, prevent, or reduce the impacts of those threats (Ungar, 2018). The process fails to recognize the process of structuration (Giddens 1984), whereby vulnerable residents represent agents that are "constrained by, and at the same time reproduce, the structure to which they are bound" (Dwiartama & Rosin, 2014). An example of this is the

Table 8.2 Sample Comprehensive Plan Goals and Strategies to achieve a Livable Built Environment

Synergistic strategy (page 131)
• Utilize the Climate Resilience Plan as a tool to guide development
• Explore options to protect and manage sensitive land for natural open space, forest, habitat and stormwater management
• Incentivize development that protects the natural environment including natural open space, steep topography and riparian areas
GOAL 3 Promote Great Architecture and Urban Design to Enhance Placemaking (page 136)
Synergistic strategy
• Improve the quality of development by increasing tree canopy, tree protection and tree replacement planting
• Encourage public and neighborhood engagement when shaping design decisions for their neighborhoods

City of Asheville (2018)

inability of public transit-dependent residents to attend city council meetings that end after the bus system terminates services. This falls into the category of procedural justice as often the very vulnerability of marginalized groups results in their exclusion from decision-making (Adger, 2003; Parks & Roberts, 2010) due to a lack of power (Resilience Alliance, 2010; Ungar, 2018). Therefore, lack of public transportation places certain populations at risk (reduced ability to escape flooding and wildfire) and then doubles down on that by also reducing their ability to participate in decision-making that could reduce such vulnerability. The lack of representation of racial and ethnic minorities and low-income residents on city boards and commissions that develop and vet such policies has been recognized as a city problem to the extent that Interwoven Equity appears as a key theme of the Comprehensive Plan (City of Asheville, 2018; Cohen & Habron, 2018), even though the City Council does indeed better reflect racial and ethnic diversity.

Resilience and Social Capital

Social capital has been frequently identified as a key contributor to fostering adaptive capacity and resilience (Adger, 2003; Colburn & Seara, 2011). Yet, neither of Asheville's two major climate resilience documents and efforts identify social capital or develop strategies to foster it, even though a few of the strategies depend on its presence. If community members don't know their neighbors or lack trust (bonding social capital), then they are probably less likely to check on their neighbors during heat events or other disasters or to seek cool shelter in others' homes. Similarly, a lack of bridging social capital deprives residents of access to knowledge and tools to overcome lack of financial capital to engage in the kinds of individual strategies such as planting shade trees, installing awnings, clearing storm drains, or planting and maintaining stream buffers. Asheville's effort should instead provide

residents "an active role in their process of adapting to changes and being resilient instead of being the passive subjects of shocks" (Dwiartama & Rosin, 2014). Fostering social capital is even more important with a lack of financial or political capital that leaves certain groups in more vulnerable positions (Adger, 2003). Further, fostering social capital can increase the benefits of any limited financial or political capital that does exist or get disbursed.

Conclusion

The review of Asheville's Climate Resilience Assessment and Climate Resilience Resource Guide efforts reveals several gaps. First, the efforts focus on individual instead of collective responses and responsibility for addressing resilience and adaptation. This is critically important as the causes of the stressors and the vulnerabilities (e.g., poor housing conditions, dependency on public transportation) emanate from non-individualistic sources that are instead more structural and systemic from a socioeconomic perspective. That leads to a double burden on certain groups who are not responsible for the cause, yet (a) subject to the impacts, but also (b) responsible for responding to the impacts. Therefore, one needs to avoid an approach that only further replicates and perpetuates existing inequalities (Gotham & Campanella, 2011). A second concern is the focus on bio-physical approaches to the symptoms and responses to climate effects that affect vulnerability instead of focusing on the socioeconomic stressors and conditions that lead certain marginalized groups to become more vulnerable to the effects of climate change than non-marginalized groups. While one cannot control global stressors (precipitation and temperature changes) at the local level, a local effort can potentially have a stronger effect on mitigating those socioeconomic stressors (housing, transportation, food access).

Recommendations

1. In order to reduce the probability of individuals finding themselves at risk, a response should address the structural causal mechanisms that lead to vulnerability (poverty, food insecurity, public transportation dependence, urban heat, incidental flooding) in terms of disproportionate impacts as well as the processes that led to certain groups and locations becoming more vulnerable than others (distributional justice). This reinforces the guidelines outlined in the Equitable, Community-Driven Climate Resilience Planning Framework developed by the Urban Sustainability Director's Network:

   > By uncovering and addressing the contributing causes of disproportionate climate risk, local governments can best support community preparedness, while also advancing racial and social justice more broadly. Equitable climate preparedness planning strives to fairly

> distribute the benefits and burdens of climate change and climate actions through a community-driven planning process that empowers those most affected to shape the decisions that will impact their lives. (Urban Sustainability Directors Network, 2017, 10)

2. True resilience would address causes and build adaptive capacity (Colburn & Seara, 2011). While adaptive capacity has individual and societal/community dimensions, Asheville's first approach to communicating the Climate Assessment seems to focus on individual response and not even building capacity. True adaptive capacity would focus on building financial, knowledge, and most importantly social capital (Adger, 2003). Building resilience requires enhancing adaptive capacity that emphasizes more efforts on fostering the kinds of bonding and bridging social capital both in terms of physical and social actions but also in improving participating in the decision-making process (procedural justice) that can help lead to better directions and conditions through governance. Even an individual approach to resilience would instead seek to first develop "a clearer understanding of how individuals' social networks and social-psychological dependencies affect their perceived ability to adapt to changing environmental conditions," which would then provide suitable information so that "decision makers can focus on policy solutions that increase adaptive capacities and build social resilience" (Smith et al., 2012, 380).
3. In order to foster an inclusive, equitable, and just approach to building adaptive capacity and resilience, the city would focus on diverse stakeholder engagement (procedural and recognition justice) through "listening sessions to identify additional stakeholders, uncover stakeholders knowledge and attitudes, and consideration of human behavior models to help design messages and activities appropriate for specific areas, issues, and audience" (Johnson et al., 2020).
4. Linking climate resilience efforts to larger urban governance frameworks such as the United Nations New Urban Agenda (United Nations, 2017) would assist in achieving more equitable and clear synergies in Asheville's efforts (Cohen & Habron, 2018). The New Urban Agenda represents a tangible framework aligned with the United Nations Sustainable Development Goal 11 to make cities inclusive, safe, resilient and sustainable (United Nations, n.d.). So, while Asheville's recent history depicts a commitment to concerns regarding climate resilience and equity, future efforts should better seek to explicitly integrate the two by embracing a full-spectrum, multiscale view of climate resilience throughout resilience assessment, planning, mitigation, adaptation, and implementation as present in a municipal Climate Action Plan. For example, it would recognize that investing in bio-physical structural initiatives such as protecting tree canopy actually addresses multiple benefits for facilitating climate resilience (reducing urban heat island that exacerbates heat and reducing stormwater threat that contributes to flooding) and that public transit improvements contribute in multiple ways toward resilience strategies and procedural justice especially for vulnerable populations. Investing in non-structural initiatives such as building and facilitating social capital must occur in order to fully adopt a resilience approach.

Coda

In April 2020, Asheville entered into an agreement with a local consulting firm to initiate, develop, and engage sessions with Black and Indigenous People of Color. Due to delays caused by the COVID-19 pandemic, the city formerly launched its web communication of the process in August 2020 declaring as its objective to "define Climate Equity with the City's frontline community members; those most directly affected by climate change impacts identified in the City's Climate Resilience Assessment" (https://www.ashevillenc.gov/department/sustainability/sustainability-initiatives/climate-justice-initiative/). The Sustainability Advisory Committee on Energy and the Environment received approval to host a long-delayed public engagement session (due to COVID-19) addressing Climate Equity on October 28, 2020. However, in September 2020, the Director of Equity resigned after 2 years due to concerns with lack of attention and buy-in from the City Manager and the managers of the largest city departments (Burgess, 2020c).

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Chapter 9
Climate Action Planning for Resilience and Justice in Extreme and Extreme-ing Urban Environments

Melissa Jane Kenny

Introduction

Climate Justice Within the Resilience Planning Agenda

Resilience and climate action have evolved to become key priorities within planning policy and practice in many urban contexts, especially in relation to climate change and extreme weather, manifesting themselves within urban planning practice. Recently, "social resilience" concepts have been introduced and integrated into planning practice to an extent, including issues ranging from urban governance to community participation and social justice (Béné et al., 2014; Cote & Nightingale, 2012). Beyond the environmental and physical nature of climate change as a threat to cities, there is a social aspect to the relationship between urban planning and climate change that incorporates concepts of equity that can be labeled as "climate justice," especially when taking into account the communities that lie at the social intersection of planning and climate change. The abilities of communities to cope with the distributional impacts of climate change in cities demand a multi-faceted approach from planners to engage with the complex interplay of resilience, climate action, and climate justice.

This chapter places planning and justice within the wider resilience and climate action agenda and explores how different cities strike a balance between pursuing resilience and including meaningful justice approaches in their planning processes. The chapter highlights key urban planning challenges such as the shortcomings of stakeholder communication and community involvement while exploring planning's capacity to address siloed working environments and break down barriers to pursue meaningful, just, and successfully implemented, resilience solutions in

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vulnerable cities. First, the case studies of New Orleans, Louisiana, and New York, New York, are presented to give an overarching view of resilience planning and justice in the USA, particularly issues such as accountability, responsibility, citizen engagement, and climate change denial. These case studies were chosen for their well-known experiences with climate change and extreme weather events; they provide an overarching view of different responses within the USA. The issues and experiences are then explored in more detail in the following two case studies of Anchorage, Alaska, and Boston, Massachusetts. The cities were chosen as they both published comprehensive climate action/resilience plans between 2017 and 2020. Furthermore, the notions of "extreme" and "extreme-ing" have been applied to Anchorage and Boston, respectively, to acknowledge the historic nature of severe climate impacts and coping capabilities of Anchorage as a city and the more frequent and emergent climatic challenges faced by Boston. Extreme-ing can be applied to cities that face increasingly severe shocks and stresses as a result of climate change, both long and short term, but are primarily concerned with a growing frequency and severity of extreme weather events. In contrast, extreme cities, for the purpose of this study, are those that are located in environments with extreme characteristics, such as particularly harsh climates or especially remote locations. The climate-focused plans produced by Anchorage and Boston are analyzed to understand the successes and shortcomings of climate planning, with a focus on how concepts of justice are incorporated and utilized. Using a qualitative methodology, which was developed as part of a long-term research project, the analysis in this chapter is based upon comprehensive analysis of relevant planning documents and the outcomes of semi-structured interviews and focus groups with planners and other relevant stakeholders involved in the resilience planning process in both cities, undertaken between 2017 and 2020. Combining these methods, with a particular focus on justice, allows for an understanding of how planners, NGOs, and urban government representatives have interpreted and engaged with the concept of climate justice in the wider frame of their resilience planning agendas.

On the global stage, the 2015 Sustainable Development Goals, particularly Goal 16, "Promote peaceful and inclusive societies for sustainable development, provide access to justice for all" (UN, 2019). However, using justice-specific language within the context of resilience and climate action planning, especially in cities, is newer. As a branch of planning, resilience has been criticized for not addressing justice. As Meerow and Newell (2019, 4) recently noted:

> Resilience literature pays insufficient attention to the politics shaping resilience policy decisions but suggest that urban resilience can be redeemed by making the inevitable negotiations about how to apply resilience and associated trade-offs the focus – questions of resilience for whom, what, when, where, and why? Working through these questions could help to foreground debates about equity and justice in resilience policy-making.

Here, Meerow and Newell suggest going beyond resilience as a physical consideration to acknowledge the varying impacts of resilience and climate action that are unevenly distributed within urban areas among the population, leading to social and spatial injustices. In the urban context, Fitzgibbons and Mitchell (2019) further

suggest that injustice is akin to powerlessness, especially regarding the social interpretation of justice, the derivations of which are often linked to cultural, ethnic, racial, and socioeconomic factors, which in turn can self-perpetuate. Meerow proposes to incorporate three types of justice within the planning process: distributional, recognitional, and procedural. In an ideal scenario, distributional justice, in the urban planning context, denotes that physical access to vital infrastructure and goods, alongside ensuring undesirable urban components, is fairly distributed. In addition, recognitional justice acknowledges the varying cultural, societal, and institutionalized factors that can impact the distribution of justice. Procedural justice ensures that the planning process is fair an inclusive. Conceptually speaking, if a city has achieved these stages of justice through its climate action and resilience planning process, it could be suggested that justice has been comprehensively embedded. As previously mentioned, the interpretation of justice itself throws up barriers. For example, words such as fairness and equality can fall under the "umbrella" of justice, leading to a different framing of justice depending on the word being used. This is pertinent to consider when analyzing planning documents, where interpretations and intentions can be skewed by lexicon and can serve to hinder implementation as stakeholders clash over interpretation. The four case study cities presented in this chapter have taken differing "journeys" toward planning for resilience and climate action while incorporating their own forms of climate justice. New Orleans and New York provide a background to some of the key justice and resilience challenges facing planners attempting to combat climate change. These are then unpacked in the case studies of Boston and Anchorage, with a particular focus on their climate plan-making process.

Climate Action Planning Experiences in the USA

Hurricane Katrina: Unpreparedness and Mis-prioritization

The idea of climate justice removes climate change from the purely physical, environmental realm and places it within issues of ethics and politics. Before exploring the individual case study cities, the overarching challenge that planners and other climate justice stakeholders face in the USA currently must be addressed. Framed here as "federal disinterest," the dismissal of climate change as a legitimate threat by the current US government is itself a major infringement of justice. Urban areas, local governments, and individuals are increasingly having to face the crisis without comprehensive federal support. The dichotomized priorities of profit and climate action infringe on wide-scale just climate action, as urban development is often encouraged over protecting the most vulnerable and economically disadvantaged areas. The 2020 wildfires in California provide a timely example of a scenario where housing development has occurred in risk-prone areas, leading to a higher exposure to natural catastrophes. This enduring approach has been present in US

planning history since prior to the ascension of the Trump administration. Hurricane Katrina, in 2005, exemplifies how a lack of serious action, mis-prioritization of resources, and a focus on profit over vulnerability can have devastating effects and severely exacerbate existing injustices in many forms.

Hurricane Katrina acted as a signal that cities are not inherently adaptable, showing that research and action were required on a smaller, city-level scale, including urban planning. In August of 2005, over 80% of New Orleans was flooded as a result of Katrina. The city and surrounding Gulf Coast area suffered catastrophic damage and loss of life. Before Katrina, a federal government policy named "safe development" prioritized profitability, and vulnerable areas, such as levees, were developed upon despite the risk. The immediate post-disaster response exacerbated the situation. A lack of coordination between government tiers hindered emergency response, while a lack of local knowledge and a level of implicit racial bias impacted evacuation efforts and temporary housing usage. Car-reliant evacuation routes were prioritized, highlighting a disconnect and misunderstanding between communities and government as well as other responders since car ownership was low in the low-income communities that were particularly affected. Furthermore, severe overcrowding of temporary shelters and a depletion of supplies were worsened by an underestimation of the homeless population numbers (Townsend, 2006).

The longer-term recovery process after Hurricane Katrina in New Orleans was complex and gradual. Communication barriers, a general "laissez faire" approach to planning, and planners contributed to the "institutional inertia" (Coaffee & Clarke, 2015, 253) that has cemented Katrina as a linchpin for "what not to do" (Campanella, 2006). Hurricane Katrina provided a trigger for the US government to ensure that all local governments established disaster plans. The aftermath and response to Hurricane Katrina could have been more streamlined and cooperative response. With more consideration for climate justice, a restraining of development in disaster-prone areas, and a more unified, integrated, and localized approach to disaster response, the recovery process could have been faster and more efficient. Such lessons were generally not learned or acted upon at the federal level. In 2017, apathy also contributed to the devastation and inadequate response in Houston (Texas) after Hurricane Harvey. In Houston, negligence in the form of urban development being prioritized over policies that addressed vulnerability led to catastrophe, and resilience was compromised by planners and other city stakeholders (Serre & Heinzlef, 2018; Ascott & Kenny, 2019). Better than any other, the example of Hurricane Katrina highlights some of the key challenges faced by planners pursuing resilience, such as siloed working conditions, knowledge gaps, and miscommunication. Presently, the US government has a detached view of climate change as a real threat. As a result, planners and other relevant stakeholders in Anchorage and Boston, as well as other cities across the USA, assume the arguably unfair burden of tackling climate change at the city level.

Climate Action in New York City

New York is widely regarded as being one of the frontrunning cities in the USA to address climate change. With costly, large-scale projects hailing a new era of climate action, New York is comprehensively acting at the city level. Hurricane Sandy, which struck New York in October 2012 and cost the USA just over $70 billion in damage, created region-wide disruption with the most catastrophic impacts occurring in downtown New York itself. One well-known project the city is implementing is referred to as "The Big U" or "The Dry Line." This project, proposed as part of the response in the wake of Sandy within the "Rebuild by Design" approach, is a 10-mile "protective ribbon" intended to wrap around the bottom portion of Lower Manhattan, protecting arguably some of the most valuable real estate in the world. New York is noted to be at the forefront of resilience planning, with The Big U acting as a sort of flagship for large-scale urban climate planning projects across the world, although many remain skeptical. The project has yet to break ground and has been accused of encouraging gentrification in the area, with the promise of a resilient Lower Manhattan, by protecting the interests of the wealthy over the city-wide resilience requirement. Low-income areas such as southern Brooklyn, with large minority populations, have received little investment to protect the area from future storms (Friedman et al., 2019). Large-scale "mega-resilience" projects such as the Big U and the T-Groin Project in Brooklyn, which is costing approximately $28 million, have been called into question regarding their justness. It has been suggested that these massive projects are of too large a scale to pay heed to individual citizen justice, as they focus instead on visual appeal and investment attraction over how local residents may benefit (Collier et al., 2016).

When approaching resilience and climate action planning in US cities, the definition, interpretation, and application of the concepts can greatly influence outcomes, as seen above in New Orleans and New York. The differing resilience definitions that cities and stakeholders use mean that the notions of social justice can be skewed or lost depending on the interpretation and intention of different resilience agendas. As such, while the operationalization and application of resilience agendas are still a key question in the overarching rhetoric, issues of definition remain. Additionally, as Meerow and Newell (2019) noted, the primary interpretations of resilience are rooted in ecology and engineering and are often criticized for failing to acknowledge a "human" side of resilience and climate action, such as social justice. City leaders must grapple with how, or even if, to apply notions of justice within their resilience agenda. The subjectivity of justice can be malleated depending on differing agendas of urban stakeholders (Matin et al., 2018). This also poses the question of how cities choose to incorporate and seek justice within the resilience and climate action planning process. Often, this is attempted through increased community outreach and citizen participation throughout the planning process, which is seen as a critical component of justice, although criticisms arise regarding the legitimacy of engagement. Are citizens genuinely being listened to and engaged with, or is the engagement being carried out on a more superficial level, just to check the box on

performing adequate community engagement? These challenges along with others are explored below in the comparative case studies of Anchorage and Boston, both of which have mobilized resilience, climate action, and justice in different ways with different results.

Anchorage and Boston have taken comprehensive yet differing approaches to planning for resilience and climate action while addressing the clear lack of concern for justice in the current US administration's approach to climate change. Stakeholders in Anchorage have attempted to infuse justice into the resilience planning agenda through comprehensive citizen engagement and community involvement, although injustices still arise with the exclusion of key players in the planning process, as well as a laissez-faire attitude. By contrast, Boston faces the task of balancing institutionalized historic racial injustices with climate action, as well as questions of siloed accountability regarding its planning department. Both cities take differing routes, influenced by their extreme and extreme-ing risk profile in relation to climate change. For the purpose of this chapter, only the planning documents produced to directly address resilience or climate change are discussed.

Anchorage: Vulnerability and Apathy

Lying close to the Arctic circle, in a remote corner of the USA, Anchorage is extreme. The city, since its inception, has faced extreme conditions such as acutely low winter temperatures, as well as unseasonably high summer temperatures. Significant snowfall is a regular occurrence, alongside nearby volcanic activity and earthquake damage. Its remoteness, and separation from mainland America, renders the city and state heavily reliant on transport infrastructure, which is often undermined by extreme weather conditions. Anchorage has only relatively recently begun the pursuit of climate resilience. The city and its residents have long contended with extreme conditions that are now worsening as a result of climate change. In addition, the attitudes of key stakeholders, including a number of municipal planners, have led to many people viewing climate change as a trivial issue within the city.

Formal planning to address climatic challenges and enact climate action has only emerged since Mayor Ethan Berkowitz took office in 2015. Focus has centered on ensuring that planning is comprehensive enough to cope with predicted future urban growth (the city anticipates growing by 21,000 households by 2025). In Anchorage, planning responsibilities fall under the remit of the Municipality of Anchorage. Historically, the state of Alaska and the City of Anchorage experienced climate and weather-related shocks and stresses, leading to an inherent aptitude for managing common extreme environment challenges. Anchorage, known as the gateway to America's Arctic, "is on the front lines of climate change" (C2ES, 2016). The Arctic is warming 20% faster than anywhere else on Earth (Bintanja & Van der Linden, 2013), and extreme events are likely to increase in Anchorage. The city's location and economic importance, as the state's financial hub and main port, mean that state-wide resilience is heavily reliant on that of the city.

Using the definition of "extreme" provided at the beginning of this chapter, it is clear Alaska is an extreme part of the world, with Anchorage serving as its societal epicenter. An innate resilience may be present there, based on the very experience of living in such an environment. However, the impacts of climate change continue to push the notion of living and thriving in an extreme urban area. The challenges faced often cause significant physical damage and often also result in severe financial implications. They can also affect the supply chain to the city along with the health and well-being of its communities. Mayor Berkowitz commented in 2017 that "Alaskans need to do what Alaskans have always done—get ready for extreme conditions the best way they can" (Margolis, 2017).

The Anchorage Climate Action Plan

As the focus on resilience and climate action is rooted at the municipal level, in Anchorage and across the USA, the current municipal administration has taken steps to address climate change in the city, against the backdrop of climate change denial and misinformation. The publication of the *Anchorage Climate Action Plan* (CAP) in May 2019 was the culmination of municipal efforts to prepare the city for change in the face of an uncertain future. Mayor Berkowitz, along with his wife, First Lady Mara Kimmel, instigated a top-down approach to promoting resilience and climate action in the city. When Berkowitz came to power in 2015, Anchorage joined the US-wide Welcoming Cities Initiative (launched in 2013 by the Clinton Foundation to facilitate the development of urban leader networks) and the Resilient Cities Network (building on the legacy of the Rockefeller 100 Resilient Cities Network). The First Lady was then instrumental in producing two documents: the Welcoming Anchorage Roadmap (WAR) (2017b) and the Resilient Anchorage Roadmap (RAR) (2017a), which fall under the Mayor's initiative "Aware: A Welcoming and Resilient Anchorage" (AWARE). According to a leading member of the Berkowitz administration, these two documents provided the initial ideas and values that shaped the CAP. They form companion documents, designed as "living documents" to identify required changes to policy and serve as an "action-oriented strategic integration plan" (WAR, 2017b, 1). It is in these documents that the concept of justice within climate action planning first emerges in various forms. A key theme running through both documents puts Alaskan "values" at the forefront. Words such as "inclusivity," "justice," "respect," and "transparency" are used often. A source close to the Mayor commented during an interview that "[above all], equality is at the heart of resiliency for Anchorage." The mayor, in an interview with the Anchorage Daily News, described his intention to address the concerns of all citizens: "In Anchorage, we seek to reach out to all and get them prepared for shocks and opportunities." Regarding the definition of resilience in the Anchorage context, Berkowitz also stated, "we contend with issues related to the classic definition of resilience as being able to deal with shocks and stresses" (Rosen, 2017).

The Resilient Anchorage Roadmap is the first city planning document to use the phrase "resilience." The theme of equity is embedded throughout both roadmaps, particularly in relation to community engagement. A "shared vision" is identified as a goal in an attempt to promote inclusivity across the population of Anchorage. Furthermore, the historic aptitude of Alaskans to cope with climate adversity is also acknowledged under the "Alaskan values" banner, hinting at the role a city's extreme experience plays in its reaction to upcoming threats. The two roadmaps signal a paradigm shift in the administration of Anchorage as addressing climate change, and resilience has become a priority despite state and federal disinterest. The climate action plan that the city released in May 2019 builds on the two documents to emphasize Anchorage's "deeply rooted…traditions of collaboration and innovation" (3). The focus on justice in the form of fairness and inclusivity endures. The socioeconomic and physical impacts of climate change are addressed simultaneously in an effort to both mitigate and adapt to climatic changes. Furthermore, the actions proposed also intend to benefit residents, for example, by creating jobs and improving equality in the city. A letter to residents from the Mayor Ethan Berkowitz specifically acknowledges the Dena'ina Athabascan First Nation citizens, upon whose land the city lays, stipulating that the Municipality of Anchorage and, in particular, the CAP respect that indigenous knowledge and values are foundational to building resilience in the city. This acknowledgement of indigenous populations highlights the city's attempt to utilize community knowledge and participation as a form of justice; however "arguments are made for legitimacy of cultural values and enfranchisement of indigenous knowledges in diverse contexts, such as among the First Nations communities in western North America" (Turner et al., 2008, 200). This can fall under a broader criticism that community involvement and engagement when planning for resilience, while important for a context-specific nuanced approach, can be marginalized or deployed at too late a stage (Coaffee & Lee, 2016). Nonetheless, the Anchorage municipal government comprehensively committed to an inclusive approach when putting together the CAP. A bold vision is presented at the start of the plan:

> In 2050, Anchorage is a resilient, equitable, and inclusive community prepared for the impacts of a changing climate. Winter cities around the world look to Anchorage as a leader in stewardship and energy innovation. Anchorage is self-sufficient and the heart of our state's globally competitive economy (4).

Livability and equity stand out as important values for the municipality, in line with climate action, as "climate is just a layer of resilience within Anchorage" (steering committee member interview). "Justice" rarely appears in planning documents throughout Anchorage's planning history, including the climate action plan. Instead, it appears mostly in relation to upholding the aforementioned Alaskan "values" and ensuring equity across the urban population. Community engagement and involvement contributed significantly to the justice angle of the CAP. According to interviewees, the broader Anchorage community has largely responded well to the CAP, aside from a cohort of climate change deniers. An interviewee from the Mayor's Office intimated that many community members appreciated that the climate change

initiatives had the support of the municipal government. Citizens were willing to get involved with resilience and climate action in Anchorage as they had been shown that it is a city-wide priority. In spite of this, in terms of community engagement, challenges did emerge when citizens questioned the prioritization of climate change over more pressing issues of crime and homelessness in the city. Approximately 40,000 people who work in Anchorage do not live in the downtown area and instead commute from the wealthier suburban areas of Eagle River and Chugiak, a 30-min drive from the city center. As such, concern also stemmed from lower-income residents in the downtown areas that the city center would be neglected in favor of higher-income areas, although a steering committee member assured that the plan makes sure "that actions do not only benefit wealthier residents."

In Anchorage, the overwhelming attitude among those who participated appeared to mirror much of the state and federal level views—that of disinterest and disengagement when addressing climate change, views that reflect the reality that the state and city are highly reliant on the oil industry as a source of income. In the opinion of the planners, "Anchorage has not experienced any major climate change related shocks [or stresses]"; therefore, climate action and resilience simply are not priorities. A number of planners admitted that the longer, hotter summers are beneficial, "more time to barbecue," and climate change "didn't seem so bad" (planner in the focus group).

Boston: Inequality and Accountability

Boston is an East Coast city experiencing increasing sea levels and more frequent coastal storms, known as Nor'easters. Boston faces a range of climatic issues, including flooding, storm surge, and extreme temperatures. It must also deal with a vulnerable position on reclaimed land. Recent examples include the winter storms of early 2018, which caused considerable flooding in the downtown area as well as heavy snow and structural damage along the coastline. If sea levels continue to rise in the Boston area, the Climate Ready Boston initiative predicts that by 2070, upward of 90,000 residents in the city will be at severe risk, with billions of dollars of infrastructure, property, and business loss (City of Boston, 2016a, b). Boston's journey toward resilience planning and climate action has been comprehensive since the start of the twenty-first century. Notable aspects of the process include the focus on community and social justice, the considerable power of the Mayor, and the unique position of the Boston Planning and Development Agency (BPDA) within the urban governance system. For the city, Hurricane Sandy in 2012 was a "wake-up call [which] kick-started climate action in Boston" (interview with a Massachusetts Institute of Technology (MIT) Sustainability Officer). A senior planner at the BPDA stated that the city is "meeting the issue at the coast" as climatic impacts are imminent and there is no capacity for the city to retreat. Boston's overarching approach to resilience planning and climate action is "very forward looking," acknowledging that while plans go to 2070, "sea-level rise will not stop then,"

and the city must look far into the future (BPDA planner interview). According to the BPDA planner, some of the most pressing issues for Boston include "Avoiding situations like Houston and New Orleans, by protecting the most vulnerable, promoting (multi)municipal collaboration and embedding resilience beyond the municipal level, so that changes and shifts in power don't affect the resilience agenda."

For the past 20 years, the City of Boston has acknowledged the threats that a changing climate will bring to the city, joining the Cities for Climate Protection Campaign (a UN initiative that recruits urban governments to pledge to reduce emissions) in 2000 and signing the US Mayor's Climate Protection Agreement (also a pledge to reduce emissions) in 2005. Relative sea level rise is increasing and could have devastating impacts upon Boston's harbor and much of the downtown area. Nonetheless, the waterfront is a prime location for real estate development, and the recent development of the Seaport District area occurred in spite of the threat. Reconciling development and climate change grow as a challenge for Boston. Although the city has a moderately temperate climate, it may become more prone to increasing bouts of extreme heat, as well as harsher, colder winters. The warming climate will also increase precipitation levels, potentially leading to heavier snow in the winter months. There is also evidence that tropical storms will increase in frequency, turning into devastating hurricanes in the region (Friedman et al., 2019).

The BPDA and Accountability

Urban planning has begun to be intertwined within the resilience process. By modifying and updating urban form, it uses tools such as citizen engagement in an attempt to tackle climate change. The City of Boston is the governing body overseeing all municipal concerns. While the Mayor could be viewed as a figure of omnipotence across much of the municipal workings of the city, the BPDA occupies a unique position slightly outside of the mayoral remit. An interview with a senior planner at the BPDA illuminated the power of the department. Established in the 1950s, the BPDA is not an official department of the City of Boston, standing as its own entity that, while funded by the City, needs not comply with state standards and can use private consultants. The interviewee expanded on the "uniqueness" of the BPDA. "It combines planning and development, where other cities keep them separate. New mayors often say they will overhaul the BPDA but when they see how harmoniously it works, they leave it be." Nonetheless, in the wider sphere of complex urban decision-making, the "harmonious" nature of the BPDA comes into question. A climate program associate at an NGO, the Barr Foundation, provided an outside perspective on the BPDA. She argued that confusion tended to shroud the department: "the ambiguity of what umbrella the BPDA falls under can lead to complications regarding responsibility, accountability, and implementation, as well as communication with other stakeholders. People aren't sure who's in charge of what, or who works where." Furthermore, a coordinator for the Climate Ready Boston initiative added that the BPDA faces "tension and politics" with regard to

issues such as land use. These tensions can hinder cohesion across city agencies and stakeholders where roles are not clearly defined, leading to either an overlap of effort or accidental omitting of certain priorities.

Rockefeller 100 Resilient Cities

Social justice in Boston's resilience and climate action agenda is particularly apparent in its former partnership with the Rockefeller Foundation's 100 Resilient Cities Program. Here, while Rockefeller provides its own definition of resilience (urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and thrive no matter what kinds of chronic stresses or acute shocks they encounter), it is often adapted in different cities (Meerow, 2019). In Boston's program, the definition of resilience is predominantly linked to racial and economic inequality, with a heavy focus on social justice and equity, rather than climatic resilience. The Mayor's office of Resilience and Racial Equity has "focused on social and economic resilience in a City affected by historic and persistent divisions of race and class" while keeping "an eye toward potential shocks the City may be exposed to" (City of Boston, 2019). According to its webpage on the 100 Resilient Cities website, Boston's critical resilience needs encompass a lack of affordable housing and lack of educational opportunities for minority communities, which serve to divide the city "along racial and economic lines" (Rockefeller Foundation, 2016).

The city has subsequently produced three corresponding documents jointly with the Rockefeller Foundation and the Mayor's Office of Resilience and Racial Equity:

- Boston's Preliminary Resilience Assessment (2016)
- The Blueprint: A Preview of the Principles & Framework for Boston's Resilience Strategy (2016)
- Resilient Boston: An Equitable and Connected City (2017)

Boston's official resilience strategy, in partnership with the Rockefeller 100 Resilient Cities Initiative, was released in July 2017, building on the work of the previous two documents as well as ongoing engagement with city departments, stakeholders, citizens, and the city's Chief Resilience Officer. The tagline of the 2017 Resilience Strategy reads "an equitable and connected city" (City of Boston, 2017). Here, equity is a principal focus for the city and Bostonians themselves when pursuing resilience: "Achieving citywide resilience means addressing racial equity along with the physical, environmental, and economic threats facing our city" (City of Boston, 2017, 6). The strategy aims to promote "resilience-building actions and initiatives…to reduce the impact of acute shocks and chronic stresses—including those that cannot easily be predicted today" while also working to "improve outcomes for individuals, the physical environment, and the economy for future residents to enjoy" (City of Boston, 2017, 15). Lingering trauma and a fractured foundation are cited as justifications for Boston's pursuit of resilience, along with a

considerable potential to overcome systematic racism to work toward equity, justice, and social cohesion. The strategy expands upon the four visions presented in The Blueprint. Vision 4 is particularly focused on climate resilience, presenting ambitious ideas to build resilience. Mayor Walsh is quoted acknowledging the challenges Boston faces:

> We are committed to addressing climate change head on and will accelerate Boston's efforts to become carbon neutral by 2050. Fighting climate change means fighting for all those affected by worsening air quality, extreme heat, eroding coastlines—issues that will continue to impact residents for generations to come (City of Boston, 2017, 107).

The idea of environmental justice is also introduced here for the first time in Boston's resilience and climate action lexicon. The notion of climate justice links to the strategy's overarching goal of equity, addressing the fact that:

> Communities of color are often disproportionately impacted by environmental shocks and stresses and are less likely to have access to the political power necessary to rectify these disparities (City of Boston, 2017, 108).

The prodigious task of overcoming racial inequality while simultaneously tackling climate change in Boston is a considerable endeavor. The language of the strategy is aspirational, but solid policies and solutions are lacking. For planners and the planning profession, ideas presented in the strategy lack tangibility:

> Develop neighborhood-based climate resilience plans that benefit households citywide and promote environmental justice (City of Boston, 2017, 116).

> Build the capacity of communities, nonprofits, small businesses, and public health and healthcare infrastructure to prepare together for emergencies and disruptions, leveraging existing strengths and expanding community relationships to partner with vulnerable populations (City of Boston, 2017, 126).

The vagueness surrounding addressing racial inequality may have been exacerbated by the resignation of Boston's Chief Resilience Officer Atiya Martin, appointed in 2015, who was heavily focused on the pressing issue of racial equality and conducted large-scale community involvement projects. In a speech in 2016, she argued "the people who are suffering the most in day-to-day life are also the people who are suffering the most when there is a disaster" (Boston Globe, 2016). However, it was stated in an interview with a Climate Ready Boston representative that Martin was "pushed out" in 2018 and "no-one is quite sure why." The interviewee added that "the new resilience officer is never heard from" and the responsibilities and involvement of Lori Nelson, the new Chief Resilience Officer, are difficult to pinpoint. Looking to the future, the Climate Ready Boston coordinator seemed confident that Boston no longer needed support from the Rockefeller Foundation. "The program did a good job setting Boston up, and now the city is in a good position to continue without them." Nonetheless, this administrational change also led to a shift away from justice as a priority in Boston, as the city moved away from the Rockefeller program.

Conclusion

Incorporating justice, like resilience, into climate action is a precarious endeavor that relies on factors including interpretation, definition, prioritization, and action from planners and related stakeholders. Among other factors, the location and context of cities heavily influence how stakeholders operationalize justice, from physical geographical restrictions to political leanings of urban government, as well as historically entrenched social injustices and experiences with climate change related disasters. In Anchorage, incorporating resilience and climate action into planning practice, alongside justice, is still a relatively new endeavor spearheaded by a small core of stakeholders who must contend with comprehensive state and federal level climate change deniers. Boston, on the other hand, faces balancing a range of issues on the justice agenda; and while there is more widespread support from stakeholders there, issues of accountability and responsibility complicate the enactment of justice in the planning process.

As resilience enters mainstream planning lexicon and takes off as a buzzword in the climate action rhetoric, justice, while linked, is not fully onboard for the ride. As others have argued, justice must become more ingrained as a facet of the resilience agenda to overcome its use as a way to fill quotas or outwardly project a veneer of inclusivity within the planning process (see, e.g., Matin et al., 2018). In addition, more needs to be understood about the intention of inclusivity. Certain plans and policy changes require public support and, as such, may be framed in a way that garners that support in an unreliable or misleading way, thus not achieving true justice (Meerow & Neuner, 2020). The bridge between resilience and justice requires new forms of collaboration between urban stakeholders to ensure a collective goal is being pursued:

> Resilience, inclusiveness and equity need not be mutually exclusive endeavors. The pace and scale of global resilience efforts is significant, and all actors involved in this real-time experiment, with the right program and supports, can plan for more resilient and more equitable urban futures (Fitzgibbons & Mitchell, 2019, 39).

This will need an in-depth answer to the "resilience for whom?" question to ensure that the resilience and justice agendas exist symbiotically by understanding vulnerabilities, injustices, "the advantages and trade-offs of adopting policies," and "the disproportionate impacts of climate change and urbanization" (ibid, 4). If a genuine understanding of injustices does not percolate through resilience and climate action planning, the intertwining of resilience and justice may only represent "wishful thinking" (Meerow & Newell, 2019, 16). Community engagement, while often cited as the go-to route for including justice in the planning process, is only meaningful if genuinely taken into account and acted upon as a way of including justice in the resilience and climate action planning process.

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Part IV
Community

Chapter 10
Art + Design in Community-Based Planning: Interventions for a Broken System

Aurash Khawarzad

Introduction

There is a common feeling among urban planners who attend community planning workshops. It is an uncomfortable feeling that comes from knowing that regardless of public sentiment, the outcomes for the planning process have already been predetermined by governments, landowners, investors, and other members of the urban planning power structure. We also know that the public often has very limited recourse in stopping the direction of a planning process that they oppose. As much as we want the process of urban planning to be transparent and empowering, in too many instances, it ends up being impenetrable and works against the public interest. In 2021, more and more people are questioning the ability of the urban planning process to meet the environmental imperative of reducing carbon emissions and pollution (climate action planning) while advancing an agenda of social equality (aka climate justice). As we now face an onslaught of global crisis points, including the COVID-19 pandemic and the "George Floyd protests" against racial justice, a radical intervention is needed to ensure the urban planning process does not continue to serve as a mechanism of the transfer of wealth and harbinger of environmental destruction (Haag, 2020). This chapter presents strategies that utilize art + design as a means of intervening for climate justice outcomes in community-based urban planning.

If a planning process is community-based and comprehensive in nature, meaning that it incorporates a range of issues, disciplines, and social relationships, rather than being narrow in scope, then it should have the flexibility to incorporate leadership from the community in its final outcomes. It should also be grounded in the principles of equity and justice, so that groups with a disproportionately small

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presence in decision-making do not continue to be marginalized. When a planning process begins with a narrowly defined scope, it does not leave space to deviate from conventional ideas about governance, economics, architecture, or energy, which are the exact systems we need to change in order to end systemic social inequality and create environmental resilience. As one protester recently decried at a New York City Department of City Planning meeting to discuss a proposal for rezoning, "We need three references, a background check and six months of rent to get an apartment. Does that seem right? Who are we kidding here?" (Kully, 2019).

In this chapter, I present a set of tools that were developed as an intervention to this broken system of public engagement in climate action planning. They utilize art, design, and the principles of "community-based planning" to facilitate change in how we make urban policy and plan complicated cities. Given that climate justice planning requires an unprecedented merger of environmental considerations within urban planning, the application of creative problem solving as seen in art + design projects is an even more important addition to how we address our looming problems. Between 2015 and 2020, while working in New York as an urban planner, I collaborated with dozens of people on developing these tools. My work was based at an environmental justice not-for-profit organization, in academia, and as an independent practitioner. The tools featured in this chapter include:

1. An illustrated comprehensive vision
2. A field guide and maps for implementation
3. The Policy Mixtape: community-generated narratives

This is not to say that conventional tools for engagement such as surveying and transcribing verbal testimonies are not valuable, but what is often missing are the extra steps that can engage a broader group of people and lead to more genuine results.

Community-Based Planning

In New York City, the official definition of "Community-Based Planning" can be found in Section 197-a of the City Charter, which "authorizes community boards and borough boards, along with the Mayor, the City Planning Commission (the 'Commission'), the Department of City Planning ('DCP'), and any Borough President, to sponsor plans for the development, growth, and improvement of the city, its boroughs and communities." Neighborhood or civic groups within the larger community may draft a 197-a plan, but they must be approved, sponsored, and submitted by a community board, borough board, or borough president. Over 25 years after the City Charter was adopted, only thirteen 197-a plans have been adopted (City of New York Department of City Planning, 2020).

What is described in the City Charter is a hierarchical process in which a community might be consulted, but ultimately does not have any decision-making authority, which is rather held by district-wide officials. Those officials often determine what the key topics are that any urban plan will seek to address. As members of the grassroots organization Take Back the Bronx recently said at a planning workshop, the city's community engagement process around rezoning tends to set parameters for the discussion that limit the scope of community input, such as how a community would like to reach a goal rather than ask if they want the goal in the first place (Kully, 2019). Establishing a starting point where community members determine the scope of the plan is a form of "procedural justice." Outcomes are protected against certain systemic injustices by allowing for community oversight and determination from the outset.

On the other hand, Fig. 10.1 below is a representation of an alternative community-based planning process—one in which community residents create the initial framework and comprehensive vision and attain the resources necessary for

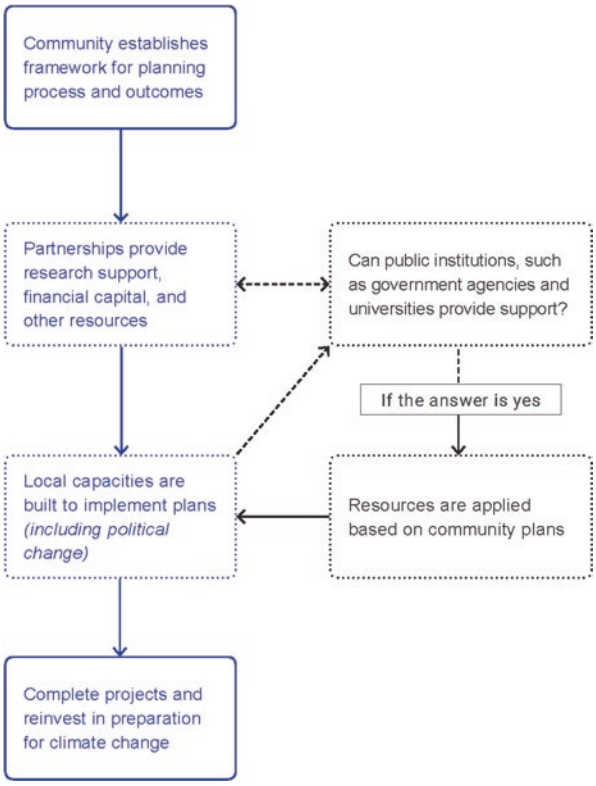

Fig. 10.1 Diagram for community-based planning, from The Upper Manhatta(n) Project

the plan's implementation. In this version of planning, the traditional hierarchy in which public institutions present a narrow planning question, i.e., "do you support the change that is being proposed, yes or no?" is inverted. It makes it so the "community," which itself has to be defined, working as part of a larger collaborative of stakeholders, identifies what the important questions are for the overall process and how they will be answered. Facilitating grassroots leadership in how the key planning questions are answered is critical for meaningful participation. Depending on the "community" that is in question, they may or may not have the time, language, money, meeting spaces, or other resources that are often required in a conventional process. When the community sets the format for the process, then it is ensured it will have access and be more invested.

As the urban planner and CUNY professor Tom Angotti has noted, "real community planning takes years and needs to be an ongoing activity at all levels of government – in neighborhoods and citywide ... and of course [government] must be held accountable to the principles of public interest and social inclusion." Right now community engagement in planning is a venue to "let people vent around the issues" and "invariably ends up with a wish list of desired projects and a long document that has no legal value, not an official plan." If we do not overturn this system, then cooperation with institutions will only erode more than it already has (Angotti, 2016).

The following sections will describe the application of creative practice within the context of community-based planning. There are organizations who are brilliant at either utilizing art + design in the planning process or are strong advocates of environmental or social justice, but very rarely do they meet. In New York City and other major metropolitan areas, there are a handful of organizations that specialize in creating imaginative tools for public engagement. Outside of major metropolitan areas, there are even fewer specialized groups. However, these budding organizations are filling a particular niche that spans across places, and as a result their mission may only partially overlap with the place-based environmental and social justice organizations that are often leading community-based climate change planning. This chapter represents a synthesis between the mission of local justice-focused organizations and the methods of creative practitioners.

A community urban planning meeting in Harlem, New York City, 2015

An Illustrated Comprehensive Vision

In 2015, I started working at We Act, a community-based organization (CBO) that received a grant for coordinating local urban planning efforts for the next 3 years from the Kresge Foundation. The investment in planning was mainly a response to Hurricane Sandy, but given the organization's mission of environmental justice, our idea of planning was more than building resilience to a future hurricane event, but rather creating systemic change. The organization, WE ACT for Environmental Justice, has cultivated a network of organizational members who have lived locally in Harlem, NYC, for over 25 years. This network that was mostly composed of people of color served as the participant base in the multi-year planning process. Their previous work had focused on the impact of environmental hazards that had come from decades of class and race-based disparities in the distribution of toxic infrastructure (Mohai et al., 2009). In New York City, examples of such hazards include chronic air pollution resulting from the siting of bus depots, waste transfer stations, sewage treatment plants, and incinerators in predominantly Black and Latinx communities. Such communities are also afflicted by toxic facilities such as so-called peaker plants, the dirty oil-burning power stations that switch on to

generate electricity during times of high (or "peak") demand. But the struggle against injustice has only intensified—the community now has to deal with unprecedented levels of gentrification and the future impacts of climate change.

As the organization convened with community members and other partners, we set out to answer the question: What is our long-term vision? The knowledge about environmental justice that existed in the community led to the commitment to address systemic racial inequality in the plan. The deep-rooted inequality in Upper Manhattan meant the plan had to do more than present a vision of where the community wanted to be in the future, but also include clear mechanisms for changing the systems that maintain racial disparity in our built environment.

Over the course of 3 years, a collaborative of dozens of community members, academics, public officials, artists, and many more generated the Vision for Resilience that is seen in Fig. 10.2. The vision incorporates three typologies of the built environment, including industrial waterfront, high-rise public housing, and low-rise mixed-use, each of which has a series of physical infrastructure developments, along with corresponding systems of governance and resource distribution. Each element has an equal footing in social justice and environmental sustainability.

As an example, one element is the creation of social hubs that double as nodes for the production of renewable energy and agriculture. Social hubs are

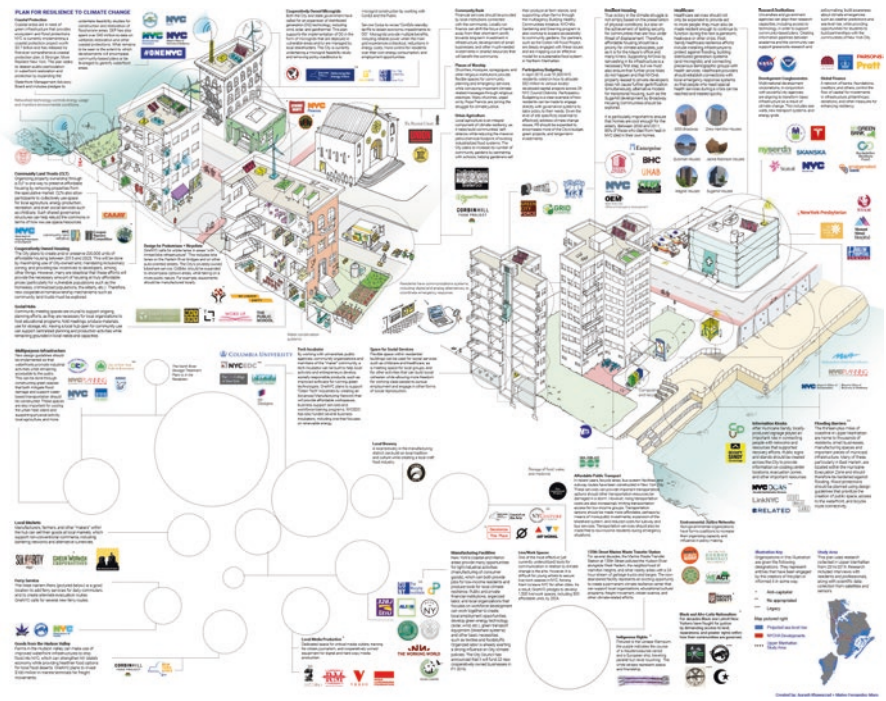

Fig. 10.2 The Vision for Resilience

multi-purpose venues for social networking, educational programming, maker spaces, and other not-for-profit community endeavors. They are also equipped with resources such as maps and scale models, for urban planning workshops. Social hubs are self-managed, which means that they are not subject to the whim of landlords, developers, or institutions for the security of their space or direction of their programming. Additionally, local management and ownership of a social hub are a prevention against economic extraction. These spaces serve as platforms to incubate new initiatives and maintain the advancement of collective knowledge about the built environment and much more. The hubs double as emergency preparedness centers. By growing and storing food, producing renewable energy that is detached from the main electrical grid, and being managed locally, social hubs have every resource to be a reliable shelters and centers of operations during a crisis. By one estimate, NYC saw the closure of dozens of similar community spaces in the 2010s alone (Thiessen, 2019). Who knows how many more local arts and performance venues will shutter after the social distancing impacts of the coronavirus pandemic. Without more social hubs, how else will we heal the disruption in social networking and education that has been caused by those closures? Each idea in the plan has been thought through in terms of environmental and social impacts, just as the social hubs concept has. Other key concepts include transforming the electrical energy grid, creating new systems of participatory governance, emergency preparedness, sustainable housing, light manufacturing, local financial development institutions, green infrastructure, and more. Social hubs are an example of how community-based planning can create flexible and unique solutions that leverage available resources to meet local needs. Such solutions are not only important for reflecting local values and culture, but they are key for climate justice in that they are dynamic and efficient in how they operate. We see parallels in the ecological studies' definition of resilience and the concept of community-based planning in that both rely on diversity of approaches in order to withstand shocks from external forces, whether they are natural disasters or failures of government, the economy, or the other systems that govern our social relationships.

Overlaid on the illustration is a "power map," which serves as a reference tool for understanding the hierarchy of institutional and grassroots organizations that are vying for influence around an issue. The inclusion of the power map is a call for action. It shows that there is already momentum behind change. It also serves as a guide for how to navigate social networks while advocating for a community position and how to hold entities accountable when they are obstacles to the plan (Khawarzad & Fernandez-Muro, 2015). Calling out specific actors within the power structure is necessary to avoid the typical absence of "recognition of the ecological dominance of capitalism in terms of its capacity to imprint its developmental logic on associated social relations, institutions and spaces" (MacKinnon & Derickson, 2013).

During community engagement, illustrated planning documents have a key advantage over a more technical and/or narrative format. They allow for greater accountability by participants who can easily identify whether their input is reflected in a plan. They can particularly facilitate participation from speakers of English as

a second language in terms of understanding the jargon and colloquialism that can dominate a discussion about urban planning. Using a design approach is also a key factor in representing the multi-layered nature of concepts like "resilience" and "resourcefulness." With visual tools, one can show the connection between ecological resilience where it emphasizes the capacity of an ecosystem to absorb shocks and maintain functioning and social resourcefulness in which communities have the capacity to engage in democratic dialogue to develop their own agenda and work in ways that meaningfully challenge existing power relations ((MacKinnon & Derickson, 2013). As we know from the historic struggle for climate justice, without an understanding of what the power structure is, meaningful change can be elusive.

As a printed object, the Vision for Resilience is a brochure that folds out into a 22″ × 27.5″ poster. The ability of this medium to be easily distributed (in brochure form) or hung up like a poster (when unfolded) makes it a tool for community organizing and conversation. If the goal of a planning process is to increase participation and develop more popular support, then using mediums that are found in pop culture can help. If we can create tools for urban planning that inspire that same imagination, we may spark more long-term interest in the subject. Over 2500 copies of the plan were distributed throughout Upper Manhattan in the months after it was printed. The poster became a conversation piece as it was hung in apartments, office cubicles, and perused on crowded buses and trains. By inspiring, thinking, and communicating about climate change resilience, the plan became a fulcrum for devising local actions for the immediate future. It was successful in one of its primary goals, articulating a grassroots vision for climate justice while also stimulating cooperation between community members and institutions on plan implementation. The physicality of the foldable pamphlet also served its purpose of generating interest from the passerby. It was designed as a pamphlet that would germinate a social connection between neighbors on the stoop, passengers of mass transit, or at a local community board meeting. The nostalgia that was invoked by the physical copy of the climate change plan was in contrast to the nuggets of information we are constantly consuming on social media.

At this level of planning, the objective is to lay out a vision and then begin the process of deeper problem-solving for what implementation would look like. This is opposed to creating a plan that is implemented verbatim, as much as that may be preferable or deserved. The Vision for Resilience is being implemented in the sense that it is shaping discourse and culture around environmental resilience among the community. It is designed to encourage and incorporate change based on gaining the further participation and commitments it would need to transform the tangible reality of our environment.

A Field Guide and Maps for Implementation

The Vision for Resilience was the result of a lengthy public engagement process where our key question was very broad; it was essentially "what is our long-term vision for the community?" However, after we began to answer our first question, another equally important question dawned on us, which focused on how we were going to implement the vision we had dreamed up. The Upper Manhatta(n) Project (Fig. 10.3) is a detailed field guide that was created in response to the question of implementation. The manual categorizes the main elements of the Vision for Resilience and adds detail to them in the form of maps, case studies, policy information, and other how-to forms of data so that anyone, from the novice to the expert, can take independent or collective action on implementing the Vision (Khawarzad, 2018).

In addition to including technical information about the plan, just as importantly, the field guide provides a robust framework for understanding the principles of social and environmental justice and a brief historical account of the study area. The introductory sections provide context about inequality, including the demographics of the community, socioeconomic disparities, the current trend of gentrification, and the inclusion of people with differing abilities. The greater portion of the guide pertains to categories that respond to the preceding Vision for Resilience. The sections include Energy, Emergencies, Heat, Food and Waste, Social Hubs, Green Infrastructure, Governance, Housing, and Waterfronts. Breaking the broader vision down into sections allows for a moment of in-depth research and reference information that can guide next steps. The formula for each section is designed so that additional sections can be added to this book and/or be replicated in other places. This field guide or "how-to manual" is just one step toward deconstructing the top-down urban planning process while still creating opportunities to leverage the resources of governmental and quasi-governmental institutions, i.e., the public purse and publicly held tangible assets.

Even with the amount of open data that is being generated at the moment, we do not yet have centralized resources that have comprehensive and detailed research

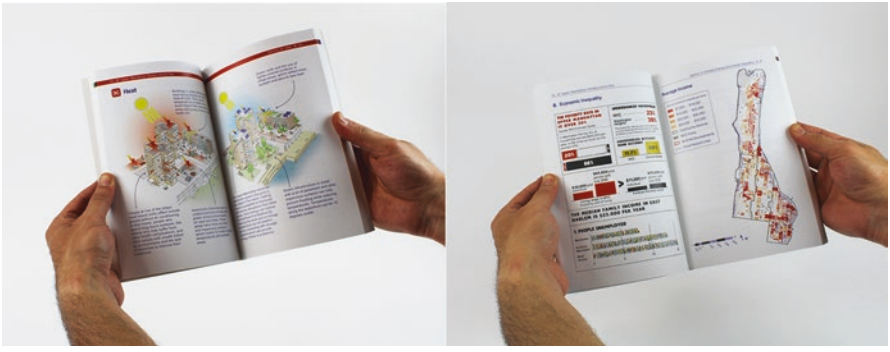

Fig. 10.3 The Upper Manhatta(n) Project, a field guide for implementation

about community-based plans. The Upper Manhatta(n) Project is an experiment in creating that resource and a model for other cities to consider. In the era where we need immediate action to prepare for climate change and other social crises, we need additional pathways for individuals and informal local networks to take action. Being overly dependent on public institutions and private sector companies to regulate pollution has not produced the change necessary to meet even modest goals for equity and resilience. The current governmental *pledges* to reduce CO_2 emissions put the world on pace for around 3 °C of warming this century. Scientists have warned that even 2 °C of warming would be catastrophic (Plumer & Popovich, 2018).

It should be noted that using design and creating high-quality graphics are only useful in community-based planning if the information is accessible for the local climate justice community. Just putting something in graphic form does not necessarily make it accessible, even if it is more engaging than a conventional planning document. Without open and accessible information, a bottleneck of human potential forms. Would-be leaders are forced into an institutional process or are subject to the capacity of a CBO. These tools operate under the assumption that if there were reference tools that could be widely used, then some bottlenecking might be alleviated and resilience could be increased across the spectrum. Having tools available for people to guide their own autonomous actions can lead to the creation of a decentralized or distributed network, which is an alternative to the rigid structures of government that discourage participation and allow elites to retain control.

A companion to the field guide is The New York City Climate Change Displacement Map, seen in Fig. 10.4. It expands on the social and environmental justice mapping in The Upper Manhatta(n) Project but outlines the significance of threats for other neighborhoods in the city so that resources for community-based planning can be designated appropriately. The 24″ × 36″ map of all five boroughs calculates displacement threats by analyzing (1) flooding during hurricane Sandy/hurricane evacuation zones; (2) income data, i.e., those making under $50,000 per year; and (3) cost of housing, i.e., those spending over 50% of their income on housing expenses. Displacement zones on the map show where all three layers overlap (Khawarzad, 2020). The map depicts who will suffer because of the relationship between their geographic location and socioeconomic status. By these calculations over 650,000 meet the criteria for being at risk of displacement. When looking more closely at the displacement zones, we see there is a strong overlap with where "essential workers" during the COVID-19 pandemic are located (City of New York Office of Comptroller, 2020). What does it say that the people in the regions of the city who are living most precariously are also the ones that the entire population relies on the most for essential services? It says a lot about the moral character of our city planning and public policy but also shows how vulnerable the city is in terms of managing a crisis and how we need to plan the city differently. Similar to the Vision and field guide, the displacement map is a blend of design and advanced research and a useable tool for policymakers. Maps such as these are useful and perhaps even more accurate in smaller to mid-size cities where growth and human migration patterns are not as complex as New York City.

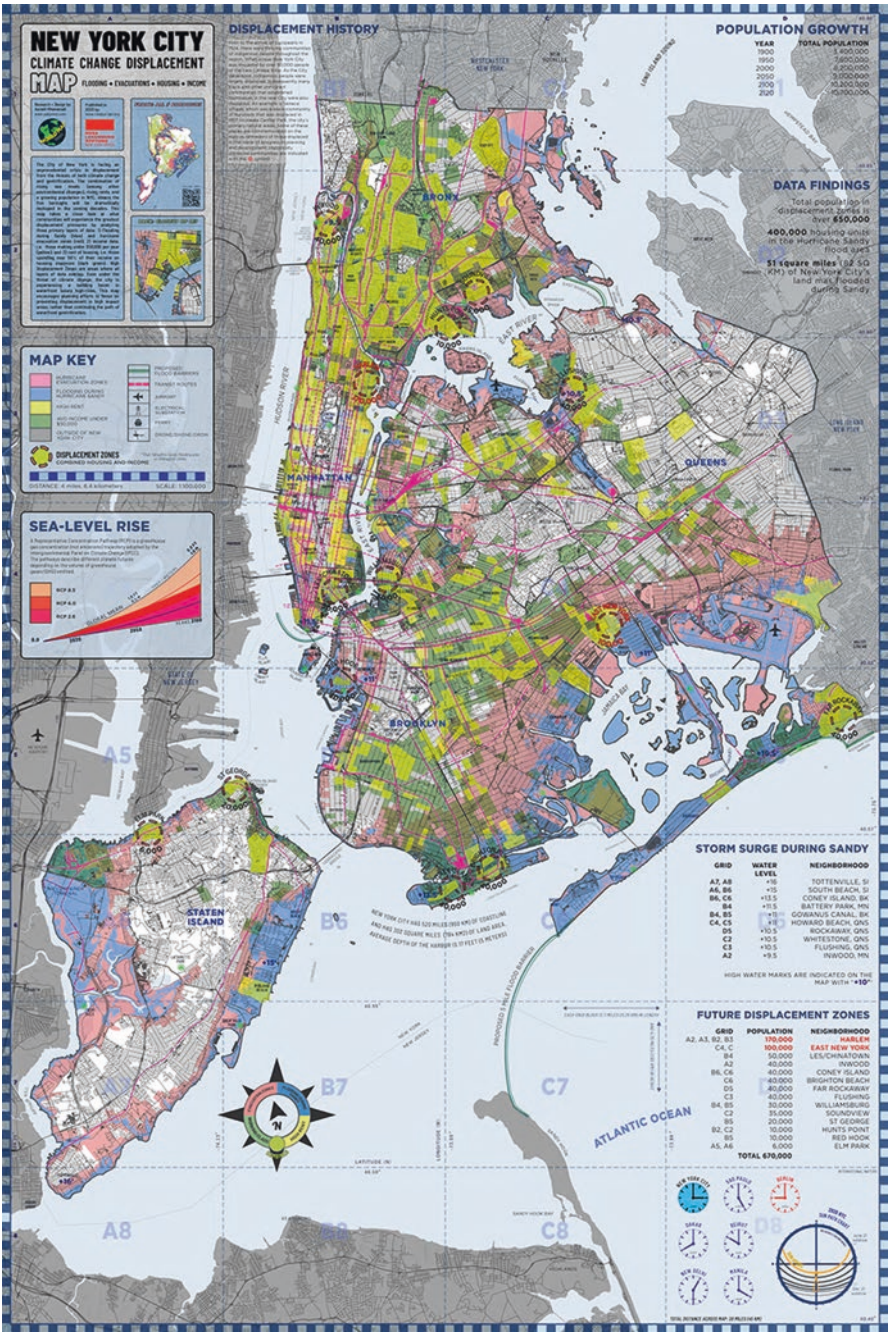

Fig. 10.4 New York City Climate Change Displacement Map

The Policy Mixtape: Community-Generated Narratives

The art + design materials described in the previous section are community driven, but they are ultimately created by trained organizational staff (in this case me). But with the digital tools that are available today, community members can directly generate multimedia content that can inform the planning process. That is the philosophy behind the "Policy Mixtape" (Fig. 10.5).

The Policy Mixtape is a system of collaboration that provides an alternative method to creating public policy reports. By recording workshops and sharing content that is generated directly from workshop participants, it makes for a more authentic narrative and one that may be more resistant to co-optation by more powerful institutions. The Mixtape comes in the form of a zine that transforms into a wall installation. Within it are scannable links to user-generated multimedia inserts (from workshops in 2018 to 2019) (Khawarzad, 2019).

During the Mixtape workshops, participants created photos, songs, videos, essays, and other contents that are included in the publication. The richness and texture of the multimedia content foster a deeper understanding of a community than conventional policy reports can. The Mixtape format also serves as a mechanism for contributors to maintain control over their intellectual property—preventing manipulation of their message. The Policy Mixtape seeks to disrupt the policy industry—like audio Mixtapes did the music industry—by using accessible technology to facilitate creation and sharing and by challenging content ownership norms.

The combination of digital media formats and in-person engagement is a blend of community media and tactical media. Community media are "created primarily with and by residents of a specific geographic place. They explore local issues and help define the places where we live and how we relate to one another. They reflect local values and culture" (Johnson & Menichelli, 2007). The tactical media aspect of it is the ability to capture and edit high-quality materials with everyday consumer technology and then share it using the Internet. It becomes more tactical when it is

Fig. 10.5 Images of the Policy Mixtape

exploited by groups and "individuals who feel aggrieved by or excluded from the wider culture" (Garcia & Lovink, 1997). The triangulation of community, tactical, and social media could change the game for community-based planning. When people can create their own content, using their own language, values, and other cultural norms, they are not only presenting more authentic ideas but also injecting much needed creativity and excitement into the planning process. And by removing the agency or organization that would otherwise serve as the arbiter of the community message, we ensure the integrity of what residents have to say about an issue remains intact. In an era where participation and engagement are trends in policymaking, ensuring the integrity of public input is as critical and difficult to maintain as ever. As contemporary analysts of social movements have pointed out, "the autonomy of communication is the essence of social movements because it is what allows the movement to be formed, and what enables the movement to relate to society at large beyond the control of the power holders over communication power" (Castells, 2012, 11). The Policy Mixtape is predicated on the simple idea that someone from the community can tell their own story better than a planning professional who tries to interpret it can. Each time planning occurs, it is a chance to build social connections and strengthen a community, but too often it is just treated as an opportunity to extract data and co-opt a message. The Policy Mixtape fights against that dynamic by democratizing the planning process while still creating powerful and unique ideas.

Institutional Challenges

The scale, complexity, and urgency of climate change planning make it a difficult challenge for urban planners and policymakers. In order to meet this challenge, we must apply a broader range of strategies in our practices. The challenge with applying creative practice in climate change urban planning is that our institutions and codified planning processes are not designed to support it. At the grassroots level, the networks of philanthropists, non-governmental organizations, and public agencies that facilitate climate change planning are not always equipped to understand the role of art + design. Where they have a lack of experience and/or staff, capacity to apply creative practice shows up in the types of grants that are awarded, research and planning that are done, and communications materials that are created. When philanthropic organizations do not emphasize the use of creative practice, and public agencies or environmental justice organizations do not have the right staff experience, opportunities are missed to invigorate the climate change planning process. When a grant that is awarded to a community-based organization does not consider the use of art + design in planning, and when local institutions cannot advocate for using their own ingenuity to create new methods of planning, it prevents a diversity of strategies to be deployed in the struggle for environmental protection. Over decades of development, environmental organizations have acquired the capacity to conduct research, lobby political entities, and carry out issue-based campaigns, but

art and design tools are still largely absent from their repertoire. A plethora of policy documents that influence the highest levels of government have been published, such as the IPCC, but we lack the everyday tools that can galvanize community members around urban plans that are of their own image. If creative practice was deeply integrated into local planning projects, it could lead to more novel and powerful strategies for combating climate change.

Next Steps: An Evolution in Planning

Planners have been theorizing about the "Ladder of Citizen Participation" since the 1960s (Arnstein, 1969, 217). Even though the same structural problems that existed then still exist, today we have an entirely new set of tools available at our disposal for engagement and content creation. By bringing together new configurations of people and disciplines, and equipping them with new tools, we can create a new form of community-based urban planning. The tools outlined in this chapter provide opportunities for people who may not be attracted to a conventional planning process to become engaged. Using creative practice can also lead to a more accurate and genuine representation of what the community input actually is. In the case of using multimedia technology, it allows community members to speak for themselves, which can be a more powerful and authentic representation than any planner or facilitator can provide. Attempting to use art and design in planning can seem abstract, but with practice we can create paths out of that abstraction to a place of tangible action.

Conventional planning and policymaking will still occur, including in the context of climate action. But communities would benefit from using a diversity of approaches to planning. The more communities that see themselves reflected in the planning materials that are created, the more that change may happen. Rather than participating and ceding control of the final product, community-based planning can be empowering from start to finish. Community members can manage the overall aesthetic for a plan, the content that is communicated, and ultimately build the capacity to implement their own ideas. The first step is to change how we work together and communicate our ideas. The further we can liberate the planning process from the power structure and old forms of communication, the higher frequency of grassroots change and empowerment we will see at the community level.

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Chapter 11
Interagency Collaborations in Environmental Sustainability Work: Social Network Insights at the Community Level

Carolyn Creighton Conant

Introduction

In the United States, neoliberal capitalism and the government-industrial complex have produced a legacy of lethargy and reluctance on the part of the federal government to act to mitigate climate change or address its impacts, increasingly channeling the burden of action onto state, county, and municipal governments. As other chapters in this volume demonstrate, procedural equity is a necessary component of justice in climate action planning to ensure the resilience of communities. This chapter explores the question: *How does the structure of social networks affect the dynamics of interagency collaborations between community and government stakeholders involved in local environmental sustainability work that contributes to climate action planning goals?* And, *what are the equity implications of those dynamics?* This research uses social network analysis to explore these guiding questions by examining empirical evidence of procedural justice and power-sharing in the arena of local environmental sustainability work, which is necessary to accomplish the climate mitigation goals involved in local government-led climate action planning.

The concept of procedural justice is useful for expanding equity and justice analyses beyond distributive outcomes to also encompass the decision-making process and questions of choice, access, control, and participation (Schroeder et al., 2008, 552–553; Lake, 1996; Young, 1990). In addition to promoting equity in process and outcomes related to climate action planning and implementation, the concept has additional importance from a social network perspective. According to Tyler and Blader (2003), procedural justice shapes cooperation among groups and communities due to the role that procedures play in shaping individuals' social identities within collectives and, therefore, their decision-making and behavior. In this

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chapter, I argue that viewing collaborations in environmental sustainability work as a form of procedural justice in climate action planning can help to fill the gap identified by many scholars in evaluating justice and equity in climate action planning and other sustainability work (Pearsall & Pierce, 2010, 569; Krueger & Gibbs, 2007; Agyeman, 2004; Portney, 2003; Warner, 2002).

Understanding the structure of social networks is a key tool for assessing the effectiveness of interagency collaborations. Prior research indicates that social network features—specifically, network structure and the strength of ties—have measurable effects on outcomes of interest to interagency collaborations, such as transfer of knowledge, improved productivity, innovative capacity, and provision of services (Cross et al., 2009, 311). Furthermore, interorganizational relations are key to understanding the opportunities, limitations, alliances, and divisions that can make or break the achievement of environmental sustainability goals (Sbicca et al., 2019, 2), as well as the equitable participation of community members in this space. Social network analysis helps to elucidate *why* people participate in groups or alliances and to interpret the patterns of relationships that people and organizations have (Bruhn, 2011, 233). Thus, this methodology can help to explain how organizations navigate differences in power and influence through resource exchange and access (Sbicca et al., 2019, 2). When cities are studied as networks or structures composed of interconnected linkages, the diversity of the city becomes a source of strength and justice, rather than of chaos (Craven & Wellman, 1973) and emphasizes the need to engage a diverse array of stakeholders for effective, just, and equitable climate action. While there is a small body of literature that applies social network analysis to evaluate the success of specific environmental sustainability projects and examples of pro-environmental collective action (Prell et al., 2009; Bodin et al., 2006; Crona & Bodin, 2006; Tompkins & Adger, 2004; Schneider et al., 2003), there is a gap in the literature in terms of evaluating city-wide engagement in environmental sustainability work, including climate action. This research seeks to fill that gap and promote the use of social network analysis as a tool to achieve more equitable local climate action planning by identifying who is missing and who is dominating the flow of resources and relationships in the space of environmental sustainability work, which contributes to achieving the goals of climate action plans.

In this application of social network analysis to the network of environmental sustainability actors in Fort Collins, Colorado (USA), clear network features that affect access to resources and relationships emerge, with important implications for procedural equity. To clarify, a network can be defined as a specific set of linkages among a set of people or larger social units that can be used to interpret the social behavior of the people involved in them (Craven & Wellman, 1973). First, the Fort Collins environmental sustainability network is dominated by the municipal government (the City of Fort Collins), the local university (Colorado State University), and the City's Climate Action Plan as a collaborative project. Network maps reveal that there are gaps along sectoral lines: the business community has few participants in the environmental sustainability network, and those few are mainly on the periphery and not well-connected. The same is true of county-, state-, and federal-level

actors, organizations from faith communities, and charitable foundations. We are also able to see which topic areas of work tend to linger on the periphery of the network, remaining more siloed, and which topic areas tend to engage a diverse range of stakeholders by acting as collaborative hubs in the center of the network. Water, transportation, food systems, and natural resource/ecosystem conservation projects are on the periphery and do not seem to attract diverse collaborations. Projects at the core of the network directly tackle greenhouse gas mitigation; waste reduction; outreach, education, and behavior change; the built environment; and energy issues.

Background and Context

Social Network Analysis

Social network analysis is a mixed-methods social science approach that analyzes the structure of social networks to reveal how resources and information flow throughout a particular network. A network can be defined as a specific set of linkages among a set of people or larger social units that can be used to interpret the social behavior of the people involved in them (Craven & Wellman, 1973). This approach to understanding organizational or interorganizational dynamics is useful because it reveals who the "power players" are in the network, how resources circulate, and who performs "bridge work" between main aggregates of actors. When networks are mapped in this way, it becomes possible to infer why individuals and organizations do or do not enter into collaboration with one another, and what the existing barriers to collaboration are based on gaps in the network structure, which may reveal procedural injustices. Networks are healthiest when the groups that comprise them are well-connected and close together enough to enable ready collaboration, support, and resource sharing, but not so tightly clustered that members' exposure to external influences, ideas, and experiences is restricted (Giuffre, 2013). Furthermore, social network analysis helps to reconcile the tensions between research and theoretical approaches that privilege either interaction-level or structural-level factors that restrict or enable collaboration by incorporating both, making it a powerful tool. Because this research project aims to develop strategies to improve the flow of information, resource sharing, and collaborative efforts among those working in the field of environmental sustainability in Fort Collins, social network analysis is a useful tool for the insights that it provides. Social interactions are crucial to understanding why collaborative relationships emerge between certain players and not others, how individuals' positions within the network affect how they engage with others, and how power dynamics emerge within coalitions of groups in the network (Lin et al., 2017; Balfour & Alter, 2016; Bruhn, 2011; Cross et al., 2009; Craven & Wellman, 1973). In sociologist Mustafa Emirbayer's words, social network analysis is "a paradigm for the study of how resources, goods, and

even positions flow through particular figurations of social ties" (1997, 298) and was employed in this research project to help develop recommendations for improved and more equitable collaborative work in Fort Collins environmental sustainability projects and initiatives.

Interagency Collaboration

Collaboration can be defined as "a mutually beneficial relationship between two or more parties who work toward common goals by sharing responsibility, authority, and accountability for achieving results" (Chrislip & Larson, 1994). In the collaborative studies and team science literature, collaboration is generally perceived as a spectrum from simple and less productive forms (e.g., information-sharing) to complex and productive forms (e.g., producing something new together, committing resources, utilizing integrated decision-making) (Cross et al., 2009). There has been a growing acknowledgment of the importance of interagency collaboration for "improving community well-being, environmental and public health, and education outcomes," among benefits to other fields as well (Cross et al., 2009). In this chapter, I use the term *interagency collaboration* to refer to cross-sectoral, interinstitutional collaborations occurring between organizations from a broad range of sectors, including government, education, business, and non-profit.

Interagency collaborations are valuable for their maximization of service provision, minimization of operational costs, sharing of expertise, and strengthening of democratic processes in the public sphere (Johnson et al., 2003). Interagency collaborations are a particularly intriguing unit of study for the multiscalar complexity of interactions and relationships at work. Within the field of environmental sustainability, it is essential to engage with studies of interagency collaborations to understand how environmental sustainability goals are developed, approached, and achieved by the wide range of stakeholders involved and to assess the procedural justice (or lack thereof) involved. An increasing academic interest in understanding interagency collaborations and their role in community well-being, governmental efficacy, social change, and more has raised questions about the most effective way to evaluate such collaborations. Measuring the success of interagency cooperation and collaboration is notoriously difficult due to the complexity of the relationships involved in collaborations and the limitations of existing methodologies for assessment (El Ansari & Weiss, 2005; Granner & Sharpe, 2004; Bardach, 2001). Problems of logic and measurement make it difficult to develop models that accurately explain how success is determined and measured in collaborative endeavors (Bardach, 2001). However, social network analysis has gained popularity as a methodology that is able to overcome some of the difficulties of understanding and assessing collaborative efforts.

The literature suggests that sufficient resources, pre-existing networks, trust, acceptance of leadership, and an iterative approach can all increase the successfulness of interagency collaborations (Petersen & Wellstead, 2014; Bardach, 2001).

Network structure and the strength of ties between network members have been identified as primary factors in affecting outcomes like knowledge transfer, organizational change, productivity, and innovation (Cross et al., 2009; McEvily et al., 2003; Reagans & McEvily, 2003; Granovetter, 1977). Research has suggested that non-profits are more likely to collaborate if they are not operating in the education, research, or social services realm (Guo & Acar, 2005). In addition, the difficulties of establishing interagency collaborations across sectors—i.e., between governmental, non-profit, for-profit, and educational entities—have been noted by many (Anheier & Seibel, 2013; Guo & Acar, 2005) and are affirmed in this research. Some barriers to collaboration that have been identified include lack of understanding of other agencies' policies; lack of communication; lack of time and funding; unclear goals and objectives; gaps in services that identify needs; inconsistent service standards between collaborating entities; excessive use of jargon; different definitions of collaboration; conflicting views and values; bureaucracy; collective decision-making; and resistance to change (Johnson et al., 2003; Pugach & Johnson, 1995; Friend & Cook, 1992; Stegelin & Jones, 1991). Many of these themes also emerge in the qualitative data from those who participated in this research. Browne et al. (2018, 421) note that the "gap between practitioners and researchers is persistent and pernicious, and often treated as an unavoidable structural problem or accident of professional silos and circumstance." This research suggests that we also view such persistent and pernicious gaps between sectors as a canary in the coalmine for procedural injustice.

Case Study Site: Fort Collins, Colorado

Fort Collins, Colorado (USA), is located on the northern end of Colorado's densely populated Front Range, where the foothills of the Rocky Mountains meet the expansive plains to the east (Fig. 11.1). The community is a useful site for the study of interagency collaborations in environmental sustainability work for several reasons. First, the city (population 170,000) is the fourth largest in Colorado and is rapidly growing, encouraging a diverse variety of practitioners to engage with questions of environmental sustainability that complexify in tandem with the increasing population and distending urban sprawl into surrounding natural areas.

Second, its location in one of the nation's most densely concentrated oil and gas production areas and adjacent to the Interstate-25 transit corridor consistently puts the city on the rankings of the top 30 US cities for worst air quality, with other important environmental and social justice implications from the regional dominance of the oil and gas industry. Third, Fort Collins is a city that has largely embraced progressive climate action on the citizen, private sector, and governance fronts. Indeed, an unusual amount of environmental sustainability-related work takes place there. The City of Fort Collins issued its first proclamation on climate action in 1999 and has since been awarded several national and international recognitions for its efforts on climate mitigation and adaptation. The city participates in

Fig. 11.1 Case study site: Fort Collins, Colorado, USA

many local, regional, national, and international collaborations with environmental focuses. Fort Collins is home to many citizen climate and environmental advocacy groups and coalitions, including Colorado Communities for Climate Action, Fort Collins Partners for Clean Energy, and the Fort Collins Community Action Network, among many others. The local university, Colorado State University (CSU), is a land grant and Tier 1 research university with extension offices located throughout the state of Colorado. The university has also been recognized as an international leader in sustainability in higher education; it was recognized in 2020 with a record third platinum rating by the Association for the Advancement of Sustainability in Higher Education (AASHE) and is the only institution in the world to have achieved three platinum ratings. Last, Fort Collins hosts a number of federal land management bureaus, including the US Geological Survey (USGS), US Department of Agriculture (USDA), and US Forest Service. The presence of multiple sectors that all have an interest in questions of environmental sustainability makes for a robust field of study for this research into interorganizational, cross-sectoral collaborations in environmental sustainability work.

Methods and Data

The data used to generate the social network maps used in this project come from several sources. First, I conducted seven semi-structured in-depth interviews in late 2018 and early 2019 to narrow the scope of the research questions and decide what questions to include in the online survey. Those interviewed included two city

government employees, two university staff members, two members of different local non-profit organizations, and one representative from the joint municipal action agency that provides electricity to Fort Collins (Platte River Power Authority). The survey included 19 questions in a variety of styles, including multiple choice, open-ended answers, ordering, Likert scales, and ranking. Some of the questions include the following:

- What does environmental sustainability mean to you in the context of your work?
- Who are the top 5–10 people you have collaborated with on projects relating to environmental sustainability in the last 5 years?
- What resources do you usually seek when collaborating?
- What barriers to collaboration have you experienced?
- In what areas have you collaborated most on environmental sustainability goals?

After pilot testing with 25 people, the survey was sent by email through three rounds of snowball sampling to a total of 528 people. It was completed by 188 people for a response rate of 36%. In total, qualitative and quantitative data about 645 people, 46 organizations, 455 projects, and the relationships between all of these entities were collected (Fig. 11.2). Thirty-nine percent of respondents were affiliated with the university, 30% with local government organizations, 12% with

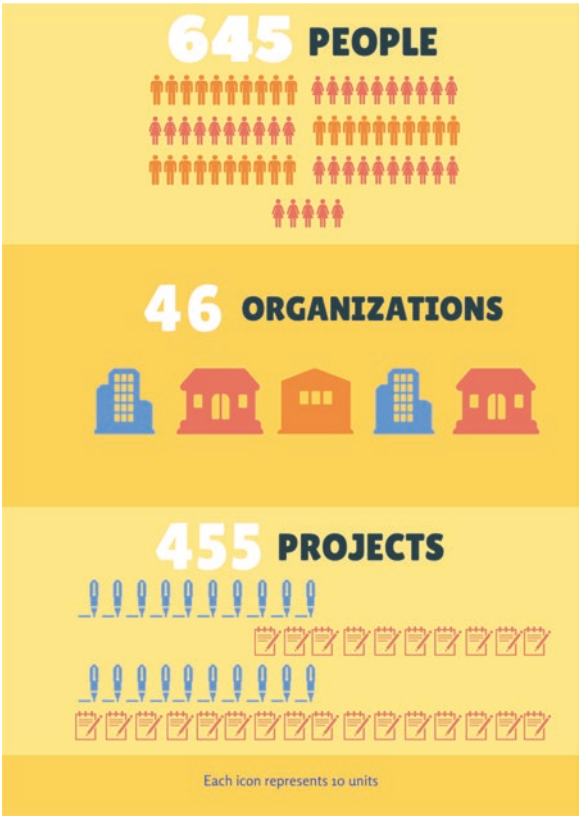


Fig. 11.2 Summary of data collected

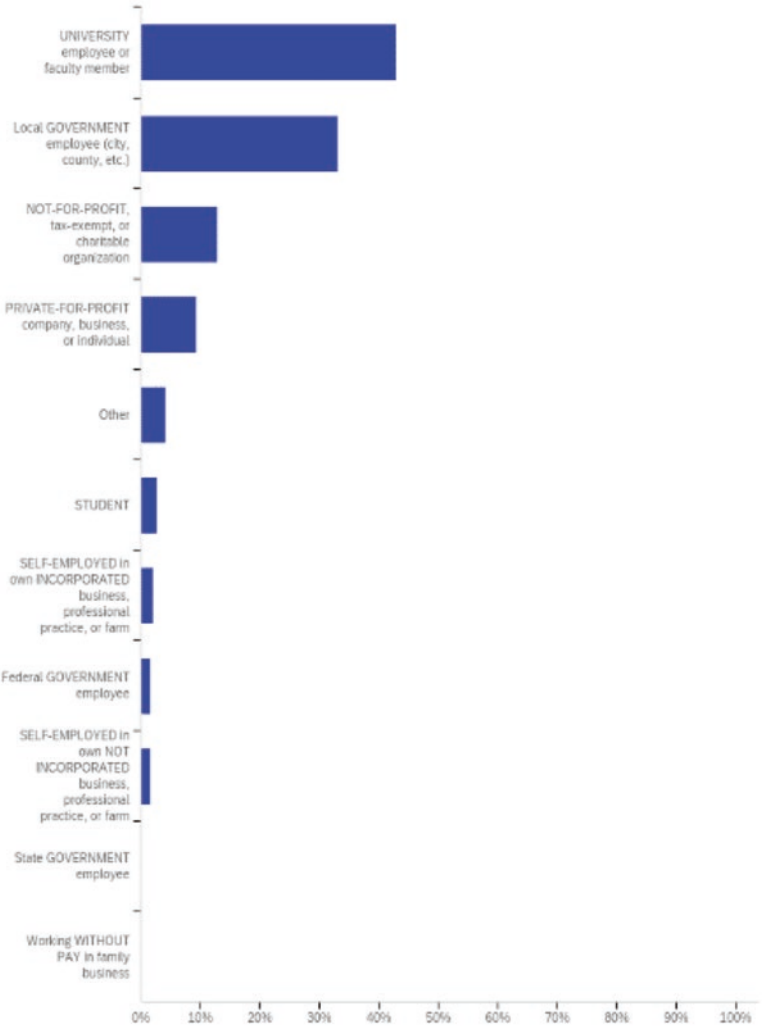


Fig. 11.3 Sectoral breakdown of respondents

non-profit organizations, and 8.5% with for-profit businesses. Respondents who were self-employed, federal government employees, or affiliated with other sectors included less than 4% of respondents in each category (Fig. 11.3). Finally, we held a community workshop in July 2019 to present preliminary results to research participants and seek input about how to make the research most useful to participants' work.

Research participants were initially sourced through targeted identification of those involved in environmental sustainability work in Fort Collins based on university department affiliation, business focus, municipal service area affiliation, or past

or current involvement in known projects pertaining to local environmental sustainability initiatives. Subsequent rounds of respondents were sourced through snowball sampling conducted in each round of survey distribution. Open-ended survey responses and interview transcriptions were coded and organized using NVivo software. Network maps and centrality measures were generated with social network software programs Gephi and UCINET.

Limitations

Like any methodology, social network analysis has its limitations. In an unknown network, identification of network actors and the collection of their data are reliant upon snowball sampling, which may lead to oversampling biases or missing data (Borgatti et al., 2018). In addition, my personal organizational affiliations (as a graduate student at Colorado State University and a graduate intern at the City of Fort Collins) may have produced higher response rates from people also affiliated with those organizations, which could result in their overrepresentation in the dataset. Similarly, bounding the network is a problem inherent to social network analysis when working outside of formal group structures (Borgatti et al., 2018). Due to the complexity of trying to map a complete network, a boundary can be imposed on the network to focus only on ties among actors in a selected population (Balfour & Alter, 2016, 438). In my project design, I used the geographic borders of the city of Fort Collins to bound the network by soliciting information only about locally based collaborative projects in environmental sustainability work. While useful, this bounding method necessarily involves certain gray areas; for example, there are many researchers based at Colorado State University who work on extralocal environmental sustainability projects but whose expertise could potentially be leveraged by actors involved in locally based projects if they were identified as part of the network. In addition, many people and organizations working on local projects rely on resources from actors outside of Fort Collins, particularly in the Denver metro area. However, the decision to impose geographic boundaries on the network has the advantage of controlling for propinquity as an influencing factor in the formation of relationships between actors, allowing us to more closely examine the effects of homophily or the tendency to seek out those who are similar, by sector or topic area of work (Reagans, 2011; Hipp & Perrin, 2009; McPherson et al., 2001). Finally, the data I collected can function only as one snapshot in time; while the real-world structure of the Fort Collins environmental sustainability network will continue to morph, the network maps included in this research represent only data reported in 2019 about collaborative projects undertaken between 2014 and 2019.

Findings and Results

Defining Environmental Sustainability

One hypothesis of this research, based on the interagency collaborations and team science literature, was that differing interpretations of the term "environmental sustainability" as a category of work could present a barrier to effective collaboration across organizations and sectors. Interestingly, while a wide array of definitions were provided by survey respondents in terms of what environmental sustainability means to them in the context of their work, tangible commonalities emerged such as human-environment balance, sustainability in the built environment, and environmental education (Table 11.1, Fig. 11.4). This implies that while "environmental

Table 11.1 Defining environmental sustainability

Definition (coded)	References
Built environment sustainability	11
Clean transportation	3
Energy efficiency, clean energy	15
Reducing emissions, GHG mitigation	15
Waste reduction, recycling	10
Total built environment sustainability definitions	**54**
Environmental education	20
Research	10
Total environmental education definitions	**30**
Ethics, worldview	2
Total ethics, worldview definitions	**2**
Food security, healthy food systems	7
Total food security, healthy food systems definitions	**7**
Human-environment balance	10
Meet human needs without compromising future generations	17
Meet human needs without compromising the environment	8
Reduce human impact on environment	27
Responsible stewardship	13
Triple bottom line	17
Total human-environment balance definitions	**92**
Market-based solutions	1
Money-saving tactic	2
Natural resource or environmental conservation	22
Air quality	5
Water quality, conservation	13
Policy, advocacy	1
Quality of life, public health, and well-being	4
Environmental justice	4

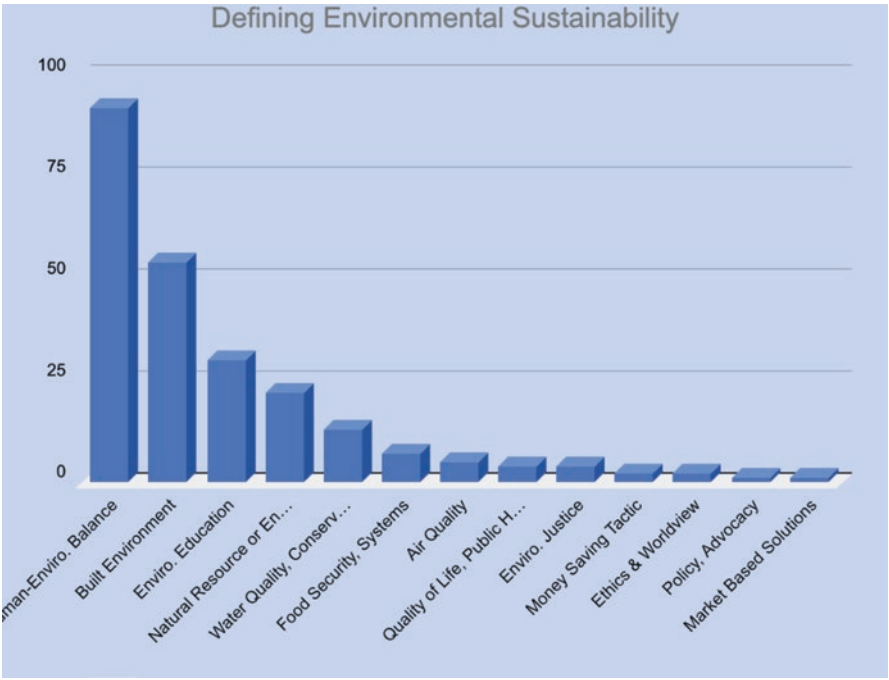


Fig. 11.4 Distribution of environmental sustainability definitions

sustainability work" is a broad, ambiguous category, at the core of many practitioners' and researchers' work, there are common themes that can provide a shared foundation of values that can help to enable successful collaboration.

Identifying Barriers to Collaboration

> "If you don't have relationships, you can't get in[to collaborations], and it's a very inequitable system" (City of Fort Collins staff member).

The most reported barrier to collaboration in the open-ended survey responses was a lack of resources, predominantly funding, but also notably time and capacity (Fig. 11.5, Table 11.2). According to one City of Fort Collins staff member, "We don't have time to get grants, all these problems, and then things like administrative or legal challenges around sharing of resources or data agreements and privacy, there's all these challenges." In the words of a Colorado State University employee, "I don't have a budget. I don't have a student intern. I have no resources. I can't buy you a pizza to thank you for helping me." Workshop participants mentioned that funding as a barrier can occur at two points in time—either funding for *starting* the collaboration or for succeeding in *carrying the collaboration through*. Other

Fig. 11.5 Word cloud of reported barriers to collaboration

oft-mentioned barriers included a lack of clear goals, direction, or leadership; institutional barriers; group or interpersonal dynamics; and competing or conflicting goals. Respondents were split 60–40% when asked if they had experienced a failed collaboration in the last 5 years, no-yes, respectively. See Appendix 1 for a complete list of collaborative projects and project topic areas reported in survey responses. In terms of seeking resources through collaborations, in nearly 80% of the collaborations in environmental sustainability work reported by survey respondents, expertise or experience was the primary resource sought (Fig. 11.6). In 56% of collaborations, technical skills were the primary resource sought. Community connections, project management, and research or data were sought in about half of the reported collaborations. Political clout and funding were the least sought resources in environmental sustainability-related collaborations.

Social Network Maps

Centrality is a property of a node's position in a network or an indication of a node's contribution to the network structure. While there are many different ways that a node may be important to the structure of the network, centrality is typically viewed as a desirable state for a node to attain because it "provid[es] actors with opportunities to influence others and receive flows (including information, support, and material aid)….a node's position is a source of opportunities and advantage" (Borgatti

Table 11.2 Barriers to collaboration

Barriers to collaboration (coded)	References
Collaborative issues	
Group, interpersonal dynamics	8
Lack of alignment, coordination	5
Lack of buy-in, commitment	3
Lack of clear goals, direction, or leadership	11
Competing, conflicting goals	6
Logistics	2
Poor communication	4
Total collaborative issues	**39**
Cultural, community barriers	1
Fear of change	4
Total cultural, community barriers	**5**
Institutional barriers	12
Total institutional barriers	**12**
Lack of resources	3
Expertise	2
Funding	23
Information	2
Power, influence	2
Staff with needed skills	2
Time, capacity	10
Total lack of resources as barrier	**44**
Politics	4
Total politics as barrier	**4**

et al., 2018, 190–191). Here, we start to see the overlap between social network structure and issues of procedural justice, which are concerned with access and control over decision-making processes. All of the network visualizations and centrality measures (Figs. 11.7, 11.8, 11.9, 11.10 and 11.11, Tables 11.3 and 11.4) indicate the central role that Colorado State University, the City of Fort Collins, and the City's Climate Action Plan play in terms of uniting disparate actors in collaborative efforts and controlling flows of resources throughout the network. The network structures outlined in the various maps also reveal that there are gaps along sectoral lines (Table 11.5). The business community has few participants in the environmental sustainability network, and those few are mainly on the periphery and not well-connected to other actors, resources, or opportunities to influence the network or reap its collaborative benefits. The same is true of county-, state-, and federal-level actors, organizations from faith communities, and charitable foundations.

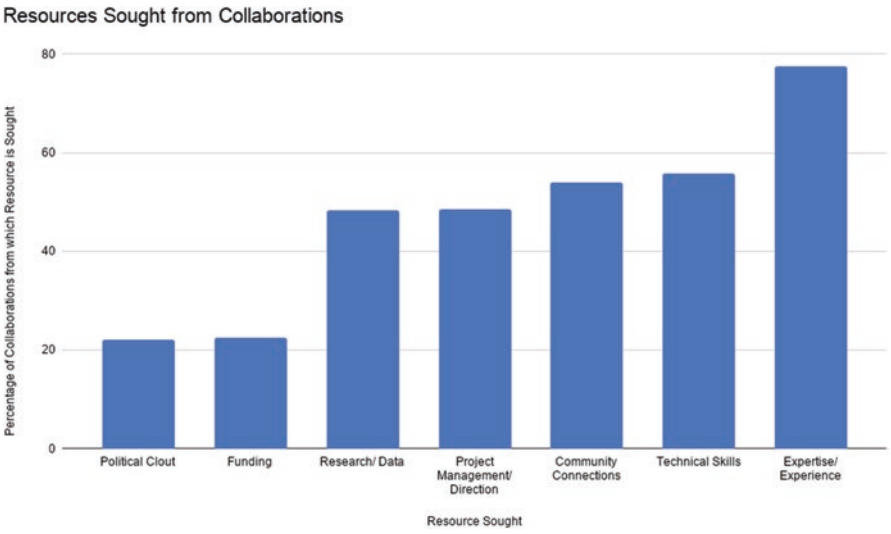


Fig. 11.6 Resources sought in collaborations

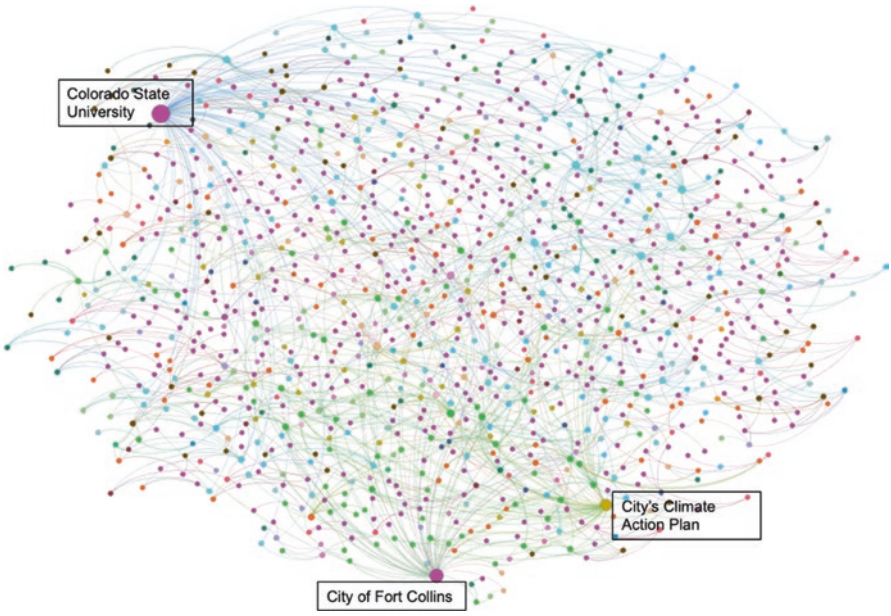
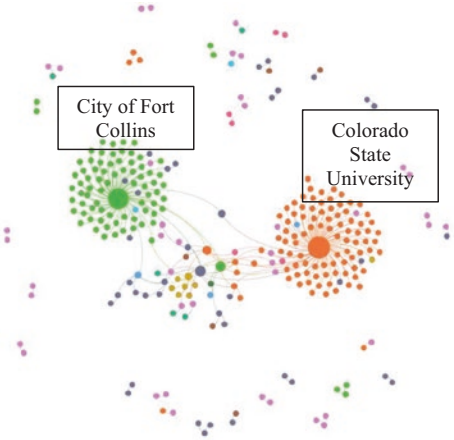


Fig. 11.7 The multimodal network: ties between people, projects, and organizations



Lime green = Local govmt
Orange = Education sector
Dark green = Non profit
Pink = For profit
Magenta = Federal govmt

Fig. 11.8 Ties between organizations and people

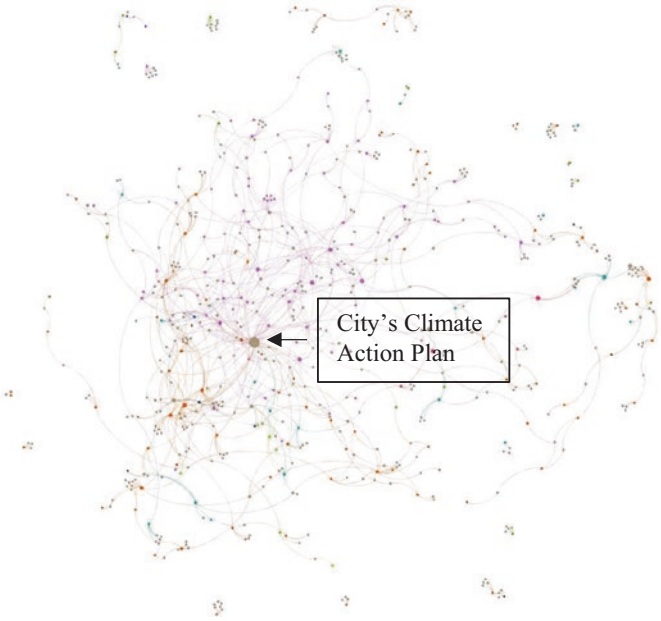


Fig. 11.9 Ties between people and projects, by sector

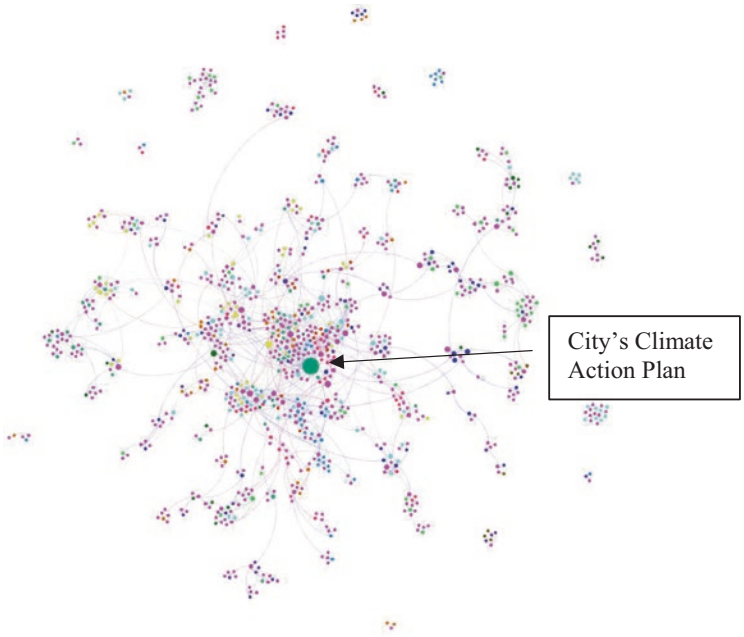
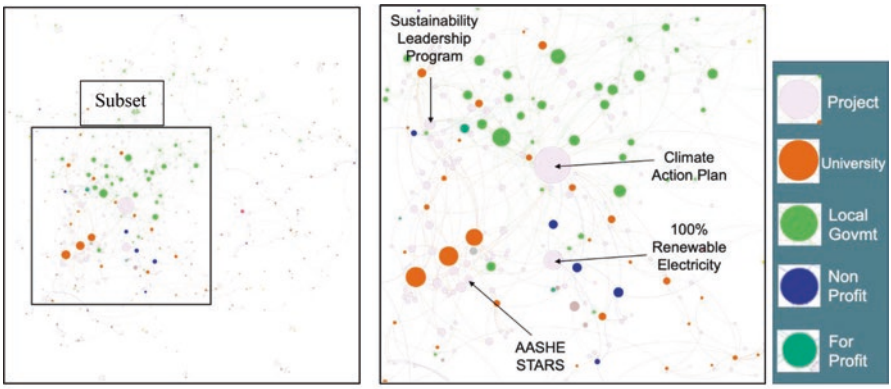


Fig. 11.10 Ties between people and projects, by topic area



Full network Subset

Fig. 11.11 Highly ranked eigenvector centrality measures for people and projects

Table 11.3 Degree centrality measures for top-ranked projects

Rank	Node (project)	Degree centrality	Topic area
1	Climate Action Plan	45	Greenhouse gas mitigation
2	100% Renewable Electricity	19	Energy
3	Sustainable Neighborhoods	13	Built environment
4	Sustainability Leadership Program	11	Outreach, education, and behavior change
5	Urban Wood Utilization Study	9	Waste reduction
5	Emerald Ash Borer Preparedness	9	Natural resource/ Ecosystem conservation
5	National Western Center	9	Food systems
6	Montava Community Development	8	Built environment
6	Collaborative Forest Landscape Restoration Project	8	Natural resource/ Ecosystem Conservation
6	Whitewater Park	8	Built environment
6	Nature in the City	8	Built environment
7	EV & EVSE Adoption	7	Transportation
7	Noise & Light Pollution	7	Natural resource/ Ecosystem Conservation
7	City Plan	7	Transportation
7	Algal Biofuels	7	Greenhouse gas mitigation
7	Association for the Advancement of Sustainability in Higher Education STARS Reporting	7	Built environment
7	CSU Sustainability Strategic Plan	7	Built environment
7	Pollinator Friendly Campus	7	Built environment

Table 11.4 Types of centrality measures

Centrality measure	Definition	Network location	Implications
Eigenvector	The measure of the influence of a node	Center	A high eigenvector score means that a node is connected to many nodes who themselves have high scores**.** These are the "power players," who are well-connected to other well-connected nodes
Degree	The number of connections that a node has with others	Center	High degree centrality means a node is well-connected within the network and has many relationships
Closeness	The average distance of a node to all other nodes	Outskirts of the center or on the periphery	Those with high closeness centrality are within the smallest number of steps to everyone else in the network. These are the most closely connected actors overall

Table 11.5 Degree centrality measures for organizations

Rank	Node (organization)	Degree centrality	Sector
1	Colorado State University	87	University
2	City of Fort Collins	59	Local government
3	Larimer County	11	County government
4	Institute for the Built Environment	6	University institute
5	Poudre School District	4	K-12 education
6	USDA	3	Federal government
6	Platte River Power Authority	3	Joint municipal action entity
7	Fort Collins Community Action Network	2	Not-for-profit, tax-exempt, or charitable organization
7	Community for Sustainable Energy	2	Not-for-profit, tax-exempt, or charitable organization
7	City of Lakewood	2	Local government
7	Natural Hazards Center	2	University institute
7	Northern Colorado Clean Cities	2	Not-for-profit, tax-exempt, or charitable organization
8	Brendle Group	1	Private-for-profit company, business, or individual
8	New Belgium Brewing	1	Private-for-profit company, business, or individual

Table 11.6 Descriptive statistics for network centrality measures

Centrality measure	Obvs.	Mean	Std. dev.	Min	Max
Eigenvector	632	0.0343	0.1171	0.0000	1.0000
Eccentricity	1132	9.7544	3.4077	0.0000	16.0000
Closeness	1132	0.1939	0.1218	0.0000	1.0000
Betweenness	1132	0.0031	0.0180	0.0000	0.4888
Degree	1132	2.6475	4.1685	0.0000	87.0000

We are also able to see which topic areas of work tend to linger on the periphery of the network, remaining more siloed, and which topic areas tend to engage a diverse range of stakeholders by acting as collaborative hubs in the center of the network (Table 11.3). Water, transportation, food systems, and natural resource/ecosystem conservation projects are on the periphery and do not seem to engage as collaboratively. Projects at the core of the network pertain to greenhouse gas mitigation; waste reduction; outreach, education, and behavior change; the built environment; and energy issues. Interestingly, these projects at the core align with the most commonly provided definitions of environmental sustainability in the research participants' survey responses, providing evidence for the claims from the team science literature that a shared understanding of environmental sustainability and common objectives have a positive influence on promoting collaborative engagement. Despite these gaps in collaborations for some sectors and topic areas of work, the network structure and the frequency distribution of degree centrality measures are

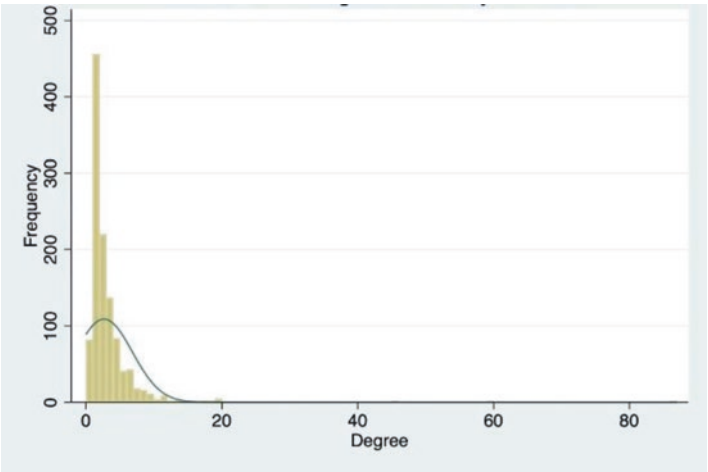


Fig. 11.12 Distribution of degree centrality measures

characteristic of a small-world or hub-and-spoke network, i.e., a network with low average path length and a high clustering coefficient (see Table 11.6, Fig. 11.12). Small-world networks are characterized by relatively efficient flow of resources, high connectivity, and high clustering because many actors are connected through relatively few organizations and projects (Borgatti et al., 2018, 302–303).

Discussion, Recommendations, and Conclusion

Discussion of Findings

> "If you have a great connection—think of a connection as a ripple—if you have a really strong connection and you push into the organization, your ripple, if that connection is strong, is going to have more impact. It's going to reach more people. You're going to know more information about how to get something done than if you have no connection, and there's no ripple, and you're just reaching in trying to access information, support, or throw around an idea (Colorado State University staff member)".

The social network mapping of organizations, projects, and people engaged in collaborative work in the field of environmental sustainability in Fort Collins yields important insights about the state of procedural justice in the city's sphere of environmental sustainability and climate action work (Fig. 11.13). Two of the city's largest and arguably most powerful institutions, the municipal government and Colorado State University (CSU), dominate the network in terms of their numbers of ties to other nodes and thus their ability to access and control the flow of resources and communication throughout the network (Balfour & Alter, 2016, 440). These organizations and the people with high centrality measures, or high degrees of

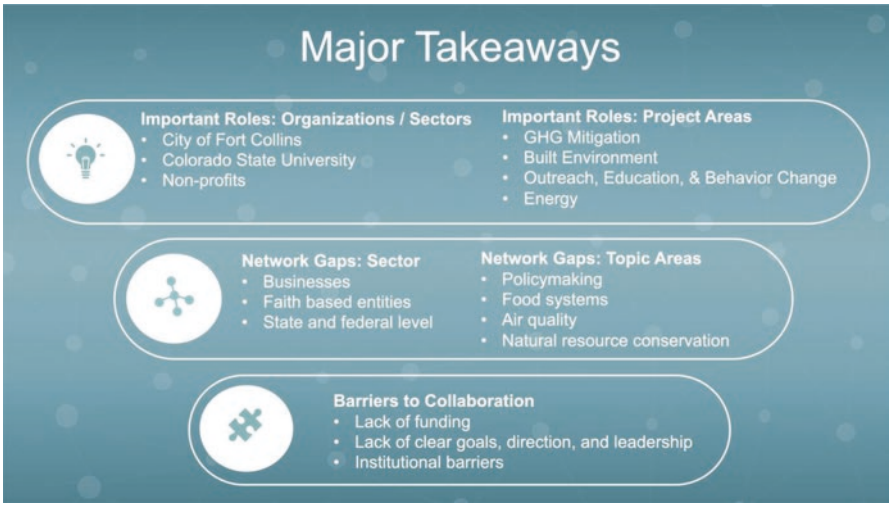


Fig. 11.13 Major takeaways

control and influence over the network, should recognize that these leadership positions provide them with the opportunity to make a positive impact on the cohesiveness and comprehensiveness of the network.

In any network, the potential exists for central network members to act as gatekeepers that seek to maintain their central position by preventing others from gaining membership in the network or increasing their own network influence. In the case of the Fort Collins environmental sustainability network, both the most central actors—the City of Fort Collins and CSU—have demonstrated commitment to engaging in partnerships with a variety of stakeholders, transforming their network power into a helpful tool for promoting the overall strength of the network and increasing the connectedness of and access to valuable resources for others (Borgatti et al., 2018). One City of Fort Collins staff member indicated in an interview that the municipality recognizes its reliance on interdepartmental and community partnerships to achieve its work: "We're highly collaborative within our departments and with our partners and those that are willing to champion things within the community. We have to be, because people don't trust government, and we all have to do this together." A CSU employee made a similar comment: "No one has to talk to me. If I'm going to get something to happen, then I need to find a friend. Anything I do, I need a partner."

Although both organizations have tended to behave collaboratively, the gaps that emerge from the network mapping suggest that more attention could be turned toward bringing siloed sectors (county-, state-, and federal-level actors, organizations from faith communities, and businesses) and topic areas of work (water, transportation, food systems, and natural resource/ecosystem conservation projects) into the center of the network. For example, while academics and practitioners often claim to work at the energy-water-food nexus, there is a notable lack of network connections between those engaged in projects relating to water, natural resources,

food systems, and energy. However, since the completion of this research project, there has already been collaborative momentum in natural resource/ecosystem conservation due to the arrival of the invasive emerald ash borer pest in Fort Collins and the cross-cutting impact that it will have in the city.

Recommendations

In order to infuse a diversity of expertise and resources into the network and promote procedural justice in environmental sustainability work, including climate action planning, actors and organizations from these siloed sectors and topic areas of work should be included in projects and other collaborative opportunities whenever possible. The hub-and-spoke form of the network structure of the Fort Collins environmental sustainability network indicates that there is more work to be done to achieve the expansion of the network and diversification of perspectives, experiences, and resources necessary to promoting procedural justice in the highly important environmental sustainability work that is contributing to the success of municipal climate action planning goals. In addition, the near-unanimous identification of funding as a key barrier to preventing the success of collaborations indicates that lack of funding serves as a procedural barrier to actors achieving their work in environmental sustainability. Powerful network members and the City of Fort Collins should cultivate relationships with philanthropic organizations, grantors, and other organizations that could infuse much-needed funding into the environmental sustainability network to promote procedural inclusivity across organizations in the community.

Current network members can also think creatively about what unconventional resources they can promote to attract more collaborative partners. One member of a citizen climate advocacy group related an example of using his social ties and organizational platform to assist City staff: "They [the City of Fort Collins] held a series of workshops around town for that [plan update], and we helped publicize those. We brought two members of city staff to a public forum so that they could talk about that before they were having their forums to introduce the idea to people." Institutional and structural barriers should also be identified and addressed at an organizational level to facilitate staff's engagement in collaborative endeavors. A Colorado State University employee noted:

> One of the main challenges that I experienced was, and this was sort of from the voice of the faculty, the tenure track for promotion process, which incentivizes research over everything, and then cascading down, teaching, service, and engagement, because those are the four buckets that they're "supposed to be" evaluated by, but service and engagement—basically, it's by department. What we heard was that many departments simply don't really factor it in, and so it makes it structurally really hard for faculty to actually get involved, even when they want to get involved, and so we heard that a lot from faculty.

In spite of these barriers, respondents overwhelmingly agreed that they or their organizations collaborate often on environmental sustainability work, that collaborations are more successful than individual efforts on environmental sustainability

projects, and that they could benefit from increased collaboration. The survey data also revealed that time-finite projects are not what fuel successful collaborations for this network. Workshop participants suggested that while finite projects might be what initially create a relationship, ongoing relationships that can be leveraged for collaboration at irregular intervals are at the heart of their successes in interagency environmental sustainability work. Also noteworthy is the important role that non-profit organizations play in Fort Collins. While ranked lower in their measures of network power and importance than government organizations and university institutions, non-profit organizations and individuals affiliated with them reflected higher closeness centrality measures, or a low average path distance to all other nodes, indicating that they play a crucial connecting role in the network due to the diversity of their relationships with other network actors. More powerful actors should continue to nourish their relationships with non-profits in order to retain the proxy relationships provided by the non-profits through their linking work.

One hypothesis prior to examining the results of the survey was that differing interpretations of the term "environmental sustainability" as a category of work could present a barrier to effective collaboration across sectors and scales. Indeed, one survey respondent named conflicting interpretations of the term as a barrier to collaboration that they had experienced. Interestingly, while a wide array of definitions were provided by survey respondents in terms of what environmental sustainability means to them in their work, tangible commonalities emerged such as human-environment balance, quality of life, and environmental education. This implies that while environmental sustainability work is a broad, ambiguous category, at the core of many practitioners' and researchers' work, there are common themes that can provide a shared foundation of values to enable successful collaboration. Respondents also indicated that the majority of their collaborative efforts are around community outreach and engagement, research, energy, behavior change, and public policy. These areas are all rich with the opportunity for interdisciplinary collaborative efforts across scales, sectors, and topic areas of work. Despite these positive implications for common ground for those involved in environmental sustainability work, best practice would still be for those attempting to engage in collaborations to have an open discussion when entering into joint projects about what environmental sustainability means to each party and what priorities and values each party will bring to the collaboration. If the priorities and values are too dissimilar, it would be most effective to attempt to find different partners with more congruent priorities and values to facilitate stronger and more efficient collaboration.

Next Steps: Network Weaving

> "Networks only go as far as those individuals go, and we're a growing community. Folks who are the connectors are changing….It's problematic in the long run if you don't have those sort of institutionalized mechanisms [for collaborations]" (Colorado State University staff member).

Manage the Center	Central nodes may be overloaded, under-recognized, or both
Engage the Fringe	Newcomers present fresh information, perspective, and ties
Bridge Silos	Create connections between clusters to improve innovation and the breadth of the network
Promote Agility	Seek to include a variety of expertise, abundant external ties, and transparency in all relationships

Fig. 11.14 Network weaving practices. (Adapted from Rob Cross et al., 2019)

Krebs and Holley (2005, 61) write, "Improved connectivity is created through an iterative process of knowing the network and knitting the network." This practice of intervening to promote specific relationships between actors in a network in order to promote the strength and cohesiveness of the network is known as *network weaving* and demonstrates the power of social network analysis as a tool for applied research, strengthening the community and enhancing procedural justice (Fig. 11.14).

The goal of this research project was to use social network analysis to reveal information that could be handed back to research participants in a format that enables them to improve their collaborative capacity and thereby promote democratic, inclusive, and equitable processes of engagement in the Fort Collins environmental sustainability network. To that end, I designed a web tool (Network Environmental Sustainability Tool, n.d.) to present the research findings in a user-friendly format, facilitate stakeholder exploration of the network and their position in it, and interpret social network analysis findings in a way that strengthens stakeholder collaborative capacity. This web tool includes an interactive social network map (Network Visualization, n.d.) that stakeholders can use to explore their position in the network as well as opportunities for collaboration with others. I will also be meeting with interested research participants to go through these findings and discuss applications to their work.

Conclusion

This chapter explored the ways in which the structure of social networks affects the dynamics of interagency collaborations between cross-sectoral stakeholders involved in local environmental sustainability work. This research aims to highlight important social dynamics and power relations that affect procedural justice in climate action planning and other areas of environmental sustainability work. Emphasis on community-level action and solutions has been crucial to make progress on environmental issues in the United States during the Trump administration and will continue to serve as a vital platform for momentum, democracy, and equity regardless of the action taken—or not—at the federal level. This research demonstrates the value of social network analysis for enabling the examination of climate action planning and climate change mitigation through the lens of procedural justice by

revealing who has access to decision-making, collaborative relationships, and other important resources in this space and who remains on the periphery to await outcomes they had little influence over. The research findings can serve as a guiding model for other medium-sized cities that host universities and a variety of environmental sustainability practitioners. Lessons from Fort Collins can be applied to other sites that are interested in improving their interagency collaborative efficiency and promoting the just and strong community action networks that are fundamental to achieving climate action goals.

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Appendix 1: Projects Reported in the Fort Collins Environmental Sustainability Network

Project name	Project topic area
100% Renewable Electricity	Energy
147 Tips for Teaching Sustainability	Outreach, education, and behavior change
2016 Non-Motorized Plan	Transportation
AASHE STARS	Built environment
Active Transportation Virtual Reality Project	Transportation
Active Youth Outdoors	Outreach, education, and behavior change
Adaptive Silviculture for Climate Change	Natural resource/ecosystem conservation
Advanced Meter Project	Energy
Aeration System	Energy
Ag Land Conservation	Food systems
Agricultural Water Conservation	Water
Agricultural Water in the Colorado River Basin	Water
Agro-Forestry Adoption	Natural resource/ecosystem conservation
Air Quality Programs	Air quality
Air Tour Noise Management	Unclassified
Air Traffic Control at Loveland-Fort Collins Airport	Transportation
Air Travel Offset Committee	Transportation
Algal Biofuels	GHG mitigation

Project name	Project topic area
Alternative Transportation	Transportation
Alternative Transportation Advising	Transportation
Alternative Transportation Advisory Board	Transportation
Alternative Transportation Projects	Transportation
ANGLES	Outreach, education, and behavior change
Annual Trial Gardens	Built environment
Anti-Microbial Resistant Bacteria Research	Human health and well-being
Arboretum on CSU Campus	Built environment
Aylesworth Pre-Demolition	Waste reduction
Battery Storage System at 222 Laporte	Energy
Berthoud Parks & Open Space Subcommittees	Natural resource/ecosystem conservation
Berthoud Parkway Expansion	Transportation
Best Practices for Fleets	Outreach, education, and behavior change
Bicycle Friendly University Designation	Built environment
Bike Events on Campus	Transportation
Bike Parking	Transportation
Bike to Work Day	Transportation
Bike Valet	Transportation
Biochar Utilization	Natural resource/ecosystem conservation
Biological Nutrient Removal	Waste reduction
Biomass Conversion Study	Waste reduction
Biosolids	Natural resource/ecosystem conservation
Bloomberg Mayors Challenge	Human health and well-being
Bloomberg Mayors Challenge Project	Human health and well-being
BreWater Group	Water
Brewers Association Sustainability Benchmarking Project	Waste reduction
Brewery Waste	Waste reduction
Brewery Wastewater Treatment Pilot	Water
Building Efficiency	Built environment
Building Energy & Water Scoring	Built environment
Building Labels Transparency	Built environment
Building Reuse	Built environment
Campus Sustainability	Built environment
Carbon Accounting Methods	GHG mitigation
Carbon Sequestration Plan	GHG mitigation
Carbon Sequestration Study	GHG mitigation
Changing Climates	GHG mitigation
Children of Katrina	Human health and well-being
Choose to Reuse	Outreach, education, and behavior change

Project name	Project topic area
City Bicycle Master Plan	Transportation
City of Fort Collins Night Sky Initiative	Natural resource/ecosystem conservation
City of Fort Collins Sustainability	Waste reduction
City Plan	Transportation
Class 1 Composting Facility	Waste reduction
Clean Biomass Cookstoves	GHG mitigation
Climate Action Plan	GHG mitigation
Climate Action Plan Community Advisory Committee	GHG mitigation
Climate Action Plan Engagement Plans	GHG mitigation
Climate Action Planning	GHG mitigation
Climate Economy	Human health and well-being
Climate Smart Agriculture	Food systems
ClimateWise	Energy
Club Outdoors	Outreach, education, and behavior change
CNG & RNG Adoption	GHG mitigation
CO Food Systems Integration	Food systems
CO Healthcare Access	Human health and well-being
Collaborative Forest Landscape Restoration Project	Natural resource/ecosystem conservation
Collaboratory Executive Board	Energy
Colorado C-PACE Guide	Built environment
Colorado Early College HS	Outreach, education, and behavior change
Colorado Market Leadership Advisory Board	Built environment
Colorado Master Gardener Training	Food systems
COLORADO River Papers	Water
Colorado State Legislature	Policymaking
Colorado State Sustainability	Built environment
Colorado's Energy Policy	Governance
Commercial Building Code	Built environment
Community Carbon Inventory	GHG mitigation
Community Energy Planning	Energy
Community Recycling Access	Waste reduction
Community Recycling Ordinance	Waste reduction
Compostable Dog Waste Bags	Waste reduction
Composting	Waste reduction
Composting at CSU	Waste reduction
Composting Expansion	Waste reduction
Compressor Stations Emissions	GHG mitigation
Confluence	Built environment
Conservation Behavior	Outreach, education, and behavior change

Project name	Project topic area
Conservation Leadership	Outreach, education, and behavior change
CONVERGE	Human health and well-being
CSU Bicycle Master Plan	Transportation
CSU Foodwaste	Waste reduction
CSU Green Labs	Built environment
CSU Police Department Electric Bikes	Transportation
CSU President's Sustainability Commission	Built environment
CSU Sustainability Strategic Plan	Built environment
CSU Sustainability Team for National Western Center	Food systems
Cyanobacteria Biorefineries	GHG mitigation
Cyanobacteria Engineering	GHG mitigation
DC Power Distribution	Built environment
Deconstructed Materials Reuse	Waste reduction
Defining Sustainability	Outreach, education, and behavior change
Demand Response Pilot	Energy
Denver Central Library Renovation	Built environment
Denver Zoo Animal Hospital	Built environment
Development Review Projects	Built environment
DIA Expansion	Built environment
DIA Office Building	Built environment
Digital/Precision Agriculture	Food systems
Ditch the Disposables	Waste reduction
Downstream Impacts of O&G	Water
Drive Electric Northern Colorado	Transportation
Drought Response	Water
Earth Day Fort Collins	Outreach, education, and behavior change
Ebike & Escooter Regulations	Transportation
Eco Leaders	Outreach, education, and behavior change
Educational Tours	Outreach, education, and behavior change
Efficiency Education	Energy
Efficiency Works	Energy
Electric Vehicle Policy	Policymaking
Electric Vehicles	Transportation
Electrical Efficiency	Energy
Electrified Transportation	Transportation
Electrification of Heating & Cooling	Energy
Emerald Ash Borer	Natural resource/ecosystem conservation
Emerald Ash Borer Awareness Team	Natural resource/ecosystem conservation

Project name	Project topic area
Emerald Ash Borer Preparedness	Natural resource/ecosystem conservation
Energy Audit	Energy
Energy Benchmarking	Energy
Energy Collaboration	Energy
Energy Efficiency	Energy
Energy Policy	Energy
Environmental Education	Outreach, education, and behavior change
Environmental Flow Governance	Governance
Environmental Governance Working Group	Governance
Environmental Labor Studies	Human health and well-being
Environmental Learning Center Water Right	Water
Environmental Management Teams	Natural resource/ecosystem conservation
Environmental Social Movements	Governance
Ethical Consumption	Food systems
EV & EVSE Adoption	Transportation
EV Awareness & Education	Outreach, education, and behavior change
EV Chargers & Fleet Vehicles	Transportation
EV Charging Stations	Transportation
EV Integration	Transportation
EV Projects	Transportation
EV Readiness Roadmap	Transportation
FC Moves Bike Buddy Program	Transportation
FFAR-Denver Food	Food Systems
Fire Adapted Colorado	Natural resource/ecosystem conservation
Flood Recovery	Human health and well-being
Flood to Sprinkler Irrigation	Natural resource/ecosystem conservation
FoCo Café Community Garden	Food systems
Food System Resilience	Food systems
Food-Energy-Water Nexus Education	Outreach, education, and behavior change
Forest Conservation	Natural resource/ecosystem conservation
Forest Fire Impacts	Natural resource/ecosystem conservation
Forest Restoration	Natural resource/ecosystem conservation
Forest-To-Faucets	Natural resource/ecosystem conservation
Forsythe II Multi-Party Monitoring Group	Natural resource/ecosystem conservation

Project name	Project topic area
Fort Collins Senior Center	Built environment
Fort Collins Solar Programs	Energy
Fort Collins Sustainability Group	GHG mitigation
FortZED	Energy
Fracking at Bella Romero School	GHG mitigation
Fracking Regulations Testimony	GHG mitigation
Gameday	Transportation
Gas Distribution Systems	Energy
Genetic Rescue in Wildlife	Natural resource/ecosystem conservation
GEO Exchange for Meridian Village	Energy
GEOS Institute	GHG mitigation
GHG Decision Support Tools	GHG mitigation
GHG Offsetting	GHG mitigation
Glass Recycling Stations	Waste reduction
Global Union Organizations	Human health and well-being
Green Building	Built environment
Green Infrastructure	Built environment
Green Infrastructure Efficiency	Built environment
Green Infrastructure Guide	Built environment
Green Infrastructure Testing	Built environment
Green Tariff	Energy
Greenhouse Gas Inventory	GHG mitigation
Greenhouse Gas Reduction	GHG mitigation
Greening Affordable Housing	Built environment
Halligan Water Supply Project	Water
Hazard and Disaster Management	Human health and well-being
Hazard Mitigation Plan	Human health and well-being
Health and Wellness	Human health and well-being
Healthy Environments through Activity & Responsible Transportation	Transportation
Heat & Power at EPIC	Built environment
Hempcrete Greenhouse	Built environment
High Efficiency Internal Combustion Engines	GHG mitigation
High Plains Landscape Workshop	Water
Historic Preservation	Built environment
Homeless Encampment Cleanups	Built environment
Horsetooth Foothills Land Conservation	Natural resource/ecosystem conservation
Horticulture Living Lab	Food systems
Housing & Energy Efficiency Advocacy	Built environment
Howard Park	Built environment
Hydrogen Initiative	Energy
I-25 & Hwy 56 Interchange	Transportation

Project name	Project topic area
I-25 Expansion	Transportation
Idle Reduction Campaign	GHG mitigation
Illiberalism, Society, & Environment	Governance
Impact Series on Climate Change	Outreach, education, and behavior change
Impacts of Roads on Alpine Wetlands	Natural resource/ecosystem conservation
Improving Soil Health	Natural resource/ecosystem conservation
Industrial Waste Diversion	Waste reduction
Innovate Fort Collins Challenge	Outreach, education, and behavior change
INSPIRE GOCO	Outreach, education, and behavior change
Integrated Design Assistance Program	Built environment
Integrated Pest Management	Natural resource/ecosystem conservation
International Urban Cooperation	Transportation
ISO 14001 Certification	Built environment
Joint Fueling Station	Transportation
Just Transitions	Human health and well-being
L'Avenir Fort Collins	Built environment
Lake Pollution Clean-Up	Natural resource/ecosystem conservation
Land Use Code	Water
Land Use Code Updates	Policymaking
Larimer Alliance for Health & Safety	GHG mitigation
Larimer County Climate Action Plan	GHG mitigation
Larimer County Comprehensive Plan Update	Policymaking
Larimer County Landfill Closure	Built environment
Larimer County Landfill Waste-to-Energy	Waste reduction
Larimer County Oil & Gas Regulations	Policymaking
Larimer County Strategic Plan	Policymaking
Larimer Resilience Framework	Human health and well-being
Larimer Resilience Program	Human health and well-being
Lawncheck Colorado	Water
Leak Detection Solutions	Natural resource/ecosystem conservation
Leave it Behind	Waste reduction
LEED Platinum at 222 Laporte	Built environment
LEED Projects	Built environment
Life Cycle Analysis	GHG mitigation
Light Pollution Impacts	Natural resource/ecosystem conservation
Locally Sourced Phosphorus Fertilizers	Waste reduction

Project name	Project topic area
Long View Trail	Human health and well-being
Low Impact Development Implementation Manual	Built environment
Low-Carbon Fuels	GHG mitigation
Macroalgae	GHG mitigation
Making Boards Sustainable	Unclassified
Materials Impact Assessment	Natural resource/ecosystem conservation
MeshPower Ltd. Microgrids Project	Energy
Metals Recycling	Waste reduction
Methane Emissions	GHG mitigation
Microgrids	Energy
Mini Grant Program	Human health and well-being
Mitigation Matters	GHG mitigation
Moby Geoexchange	Energy
Montava	Built environment
Monte Vista High School	Built environment
Multilingual Accessibility	Human health and well-being
Municipal Carbon Inventory	GHG mitigation
Municipal Rights in Fracking	GHG mitigation
Municipal Sustainability and Adaptation Planning	Policymaking
National Climate Assessment	Unclassified
National Western Center	Food systems
Nationwide Water Planning	Water
Native Landscaping Code	Policymaking
Native Seeds & Species	Natural resource/ecosystem conservation
Natural Areas Management Planning	Built environment
Natural Gas Emissions	GHG mitigation
Natural Hazards Center Clearinghouse	Human health and well-being
Natural Resources Advisory Board	Natural resource/ecosystem conservation
Naturalistic Landscape Design	Water
Nature in the City	Built environment
Neighborhood Level Sustainability	Built environment
Neighborhood Tree Planting Events	Built environment
Neighborhood Active Living Grant	Human health and well-being
Net-Positive Energy	Energy
New Landfill	Built environment
New LEED Buildings	Built environment
Newcomer Gardening Boot Camp	Built environment
Noise & Light Pollution	Natural resource/ecosystem conservation
Noise Pollution Impacts	Natural resource/ecosystem conservation

Project name	Project topic area
Northern Colorado Bicycle & Pedestrian Collaborative	Transportation
Northern Colorado Fireshed Collaborative	Natural resource/ecosystem conservation
Northern Front Range Regional Bike Trail	Transportation
Northern Integrated Supply Project	Water
Northwater Treatment Plant	Built environment
NOX Reduction	Waste reduction
NSF Air Water Gas Project	Unclassified
NSF/SRN Project	Built environment
Off Grid Electrification	Energy
Ogallala Aquifer Climate Action Plan	Water
One Water	Water
Operational Sustainability	Built environment
Organizational Development	Outreach, education, and behavior change
Our Climate Future	GHG mitigation
Our Energy Future	Outreach, education, and behavior change
Our Public Lands Thrive Team	Natural resource/ecosystem conservation
Outdoor Residential Burning Policy	Air quality
Partners in Climate Action	GHG mitigation
Peaks to People Water Fund	Water
Pedestrian & Biker Safety in Berthoud	Transportation
Perennial Trial Gardens	Built environment
Physical and Virtual Inclusive Campus Policy	Built environment
Plant Diagnostics Training	Unclassified
Plant It Forward	Food systems
Plant Select Research	Built environment
Plant Talk COLORADO	Built environment
Pollinator Friendly Campus	Built environment
Pollinator Habitat	Natural resource/ecosystem conservation
Post-Construction BMP Training	Water
Poudre River Forum	Water
Poudre Runs Through It	Water
Poudre Valley Mobile Home Park Active Living Coalition	Built environment
Prairie Dog Management	Natural resource/ecosystem conservation
Prairie Dog Relocation	Natural resource/ecosystem conservation
Prairie Ridge Management Plan	Policymaking
President's Sustainability Commission Subcommittee	Built environment
Project Outdoors	Outreach, education, and behavior change

Project name	Project topic area
Public Heath in the Built Environment	Built environment
Rams Ride Right	Transportation
Real Estate Engagement	Outreach, education, and behavior change
Recreation Potential at Halligan	Human health and well-being
Recycling	Waste reduction
Reduce Water Use in Brewing	Water
Reflective Tags	Transportation
Regenerative Meat Farm	Food systems
Regenerative Vegetable Farm	Food systems
Regional Wasteshed Coalition	Waste reduction
Regional Water Dialogue	Water
Regional Water Program	Water
Reintroduction of Native Fish	Natural resource/ecosystem conservation
Removing Plastic Cutlery	Waste reduction
Renewable Electricity	Energy
Renewable Energy Procurement	Energy
Repurposing Agricultural & Municipal Wastes	Waste reduction
Residential Waste Diversion	Waste reduction
Resilience Team	Human health and well-being
Rigden Reservoir	Natural resource/ecosystem conservation
Risk and Resiliency Assessment	Built environment
Risk-Based Community Resilience Planning	Human health and well-being
Rivendell Recycle Program	Waste reduction
River Health	Water
Road To Zero Waste	Waste reduction
Rural/Urban Linkages	Built environment
Safe Routes to School	Transportation
Safer, Stronger, Smarter Guidebook	Human health and well-being
Salud Community Health Hub	Human health and well-being
San Juan Headwaters Forest Health Partnership	Natural resource/ecosystem conservation
Sharing Economy	Waste reduction
Shift	Outreach, education, and behavior change
Ski Resort Climate Challenge	GHG mitigation
Small Modular Reactors	Energy
Social Costs in Lifecycle Assessments	GHG mitigation
Social Science	Human health and well-being
SOGES 10 Year Visioning	Outreach, education, and behavior change
Solar	Energy
Solar on Firehouse Alley Parking Structure	Energy

Project name	Project topic area
Solid Waste Diversion	Waste reduction
Sorghum Drought Tolerance	Food systems
Southern Rockies Fire Science Network	Natural resource/ecosystem conservation
Southwest Ecological Restoration Institutes	Natural resource/ecosystem conservation
Spoke Bike Repair Lab	Transportation
Spring Plant Sale	Food systems
Spruce Beetle Management Response	Natural resource/ecosystem conservation
State Legislation	Policymaking
Stormwater Improvements	Water
Stormwater Maintenance	Built environment
Stormwater Management	Built environment
Stormwater Quality	Water
Stream Health	Water
Student Led Initiatives	Outreach, education, and behavior change
Sun Valley Air Quality	Air quality
Sun Valley EcoDistrict	Built environment
Sunset Vista Management Plan	Policymaking
Sustainability Assessment Tool	Unclassified
Sustainability Book	Outreach, education, and behavior change
Sustainability Education	Outreach, education, and behavior change
Sustainability Education Book Proposal	Outreach, education, and behavior change
Sustainability Leadership Fellows Program	Outreach, education, and behavior change
Sustainability Leadership Program	Outreach, education, and behavior change
Sustainable Bioeconomy for Arid Regions	Food systems
Sustainable Building Regulations	Policymaking
Sustainable Community Forest Management	Natural resource/ecosystem conservation
Sustainable Farming	Food systems
Sustainable Land Management	Governance
Sustainable Landscape Management	Built environment
Sustainable Living Association	GHG mitigation
Sustainable Living Association Leadership Program	Outreach, education, and behavior change
Sustainable Neighborhoods	Built environment
Sustainable Neighborhoods Fort Collins	Built environment
Sustainable Neighborhoods Program	Built environment

Project name	Project topic area
Sustainable Peace & Reconciliation Grant	Human health and well-being
Sustainable Transportation	Transportation
Sustainable Water Interdisciplinary Minor	Outreach, education, and behavior change
Sustaining Groundwater	Water
Take Two Campaign	Energy
Technical Advising	Transportation
Telluride High School Expansion	Built environment
Textile Repair & Conservation	Waste reduction
The Culture of Wildland Fires	Natural resource/ecosystem conservation
The Hidden Value of Landscapes	Natural resource/ecosystem conservation
The Living Wall	Built environment
The Spoke	Transportation
The Spoke Mobile Shop	Transportation
The Urban Lab	Built environment
Tiny Homes	Built environment
Transit Master Plan	Transportation
Transition Towns	Energy
Transportation Planning	Transportation
Tree Preservation	Natural resource/ecosystem conservation
Uncompahgre Plateau Collaborative Forest Landscape Restoration Project	Natural resource/ecosystem conservation
Universities Waste Streams at Surplus Property	Waste reduction
Upper Monument Creek Landscape Restoration Initiative	Natural resource/ecosystem conservation
Upper South Platte Partnership	Natural resource/ecosystem conservation
Urban Agriculture	Food systems
Urban Coyote Behavior	Natural resource/ecosystem conservation
Urban Food Access	Food systems
Urban Forest Species Diversity	Built environment
Urban Sustainability Research Network	Outreach, education, and behavior change
Urban Wood Utilization Study	Waste reduction
Urban/Rural Linkages	Built environment
Utilities Rebates & Incentives	Energy
Utility Assistance Programs	Energy
Vegetation Density Requirements	Built environment
Viestenz-Smith Mountain Park Restoration	Natural resource/ecosystem conservation
Waste Diversion	Waste reduction

Project name	Project topic area
Waste Reduction	Waste reduction
Waste Reduction & Recycling	Waste reduction
Wasteshed Coalition	Waste reduction
Wastewater Treatment	Water
Water Allotments	Water
Water Conservation	Water
Water Crises and Governance Change	Water
Water Literate Leaders of Northern Colorado	Outreach, education, and behavior change
Water Operation Complex Redevelopment	Built environment
Water Quality	Water
Water Quality Monitoring	Water
Water Resource Use	Water
Water Reuse	Water
Water Security	Water
Water Sustainability in the West	Outreach, education, and behavior change
Water Treatment Residuals for Stormwater Management	Water
Water Utilities and Infrastructure	Water
Water's Edge	Water
Watershed Resilience	Water
Watershed Restoration	Water
West Elizabeth Enhanced Transportation Corridor Plan	Transportation
Whitewater Park	Built environment
Wildfire	Water
Wildfire Mitigation	Natural resource/ecosystem conservation
Wildfire Mitigation for Watershed Sustainability	Water
Wildfire Risk Reduction	Natural resource/ecosystem conservation
Wind	Energy
Worlding Global Environmental Politics	Governance
Xcel Gas Pipeline	Energy
Youth Creating Places	Built environment

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Chapter 12
Pre-platted Communities: A Southwest Florida Example

Hubert B. Stroud

Introduction

Climate action planning and justice have become a very pertinent and timely topic of interest and concern, and many cities and counties have implemented a comprehensive planning framework to address the serious issues associated with climate change. Unfortunately, it seems that no one was thinking about climate change or sound land use planning during the 1950s and 1960s when a very significant element of landscape change was beginning to take shape in many aesthetically pleasing locations across the United States. The discussion that follows illustrates some of the more significant problems that are created when land developers are welcomed as an economic boom and are allowed to operate largely without scrutiny.

The dream of owning land, particularly in an aesthetically pleasing location, prompted millions of Americans to purchase lots as an investment or as potential recreational/retirement home sites. Large land development corporations exploited this dream by creating lot sales subdivisions in inappropriate and highly environmentally sensitive locations across the country. The mass merchandising of lots rapidly expanded to become a multi-billion-dollar industry during the golden age of land scams in the 1960s and 1970s. In fact, sales of vacation and retirement home sites in what might be referred to as amenity-based subdivisions totaled more than $5 billion a year in the early 1970s. A large market and high profit margin prompted some of the nation's largest corporations to enter the installment land sales business. The most successful companies and their stockholders reaped very large profits. Unfortunately, most of the lot owners did not share in these benefits and more often than not were conned into purchasing property they did not need and really did not want (Morgenson, 1988; Stroud, 1995). The high-pressure lot sales marketing

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programs targeted a middle-aged, middle-income, and largely Caucasian clientele, a practice that created an absence of diversity of lot ownership. The absence of diversity was exacerbated by the discriminatory practices used by the FHA for home loans during the early stages of development. The FHA denied or, at the very least, discouraged mortgages to black families, particularly during the 1960s, a period of rapid growth within interstate land sales subdivisions. Details are provided in an interesting study entitled "Separate and Unequal: The Housing Act of 1968 and the Section 235 Program" (Gotham, 2000, 13–37; also see Darden, 1995, 680–691; Hillier, 2005, 25–47; Kaplan & Valls, 2007, 255–273).

Developers of these vast subdivisions were primarily interested in generating profits from the sale of raw land and quite often gave little consideration to building viable new communities. To create a large inventory of lots, entire subdivision sites were pre-platted. This platting is the formal procedure taken by landowners to officially record maps of land subdivision. The result was the creation of many premature and virtually uninhabited subdivisions across the United States (Elliott, 2010; Holway et al., 2014). Surprisingly, some of these ill-conceived subdivisions became boom towns and have grown to become large pre-platted communities (cities) with a rapidly growing population and numerous environmental and social problems (Stroud & Spikowski, 1999). Some of the most significant issues are related to the blatant disregard for environmental constraints and the absence of pre-development planning in scenic and highly vulnerable locations. In far too many cases, the residents occupying these ill-conceived subdivisions have had to cope with inadequate basic services and, in some cases, life-threatening hazards including inadequate protection from wildfires, mudslides, flash flooding during intense thunderstorms, and even storm surge inundation from hurricanes.

Many factors influenced decisions about site selection including the availability of large tracts of relatively inexpensive land, aesthetically pleasing landscapes, accessibility, and, perhaps the most significant, the absence of governmental regulations and land use controls. An absence of regulations made land development simpler but often made it virtually impossible for governmental officials to stop land use practices that degraded the environment or put people in harm's way. A survey of local land use controls reported that 70% of communities had been subdivided before the adoption of regulatory controls (American Society of Planning Officials et al., 1976). Another survey disclosed that during the early 1970s, a time when interstate land sales activity was at a peak, only about 40% of non-metropolitan counties (fewer than 100,000 people) and less than 60% of urban (metropolitan) counties had zoning ordinances (ibid). These percentages provide a strong indication, therefore, that much of the interstate land sales subdivision activity in the United States occurred without the scrutiny of governmental officials (Stroud, 1983).

These ill-conceived subdivisions were carved out of vulnerable locations in mountains, deserts, and coastal wetlands without the protection that would have been provided by pre-development planning and the use of sound land use management techniques. While environmental protection regulations increased dramatically in the mid- to late 1970s, many rural counties lagged behind in land use planning and government scrutiny of land development activities. Concerns about

sound land use planning and climate change and the consequences associated with sea level rise did not begin to take shape until relatively recently after it was too late to make a significant difference in the patterns of land development. This absence of almost any kind of land use planning let alone climate action planning means that local officials are now trying to deal with problems after the fact. Trying to correct mistakes of the past is difficult, if not impossible, particularly within a planning framework that is being implemented piece meal and after vulnerable locations are occupied by a permanent population. This widespread problem is particularly significant in Southwest Florida. As a result, local planning departments are now operating in the wake of poor site selection decisions and ill-conceived land development techniques. They are trying to resolve a long list of land use planning problems created by the rapid conversion of extremely environmentally sensitive land into thousands of small "home sites." County officials continue to struggle with the planning problems that were created and are just now beginning to address the added pressure of developing a strategy to cope with climate change. This chapter examines some of the more significant problems occurring at Cape Coral, Florida, a large interstate land sales operation that evolved into a rapidly growing pre-platted community in Southwest Florida. Climate change has intensified land use planning problems and has become a threat multiplier for this vulnerable community (Paulson, 1972; Stroud, 1995; Beever et al., 2016).

The Case of Cape Coral, Florida

Vulnerable Location

Cape Coral began in 1957 with the purchase of 1724 acres of low-lying pine and marshland on a large peninsula located across the Caloosahatchee River from Fort Myers, Florida (Fig. 12.1). The developers, Leonard and Jack Rosen, made additional purchases that brought their total land holdings at Cape Coral to approximately 65,000 acres, which covers almost one-eighth the total land area of Lee County. The Rosen Brothers, shampoo salesmen from Baltimore, Maryland, created Gulf American Corporation (GAC), a large land development company that succeeded in selling the dream of living in Florida to hundreds of thousands of people in North America and abroad. An important feature of their sales program was providing potential lot owners the option of purchasing the land on the installment plan. While other companies had pioneered the method, the Rosen Brothers marketed the concept more successfully and created what was to become one of the largest pre-platted communities in the United States (Dodrill, 1993). By targeting white middle-class families, the developer's promotional scheme attracted a population that is strikingly uniform. Its current population is 90% Caucasian, for example. The absence of cultural diversity has created an unusual situation at Cape Coral in that it is the affluent that are disproportionally affected by climate change. As one might

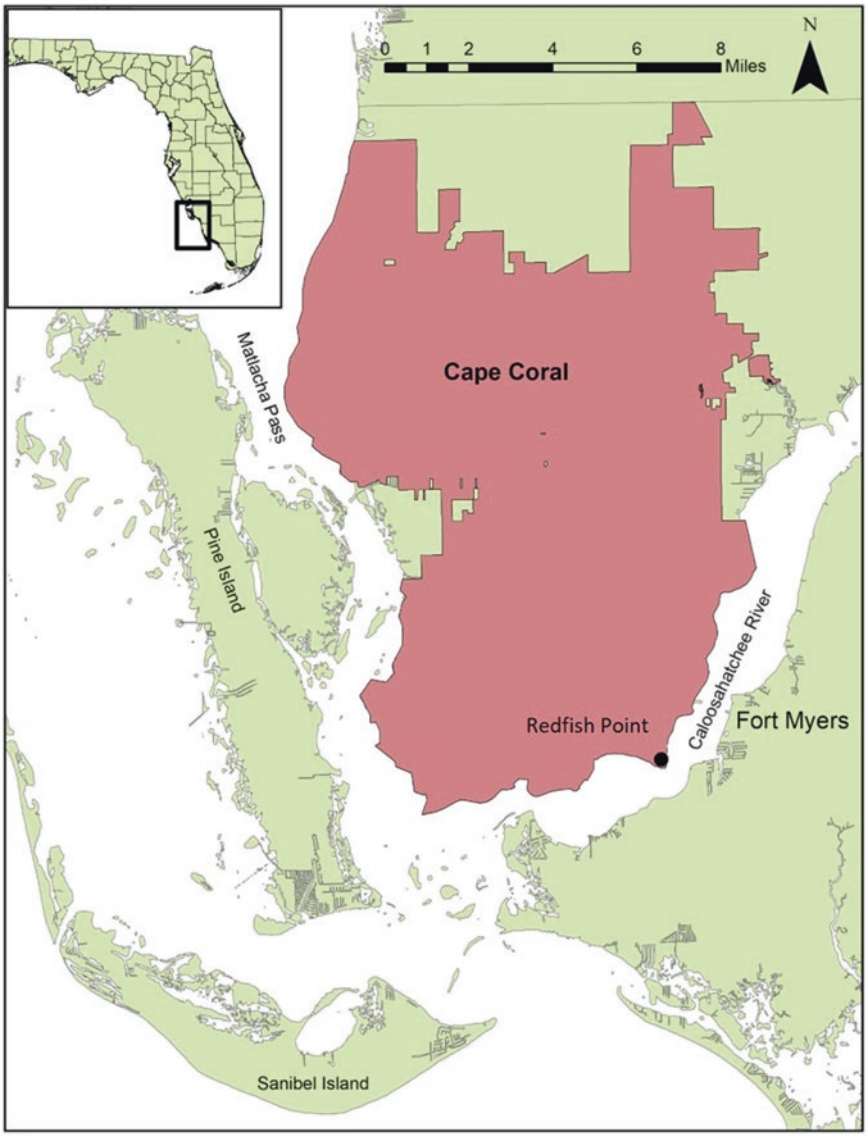

Fig. 12.1 Cape Coral's peninsula location across the Caloosahatchee River from Fort Myers, Florida. The development began near Redfish Point in the southeastern portion of the peninsula. (Source: GIS layers obtained from the Lee County, Florida GIS Open Data Portal. Adapted from Kilmer et al. (2019). Map created by Mary K. Kilmer)

expect in this coastal city, the most vulnerable to climate change are quite often the wealthiest families that have homes along the waterfront. The relatively expensive homes located along the Caloosahatchee River near Redfish Point are a good example. These homes are particularly vulnerable to sea level rise and storm surge

inundation and would be the first to be impacted. This is unlike the situation in many communities where the poor and disadvantaged often live in areas that are impacted the most from the negative consequences associated with climate change. To date, Cape Coral officials have largely ignored issues related to justice in their planning framework. As a matter of fact, the word justice is not included in any of the current land use planning documents. There are plans, however, to include justice as a topic of discussion in the near future. Albeit slowly, the city has incorporated a few statements about climate change in their Comprehensive Plan and will be discussing justice as it relates to climate change in upcoming meetings. Specific statements related to justice could be included in the next updated Comprehensive Plan in the fall of 2021 (Daltry, 2020).

Cape Coral's peninsula location, between the Caloosahatchee River and the Matlacha Pass near the Gulf of Mexico (Fig. 12.2), is one of the worst possible choices for development for two very important reasons. First, it is extremely vulnerable to the consequences of climate change including sea level rise, flooding from more intense storms, and tidal surge inundation. Second, it is an extremely environmentally sensitive location. Palmetto (small palm trees) and pine forest and sizable stretches of mangrove estuaries and tidal marshes were destroyed as the developer cleared the site and installed a dense network of more than 1200 miles of roads and over 400 miles of canals. Development activity, which included the use of dredge and fill, disrupted important wetland functions that included storing and purifying water that had been draining into the area from upland regions. The monotonous gridiron pattern of roads and canals and extensive excavation and leveling created a landscape that was dehydrated, de-vegetated, and sterile (Fig. 12.3) (Knight, 1990). Although significant portions of Cape Coral remain vacant (lots with no houses), the entire site has been subdivided and sold. Thousands of people living in widely scattered locations across the United States and other countries own these vacant lots. This expansive ownership pattern complicates efforts to change land use or to redesign the subdivision (Schnidman, 1984; Schnidman & Baker, 1983; Stroud, 1984; Daltry, 2019).

One of the most significant problems for Cape Coral is its location in an ecologically fragile and vulnerable coastal wetland environment (Fig. 12.4). Although this problem is not unique to Cape Coral, it illustrates some of the many problems associated with development along the coastal zone. Obviously, wetlands and marshes cannot withstand any kind of development, let alone the total alteration of the environment that occurs during dredging and filling. Dredging excavates a channel, and filling creates a strip of "dry" land that can be used as home sites. The method allows areas under 3 or 4 ft of water to be converted into a network of canals and narrow strips of land approximately 4 or 5 ft above sea level. Consequently, an environmentally productive and economically significant ecosystem is replaced by poorly drained, flood-prone real estate. This is representative of the home sites in southern Cape Coral where dredge and fill destroyed wetlands and mangroves to provide home sites that are susceptible to flooding and tidal surge. Only relatively recently have these important ecosystems received much needed protection from the desire of land developers and farmers to drain wetlands for construction and

Fig. 12.2 Aerial view depicting the extensive road and canal network of Cape Coral that sprawls across the large and environmentally sensitive peninsula near the Gulf of Mexico. The Caloosahatchee River separates Cape Coral from Fort Myers to the east, and the Matlacha Pass and coastal estuaries and marshes separate Cape Coral from Pine Island to the west. (Source: www.earth.google.com, accessed 6/25/20)

agriculture (Federal Interagency Committee on Wetland Delineation, 1989; Mitsch & Gosselink, 1986; Hough & Robertson, 2009).

Unfortunately, Cape Coral was not developed in manageable phases. The entire 65,000-acre site was subdivided and sold as quickly as possible, and only minimal acreage (less than 1% of the total land area) was set aside for open space and parks. As is clearly depicted in Fig. 12.2, the entire site was subdivided and sold years or even decades before these lots would be used as home sites. To make matter worse, homes were built in a 100-year floodplain, and nearly 90% of the original tree canopy was removed. The reconfiguration of the topography through massive excavation for roads and canals destroyed a shallow freshwater aquifer. Eroded soil, urban

Fig. 12.3 Ground view of almost treeless, dehydrated, and barren landscape that was created by the developer. The developer removed 90% of the original tree canopy. (Source: Photo taken by the author)

runoff, sewage from septic tanks, and stagnating and weed-choked canals have polluted the groundwater, the Caloosahatchee River, and the Matlacha Pass (Stroud, 1995). Water pollution was intensified by a lack of retention basins for storm water, a lack of buffer zones along streams, a lack of vegetation along disturbed land, and a lack of seawalls to halt erosion along canal banks (Allan et al., 1977). In addition, potable water from shallow aquifers is minimal, recharge is slow, and there are problems from saltwater contamination (Morgan, 1988). Problems associated with saltwater intrusion will continue to increase from climate change and the gradual rise in sea level (Beever, 2019).

Interestingly, Cape Coral has had a history of rapid growth and development. Environmental issues and problems associated with consumer deception and fraud did not slow population growth. During the early stages of development, as a means to increase its credibility, Gulf American stressed construction that included roads, canals, homes, and even businesses. This approach proved successful, and by 1963 Cape Coral had a population of 2850 (Dodrill, 1993). Rapid growth continued and by 1980, the total population exceeded 30,000. The popularity of Southwest Florida and the desire to own land and live on or near the coast are apparent from the incredible and almost unbelievable population growth that has occurred in Lee County and in Cape Coral. The Fort Myers-Cape Coral metropolitan statistical area became one

Fig. 12.4 Aerial view of the eight-lake region in the southern portion of Cape Coral. These lakes were excavated during dredge and fill operations to provide fill for home sites. Coastal wetlands and Sanibel Island are visible in the background. (Source: Photo taken by the author)

of the fastest growing MSAs in the entire country. Cape Coral alone had 74,991 permanent residents in 1990, an increase of more than 44,000 new residents since 1980. From 1980 to 1990, it increased in population more than any other city in the six-county southwest region of Florida and is now the largest city in Lee County. The impressive growth continued, and by 2010 the population increased to more than 150,000 with the current estimated population standing at more than 190,000 (US Census Bureau, 2019) (Fig. 12.5). This large and rapidly expanding population will, of course, need basic services and protection from natural hazards. The ongoing pressure from a large population coupled with the problems associated with climate change only intensifies the need for planning and the provision of strategies for protecting a vulnerable population. Of particular concern is Cape Coral's 30,000 homes located in the southern portion of the peninsula that are 5 ft or less above sea level (Tuff, 2018). According to a recent regional planning council study, these homes as well as many other homes in other coastal communities in Southwest Florida are particularly susceptible to the effects of climate change that includes problems associated with altered hydrology, climate instability, storm intensity, and sea level rise (Beever et al., 2016). Another alarming thought is related to the city's population growth potential. The current population and rapid growth rates at Cape Coral are not particularly impressive when one considers the city's size (acreage)

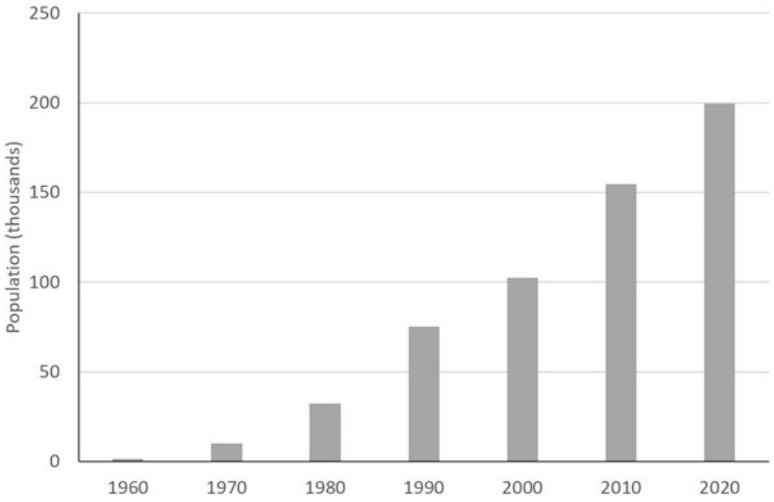

Fig. 12.5 Cape Coral's rapid population growth since 1960. (Source: United States Census Bureau, 2019. Graph prepared by Mary K. Kilmer)

and its potential population. Cape Coral covers 103 square miles of land and has over 138,000 platted residential lots (Daltry, 2020). Assuming three residents per lot, Cape Coral's 138,000 lots could house over 400,000 people. This would indeed be an incredibly large number of people crowded onto a peninsula that should have probably never been developed in the first place.

Planning Problems

It is not surprising that pre-platted communities such as Cape Coral are not at the forefront of climate action planning and justice. In many cases, ill-conceived, premature subdivisions never evolved to become cities and remain as vast unincorporated rural subdivisions with little or no governmental infrastructure other than limited assistance and guidance provided by county governments. It is in many ways fortunate that Cape Coral had substantial population growth and became incorporated relatively early in its developmental history. This at least provided a city government that includes a mayor, city council, and various departments and divisions designed to provide leadership and to administer important functions to meet the needs of an ever-increasing population. Unfortunately, city government, particularly the land use planning staff, has been more or less overwhelmed by a long list of problems created by the original developer. This means that the planning staff spends much of its time trying to find solutions to current problems and has had inadequate time to deal with issues related to climate change and climate action planning and justice. City officials, for example, must provide an adequate supply

of potable water; solve problems associated with high-volume traffic flows on poorly designed streets; provide services to the urban core as well as to the widely scattered population outside the core; restore the tree canopy destroyed by the developer; clear weed-choked canals; provide open spaces and parks in the high-density core area; protect endangered species, such as the burrowing owl; provide adequate drainage and flood control; maintain a deteriorating road network; and, time permitting, find ways to protect a vulnerable population from the threats associated with climate change. Of immediate concern is a low sea wall (Fig. 12.6) that provides little or no protection from tidal surge and the high density of canals that could serve as conduits for tidal surges and allow water to move inland quickly. Vulnerability is particularly troublesome for older low-lying homes located adjacent to newer homes that have been elevated to meet relatively recently adopted higher building standards (see, e.g., Florida Building Code, 2017) (Fig. 12.7). These and other problems highlight the need for pre-development planning and provide an indication of what can happen when developers ignore the natural constraints of a site and fail to use appropriate land development techniques (Knight, 1990; Beever et al., 2016).

Despite all that city officials have done to resolve numerous problems and to provide new and improved services to its residents, it has not adequately addressed the insidious problems associated with climate change. This is in many ways

Fig. 12.6 The low sea wall along the southern shoreline of Cape Coral would provide only minimal protection from tidal surge inundation. (Source: Photo taken by the author)

Fig. 12.7 The newer home to the left was built after more stringent building codes and higher base elevations were required. This situation only intensifies drainage and flooding problems for the older home to the right. (Source: Photo taken by the author)

understandable since the problems created by the absence of planning and forethought have put a large segment of the population at risk with no easy way to provide protection. Much of the city's population is particularly vulnerable to climate change because of its coastal location, low-lying and flat topography, and high level of development, especially the southern portion of Cape Coral (Fig. 12.8). Moreover, vulnerability is increased since much of the original natural buffer has been destroyed and a high density of homes now occupy an area that is only a few feet above sea level (Tuff, 2018). Ironically, extensive areas of natural buffer were destroyed to create "dry ground" for home sites that are now extremely vulnerable to flooding from more intense thunderstorms and tidal surge from more severe hurricanes that are already occurring in the Atlantic Basin and the Gulf of Mexico. One of the most serious problems related to vulnerability is depicted in Fig. 12.9. As this illustration shows, much of the city would be inundated by the storm surge that would likely occur during a major hurricane. A 9-ft storm surge from a Category 4 hurricane, for example, would inundate most of the homes in the southern portion of the city. In addition to more severe storms, officials must also prepare to deal with increased climate instability that includes wetter wet seasons, drier dry seasons, more extreme hot and cold events, increased coastal erosion, continued sea level rise, shifts in fauna and flora, an increase in the occurrence of tropical diseases, and

Fig. 12.8 Aerial view of high density of low-lying homes along canals in southern Cape Coral. These canals, created by dredge and fill, provide access to the Caloosahatchee River and the Gulf of Mexico for hundreds or even thousands of homeowners. (Source: www.earth.google.com, accessed 6/25/2020)

other things such as issues related to the psychological well-being of the vulnerable population (Lindley et al., 2011). Obviously, it is not a matter of whether climate change will occur but how much and how severe. It is important to note that the impact will be too great to ignore**.** This is why monitoring the changes that are occurring and assessing the effects and the results are extremely important (Beever et al., 2016).

Coping with Climate Change

The likely effects of climate change on Cape Coral and the ecosystems and infrastructure of Southwest Florida should be addressed sooner rather than later. This means that it is essential to plan and act now to avoid many of the negative effects associated with sea level rise and other negative features caused by climate change. Because of their concerns, and feeling the need to act, city officials at Cape Coral contracted with the Southwest Florida Regional Planning Council in 2016 to conduct research and to write in-depth reports on Cape Coral's climate change vulnerability and on climate change resiliency strategies for the city. Two voluminous reports provide in detail Cape Coral's vulnerability and outline specific resiliency strategies that could be implemented. The vulnerability study includes an assessment of significant potential effects of climate change on the human and native

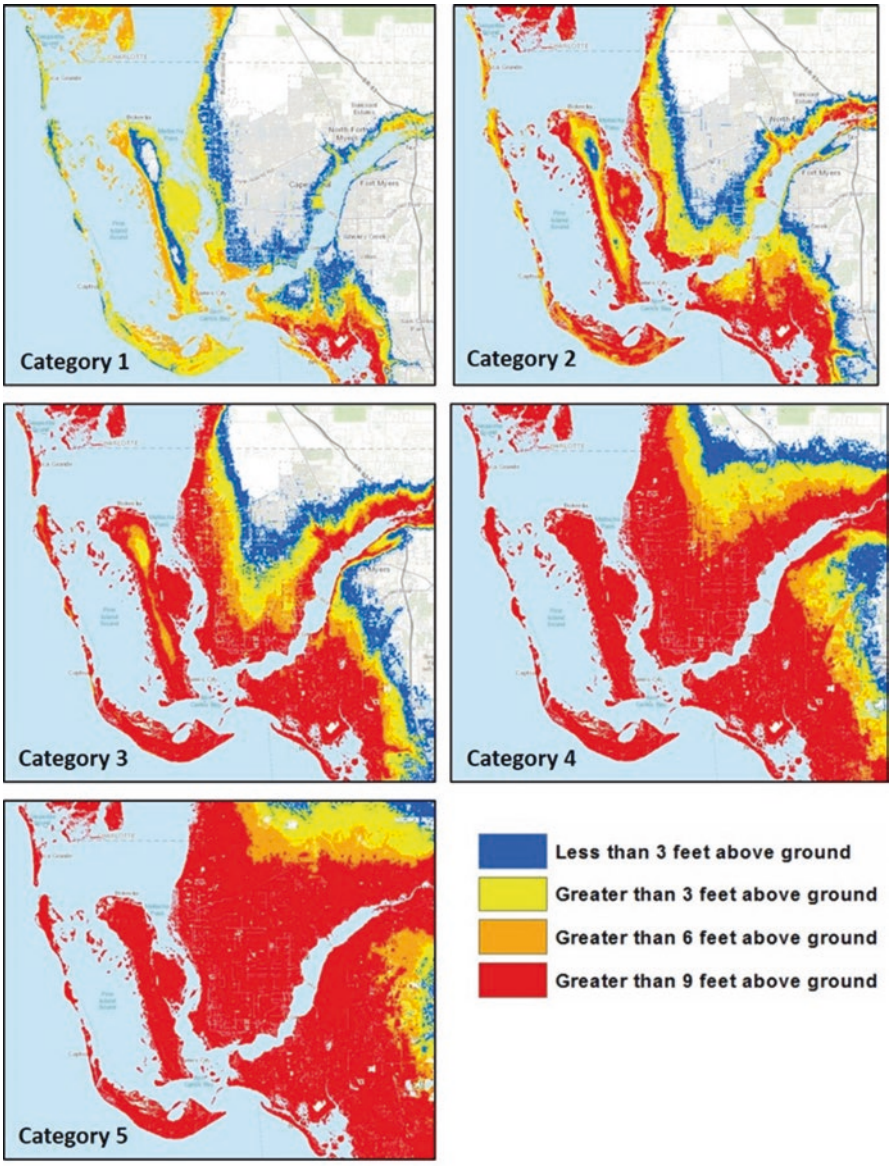

Fig. 12.9 Cape Coral storm surge predictions for different hurricane categories. It is important to note that a 9-ft surge would inundate much of the city. (Source: Data from National Storm Surge Hazard Maps prepared by the National Weather Service SLOSH model of Maximum of MEOW's (MOMs) product for hurricane wind categories at a high tide. Adapted from Kilmer et al. (2019). Figure prepared by Mary K. Kilmer)

ecosystems of Cape Coral. This detailed overview identifies potentially critical vulnerabilities that will need to be addressed by adaptation or accommodation. These vulnerabilities are related to altered hydrology, climate instability and storm severity, habitat and species changes, geomorphic (landform) changes, sea level rise, and changes in water and air temperature (see, e.g., Beever et al., 2016). The long list of climate change vulnerabilities points to the significance of climate change and to the need to implement adaptive strategies. These strategies could occur within the comprehensive land use plan or as part of a city's hazard mitigation plans (see, e.g., Fu et al., 2017). Making changes to the comprehensive plan is particularly pertinent since it is one of the strongest planning tools for incorporating adaptive strategies into a city's decision making framework. Community leaders should determine the rate of sea level rise, assess risks and vulnerabilities, designate areas for special protection from further development, and create a schedule or mechanism for the implementation of adaptation measures that would be incorporated into the comprehensive plan (South Florida Regional Planning Council, 2013). While Cape Coral has been relatively slow in making climate change adjustments to its comprehensive plan, it seems to have excelled in enhancing its disaster preparedness. Cape Coral's disaster preparedness is designed to cope with a wide variety of disasters including the ever-increasing threat from more intense storms. The city of Cape Coral has responded to this threat by developing an Emergency Operations Plan (EOP) that complies with the National Response Framework (NRF) and the National Incident Management System (NIMS). The purpose of the plan is to minimize the impact of a disaster by facilitating an efficient, timely, and well-coordinated response (Spearo, 2018). In addition to the EOP, the city has a well-thought-out evacuation plan, designed to help mitigate some of the dangers posed to humans by hurricanes (Cape Coral Division of Emergency Management, 2018; Kilmer et al., 2019).

Fortunately, there are several options that cities can take to enhance preparedness and to become much more resilient to the impacts of climate change (see, e.g., Volk, 2008; Deyle et al., 2007; Wells et al., 2014; Beever et al., 2017). Deyle et al. (2007) suggest the use of adaptation planning, a type of planning approach that would occur in steps using several categories of adaptive strategies for dealing with climate change. Wells et al. (2014), on the other hand, stress the importance of considering both natural and human adaptations and suggest physical, policy, and process approaches that would include such things as shoreline setbacks, additions to the comprehensive plans, working across jurisdictional boundaries, establishing partnerships, and engaging local residents in the decision-making process. The ever-increasing body of literature on adaptation strategies to deal with sea level rise and storm surge more often than not supports the finding of Deyle et al. (2007) and includes the following categories: (a) protection (armoring, filling, and diking), (b) managed retreat which might better be described as planned relocation, (c) structural accommodation methods that would include increasing the elevation of buildings within the hazard zone, and (d) avoidance—making sure that no new development occurs in the coastal hazard zone (see Beever et al., 2017 for more details).

While the city of Cape Coral is only in the early stages of considering some these important steps, it is, at the very least, beginning to address the problem and is in the process of identifying and implementing potential climate change resiliency strategies. This will, of course, require coordination and consultation with local government in several of Cape Coral's departments and divisions. Such an approach is supported in a recent study entitled "Climate Change in Coastal Communities," in which it is suggested that cities proactively identify vulnerable areas, monitor changes, and implement an adaptive plan that is linked to management goals (US Environmental Protection Agency, 2017). Timely decision-making is crucial since one important effect of sea level rise in Cape Coral will be an increase in the level of risk and expense borne by property owners, particularly for those that choose to remain in place rather than move to avoid problems associated with flooding (Volk, 2008). The likelihood that the city will respond in a way that reduces these risks is complicated by factors including the city's population growth, coastal property values, increased density in coastal development, the value of coastal tourism, and the demand for individual coastal access (Beever et al., 2017). Obviously, these complications create a tremendous challenge for those responsible for the well-being of a large and rapidly expanding population.

The implementation of an effective resiliency strategy to protect thousands of vulnerable families living in Cape Coral and along much of Southwest Florida's coast is complicated even further by its low-lying topography. As is highlighted in Kilmer et al. (2019), providing protection (coastal armoring) for Cape Coral, for example, would require building a barrier across each inlet from the Gulf of Mexico to the estuaries; otherwise the storm surge would simply flow through the next inlet to the north or south. Even if a series of barriers were installed to block an 8–10 ft storm surge, it would bypass the coastal levees and flow over the low-lying barrier islands most of which are no more than 5 ft above mean sea level (Spikowski, 2019). Even Pine Island, the large barrier island west of Cape Coral, would not provide a great deal of protection. While it has a relatively high center, as much as 15 ft above sea level, the storm surge would simply flow around the higher center and over its low northern and southern ends. All the other barrier islands, including Sanibel, are very low and vulnerable to overflow during a significant storm surge (Spikowski, 2019). This partially explains why the coastal protection systems that are in place in the Netherlands and on the Thames near London are not feasible for Southwest Florida (Beever, 2019). As James Beever explains, the geography, underlying geology, and lack of high elevation tie-off points prohibit the use of coastal armoring (storm surge barriers). An additional issue is the extent to which tropical storm- and hurricane-related flooding stems from heavy rain rather than from storm surge. As a result, coastal levees could potentially do more harm than good. It is important to note that the flooding from Hurricane Irma, for example, the most recent hurricane to strike the region, was rain-driven with only a small storm surge in Lee County. Even the more significant storm surge that occurred in Everglades City and Marco Island would not have been prevented by storm barriers (Beever, 2019; Kilmer et al., 2019).

Since coastal armoring is not feasible for much of Southwest Florida, city officials must rely on other resiliency strategies. These include such things as managed relocation, increasing the elevation of homes, improving drainage and landscape retention, and the elevation of roads that will be used during an evacuation. While the city is including improved drainage and landscape retention basins as an important part of its utilities expansion plan (Fig. 12.10), it has not yet implemented more extensive and more effective adaptive options. Obviously, managed relocation and elevating existing homes and roadways would be extremely expensive and are not included as a part of Cape Coral's immediate plans to deal with flooding. Interestingly, the limited progress at Cape Coral and other coastal communities is in sharp contrast to the approach being taken at Punta Gorda, a city located only 30 miles to the north of Cape Coral. This relatively small coastal community has made substantial progress in the implementation of its climate adaption plan that includes a property buyout for land in recurrent flood zones, the conversion of flood zones into areas of open space and public use, and the relocation of its public works facility to a less flood-prone location. See, for example, Taylor Engineering (2019) for an excellent assessment of the progress Punta Gorda has made in becoming much more resilient to climate change. This plan has been put into place relatively recently and particularly since the devastation that was inflicted on the city of Punta Gorda by Hurricane Charley in 2004.

Fig. 12.10 Ground view of water retention basin that was provided during Cape Coral's utilities expansion program. (Source: Photo taken by the author)

As it stands today, Cape Coral's Comprehensive Plan does not adequately address climate change or provide effective resiliency strategies for resolving problems associated with sea level rise. Although limited in scope, the city is beginning to incorporate statements concerning climate change into the 2020 Future Land Use Element of the Comprehensive Plan. Policy 1.1, for example, states that "The City will consider the impacts of climate change and sea level rise when determining the appropriate future land use map classification for property within the City of Cape Coral." There is also Policy 9.2 which states that "The City will utilize the 2017 Climate Change Resiliency Strategy, and other strategies as updated for the placement of public infrastructure in order to better prepare for sea level rise" (Cape Coral, Department of Community Development, Comprehensive Plan, Future Land Use Element, 1 and 56). Other possible changes are being considered for the next update that is to be completed by October 2021. In terms of climate action planning, the city has at least made a start and is planning to incorporate other suggested resiliency strategies in the future (Daltry, 2020). The following are the top priority climate change resiliency actions that have been identified by Beever et al. (2017) for the city to add to the Comprehensive Plan: (1) increase the ground floor elevation of future critical facilities such as fire stations to 15 ft; (2) eliminate the construction of new critical facilities in the coastal high hazard zone; (3) increase the base floor elevation of all new residential and commercial construction from 1 to 3 ft; and (4) increase the height of salinity barrier separation weirs in preparation for sea level rise and increased storm surge (see Beever et al., 2017 for a complete list of suggested strategies). The incorporation of these and other suggested changes to the Comprehensive Plan coupled with the monitoring of climate-driven changes that are occurring will help the city become much more pro-active in dealing with the challenges of climate change. While city officials have designated a coastal high hazard zone and have established hurricane evacuation routes, more is needed including adding a goal in the Comprehensive Plan to develop a temporal and spatial context for sea level rise adaptation and other strategies designed to ensure that the city moves forward with climate action planning (Beever et al., 2017). The city should also remain vigilant and make sure the plans stay up to date and effective to deal with the ongoing and what seems at times to be an imperceptible problem (Beever et al., 2017).

Summary and Conclusions

Cities have protection measures that could be used to address climate change consequences. These include moving flood gates and other types of coastal armoring, the restoration of coastal wetlands and coral reefs, and even the use of floating houses. (see, e.g., Bowman et al., 2006; Ferrario et al., 2014; Kimmelman, 2013; Wamsley et al., 2010; Bijker, 2007; Zhong et al., 2012). It is important to note that many of these options, while being extremely successful in some locations, are not feasible for cities along the Southwest Florida coast. The type of protection measure

that should be implemented is context-dependent and will vary depending in part on the topographic configuration of the coastal zone and the amount of "undeveloped" land adjacent to and near the coast. While more thoughtful site selection and land use planning remain the best protection against hurricane-related damages and flooding from intense thunderstorms, many cities, including Cape Coral, Tampa, and others situated along the coast no longer have this option. Instead, they must develop ways to limit damages to the current urban infrastructure and provide protection for those families living in vulnerable locations. The discussion above illustrates the difficulty of planning after the fact, after serious mistakes have been made related to poor site selection and ill-conceived land development practices. Unfortunately, this situation is not unique to Cape Coral and has occurred all too often in numerous cities across the country including several in Southwest Florida.

The degree to which the city of Cape Coral can/will implement a successful climate resiliency strategy is an open question. The good news is that Cape Coral is separated from the open waters of the Gulf of Mexico by Sanibel Island, Pine Island, and a portion of the mainland Southwest of Fort Myers (see Fig. 12.1). This coastal configuration and the presence of two large barrier islands may provide some protection for Cape Coral. But, as mentioned previously, the amount of protection these buffers provide is context driven and dependent upon several important factors including the intensity of the storm, angle of approach, and the speed of movement. An important dilemma is how quickly a long list of climate change resiliency strategy options is narrowed to a select few when the cost and feasibility of implementation are considered.

Unfortunately, climate change predictions indicate an increase in the occurrence of severe hurricanes. Low-lying coastal cities are increasingly at risk from these storms (Milman, 2017). Cape Coral is an excellent example of a city that was built in a vulnerable location with little or no consideration of the potential problems posed by hurricanes. With one exception in 1960, during the early stages of development, Cape Coral has escaped direct impacts from hurricanes. Even so, it is likely just a matter of time until such an impact occurs. The physical location and developmental history of the city mean it will always be at risk, not only from storm surge but from heavy rainfall as well. Storm surge models indicate that the storm surge from a major hurricane (Category 3 or above) would inundate most of the city and even a lesser hurricane or tropical storm would cause severe flooding, particularly in areas of the city with older structures. Limited evacuation options and an aging population also add to the likelihood that individuals will remain at risk during a hurricane and further increase the likelihood of casualties. This is why coastal cities such as Cape Coral would benefit greatly from enhanced preparedness, improved evacuation plans, and the implementation of feasible protection options from hurricane-associated damages. One important issue is finding the proper mix of strategies that will provide a measure of "protection" for vulnerable populations (Kilmer et al., 2019, 63–64).

Obviously, Cape Coral is only one of many coastal cities in the United States that is at risk from hurricane impacts. The bad news is the same for city after city that has infrastructure, including in some cases historic downtowns, that is vulnerable to storm surge inundation. The challenges faced by the city of Cape Coral and the steps it may take to overcome some of these challenges can serve as a lesson to other low-lying, coastal cities, particularly those in South Florida with similar low-lying topography and developmental histories. Punta Gorda, and the progress it has made to combat climate change, is perhaps an even better example of what can be done in the wake of threats posed by climate instability and more intense tropical storms. At the present time, Cape Coral is combining an "effective" emergency operations plan with improved drainage, greater water retention, and plans to improve evacuation routes as a means to combat the increasingly intense hurricanes that it is likely to encounter in the future. Unfortunately, when poor site selection decisions are made and the property is subdivided and sold to a widely scattered clientele with vested rights to build and occupy lots in inappropriate locations, options for correcting the situation become extremely limited. In the case of Cape Coral, physical barriers are not a feasible option, and there is little or no additional green space available to serve as a buffer during storms. This means that the residents living in these low-lying homes can only hope that Cape Coral never takes a direct hit from a major hurricane. Today, it seems that the only option for dealing with the impending threat of an approaching hurricane is to heed warnings and evacuate before it is too late. Cape Coral and other coastal cities should not rely on previously fortunate circumstances associated with hurricane occurrence. Waiting and hoping for the best is a recipe for disaster. Coastal cities must become proactive and implement resiliency strategies that will protect residents, property, and infrastructure. What may seem to be a drastic measure today, such as planned relocation, will more than likely seem much more feasible as sea levels encroach on prime real estate within the coastal zone.

Unlike many pre-platted subdivisions, such as Lehigh Acres, for example, Cape Coral is an incorporated city and has a planning staff dedicated to resolving a long list of problems, many of which stem from poor planning and ill-conceived land development techniques that were used by the original developer. City planners are also beginning to take steps to deal with climate change and the very serious problems associated with sea level rise. Unlike many cities, however, no steps have been taken to address justice in climate action planning. As stated previously, the word justice as it relates to climate action planning is not included in the current Comprehensive Plan. This means that justice is not yet even at the periphery of climate action planning at Cape Coral. Fortunately, city officials are, at the very least, planning to address justice as it relates to climate change in the updated version of the Comprehensive Plan that is due to be completed in October of 2021 (Daltry, 2020). Whether or not this will make any significant difference in providing equitable protection for a vulnerable population remains to be seen.

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Part V
A Comparative Framework for US Experiences

Chapter 13
Community Engagement and Equity in Climate Adaptation Planning: Experience of Small- and Mid-Sized Cities in the United States and in France

Elena Lioubimtseva and Charlotte da Cunha

Introduction

Climate change adaptation plans are becoming essential part of city planning, recommended, or sometimes required by the state, national, and international agencies (ONERC, 2016; ADEME, 2020; Climate Adapt, 2020; California Natural Resources Agency, 2014; Pringle, 2011). Adaptation measures are increasingly mainstreamed to land-use planning, green and blue infrastructure development, watershed management, transportation planning, building design, and other aspects of urban and regional development (Richard, 2016). The goal of adaptation planning is to reduce human vulnerability to the current and future negative impacts of climate change. However, many adaptation plans remain vague and contain only general language on how their implementation could address social and environmental equity. It is unclear if the proposed adaptation strategies reflect the needs of and benefit all residents or only some groups and neighborhoods, while increasing vulnerability of low-income populations (Anguelovski et al., 2016; Olazabal et al., 2019). It also remains unclear as to what extent the cities' residents and grassroots organizations have anything to contribute and to what extent their input shapes an understanding of human vulnerability to impacts of climate change and directs appropriate adaptation planning targets and strategies (Anguelovski et al., 2016; Thomas et al., 2019).

Urban poor, people of color, immigrants, and other marginalized populations are disproportionally affected by impacts of climate change and extreme events, such as

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heat waves, floods, and vector- and water-borne infections (Baker, 2012; International Housing Coalition, 2011). These communities face critical barriers to involvement including historical disenfranchisement, as well as a sense that climate change is distant and not personally relevant (Phadke et al., 2015). The recent COVID-19 pandemic and protests against police brutality across the United States have illuminated once again the disproportional vulnerability of African-American and Latino populations in American cities. Likewise, French urban poor, mostly people of color and single parents, have been more affected by this pandemic, exacerbated by overcrowded housing and transportation, food scarcity, and police brutality overrepresented on young working-class men (Gauthier, 2017; Gilbert, 2020).

Although this volume is dedicated to climate action in the United States, we felt that a comparative cross-national approach is especially helpful for pinpointing challenges that are either specific to the United States or common in other industrialized nations. France provides a particularly interesting backdrop for such comparison due to the significant differences in history and culture of national climate policies (Lioubimtseva & da Cunha, 2020). Our pilot study offers a new methodology for cross-national comparison of climate adaptation plans through the lenses of equity and justice. More specifically, it aims to understand if urban adaptation plans address vulnerability reduction targets in an equitable manner and how equity in adaptation planning might be linked to both diversity of stakeholders and their interpretation of vulnerability. Previous studies indicate that smaller cities are less likely to have climate adaptation plans than large ones (Lefranc-Morin, 2019; Reckien et al., 2018), possibly because small cities have fewer resources and are less likely to be engaged in national and international networks and have fewer opportunities for peer learning, being less engaged in global and regional adaptation networks (Woodruff, 2018). In addition, the majority of existing scholarly literature on local climate adaptation planning has been based on the experience of large cities (Anguelovski et al., 2016; Araos et al., 2016; Olazabal et al., 2019; Arnott et al., 2016), and more research is necessary to understand the unique challenges of smaller communities.

Our research is driven by three interrelated hypotheses:

(a) The interpretation of what "vulnerability to climate change" means is influenced by a diversity of stakeholders who are engaged in vulnerability assessment and adaptation planning.
(b) The consideration of equity in climate adaptation goals is largely influenced by interpretation and completeness of vulnerability assessment.
(c) The consideration of equity in climate adaptation goals is therefore largely influenced by a diversity of groups of stakeholders who are engaged in climate adaptation planning.

Methodology

Conceptual Framework

Our pilot study is probing complex relationships between the diversity of stakeholders involved in climate adaptation planning, interpretation and assessment of vulnerability, and considerations of equity in the proposed climate adaptation measures (Fig. 13.1).

Interpretation of Vulnerability

Our assessment is driven by an examination of complex relationships among the *interpretation of human vulnerability* in climate adaptation plans; *diversity* of *stakeholders*, involved in climate adaptation planning; and *consideration of equity* in goals and strategies formulated in climate adaptation plans. *Vulnerability* is defined as "the degree, to which a system is susceptible, or unable to cope with, adverse effects of climate change, including climate variability and extremes" (IPCC, 2014). To interpret the scope of vulnerability assessment at a city scale, we have adopted the Vulnerability Scoping Diagram approach (Polsky et al., 2007), implying that vulnerability is a composite variable, defined by three groups of factors, such as

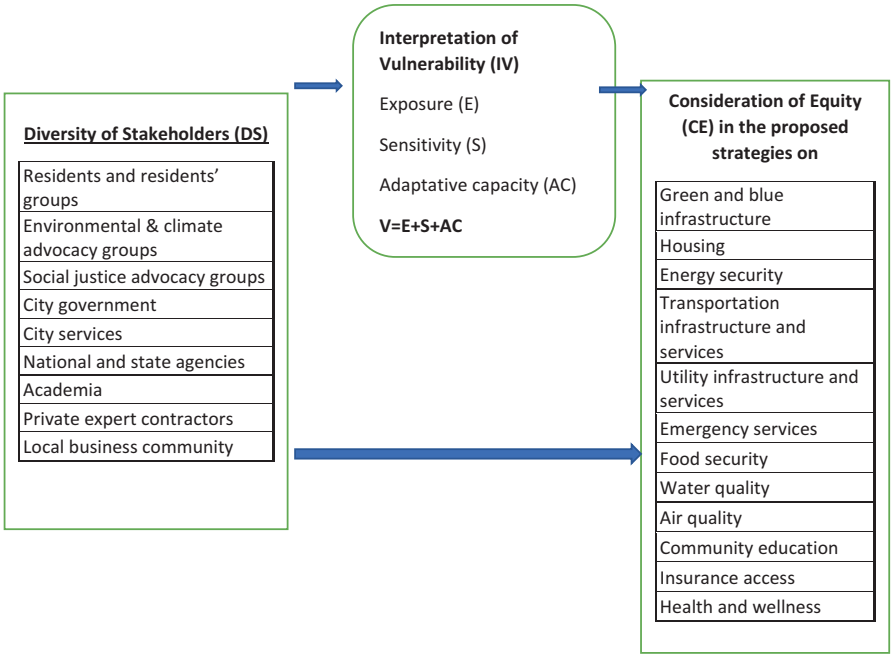

Fig. 13.1 Conceptual diagram

Table 13.1 Indicators of human vulnerability

Examples of vulnerability indicators	Indicators of exposure (*E*)	Indicators of sensitivity (*S*)	Indicators of adaptive capacity (AC)
Human vulnerability to a specific impact, e.g., flooding	Elevation, slope, terrain, soils, distance from the coast, distance from the flood plain, wind speed	Population age, gender, health, wellness, fitness, mobility, occupation, lifestyle	Access to information, education, transportation, insurance, finances, evacuation plan

exposure, *sensitivity*, and *adaptive capacity* of the entire population in a city (Howe et al., 2013). Each group of factors, in turn, is based on a combination of place-based indicators, such as location, demographics, and economic assets (Table 13.1).

$$V = f\left[E * S * \left(-\mathrm{AC}\right)\right],$$

where

- V is vulnerability
- E is exposure
- S is sensitivity
- AC is adaptive capacity

According to the Cambridge Dictionary, exposure (E) is the fact of experiencing something or being affected by it because of being in a particular situation or place. For example, part of a city could be exposed to flooding due to its distance to a water body and terrain. Sensitivity (S) is a quality of being sensitive to a specific impact. For example, sensitivity to a flood or heat wave of people living in the same city could differ depending on their age, health, and disability status. Adaptive capacity (AC) involves all assets available to withstand an adverse impact, e.g., income, education, access to technology, transportation, insurance, and so on. In this study we evaluate *interpretation of vulnerability* (IV) in climate adaptation plans, considering these three dimensions (E, S, and AC).

Diversity of Stakeholders

While the process of development of climate adaptation plans typically involves many organizations and individuals, engagement by different groups of stakeholders depends on numerous factors, ranging from national policies to the local culture of public engagement. Engaging the entire spectrum of stakeholders (Bacqué & Biewener, 2015), including economically and socially vulnerable people, whose voices are too often not included in the planning process (Braconnier & Mayer, 2015), is an important criteria of procedural justice (Holland, 2017). In our study, we focus on the level of engagement by the following groups, most typically involved in local climate adaptation planning as a measure of *diversity of*

stakeholders (DS): residents and residents' groups, such as neighborhood and condominium associations, environmental and climate advocacy groups; social justice advocacy groups, e.g., ethnic minorities, immigrants, and LGBT; city government, e.g., city council, commissioners; city services, e.g., planning department, emergency services, national and state agencies; academia, private expert contractors; and local business community. Due to the lack of information about gender, age, race, and ethnicity of participants involved in climate adaptation planning, we are unable to evaluate demographic and economic diversity of stakeholders first-hand. However, the presence of some advocacy groups and other boundary organizations, mediating on their behalf, could provide at least some indirect insights about groups and individuals involved in climate adaptation planning.

Consideration of Equity

Equity can be defined both as process and outcomes. In climate adaptation planning, justice implies planning strategies to eliminate disparities and create physical and social environment that aim to ensure a fairer distribution of community resources along race, class, gender, and other dimensions of diversity (Northridge & Freeman, 2011). Climate change adaptation planning seeks to adjust human-environmental systems in response to actual or expected climatic stimuli to minimize their harms or exploit beneficial opportunities. Therefore, consideration of equity in climate adaptation is paramount, to equitably reduce vulnerability of all residents and neighborhoods. Based on our previous study and review of climate adaptation plans, we identify here 12 target areas, gauging consideration of equity in climate adaptation measures. These are green and blue infrastructure, housing, energy security, transportation infrastructure and services, utility infrastructure and services, emergency services, food security, water quality, air quality, community education, insurance access, and health and wellness.

Case Studies

In France, climate adaptation planning is fully integrated into the ongoing required climate plans (PCETs and PCAETs), which are developed by the local governments at the scale of individual urban communities or agglomerations. In the United States, on the other hand, climate change mitigation and adaptation planning policies are neither compulsory nor binding, and their presence and level of coordination vary greatly across states and jurisdictions (Lioubimtseva & da Cunha, 2020), with California being by far ahead of the rest of the nation when it comes both to the number of cities with adaptation plans within the state and regularity of their updates.

To find some patterns, we have examined 12 US and 12 French climate adaptation plans of small- and mid-sized urban communities, as well as related auxiliary

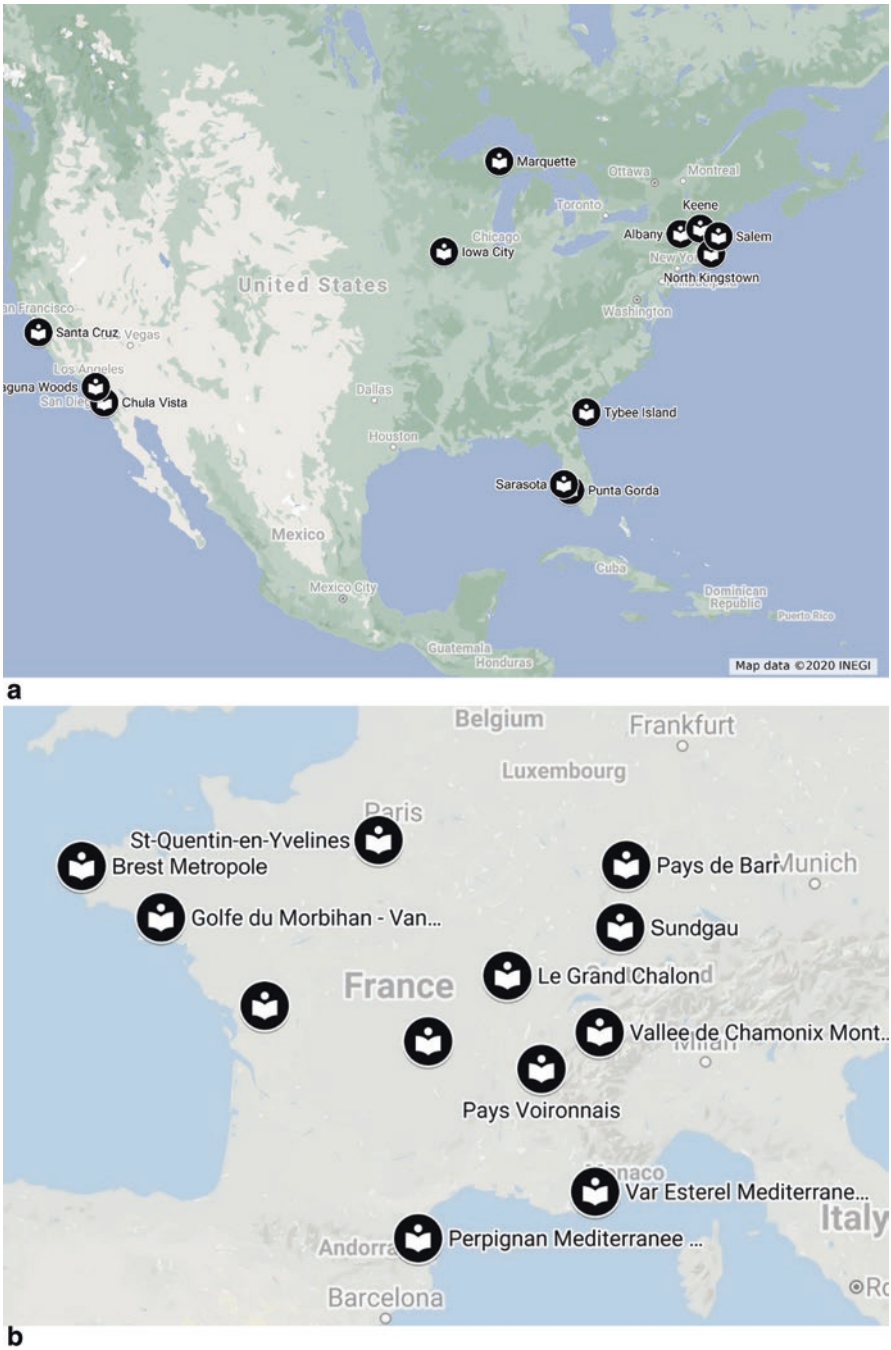

Fig. 13.2 (**a**, **b**) Climate adaptation plans of the US and French cities in this study

documents about their development (Fig. 13.2a, b, maps of the US and French cities). We deliberately focus on small- and mid-sized cities because they provide a home for a very large part of the urban population in both countries (Lefranc-Morin, 2019; OECD, 2019) but have received very limited attention in the climate adaptation literature. The selection of plans has been informed by Lioubimtseva and da Cunha's (2020) study of climate adaptation plans of small- and mid-sized cities and searches of ADEME database (ADEME, 2020) for French plans and Georgetown Climate Center Adaptation Clearinghouse (GCC, 2020) for the US plans. Additional documents, such as previous and concurrent city plans, meeting agendas and minutes, and other auxiliary documents were obtained through searches of cities' websites and email communications with city officials. In the US case, the 12 plans selected were the only small cities plans found meeting our criteria. The GCC AC appears to be missing some published adaptation plans but remains the most complete source of data on local adaptation plans in the United States. The ADEME database contained more options for the choice of cities, but the final selection was reduced to the random choice of 12 PCAETs meeting our study criteria:

- A finalized document or set of documents, clearly defined as "climate change adaptation plan" in their title or description. We have purposefully excluded from this review any other plans, such as energy, GHG mitigation, sustainability, resiliency, and urban master plans.
- Each adaptation plan, dedicated for a small- or mid-sized community (e.g., city, town, or group of adjacent urban communities that may include suburban and peri-urban areas covered in a plan) with a total population of less than 300,000 people, an arbitrary threshold, commonly defined in the literature (Hansen, 2017; Lioubimtseva & da Cunha, 2020; Lefranc-Morin, 2019).
- Each adaptation plan is based on a completed vulnerability assessment, informed by analysis of climate change impacts. A vulnerability assessment might be integrated in the text of a plan or published as a separate document and was examined concurrently in this study.

Content Evaluation Protocol

Data collection included several steps, including reading each adaptation plan and associated supporting documents by both authors, rating each criterion, combining all scores, referencing, discussion, clarifications, and reconciliation of the final scores, which would be used for further analysis. Our evaluations are based on reading the plans and therefore only reflect their content. Each criterion of IV, DS, and CE has been ranked on a scale from 0 to 3 (Table 13.2). Criteria are not weighted, assuming that they are equally important in their own group and overall.

We have developed cumulative indices of interpretation of vulnerability (IV), diversity of stakeholders (DS), and consideration of equity (CE) to facilitate data analysis as following:

Table 13.2 Evaluation criteria

Score	Assessment of exposure, sensitivity, and adaptive capacity in overall vulnerability assessment	Role of each group of stakeholders	Consideration of equity in each adaptation target area
0	Absent	None	Absent
1	Weak	Participant	Adaptation target area present, does not mention equity
2	Medium	Partner	Present, mentions equity, not fully developed
3	Strong	Co-author	Present, includes well-developed measures to address equity

IV = $\frac{E+S+\mathrm{AC}}{9}\times 100\%$, where E is exposure, S is sensitivity, AC is adaptive capacity, and each ranked on a scale from 0 to 3 based on completeness of their assessments;

DS = $\Sigma(s1, 2, 3, \ldots, 9)/27 \times 100\%$, where s is a number of stakeholders groups involved, ranging from 1 to 9, each ranked on a scale 0–3

CE = $\Sigma(\mathrm{am}1, 2, \ldots, 12)/36 \times 100\%$, where am is a number of possible adaptation measures in each plan, ranging from 1 to 12, each ranked on a scale from 0 to 3.

Data Analysis

Following our initial hypotheses, we examined three relationships: (a) between IV and DS, to find out if and how interpretation of vulnerability might be influenced by the types of stakeholders involved in the planning process; (b) between IV and CE, to see if adaptation priorities are informed and shaped by the way in which vulnerability is perceived and assessed by a city; and (c) between CE and DS to reveal the possible role of the latter in shaping adaptation priorities and their attention to equity. Pearson correlation coefficient was used to explore these relationships. We use histograms to examine and illustrate trends and patterns in our dataset and group cities based on similarities of their IV, DS, and CE. However, due to the small size of our sample, our semi-quantitative analysis should be regarded with caution and not be used for extrapolation beyond this study. Qualitative analysis and cross-examination of our relatively subjective ratings against the backdrop of socioeconomic and demographic data are further used to explain the observed correlations and also categories of cities with similar population profiles and climate adaptation challenges.

Results and Discussion

Our study offers several interesting insights about how cities conduct their vulnerability assessments, who is involved in the climate adaptation planning process, and how these factors might be shaping attention to equity in their proposed climate adaptation goals. First of all, it became obvious, at least within our small sample, that cities' interpretation of the concept of vulnerability varies quite significantly, due to a multitude of factors, such as perceived local climate impacts and risks, culture, economy, and, especially, technical guidelines chosen by the groups, who conducts the assessment, and opinions of individuals involved in the process (Fig. 13.3a). Vulnerability assessment is an essential prerequisite of adaptation planning (Brown et al., 2011; IPCC, 2007; Smit & Wandel, 2006). It is a mandatory step for all French municipalities according to the ADEME guidelines (ONERC, 2016) and is typically encouraged in the guidelines of various state, national, or

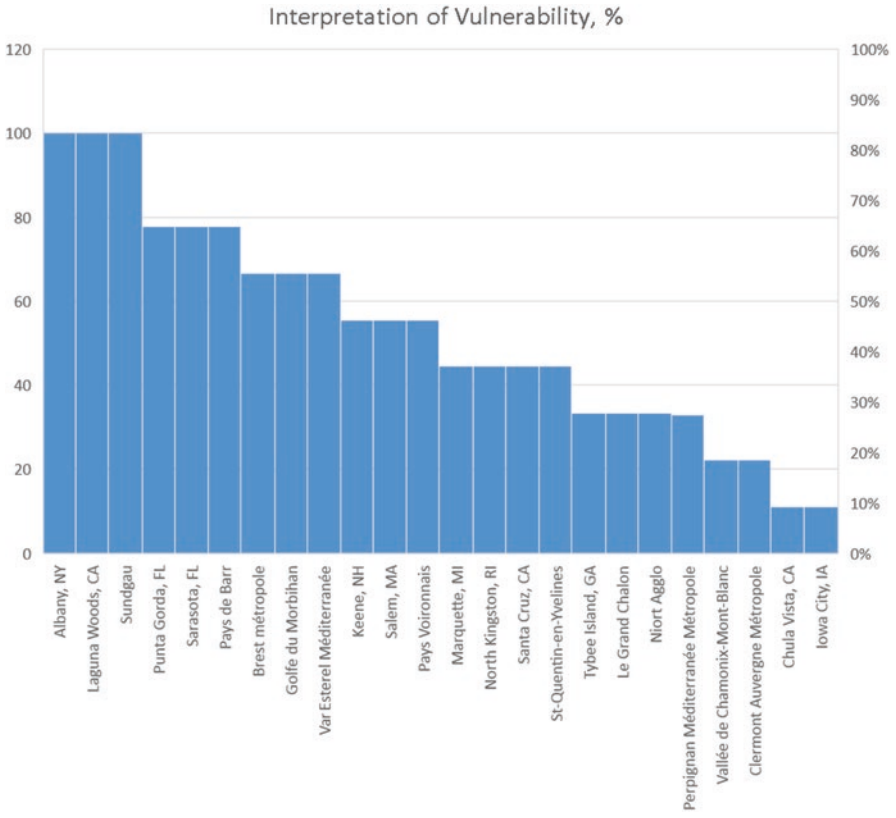

Fig. 13.3 (**a**) Interpretation of vulnerability by the cities. (**b**) Diversity of stakeholders participating in development of climate adaptation plans. (**c**) Consideration of equity in climate adaptation measures

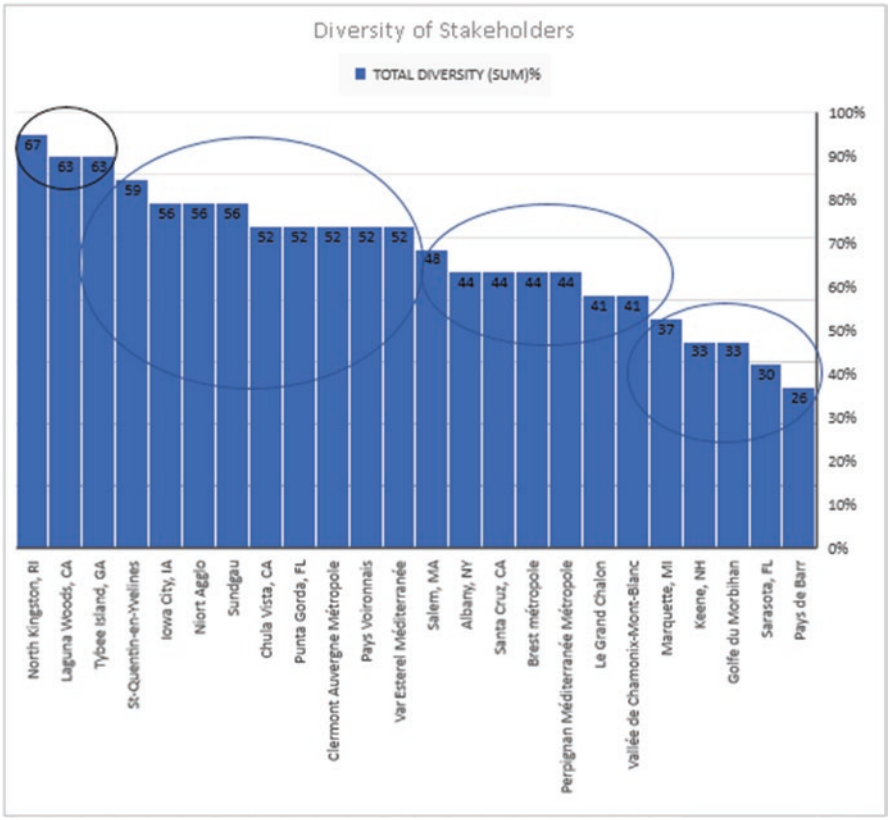

Fig. 13.3 (continued)

international agencies (California Natural Resources Agency, 2012; Model Forestry Policy Program, n.d.; The Climate Impacts Group et al., 2007).

Yet, even in France, where cities apply the same national methodology, and even more so, in the United States, where cities and states have much more autonomy and there is no national guidelines on climate adaptation planning, the ways in which cities approach vulnerability assessment varies tremendously, leading to a multitude of diverse interpretations. In our sample, all cities had completed assessment of their *exposure* to current and expected climate impacts to some degree, and the majority of them did it really well: 9 out of 12 US plans and 10 out 12 French cities received the highest score (3), meaning that they have provided detailed place-based analysis of physical exposure to climate impacts and risks based on their location and physiographic conditions. On the other hand, only Albany, NY, and Sundgau received top score (3) for assessment on sensitivity of their populations' sensitivity (linked to age, mobility, wellness, and health). Moreover, 6 American and 6 French plans did not address sensitivity at all. Similarly, adaptive capacity of the population

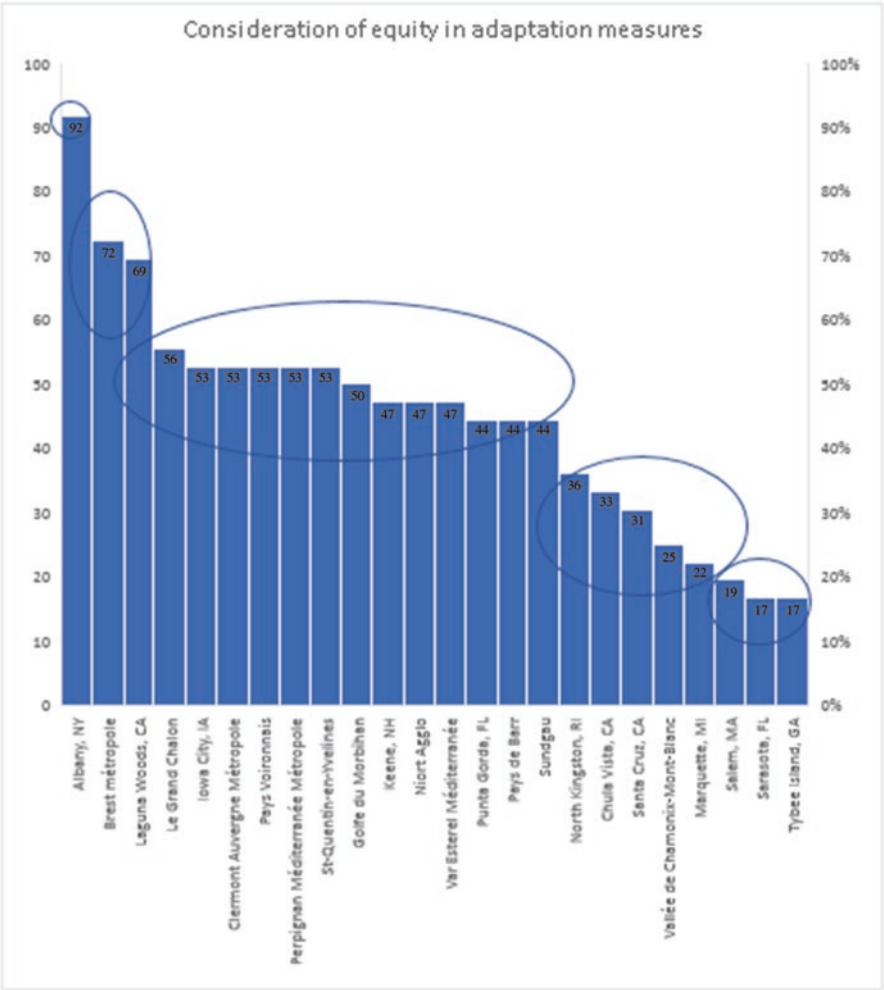

Fig. 13.3 (continued)

(based on its socioeconomic assets) did not receive enough attention in the majority of plans. Only three US plans (Albany, NY, Laguna Woods, CA, and Punta Gorda, FL) and two French plans (Sundgau and Var Esterel Méditerranée) scored 3 for their assessment of adaptive capacity. At the same time, three US plans and six French plans did not mention any aspects of their adaptive capacities.

French climate adaptation plans appeared to be more concerned with overall territorial preparedness to climate impacts, rather than differentiating potential impacts and risks for different population groups. The ADEME methodology for vulnerability assessment clearly prioritizes physical exposure to climate risks, with almost no attention to social and economic aspects. It is interesting to note that even those plans that explicitly discuss "sensitivity" ("sensibilité") and cite scholarly literature

on all three dimensions of vulnerability focus solely on physical or built environment, rather than social structures. Likewise, French PCAETs rarely include adaptive capacity in their vulnerability assessments, although some of them mention it in in the territorial diagnostic evaluation, another component required of PCAETs.

American plans, on the other hand, appear to use a much wider range of methodological and conceptual approaches, largely differing from state to state and city to city, and their interpretations of what "vulnerability" is and how it can be assessed are much less uniform. Yet, in both countries, attention to physical exposure to climate impacts clearly prevails over more subtle aspects of sensitivity and adaptive capacity of the cities' residents.

In addition, although more recently published plans appeared to be based on more complete assessments of exposure, generally supported by more thorough analysis of climate trends and scenarios, we did not find any evidence of such improvement in considerations of sensitivity and adaptive capacity. Similarly, despite the abundance of scholarly literature and white papers on the importance of stakeholders' engagement and public participation in climate adaptation planning (Elelman & Feldman, 2018; Snover et al., 2007), the level of stakeholders' involvement varies significantly in our sample. Based on the DS index (Fig. 13.3b), 12 histogram classes of cities emerge that can be aggregated in four broader categories with similar ranges:

- High diversity (>60%) planners, including North Kingston, Laguna Woods, Tybee Island.
- Moderate diversity (50–60%) planners: St-Quentin-en-Yvelines, Iowa City, Niort Agglo, Sundgau, Chula Vista, Punta Gorda, Clermont Auvergne Métropole, Pays Voironnais, Var Esterel.
- Low diversity (40–50%) planners: Salem, Albany, Santa Cruz, Brest Métropole,, Perpignan, Grand Chalon and Vallée de Chamonix.
- Very low diversity planners (<40%), such as Marquette, Keene, Golfe du Morbihan, Sarasota and Pays de Barr.

Once again, French plans, at least in theory, follow the ADEME national guidelines on best practices in stakeholders' engagement. Yet, both in France and in the United States, we found that there were just as many plans produced almost solely by local governments with very minimal public engagement as those who have actively engaged their residents, business, non-profits, academia, and other groups (Fig. 13.3b).

It is important to remember that development of climate adaptation plans is complex and our evaluation of stakeholders' engagement is based solely on analysis of available documents. Some plans contain limited information about the level of involvement of all contributors and identify only broad groups of stakeholders. Others provide much more detail about the participatory process (surveys, interviews, meetings, workshops, focus groups) but not enough detail about participants themselves. There is also no way to verify objectively if all mentioned stakeholders were indeed fully engaged in the planning process.

When it comes to consideration of equity in adaptation targets in various sectors, the differences among the plans appear to be even more striking, with CE index ranging from 92% for Albany to 17% for Sarasota and Tybee Island (Fig. 13.3c). Again, several clusters of cities can be identified based on this index:

- Very high consideration for equity (>90%)—Albany.
- High consideration for equity (60–80%)—Laguna Woods and Brest.
- Moderate consideration for equity (40–60%)—Iowa City, Clermont Auvergne, Pays Voironnais, St-Quentin-en-Yvelines, Var Esterel, Golfe du Mobihan, Keene, Niort Agglo, Punta Gorda, Pays de Barr, and Sundgau.
- Low consideration for equity (20–40%)—North Kingston, Chula Vista, Santa Cruz, Vallée de Chamonix-Mont-Blanc, Marquette.
- Very low consideration for equity (<20%)—Salem, Sarasota and Tybee Island.

We examined Pearson correlation, commonly used in statistics, to explore bivariate relationships between IV and DS, DS and CE, and CE and IV. If the coefficient value lies between ±0.50 and ± 1, then it is considered to be a strong correlation. If the value lies between ±0.30 and ± 0.49, then it is said to be a medium correlation. When the value lies below +0. 29, then it is said to be a weak correlation. We found medium correlation ($r = 0.39$) between the interpretation of vulnerability and considerations of equity in adaptation measures in the entire sample. Such correlation, confirming our initial hypothesis, is clearly driven by the US plans ($r = 0.51$) and is much weaker for the French plans ($r = 0.16$). A strong correlation signals that those cities that have conducted more comprehensive vulnerability assessment including dimensions of sensitivity and adaptive capacity, were able to use such information to develop more equitable climate adaptation targets.

There is a major difference between the ways in which American and French cities approach vulnerability assessment. Vulnerability assessment is typically present in the US plans as an integral part within a chapter, prepared by the same entities as the rest of the plan. In other words, the same diversity of stakeholders involved in the planning process applies to community discussion and decisions on who is vulnerable and how. Some vulnerability assessments were led by focus groups and citizens' workshops (Keene and Marquette), while some others were developed by academic partners (Tybee Island and Santa Cruz), city planners (Chula Vista and Punta Gorda), and private firms (Albany and Sarasota), but in all cases the majority of stakeholders were involved. On the other hand, about two thirds of French plans in our sample (including Brest, Clermont Auvergne, Grand Chalon, and Golfe du Morbihan) were based on vulnerability assessment reports, fully prepared by private contractors with minimal or no input from stakeholders. Even when the rest of the PCAET involved strong participatory process, stakeholders were simply given information about vulnerability, already compiled by experts (e.g., environmental engineering and planning consultancies). Delegating vulnerability assessment to experts is common in French climate adaptation planning and other planning areas. This fundamental difference of approaches might be the key reason why the correlation between the interpretation of vulnerability and consideration of equity appears to be much stronger for the US cities and is more ambivalent in France.

On the other hand, we found weak correlations between stakeholders' diversity and interpretation of vulnerability and consideration of equity. Very weak negative correlation ($r = -0.18$) was observed between diversity of stakeholders' and interpretation of vulnerability both in the US and French plans. Equally weak positive correlations ($r = 0.16$ in both countries) appeared between diversity of stakeholders and considerations of equity in climate adaptation targets. This finding is counterintuitive and proves our initial hypothesis is wrong, clearly indicating that plans developed through a more inclusive process involving more categories of stakeholders neither automatically lead to interpretation of vulnerability involving more social and economic dimensions nor guarantee equity and inclusivity in climate adaptation measures. One possible explanation of why this is happening is that, although some plans actively engage various groups of stakeholders (such as residents, academia, business, and grassroots organizations), their interpretation of vulnerability is still driven by small groups of experts, who conceptualize vulnerability in purely physical sense (i.e., vulnerability = exposure), paying minimal or no attention to sensitivity and adaptive capacity (even if they occasionally cite these terms in the plans' methodologies). Even though diverse coalitions are more likely to develop plans of higher overall quality, this does not imply more attention to socioeconomic dimensions of vulnerability and planning for equitable adaptation measures.

Scholarly literature on the role of stakeholders' participation is still unsettled but generally indicates that a higher participation of citizens and stakeholders significantly improves the quality of climate adaptation plans (Aguiar et al., 2018; Lioubimtseva & da Cunha, 2020). Despite this prevailing thought, inclusion of more stakeholders does not necessary lead to higher consideration of equity in climate adaptation measures. Even when many types of stakeholders participate in the development of a plan, the most vulnerable groups, such as urban poor, immigrants, and other minority groups, are rarely, if at all, included in the participatory process. Their voices might be represented by boundary organizations but only indirectly, and little or no consideration is given to their unique challenges and struggles. Even when vulnerable stakeholders are somewhat involved in the planning process through surveys and community meetings, there is a critical difference between mere participation, encouraged by the planning protocols, and real community power that is needed to affect the outcome of the process (Arnstein, 1969). Too often stakeholders' participation is a form of tokenism with no real decision-making. As a result, "green gentrification," pushing the most vulnerable population toward the least desirable urban areas, can occur in disguise of climate change adaptation and sustainability planning (Angotti, 2018; Anguelovski et al., 2016).

Interpretation of these findings requires an understanding of cities' cultural, environmental, demographic, social, and economic dimensions. Some of these cities have rather distinctive overlapping functions, such as tourist destinations (Chamonix, Punta Gorda, Sarasota, Var Esterel Méditerranée, Golfe du Morbihan, Chula Vista, Salem, Tybee Island), communities of retirees (Laguna Woods, Sarasota, Punta Gorda, Var Esterel Méditerranée, Golfe du Morbihan), college towns (Santa Cruz, Marquette, Iowa City, St-Quentin-en-Yvelines, Clermont

Auvergne, Keene), small agricultural centers emphasizing local winemaking and gastronomy (Sundgau, Pays de Barr, Santa Cruz, Perpignan), and business hubs (Brest, Albany, St-Quentin-en-Yvelines, Chula Vista). Some of these small cities are extremely expensive to live in (e.g., median cost of housing in Santa Cruz or Var Esterel is more than 5 times the national average in their respective countries), and although very wealthy, they have distinctive pockets of homeless populations and sharp socioeconomic contrasts. Most cities have their specific vulnerable groups. For example, cities with high rates of populations living below the national poverty lines, such as Albany and Brest, appear to pay more attention to equity in climate adaptation because of the challenges they face already. On the other hand, retirement communities, such as Laguna Woods or Var Esterel, perceive vulnerability through the lenses of age, rather than income, and are far more concerned with impacts of climate change on the elderly than any other vulnerable groups. Coastal and island communities relying on tourism and already affected by sea level rise, such as Punta Gorda, Sarasota, Golfe du Morbihan, or Tybee Island, appear to be particularly concerned with vulnerability of coastal infrastructure and seasonal population migration. College cities, such as St-Quentin-en-Yvelines, Iowa City, or Marquette, might enjoy more support and data from their local experts in academia but also face unique stakeholders' participation challenges, perceived as "case studies" for researchers and students, who might have no long-term commitment to the area.

It is possible that as a result of these overlapping and sometimes conflicting challenges and priorities, clusters of cities with similar demographic and economic affinities emerge also in their consideration of equity, vulnerability, and diversity (Fig. 13.4). For example, plans in Golfe du Morbihan, Pays de Barr, and Sarasota form a visible cluster (low diversity, high vulnerability, low attention to equity). These cities have other similarities in their population demographics (older, wealthier, and predominantly white populations). Clermont Auvergne and Iowa City form another cluster based on similarities in low scores on interpretation of vulnerability and high scores on diversity and equity. Both cities are university towns with much younger and less affluent demographics and strong presence of academia. Other observable clusters include Perpignan and Santa Cruz, Punta Gorda, Var Esterel and Salem, Tybee Island and North Kingston, Sundgau, and Laguna Woods (Fig. 13.4). At this point, our findings offer more questions than answers about the ways in which different cities address equity and inclusion in their climate adaptation planning and why. Further analysis of socioeconomic and demographic profiles of cities' population, involving surveys, interviews, and focus groups, would be necessary to fully explain the observed patterns.

Our study has several limitations. Our sample is small, and the selection of cities is intended as examples only, precluding generalization of our findings. At this early stage of the project, we omit quantitative analysis of demographic, socioeconomic, and cultural characteristics of urban population that have shaped the landscapes of stakeholders' participation and engagement. Factors such as population size, age, income, ethnic and racial diversity, education, household size, and cities economic diversity, appear to influence cities' adaptation planning cultures and need to be

Fig. 13.4 Consideration of equity in the context interpretation of vulnerability and diversity of stakeholders (the size of circles represents consideration of equity, ranging from 6 for Sarasota and Tybee Island to 33 for Albany)

further examined quantitatively and for a larger sample of cities. All information examined here is derived from the climate adaptation plans and auxiliary documents and might be missing many nuances that could be captured though direct observations of the planning process, resident surveys, and interviews. Despite these limitations, our pilot study offers useful insights and transferrable and expandable methodological approach, much needed for deeper explorations of complex and multi-faceted relationships between the concepts of *diversity, vulnerability*, and *equity* in climate adaptation plans.

Conclusions

Scholarship on equity in climate adaptation planning is still emerging and extremely fragmented conceptually. This is one of the very first studies exploring connections between equity, vulnerability, and diversity from a comparative international

perspective. The United States and France offer drastically different approaches to local climate adaptation planning, and useful lessons of broader international significance could be learned from both countries. French cities follow national guidelines, and their plans are integrated within clearly articulated national and European Union policies on climate change mitigation and adaptation. Local governments in the United States, especially during the past 4 years coined by Arroyo (2017) as "Trumpocene," have operated in the space of climate denial, divisive partisanship, and absence of national climate policies. State climate policies, when available (e.g., in California), are crucial in supporting local adaptation planning, as is support from academia, non-profits, and other local resources available for the US local governments. However, according to the GCC AC portal (2020), only 16 states have finalized their state-led climate adaptation plans, and 6 others have other state planning activities on the way, with the rest of the country remaining largely inactive. As a result, the density of cities with climate adaptation plans in the United States is still substantially lower compared to France (where climate action and climate adaptation planning are not only supported but also compulsory for each community with a population over 20,000 people). Therefore, when we compare the US and French local plans, we need to keep in mind that they are driven by very different motivational forces, with American cities having much more autonomy and freedom but also much less guidance and structure.

French plans are clearly more homogenous and also more "average" in terms of their consideration of equity. They follow the same methodology and show many similarities in the ways they conduct vulnerability assessment and levels of stakeholders' participation. There is also a significant degree of passive tokenism present in stakeholders' engagement, indicating that citizens are informed but not necessarily actively engaged in climate adaptation planning. The US plans are more heterogenous, both methodologically and in terms of their attention to equity. Not surprisingly, the highest and the lowest points for interpretation of vulnerability and consideration of equity are found in the US plans.

Two of our three initial hypotheses have proven false and one is partially true. First, we found no evidence that broader coalitions of stakeholders engaged in climate adaptation planning lead to more inclusive interpretation of the concept of vulnerability. This finding is significant because participatory process has become a golden standard of climate adaptation planning (Hügel & Davies, 2020). Our data suggest that diversity of stakeholders, simply seen as the number of different concerned groups contributing to the plan, is not sufficient to guarantee inclusion. For example, a plan developed through collaboration of elected officials, paid contractors, local businesses, environmental non-profit, and university professors, all parties being actively engaged, may be a good example of stakeholders' participation but has no representation of vulnerable citizens and their voices. Moreover, because vulnerability assessment is a fairly technical process and involves analysis of climate, environmental, social, and economic data, very few participants, even if invited, can competently contribute to it. This is why, a considerable number of plans delegate vulnerability assessment to external experts (private firms or local academics). Regardless of how diverse the group designing local climate adaptation

plan is and who is involved in discussion about vulnerability, the conceptual framework of vulnerability and its indicators seems to be almost always predetermined by a small number of experts. French adaptation plans, in particular, use very technical and detailed vulnerability assessment, follow uniform methodology, and are designed with little to no attention to the challenges of socioeconomic inequalities.

Second, we found limited evidence that plans developed by broader coalitions of stakeholders necessarily lead to higher considerations of equity in climate adaptation plans. Although several plans in our sample exemplify excellence in stakeholders' engagement and equity consideration (Laguna Woods, Sundgau), such connection appears to be much more complex. Participation of diverse stakeholders, even when proclaimed as a goal in French national guidelines for climate adaptation planning, is too often limited to tokenism, not fulfilling equity objectives nor citizens' empowerment. Detailed field research involving interviews and qualitative investigation of participatory process would be necessary to fully understand the level of its success and inclusivity. Unless all participants' voices could be heard, it is impossible to say for sure whose challenges are represented, how they have been conveyed, who has benefited from the process, and if the participatory planning process has been equitable and beneficial for all.

Third, we find that interpretation of vulnerability and its inclusion of sensitivity and adaptive capacity do have a significant impact on equity consideration in proposed climate adaptation measures. Cities, that examine their vulnerability beyond physical exposure to climate impacts and consider demographic, social, and economic characteristics of their populations, appear to be much more attentive to social equity and offer specific measures focusing on vulnerable groups. This relationship is much stronger for the United States, where cities have much more flexibility in their choices of tools, guidelines, and stakeholders. This finding is very important and should be further examined as a potentially crucial prerequisite for equitable adaptation planning. The key lesson from this finding is that in order to address equity in adaptation measures, cities must first recognize problems of inequity and injustice in their vulnerability assessment. As the baseline for adaptation planning, vulnerability assessment has little value, unless it identifies already existing challenges of vulnerable populations and social inequality.

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Chapter 14
Mobilities in Climate Action Planning: The Challenges of Considering (In)Justices in France's Current Policies

Jean-Baptiste Frétigny

Introduction

France is often viewed as a country where the question of justice has historically received strong attention, especially regarding the welfare system, in line with a political culture that can arguably be associated with a "passion for equality" (Forsé et al., 2013). Does this passion translate into more just climate action planning? Recent tensions regarding mobilities suggest otherwise and shed a very different light on the role given to justice in policies focusing on the ecological transition. The yellow vests movement, in particular, has shown the social and political sensitivity of both climate action and injustices in the country. In the wake of a widely circulated petition on social media, this grassroots mobilization emerging in October 2018 has been mainly ignited by the progressive increase in the fuel tax and more precisely its "climate-energy contribution," i.e., its carbon component, along other motives of frustration among car drivers, such as a speed limit reduction on rural roads (Boyer et al., 2020). The claims defended oppose restrictions to automobility (including toll rates or new speed cameras) but have been also extended to a variety of related topics that can be understood as an agenda of social justice, such as more direct democracy, through citizens' initiative referendums, more public services, a fairer fiscality, and an improved social welfare system.

As the presence of a high-visibility jacket is now mandatory aboard cars, a yellow vest is both an easily accessible object for car owners and a symbol of both automobility and its increased regulation by the State. Massive numbers of protesters demonstrated on the streets of towns and cities every Saturday, mostly during the winter of 2018–2019 and spring 2019. Surveys suggest that participants were mainly from the working and lower-middle classes, residing in urban peripheries

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and towns, where car commuting is particularly intense (Collectif, 2019). These events have sparked tumultuous and spectacular confrontations with police, as well as degradations or looting of stores, among other infrastructures, notably around the Parisian Champs-Elysées Avenue. Protestors have also occupied multiple traffic circles in urban peripheries, slowing or blocking traffic, as well as various fuel depots. The mobilization has crystallized many tensions, even resulting in injuries and accidental deaths. The political crisis has led to the cancellation of the planned gradual increase in the climate-energy contribution (from €44.60 per ton in 2018 to €65.40 in 2020 and €86.20 in 2022), leaving the carbon trajectory of mobilities into question.

Mobilities are among the most prominent contributors to climate change. At the global scale, the transport sector represented 21% of global CO_2 fossil emissions in 2018 according to EDGAR (Emissions Database for Global Atmospheric Research). In France, transport stands for 31% of territorial emissions, notwithstanding its contribution to international shipping and aviation (CITEPA, 2020). Mobilities therefore play a key role in climate action planning. Through the example of France's tensions regarding mobilities, this chapter questions current policies in climate action planning and argues that their lack of effectiveness is closely related to their inattention to the (in)justices at stake and to their various spatial and social dimensions.

This chapter shows that this situation illustrates a larger issue of democracy, diversity, and equity in the processes of climate action planning. Using the three components of social justice identified by Fainstein (2014), the analysis focuses, respectively, on participation and agency, the recognition of heterogeneous identities, situations and practices, as well as social and spatial redistribution. My argument is that this issue of justice is deeply entangled with the disconnect between current policies and everyday practices related to mobilities, which puts at risk both the acceptability and the feasibility of a carbon transition despite the climate emergency. The analysis of such disconnect, in line with the social practices theory (Shove et al., 2012), contributes to refining the identified contrast between theory and practice or principles and consequences of climate action planning (Finn & McCormick, 2011; Marino & Ribot, 2012) while shedding some light on the relationships between justice, policies, and practices, to which social practices theory has paid little attention.

As climate action planning involves policies well beyond climate plans alone (Bassett & Shandas, 2010), this chapter focuses on a variety of decisions related to mobilities, affecting three identified levers for reducing their carbon footprint: avoiding them, therefore reducing the mobility demand; shifting from high to low carbon mobilities; and improving environmental performance, either by changing the practices involved, through carpooling or carsharing or through new technologies such as electric cars. This research draws on a content analysis of both national and local action plans on climate and mobilities, as well as related documents. It is also based on 28 interviews carried out between October 2018 and July 2019 with institutional actors, mostly from the public sector, but also from civil society and businesses. To better comprehend the relationships between local and national

levels, twelve of them concern nation-wide institutions, while the others regard four specific regions, considered as somehow pioneers regarding climate action planning on mobilities and with contrasted situations. First, the Ile-de-France region—the administrative and urban region associated with the Paris metropolis—has high densities and high average per capita income that could be favorable to the development of low carbon mobilities. Second, Grenoble—the regional metropolis in the Alps—is well known for its environmental policies, notably regarding mobilities, with the first ecologist mayor elected for a city of this size in the country and the only existing low-emission zone outside Paris. Third, the Grands Causses regional park—a mid-upland region north of Montpellier, known for its Roquefort blue cheese production—is situated at the lower end of the urban hierarchy, with the small city of Millau (22,000 inhabitants) and towns in a rural context. The regional park has won multiple calls for projects regarding sustainable mobilities and is often quoted as an example on this topic by national actors. Finally, Réunion Island—an overseas *département* and region in the Indian Ocean—is mostly populated along its coast, this circular urbanization lending itself to a potential rise in alternatives to private car uses. However, despite less marked inequalities than in other overseas regions, the yellow jackets' movement has been particularly intense there, prompting the inclusion of Réunion Island in this study sample.

The first part of the chapter documents and questions the general lack of emphasis on social justice in the framing of climate-related policies on mobilities. The second part shows how this framing produces an important gap between planning and everyday practices engaged in mobilities, generating tensions on its legitimacy, as illustrated by the yellow vests movement. Finally, it is shown how spatial justice, while the focus of some attention in policy-making, is often conceived of as a binary, in a somewhat stereotypical way, and rarely translated into concrete actions, letting key issues in climate action planning unaddressed.

The Obliteration of Social Justice in Climate-Related Policies on Mobilities

The current national climate action plan—the "low carbon national strategy" of 2020—epitomizes the lack of references to social justice in such plans, with no specific section or emphasis given to it and a very sparse use of the terms justice, equity, and inequalities. In striking contrast with the idea of a "passion for equality" in public policies, this obliteration can be explained by the persistent thematic and institutional segmentation of policymaking. The department in charge of the environment, planning, and transportation, despite being renamed in 2017 the department for "Ecological and solidarity transition," has struggled to identify and make room for social objectives, even introducing some level of confusion, as the interview with one of its senior civil servants shows: "'Solidarity' was a welcome political injunction … Spontaneously, in the department, people said: 'that's the social

economy' … [Solidarity] was [also] associated with the positive spill-overs of environmental transitions policies and the new jobs such policies could generate … For many people, it was the spin-off of green growth." It is meaningful that the adjective "solidary" was dropped in the new name for the department in 2020. Public actors involved in mobilities policies have only tenuous relationships with the institutions in charge of social policies. The agency for an ecology transition, which is the governmental operator financing public or private environmental projects, is an exception, as it animates arenas on which public agendas social justice appears. For example, it intervenes in the national monitoring for energetic precariousness, which mostly entails conducting surveys, and participates in the inclusive mobility lab. The latter has the status of foundation, and while its primary aim is not decarbonization, as it rather focuses on facilitating mobility for access to jobs, it does tend to incentivize the use of low carbon mobilities. These are, however, rare and small-scale initiatives.

Such invisibility of social justice is largely echoed in local plans, be they climate action plans (so-called territorial climate-air-energy plans) or mobilities plan. Grenoble's climate plan does not mention the notions of justice, equity, inequalities, or solidarity. Saint-Denis' plan, which covers the capital city in Réunion Island and its suburbs, occasionally mentions the notion of just transition, as does Paris' plan, where it is more emphasized, while the Grands Causses' plan aims at "solidary territories." When mobilities are mentioned, it is either to address already existing measures, such as social fares for public transport, or offer a hasty appraisal of their social effects, such as the idea that "shared mobility could help strengthen social links by increasing interactions between Parisians, particularly the most isolated, such as senior citizens" (Paris, 2018, 74). As climate plans cover a wide range of themes, actors tend spontaneously to refer to mobilities plans as more detailed instruments for climate action. In such plans, issues of power relationships are considered in very fragmentary ways. If Grenoble's plan points out gender inequalities, mentioning, for instance, the "mom taxis" phenomenon, others pay little attention to the diversity of (im)mobile citizens. Interviews suggest that actors deal with the few items they consider as compulsory steps when writing these plans, such as disabilities or low-income housing projects: "I am a little less familiar with issues of territorial cohesion. We were asked to work on this for the plan's environmental assessment. … We redesigned maps to identify how the planned transport offer would affect the accessibility [of housing projects], so it was more about territories than publics" (planner producing Ile-de-France's mobility plan).

Moreover, actions aiming at low carbon mobilities are rarely evaluated. Planners highlight the difficulty of assessing the success of individual programs, corroborating studies insisting on the challenge it represents at the local scale (Lucas & Pangbourne, 2012). Documenting and questioning the social effects of these programs are nevertheless often probed at best by anecdotal evidence: "we have an idea of [the social impact of our policies] because we have direct contact with people renting [for instance our] bicycles. The population is very eclectic, we've got a bit of everything. It's not just the executive who's shifting. And there are more

low-income people using our car-sharing system. That was unexpected" (Grands Causses regional park planner).

In this context, the yellow vests movement has confirmed concerns for social justice—as expressed by various interviewees—that are hardly surfacing in the public agenda. They are related to workers' professional reorientation in affected industries or to people in a situation of energetic precariousness: "for us it is slightly frustrating because for months we've been telling the government that its policies are not immune to social protests and that we're fully aware that fuel price increases can affect the poorest more. That is why we suggested aids such as energy vouchers …, bonuses for shifting to other means of transport or replacing cars … This issue is all the more burning that we are advocating a ban on internal combustion vehicles in city centers" (Climate Action Network, NGO member). The social sustainability of existing plans and policies is thus particularly lacking, engendering two main consequences for climate action planning of mobilities: difficult policymaking to deal with practices engaged in mobilities and a crisis of legitimacy.

Consequences for Climate Action Planning: A Struggle with Injustice in Practice(s) and a Crisis of Legitimacy

A key consequence of this social eclipse concerns the participatory dimension of policymaking and therefore of procedural justice (Fainstein 2014). While local authorities are familiar with public consultations, which are compulsory for climate action or mobilities plans, the national government has used them only recently. The "national convention on mobilities" organized in fall 2017 was an unprecedented exercise, since transport policymaking is usually averse to such practices (Banister et al., 2011). Intended to prepare a new framework law on mobilities, the convention included 60 local public workshops, an online platform with 3000 contributions, as well as working groups involving hundreds of experts from the public, private, or civil society spheres. Nonetheless, less than 1 year after this broad consultation, the yellow vests movement expressed a vigorous criticism of national policies.

This paradox can be explained by various factors. First, in the convention, more heed has been paid to expert proposals rather than to public workshops. The workshops themselves might have been affected by the sociodemographic attendance bias usually attached to them, as observed through participant observation. Moreover, the gap between the proposals made by the convention and the ensuing governmental arbitrations resulting in the bill has often been highlighted and criticized in interviews. Finally, the lack of cross-sector approach in the bill itself has also played a role as the bill did not include various aspects of mobilities and climate policies, such as the fuel tax raises that had already been decided.

In the aftermath of the yellow vests' crisis in early 2019, the *Grand Débat National* ("great national debate") was held, as a major public consultation to more broadly address the ecological transition, fiscality, democracy, and public services.

The consultation produced 2 million online contributions and 10,000 town hall meetings. In its wake in 2019–2020, a citizens' convention for climate was created. Its 150 randomly selected members formulated various proposals to meet France's 2030 emissions reduction target, which are yet to be taken into consideration by the government. The national convention on mobilities, the *Grand Débat*, and the citizens' convention for climate have been visible in the public debate, even if their influence on climate action and mobilities planning is still unclear. These various but also, to some extent, repetitive processes of consultation show the difficulty public authorities have to cope with the challenges of climate, mobilities, and participation, as they struggle to engage in more inclusive policymaking, attuned to a large variety of actors and their everyday practices.

Climate action planning indeed tends to overlook the complexity of practices attached to mobilities, such as automobilities, key in the development of the yellow vests movement. This neglect is related to the technologist prism of such planning, also attested in other countries (Cresswell et al., 2017), prioritizing the shift to low-emissions cars, with purchase bonuses and priority lanes on highways. Beyond their multiple environmental rebound effects, these cars are unaffordable for many, with no low-end vehicles in the existing offer, a lack of charging stations in social housing residences, and no used car market: "If you want to unlock the situation, you need to consider helping beyond the new car market. … Prices for diesel vehicles will collapse, nobody will want them anymore and the same will follow with other internal combustion vehicles… It's not at all conducive to a fleet change: if you can't sell your vehicle you keep it" (Department of Ecological transition senior civil servant).

This enduring logic of personal equipment also makes it harder to effect a cultural change about the cost of what the one-person car practice entails. Indeed, interviews largely attest to its underestimation as users tend to focus on the most visible fraction of expenses, related to fuel price, as the yellow vests movement showed. Such conception, obliterating the costs of acquisition, maintenance, or insurance attached to car ownership, distorts the appraisal of carsharing cost. The 150 euros security deposit to access the carsharing scheme is, for instance, a major obstacle for a hospital staff in the Grands Causses' town of Saint-Affrique, who perceives it as "a lot of money for a second car" (Saint-Affricain federation of municipalities planner), while car ownership is estimated by regional park planners at 6000 euros per year. The burden that car ownership represents for low-income citizens does not always enter public actors' equation regarding, for instance, the anticipated increase of cars per capita on Réunion Island: "In La Réunion, we have an individual car equipment gap compared to continental France… and this gap will be bridged" (regional authority planner). Despite the intensity of the yellow vests movement on the island, which has shown the limits of the single-person car model, this interviewee considers the dynamic as legitimate and welcome, showing how dominant policies gloss over perverse effects of automobility on vulnerable people. Busy carpool areas on the island, official and unofficial, show the success of alternative practices. Informal carpooling, however, faces difficult recognition at the local

and national scales. For instance, La Réunion's regional authority regrets the limited use of apps. Nationwide:

> there were many discussions on carpooling [at the convention on mobilities]. The risk we saw was [the tendency] to favor digital and cost-based solutions, that would benefit from traffic and parking incentives and would be easier technologically to promote. Informal carpooling between colleagues, families, etc. wouldn't have been eligible for these incentives, which bothered us precisely because we don't want people to use apps but to carpool (federation of local transport authorities, sustainable mobilities manager).

These examples show how policies tend to be out of touch with one key dimension of practices, i.e., their informality.

Another missed opportunity for tackling the difficulties that the yellow vests pointed out comes out of the disconnect between land use planning and the framework law on mobilities, adopted in December 2019 and mostly devoted to transport. This divide relates to the sectorization of the administration, where one department's leadership only oversees the preparation of one bill. In justification of this separation, a civil servant in the transport section of the ecological transition department who has been involved in the writing of this law argues that working with more cross-sector aspects (involving the land use planning administration) would have weakened the scope of the law. Arbitrations between administrations are indeed seen as a mechanism for reducing the ambition of the law: "[urban sprawl] is indeed the issue at stake with yellow vests today [commuting by car from remote peripheries]. … In my mind, it is at the very heart of the current situation and we didn't deal with it in the bill … By promoting carpooling [in it], in a way, we're encouraging urban sprawl… We couldn't deal with everything in the bill and we would have had a hard time dealing with it." Such policymaking compromises climate action planning and its inclusivity at various scales by missing the interlocking practices of car use and access to resources (work, recreation, etc.) that can be near or far from home, therefore leaving unaddressed the key issue of regulating mobility demand. The recent implementation of the Grands Causses' governmental employment agency away from public transport, to the regret of the regional park's interviewee, is another illustration of these aporia and puts into question the very practices of policymaking.

The limited reach of adopted measures compared with the breadth of interdependent practices involved in mobilities' footprint raises issues of unfair transition, undermining the legitimacy of current policies. Deprived of a redistribution mechanism, which would have required favorable arbitration from the powerful Department of the Treasury, the congestion charge that cities could have implemented was ultimately dropped from the bill in November 2018 because of its denunciation as unfair for commuters in remote urban areas in the context of the yellow vests movement. Moreover, major environmental footprint differentials related to individual income levels and associated lifestyles and consumption practices based on mobilities are mostly silenced in climate action planning. The almost exclusive framing on local mobilities, forgetful of large-scale, high carbon mobilities, generates tensions with yellow vests and environmental NGOs criticizing the exemption of kerosene as an unfair scheme benefitting the most affluent. The omission of air transport in

national climate action planning, where only improvements of engine technologies are envisaged, is echoed in urban planning. While Paris positions itself as an ambitious pro-climate city, involved in the C40 world network of voluntarist metropolis, its climate action plan does not address the contradiction of comforting its attractiveness as one of the first world urban destinations for tourism, which often relies on air transport. A last striking example concerns the failed inclusion of "paratransit" in the framework law on mobilities. It is identified as "social transport" that is delivered by nonprofit organizations to specific publics, such as the elderly or people with disabilities. Because of the cost involved, local authorities in charge of mobilities have indeed been reluctant to include this sector in their competences and integrate related needs in the equation of sustainable planning. For instance, a Grands Causses' planner admits that the existing demand-responsive transit for the elderly is hardly advertised for financial reasons. It therefore creates an asymmetry between those aware of its existence and possibly using it and others. By not taking into account the variety and interdependence of practices attached to mobilities, local and national authorities tend to sideline even more the principles of social justice in climate and mobilities planning, severely undermining the legitimacy and implementation of policies. On the other hand, more attention has been paid to spatial justice, even if its framing and concretization raise multiple questions.

Spatial Justice in Climate Action Planning on Mobilities: Key Challenges Beyond Stereotyped Readings

With the unprecedented use of peripheries in their mobilization and their occupying of traffic circles, the yellow vests have brought to the forefront issues of spatial justice. Their movement has legitimized an already binary reading of spaces widely used by institutional actors, between "dense" and "less dense" spaces. The latter are considered, in the federation of local transport authorities, for instance, as "[spaces] hard to define, where we know that public transit service is challenging … [i.e.]: rural spaces, urban peripheries where the car dominates and where we feel that there is something to be done so that we don't miss the [decarbonization]" (federation's sustainable mobilities manager). The framework law on mobilities makes the creation of local mobilities authorities mandatory, i.e., bodies that depend on local authorities to structure the mobility offer, in spaces that have been excluded so far, such as a large part of the Grands Causses area beyond its main city and suburbs. However, the future of these areas remains uncertain, as their financial resources are unspecified, suggesting persistent limits for fair and efficient climate action planning. In the absence of compensation mechanisms, the current uniform declination of national decarbonization targets in climate action plans in these spaces needs to be questioned. Indeed, if effective, the homogeneous application of these national targets could mean more restrictions for low- and middle-income areas with already low-emitting lifestyles, where access to resources is already challenging. While

Grands Causses regional park planners engage manifold actions that are instrumental in decarbonizing mobilities, the carbon goal is relativized, and its difficult acceptability emerges: "We never speak of decarbonization … Even if our discourse ends up talking about carbon neutrality…, it's not our primary approach. … We're aiming for a discourse that is neither punitive, nor guilt-tripping."

Thus, this binary understanding of spatial justice seems more of a discourse category rather than action. This conceptualization also faces serious limitations and recalls the opposition between a "central" and a "peripheral" France (Guilluy, 2014), which has been heavily criticized by scholars, including with regard to its relevance for understanding the yellow vests movement (Delpirou, 2018). Indeed, the diverse territorial situation and segregation encompassed calls for going beyond this univocal and to some extent stereotyped divide. One risk is to downplay the significance of social justice by suggesting that this spatial dichotomy could well address these challenges while missing the social heterogeneity of places. It is also problematic to amalgamate rural spaces—which represent 4.5% of France's population—with heterogeneous urban fringes (in the rural-urban transition zone), where 30% of the population resides and the remainder two-thirds inhabiting city centers and suburbs. As these proportions are hardly ever mentioned, the risk is also to overestimate the proportion of places where decarbonizing mobilities is particularly challenging, leaving open the possibility of softer or differed transition actions in non-disadvantaged situations, in a context where the effective achievement of decarbonization targets cannot be taken for granted. Moreover, part of everyday public action operates beyond this divide, as urban *intercommunalités* (a grouping of municipalities adding a layer of governance) and their respective local authorities regulating mobilities often incorporate various urban fringes and rural spaces in their jurisdictions. More nuanced territorial and justice approaches are therefore required to address climate action planning, financial equity, the uneven part played by civil society, and the latter's empowerment.

State or European Union support for innovative actions by local authorities raises issues of spatial justice as it is territorially selective, relying on the systematic use of calls for projects. It tends to transform certain places into innovation niches and models, to the risk of neglecting the diffusion of actions in other places. The Grands Causses regional park exemplifies how early participation in these calls and the obtaining of funding for projects have cumulative effects. It is easier to succeed in submitting time-consuming applications in response to new calls for projects when you can capitalize on previous experiences. In 2003, the regional park obtained funding for coordinating various public transport networks that encourage a modal shift. In 2007, it was able to implement its first carpooling initiative. It also benefitted from two generations of "positive-energy territories" program dating back to 2015. Other regions, where politicians or planners were less engaged, cannot capitalize on such path dependency. This limits the scale of transition to existing niches. The absence of budgetary equalization between local authorities is also a challenge for financing actions when economic activity is low, such as for local governments in the southeast of Réunion Island: "it's complicated for [the local government] to

finance an increase in the frequency of our bus lines … You take all [existing plans]: you will find plenty of projects, but as long as you have [on our busiest line] at best one bus every 20 minutes [a poor performance for transportation networks of this size due to the lack of funding], I'm a little skeptical [about the translation of these projects into reality]" (Semittel transport operator manager).

The strength of civil society is yet another factor of inequality. The technology-dominant framing in the field of climate and mobilities planning has led to the role of civil society being often underplayed in interviews or existing plans. The contribution of participatory planning to public policies is often overlooked as well as actions that nonprofit organizations develop at the junction of climatic and social aims where they pay more attention to everyday practices. For instance, cycling schools in Grenoble's working-class neighborhoods function as tools of empowerment for women, especially of immigrant background, allowing them to "go for a ride on Sundays," accompany children, look for a job, and "do some shopping" at the same time as "it helps develop the image of cycling practices in the city and in … what is called the estates [of housing projects]" (member of ADTC, a nonprofit organization of public transport and active mobility users). The success of what is described as a "very rich ecosystem" of cycling schools, in which other actors such as bike stores take part, is in striking contrast with its counterpart in a region such as Réunion Island, where the network of nonprofit organizations tends to be particularly thin when it comes to low carbon mobilities. On the island, public transport users, beyond the center of the capital city, are systematically identified in interviews as a "captive clientele" comprising the most fragile fractions of Reunionese society. Thought by operators as a tool of advocacy for public transport, users' committees have become arenas where such subaltern voices seem hardly heard. One such arena is the committee for the "yellow buses" circling the island:

> [in this bi-monthly committee] local authorities also need to take their share of responsibility … because some people wait two or three hours before they can get into a bus. If a vehicle is added, it instantly fills up… Imagine the tension for drivers or people at stations … We told [frustrated] people: 'we pass on the message'. We've passed on the message for two years and nothing has happened (Transdev Outre-mer manager, operator coordinating the network).

In the south-east of the island, participation is also tenuous: "We have just set up a users' committee for [our network] Alterneo, which is still modest. I'd say that it is the corollary to our captive clientele today. As they don't have a choice, they eventually resign themselves. There is no self-organized representation of users" (Semittel transport operator manager). At the scale of the island, this lack of public transport grassroots movements raises issues about social justice and the empowerment of subalterns. It is encapsulated in a spatial justice challenge generated by the differential involvement of civil society compared with other regions on mainland France. This entanglement of spatial and social justices needs to be further explored in climate action planning.

Conclusion

This chapter has demonstrated how forgetful climate-related policies on mobilities are about issues of both social and spatial justices in France, despite a strong political mobilization such as the yellow vests movement and a general political culture that primes attachment to equality and stresses the welfare system. Lack of democracy, diversity, and equity in current planning turns out to be striking, which in return provokes a crisis of legitimacy in climate action planning and prompts a revision of its ambition. Various factors have been identified to explain these tensions, such as the persistent sectorization of policymaking and planning, as well as the prevalence of a technologist prism. This prism can be related to an economic growth paradigm, thought to be provided by the growth in travel (Givoni & Banister, 2013), and could well operate a diffusion of neoliberalism through climate planning, as observed in other countries (Cresswell et al., 2017). But these tensions are also produced by the difficult attunement of public action to the numerous practices associated with mobilities, their complexity, and informal dimension. If planning emphasized civil society actors and their empowerment actions, in particular at the locale scale, the gap could be filled more easily. Engaging a fairer climate action planning is also about engaging cultural transitioning (Sheller, 2012) in planners and decision-makers' practices themselves, in addition to citizens'. Because of their major interdependence and the challenges of spatial justice, national and local planning issues should be studied together—along with their failures—since decarbonization goals play out at both scales. France's territorial emissions between 2015 and 2018 have indeed exceeded the target that had been set, with 80% of the surplus being attributed to structural motives, of which almost half relate to transport—and therefore to mobilities (CITEPA, 2020). In order to reach the major aim of justice per se, but also get a grip on carbon trajectories, it is imperative to address the quasi-invisibility of justice at both the national and local scales, whether in climate action planning discourses or concrete actions.

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