Changing Climate, Static Society?
A survey of equity, justice and vulnerability in U.S. Municipal Climate Plans

By

Kelly Overstreet

Submitted to the graduate degree programs in Geography and Urban Planning and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Master of Arts.

_____

Chairperson Shannon O'Lear

_____

Ward Lyles

_____

Barney Warf

Date Defended: May 12, 2016

The Thesis Committee for Kelly Overstreet
certifies that this is the approved version of the following thesis:

Changing Climate, Static Society?
A survey of equity, justice and vulnerability in U.S. Municipal Climate Plans

_____

Chairperson Shannon O'Lear

Date approved:
May 12, 2016

Abstract

     This project presents survey of municipal climate plans in the United States to determine the existing relationship between climate adaptation planning and understandings of social justice, environmental justice, and vulnerability. The results indicate that while justice and vulnerability considerations are not absent in US municipal climate planning, the current framework for discussing and strategizing for justice and vulnerability are wanting, and lead me to provide the following conclusions: First, the type of plan can impact how policymakers frame and consider justice and vulnerability; Second, planning for climate change is more a function of who is at the decision-making table than city-characteristics like demographics; and Lastly, vulnerable populations and their representatives must be more strongly integrated into the planning process to ensure they are not rendered absent from the plans entirely. The article concludes with suggestions for future research on this rapidly growing and increasingly important topic. Climate change is the single largest challenge of our, and future generations' time. In not fully addressing issues of equity and justice, these plans do not adequately prepare their communities to be resilient or sustainable in the face of climate change.

Key words: social justice, climate justice, climate governance, climate adaptation, local government

Table of Contents

Chapter 1. Changing Climate, Static Society: An Introduction

On February 1, 2016, Linda Shi, a Ph.D. candidate at the MIT Department of Urban Studies and Planning, posted an article on the website *New Security: The Blog of the Environmental Change and Security Program*. The article, entitled "Adapting to Climate Change in Cities May Require a Major Rethink," reflected on the 2015 United Nations Climate Change Conference (COP 21)'s priorities regarding the inequitable impacts of climate change on the world's most disadvantaged populations. Shi argues that even despite a concern with the disproportionate impacts of climate change on a global scale, "The fact is, there are winners and losers in urban climate adaptation projects, and it is the poorest and most marginalized who (as always) tend to lose" (Shi, 2016). Shi reasons that outdated planning mechanisms that promote uneven development are the culprits of this problem, and solutions would include: increase participation in planning, catalyze adaptation across cities, govern the scale of planning, and design for social justice (Shi, 2016). When these four aspects of existing planning structures have been addressed, we can accomplish what Shi terms "Just Adaptation."

At this point, there is a scientific consensus that climate change is both real, and human-induced (According to NASA, "97% or more of actively publishing climate scientists agree that climate-warming trends over the past century are extremely likely due to human activities." For a list of current publications on this topic, and statements of climate change from 18 scientific associations see: http://climate.nasa.gov/scientific-consensus/.) The major potential impacts of climate change, which are largely framed and understood through scientific climate models, include: Temperature change, sea-level rise, precipitation changes leading to both droughts and flooding, and an increase in extreme events (IPCC, 2007, 12). However, these impacts will not occur uniformly across countries, regions, or even cities and neighborhoods, and some

individuals and groups will be at more risk to climate change impacts than others. Existing

literature indicates that climate adaptation may be best implemented at a local scale, where

strategies can be tailored to the unique geographic and social conditions of a given community.

This is reflected in the growing number of municipal climate adaptation plans being

implemented in regions across the United States, however, further study is required to assess

how these climate plans frame and understand the ways in which our social world will interact

with a changing environment. As humans enter a new era of the Anthropocene where we not

only impact the climate, but acknowledge our role in its changes, climate adaptation and climate

adaptation planning will become increasingly important. To truly adapt to climate change will

also require humans to address the existing inequities within their social systems at a variety of

different scales—from the local to the social—to address the uneven distribution of vulnerability

to climate change impacts.

We cannot enact change in any system without an understanding of how it is functioning

in its current state. In her article, Shi argues that existing research on equity focuses on case

studies and local approaches, she also notes that we are woefully uninformed on the current state

of equity planning in climate change policymaking:

> As we, the collective international community, gain more experience with climate
> planning, identifying cases of the good, the bad, and the ugly will help us develop
> guiding principles, processes, models, and tools to help localities adapt. Right now,
> however, little of this data about how to promote socially equitable adaptation is
> available. (Shi, 2016)

This thesis is my contribution to that effort. By providing basic findings and noting significant

relationships present in my dataset of 52 climate plans with varying levels of adaptation

strategies, I offer a perspective on municipal climate planning in the United States with a focus

on who participates in the planning process and how those at the decision-making table shape the

definitions presented. We must first understand our existing situation before we can identify its weaknesses and implement a more effective, equitable system.

This project explores the ways that policymakers consider social justice and social equity, environmental justice, and vulnerability in municipal planning documents, through quantitative and qualitative content analyses of 52 climate plans from cities in the United States. It inquires:

- How are equity, justice, and uneven forms of vulnerability defined in relationship to climate change, and what (or who) is missing from these definitions?
- Is there a relationship between the individuals, groups, or agencies that write climate plans and the presence or type of equity discussed?
- Why do equity, justice, and proper identification of vulnerable populations matter when planning for climate change?
- What lessons can future climate and equity planners learn from exploring the connections, narratives, and relationships between justice, vulnerability, and climate change?

Chapter 2 outlines the literature used to formulate my understanding of social justice, environmental justice, and vulnerability, hazards and adaptation planning, and the theory surrounding content analysis that interprets text as a landscape that demonstrates the broader decision-making process and its associated power. Chapter 3 outlines the methods used to obtain and quantitatively code the plans in my dataset, and the more detailed qualitative coding process that followed. In Chapter 4, I present my findings on the three equity codes I used in my quantitative analysis, and the additional subset of codes identified through further content analysis. This chapter provides baseline information that is then further dissected and analyzed in Chapter 5, where I identify three crucial characteristics of my dataset which could have larger implications for achieving Shi's "Just Adaptation."

The impacts of climate change will be diverse, far-reaching, and potentially damaging to many people and communities across the world. Communities who plan for climate change without acknowledging the existing social structures that distribute vulnerability unevenly across

the landscape will not be able to adequately prepare for these impacts. Acknowledging human's role in climate change is just the tip of the rapidly melting iceberg; as we adapt to a changing environment, we will have to reassess the values, social dynamics, and economic priorities that accompanied these environmental changes. We cannot adjust to a changing climate with the same attitudes and behaviors that led us down that path in the first place.

Chapter 2. Justice, Planning, and Content Analysis: A Research Context

Introduction

This literature review identifies the scope of my thesis project around the areas of local climate planning, supports my theoretical framework through a foundation of existing theory on social equity and justice from planning, social science, and geographical perspectives, and grounds my methodological approach within the quantitative and qualitative content analysis literature. It begins with a discussion of social justice theory, followed by an outline of the field of hazards planning, from which adaptation planning stems, and finally, will provide the theoretical justification for a mixed-methods approach to my dataset. Despite these distinct categories, I will discuss how my research bridges the various fields of thoughts, methodologies, and theoretical bases provided in the literature.

2.1 Social Justice Theory

This section explains the theoretical foundation for my selection of equity terms to code, measure, and evaluate through a brief history of important equity and justice theory, and identifies current work on climate justice and climate and equity planning.

2.1.1 Social Justice

The existing literature on social justice bridges several fields, including philosophy, sociology, geography, political science, and planning. When we discuss social justice, key names and concepts often appear. Inevitably, it will involve a discussion of utilitarianism vs. deontology (Harper and Stein, 1992), Bullard's distinction between procedural, social, and geographic equity, (Bullard, 1994), and John Rawls's theories on distribution, including his maximum theory, where "all social values… are to be distributed equally unless an unequal distribution of

any, or all of these values is to everyone's advantage" (Rawls, 2001, 62). The literature often focuses on distribution and access as a framework for analyzing equity and justice.

While social justice literature focuses heavily on issues of distribution of resources, some criticize this focus as not fully addressing the less material aspects of justice. Iris Marion Young criticizes theories of justice that stretch "distributive justice" beyond the distribution of material goods to include phenomena like power and opportunity (Young, 1990). Instead, Young argues these phenomena can be better understood through a lens of oppression and domination. As climate change is going to disproportionately impact certain populations more than others, the existing definition of distributive justice remains important for the purposes of this research, however, as I consider the definitions employed by planners and policymakers within the planning process in Chapter 5, Young's conceptualizations of domination and oppression becomes increasingly relevant.

Any analysis of social justice within the urban landscape would not be complete without a discussion of David Harvey's work. Harvey connects theories of social justice to the urban form, viewing the city as a conglomeration of social processes, using an ontology focused on the social rather than the individual. He argues that the spatial organization of cities and their political processes create, perpetuate, and require spatial inequality to function (Harvey, 1973). My selection and analysis of the terms social justice and social equity stem from Harvey's understanding of the urban form as a space of social interaction, and I view these climate plans and their definitions of equity, justice, and vulnerability as textual representations of the existing social structures within our cities; Harvey states: "Justice and rationality take on different meanings across space and time and persons, yet the existence of everyday meanings to which people do attach importance and which to them appear unproblematic gives the terms a political

6

and mobilizing power that can never be neglected" (Harvey, 2002, 398). Bulkeley expands upon

this idea within the context of climate justice (discussed in more detail below), noting that

> "The urban scale brings into particularly sharp focus the ways in which inequalities are created and sustained by the same social, political and economic processes which determine what 'fairness' means. In this context, it is clear that the traditional framings of justice as a matter of ensuring 'fair' distribution of resources or access to decision making processes are captive to the contexts in which they are created, suggesting different questions need to be asked" (Bulkeley, 2014, 33).

This perspective allows us to better understand the political power that definitions of equity

express, and the ways in which policies that regulate the urban form perpetuate existing social

hierarchies.

Iris Marion Young (1990) builds on Harvey's ontology of the social, and argues that

existing theories of social justice neglect an understanding of the social interactions that fuel

power dynamics between groups and individuals. She argues that instead of adopting a universal

theory of justice that pretends to be ahistorical and separate from social and political experiences,

those who wish to study and engage in discussions of social justice should instead employ a

critical reflective analysis as a "normative reflection that is historically and socially

contextualized" (Young, 1990, 5). That is, the spatial and social context within which we exist,

and within which these plans are created, display a unique and distinct set of equity issues that

cannot be determined by any one holistic understanding of "justice" or "equity." This level of

normative reflection becomes increasingly important as I analyze the ways in which definitions

of justice are employed within the hierarchical system of planning.

Robert Bullard (1994) provides an often-cited framework for understanding equity and

justice, and his three types of equity can provide a valuable means of categorizing and

understanding equity considerations in climate planning. These include:

• Procedural Equity: "the extent that governing rules, regulations, evaluation criteria, and enforcement are applied in a nondiscriminatory way" (Bullard, 1994, 12).

• Geographic Equity: "the location and spatial configuration of communities and their proximity to environmental hazards and locally unwanted land uses (LULUs)" (Bullard, 1994, 13).

• Social Equity: "the role of sociological factors such as race, ethnicity, class, culture, lifestyles, and political power, in environmental decisionmaking" (Bullard, 1994, 14).

Existing work on climate change planning and equity adopt Bullard's three forms of inequity; Shrock and colleagues (2015) categorize equity and social justice considerations into these categories, finding that social equity was the most prominent form of equity discussed in plans, while geographic equity was the least-often discussed (Shrock et al, 2015).

2.1.2 Environmental Justice

Environmental justice was selected as a coding term to assess the role of the environmental justice movement (and any related potential grassroots movements with a justice perspective) within current planning dialogues. As Luke Cole and Sheila Foster (2001) discuss, "environmental justice" denotes grassroots activities with roots in the Civil Rights Movement of the 1950's, 60's, and 70's, as well as anti-toxics movement, and broader labor movements (Cole and Foster, 2001, 20). Cole and Forster frame environmental justice both externally—with a critical analysis of the political economy of environmental degradation and its relationship to political and social processes, and internally—through the perspective of communities impacted by environmental racism where "Environmental hazards are inequitably distributed in the United States, with poor people and people of color bearing a greater share of pollution than richer people and white people" (Cole and Foster, 2001, 10). Together, these perspectives inform the

8

authors' understanding of environmental justice "which requires democratic decision making, community empowerment, and the incorporation of social structure… in environmental decision-making processes (Cole and Foster, 2001, 16). The environmental justice movement, therefore, is more associated with political activism and political movements than a theory or philosophy as we see with the term "justice." Following this understanding of the history of the environmental justice movement out of the Civil Rights and anti-toxics movement informs my interpretation of the coding term "environmental justice" in my content analysis, and will allow me to compare the academic definition established by Cole and Forster to local planning definitions.

As a movement, environmental justice has been associated with public health associated with the siting of noxious land uses, especially landfills. Cole and Foster (2003) point to Kettleman City, CA's response to the siting of multiple hazardous waste sites in the 1980s as one of the earliest examples of the environmental justice movement. Additional common examples of environmental justice movements include protests against a toxic dump in Warren County, NC in the 1980s, similar protests in Chester, PA in the 1990s responses to a girl drowning in a landfill in Houston in 1967 (which, coincidentally was when Robert Bullard became involved in studying environmental justice), and civil rights protests over garbage workers' rights in Memphis in 1968 (Cole and Foster, 2001, 21, 34). While environmental justice issues certainly are not reserved to the landfill siting and noxious land uses, the history of the movement and the continued siting of hazardous landfills near minority and low-income communities (Goldan and Fitton, 1994).

Bullard's framework for inequity is incredibly important as we assess the ways that policymakers discuss environmental justice and environmental racism. The literature indicates that issues of environmental injustice imply environmental racism, but as Laura Pulido (2000)

9

highlights, researchers often attempt to analyze environmental racism without understanding the underlying social structures and interactions between spatial scales that create and maintain it. Pulido (2000) argues that researchers often frame environmental racism as the product of a single discriminatory act rather than a product of social and spatial interactions, and "miss the role of structural and hegemonic forms of racism in contributing to such inequalities" (Pulido, 2000, 12). Instead of viewing environmental justice issues as the product of a single racist act, we must acknowledge the social and spatial conditions that exist within our urban form. Pulido offers white privilege as a valuable framework for reassessing environmental racism as more than a product of one or a group of racist individuals, noting that

> [White privilege] refers to the hegemonic structures, practices, and ideologies that reproduce whites' privileged status. In this scenario, whites do not necessarily intend to hurt people of color, but because they are unaware of their white-skin privilege, and because they accrue social and economic benefits by maintaining the status quo, they inevitably do. (Pulido, 2000, 15)

Pulido notes that Bullard's work does not fit this critique, as his three types of equity focus on the social, geographic, and procedural structures that normalize and maintain environmentally racist actions.

2.1.3 Justice and Equity Planning

Within the field of planning, equity work often falls under the classification of Paul Davidoff's notion of "Advocacy Planning," where the planner takes an active role in representing and advocating for a specific community group or action. This planning approach stands in contradiction to the "Rational Planning Method," that has typified planning since its inception. The Rational Planning Method relies on the myth of positivism, where the "objective planner," provides reasonable, scientific solutions to urban ailments, while remaining "distinctly apart from the political fray occurring within the community for whom their work is directed,"

(Ozawa and Seltzer, 1999, 258). This planning method has been generally unproblematized in planning's history; "Much of planning theory dwells on planning processes and the role of the planner without analyzing the socio-spatial constraints under which planners operate or the object—urban space—that they affect" (Fainstein, 2010, 57). Advocacy planning, and other forms of equity planning-in practice, reject this myth of objectivity advocating instead for a system that makes our biases and goals clear and upfront.

Norman Krumholtz's work in the Cleveland planning office in the 1970's is the keystone of equity planning in practice. Remembering his work in Cleveland, Krumholtz states, "We deemphasized many of our concerns with zoning, land use, and urban design. We altered the planner's traditional posture as an apolitical technician serving a unitary public interest. Instead, we devoted ourselves to 'providing more choices to those who have few, if any choices'" (Krumholtz, 1982, 166). While Krumholtz acknowledges that a planning department alone cannot enact systemic change in how these vulnerable populations are treated, but they can use their knowledge and connections to create and exploit "institutional openings," including "the nonmonolithic character of urban politics, the ambiguity of planning mandates and problems, the needs of the powerful for planners' analyses, the nature of publicity and problem formulation in planning, and the organization of planning itself" (Krumholtz, 1990, 212). In this description, planners interested in enforcing social equity should be the opposite of a rational technician, and instead utilize their knowledge of the system to enact change.

Much of equity planning theory focuses on tearing down the myth of the rational planner through an analysis of planning's complex and problematic past. This perspective goes directly against the narrative of the "rational planner," who sits comfortably behind their models and formulas to solve problems. The concept of the "rational planner" brings to mind Robert Moses,

and the urban renewal experiment, which dislocated entire populations in New York City and essentially employed institutional racism through its myth of objectivity. In the case of urban renewal, the solutions offered by rational planners instituted racist policies and outcomes, under the veil of objective impartiality (For a detailed biography of Robert Moses, consult Robert Caro's The Power Broker, 1974). Young addresses this veil of "impartiality" within the decisionmaking process, arguing that "the conviction that bureaucrats and experts can exercise their decisionmaking power in an impartial manner legitimates authoritarian hierarchy" (Young, 1990, 10). Essentially, promoting the idea that the planner can be an impartial decision-maker neglects the hierarchical system inherent within decision-making and shields the planner from addressing their own biases within the process.

While the field of urban planning generally acknowledges the deep problems lurking behind urban renewal, the myth of objectivity persists and is reinforced through the histories planners choose to share, and the ways in which we continue to prioritize quantifiable solutions over those that engage with our problematic history. In *Making the Invisible Visible* (1998), Leonie Sandercock argues that the history of planning prioritizes the sharing of some stories over others. This reinforces an idealized version of planning and of planners that does not exist, where "In choosing to tell some stories rather than others, a professional identity is shaped, invested with meaning, and then defended" (Sandercock, 1998, 1). Sandercock sees this retelling of the same monolithic history as an attempt to construct one "official story" of planning's history, one based on "The story of the modernist planning project, the representation of planning as the voice of reason in modern society, the carrier of the Enlightenment mission of material progress through scientific rationality" (Sandercock, 1998, 2). Of course—this is not the entire story of planning, however, it is largely the story I heard as a young planning student, and it is the one

repeated by some of the most well-established planning historians in the field, including Peter Hall and Mel Scott. These stories do not grapple with issues like that of urban renewal, or question the lack of racial, social, and gender-diversity in planning's history and within the practice today. Instead, in these stories, "The role of planning and of planners is unproblematic," and the profession becomes "mythologized" (Sandercock, 1998, 7). Sandercock's critique of planning's history, and her concern with the ways in which its history informs current practices is important to my understanding of the field. I follow this critique of planning in my analysis, viewing the plan itself as a landscape imbued with power both in the ways it is constructed, and by who is involved in its construction.

June Manning Thomas expands on this problem of history, asking why planning frequently chooses to hide beyond their outdated stories of the rational planner. Thomas notes that an acknowledgement the telling inclusive historiographies may actually help illuminate the planner's role in the history of urban development (Thomas, 1998). She argues that by telling inclusive histories, planners can "clarify that the problem of racial prejudice and oppression originated not so much from bureaucratic planners as from the larger society," leading to a deeper understanding of the systemic issues that led to blight, urban decay, and racial inequality (Thomas, 1998, 201). This speaks to Young's argument that we cannot look at issues of justice as ahistorical, but instead as products of social interactions and social systems that reinforce oppression and domination. Without an acknowledgement within the field of planning of its history, and a debunking of the impartial, "rational planner," we cannot hope to develop a substantive, careful definition of justice and vulnerability that we can employ as we attempt to address the disproportionate impacts of climate change.

2.1.4 Public Participation

While this project does not tackle public participation issues directly, there should be an acknowledgement of the significant role participation plays within the field of equity planning and social justice theory overall. As Reisch notes,

> "The creation of greater social solidarity implied in the goals of multiculturalism and social justice requires the reassertion of the ideas of collective responsibility, a community of need, and public virtue… It also implies the establishment of a societal imperative that promotes full participation of each member of the community in the community's activities (Reisch, 2002, 347).

This project does consider how many communities utilized public participation efforts, and if there is a relationship between the type and extent of equity considerations in a given plan and their public participation strategy. This analysis involves some level of knowledge of the types of public participation methods available to a planning committee. Arnstein (1969) offers a list of types of public participation methods a planning agency can utilize, categorized according to the level of public engagement it provides. Arnstein ranks public participation efforts on an 8-rung ladder, ranging from "Manipulation" and "Therapy" at the bottom to "Citizen control" at the top (for a complete list of participation efforts, see Appendix).

2.1.5 Climate Ethics and Urban Climate Change Governance

Equity and climate change are often discussed in terms of intergenerational equity (Farley and Smith, 2014, 6), or more globally through the politics of international agreements that focus on a country's "rights and responsibilities" (Bulkeley, 2014, 32). However, the literature suggests that increasingly, local municipalities are leading the way in climate change policy-making. Bulkeley (2014) provides strong evidence that planning for climate change is most strongly and effectively done through the local, municipal efforts, which she terms as "climate change experiments" (Bulkeley and Broto, 2014, 2013). These "experiments" can manifest themselves in different ways depending on the objective of the municipality; literature on local

greenhouse gas mitigation policy argues that "urban climate governance does not represent a fundamental shift in climate policy but rather is a new articulation of neoliberal environmental governance that is unlikely to have any substantial effect on global concentrations of GHGs" (Rice, 2014, 334). Rice points out that while communities that create climate programs focused on greenhouse gas reductions do obtain added benefits like improved public health, economic efficiency, and better reputations and environmental stewards, these urban programs "also require that a city have access to financial and technical resources, appropriate data and methodological tools, and the political will and support to implement climate-related programs (Rice, 2014, 335). Rice's work suggests that urban climate mitigation programs are merely a new expression of neoliberal governance parading as environmentalism. While not the direct subject of this paper, I do discuss the distinctions between climate action plans and climate adaptation-oriented strategies, and a deeper analysis into the different types of climate programs—those that promote greenhouse gas mitigation and those that promote adaptation strategies—could be a very valuable companion to Rice's work.

Adger expands this discussion of mitigation vs. adaptation strategies, noting that while mitigation of greenhouse gas emissions may require more global policymaking efforts between nation states, adaptation practices are best adopted at smaller scales; "Because the impacts are spatially and socially differentiated, climate justice (the universal right to secure well-being free from unknown hazard or impact) is based on the individual" (Adger, 2001, 924). Different scales should be utilized depending on a city, or community within a city's specific vulnerabilities, risks and needs, suggesting the local level is the most effective scale at and through which to introduce adaptation strategies that target justice and equity issues.

In addition to her work assessing climate change experiments at the local level, Bulkeley's work on climate justice expands the existing components of justice beyond the standard framework. Bulkeley and colleagues (2014) build upon Bullard's three forms of equity to perceive climate justice as a "pyramid, the faces of which are distributions, procedures, rights, responsibilities and recognition," in which recognition is the structure's foundation (Bulkeley et al., 2014, 31). Recognition is defined here as something "which views socio-economic (i.e. distributive) injustice as fundamentally linked to 'cultural or symbolic injustices' which fail to give adequate recognition to certain groups" (Bulkeley et al., 2014, 33).

Current work on climate justice and local governance in the United States specifically is rather scant, save a paper by Gregory Schrock and colleagues (2015) entitled "Pursuing Equity and Justice in a changing Climate: Assessing Equity in Local Climate and Sustainability Plans in U.S. Cities." Schrock and colleagues' piece provides a good source for comparison, as it approaches a similar subject: equity considerations in climate plans, but with a slightly different approach and set of plans. Shrock et al. analyzes the presence of equity terms in 28 climate action and sustainability plans, codes the equity considerations in reference to the type of equity discussed (procedural, geographic, social), and scored the plans from 0-3 depending on "the specificity and prominence of equity themes" (Shrock et al., 2015, 5).

Shrock and colleagues organized their findings into three main factors which may shape equity considerations: disparities, capacity, and opportunity. The authors found that while environmental, economic, racial, and social disparities of a community may serve an important purpose in getting equity conversations on the table in climate planning, there was not a clear relationship between city characteristics and their degree of equity focus suggesting, "that the relationship between local conditions and its equity orientation is complex in nature, and does

not automatically correspond to city characteristics" (Shrock et al. 2015, 6). Despite this, Shrock and colleagues state that "recognition on the part of planners and sustainability officials of persistent environmental disparities and inequities facing communities of color and other marginalized populations played a role in getting equity on the agenda," typically through a consideration of geographical equity. Shrock and colleagues' findings support my own discoveries during the coding process that although equity is often discussed, the extent to which it is addressed through actual strategies or through the identification of specific vulnerable populations is often poor.

2.2 Local Hazards Mitigation Planning and Adaptation Planning

The United States has seen an increased commitment by localities to address climate change issues through the creation of a variety of climate plan types. This increase in municipal climate plans has occurred despite a strong overarching federal policy statement on the significance of adaptation planning. Many municipal climate plans, drafted by city governments, are supported either with funding or technical assistance through groups like ICLEI-Local Governments for Sustainability, and many reflect a strong mayoral commitment like the U.S. Mayors Climate Protection Agreement. This commitment suggests a growing understanding of the role that localities can play within climate change. As I discuss later, municipalities may be best suited for plans that focus specifically on adaptation as opposed to larger-scale national or international policymaking, considering that vulnerability and threats from climate change impacts will be felt differently within communities both spatially and within different social structures. However, the field of climate planning as it stands now is primarily focused on reducing greenhouse gases through climate action plans, and promoting sustainable development via sustainability plans.

Climate adaptation planning is a newer field of planning, as is reflected in the variety of different plans cities create: local hazard mitigation plans, climate action plans, and sustainability plans that include at least a section on adaptation, as well as stand-alone climate adaptation plans with a focus solely on responding to impacts of climate change are all different iterations of the climate plan that can include climate adaptation concerns and/or strategies. Current literature on climate adaptation planning often links the approach and goals of climate adaptation with hazard mitigation and disaster risk reduction, given the level uncertainty associated with climate change impacts (Blanco and Alberti, 2009, 158; Tomalla ,2006, 40; Lyles, Berke, and Heiman forthcoming). This narrow focus on the risks and subsequent strategies related to climate impacts suggests that climate adaptation and hazard mitigation plans are distinctly different from climate action and sustainability plans, both of which more broadly focus on a wider range of climate change impacts beyond vulnerability and risk reduction. Because of their narrow focus on the impacts of climate change, climate adaptation and hazard mitigation plans can be identified as "narrow-based" plans, while sustainability and climate action plans can be identified as "broad-based" with a larger focus on both responding to climate impacts, but also on other factors including sustainable development and greenhouse gas emissions reductions.

2.2.1 Broad-Focus: Climate Action and Sustainability Plans

Generally, climate action planning focuses on reducing greenhouse gas emissions through "enhancing energy efficiency, adopting renewable energy sources, alternative transportation and reductions in vehicle miles traveled, and expanding 'green infrastructure'" as well as LEED-certified building construction and practices (Schrock et al., 2015, 1). Climate action plans vary in both structure and content, depending on the organization writing the plan, its capacity, and community specifics, including demographics, and physical geography (like

18

proximity to a coast). However, because of climate action planning's focus on greenhouse gas reductions, there are some standard formats included in most climate action plans. These include a greenhouse gas emissions inventory, often organized into separate categories of community and municipal emissions, reduction measures organized by category such as (but not limited to): energy, transportation, waste and recycling, and land use, and finally an implementation strategy and appendices (Boswell et al., 2012, 10). The current literature on climate action planning notes that although adaptation is not a required element of climate action plans, it is increasingly common to include an adaptation section, as both mitigation and adaptation policies will be necessary in order to adequately all of the issues of climate change (Boswell et al., 2012, 154; Blanco and Alberti, 2009, 158).

Sustainability plans can also be identified as "broad-focus" plans with the expansive theme of the "triple bottom line" balance the environment, economy, and social world, and often provide broad goals and visions for a community, rather than a specific focus on adapting to climate change. Inherent within sustainability planning is the concept of sustainable development, defined by the Brundtland Commission as development that "meets the needs of current generations without compromising the ability of future generations to meet their own needs" (United Nations World Commission on Environment and Development, 1987, 16). The oxymoronic nature of the phrase "sustainable development" and its corresponding definition has been addressed by other researchers, and is not the focus of this project here, although it should be noted that sustainability and sustainable development are loaded terms with malleable definitions, depending on who is using them. The pliable nature of the term sustainability can be especially sinister when sustainable development is focused mostly on economic growth, and can have implications for both social justice and climate adaptation planning. As Blanco and Alberti

note, "sustainability research has not incorporated adaptation concerns, and some development activities could result in increases in vulnerability to climate change impacts" (Blanco and Alberti, 2009, 162).

2.2.2 Narrow-Focus: Hazard Mitigation and Climate Adaptation Plans

Hazard mitigation and climate adaptation planning approaches present a different perspective on climate change than the broad-focus plans discussed above. Local hazard mitigation planning focuses very specifically on risk and vulnerability assessments and strategies to mitigate vulnerability to risk. There is a well-established literature on hazard mitigation planning, which Berke and Lyles (2013) suggest offers increasingly strong connections between hazard mitigation and adaptation planning, as both "deal with weather events that are likely to be exacerbated by climate change, both rapid-onset (for example, rain-induced flooding and hurricanes) and slow-onset (for example, drought) events" (Berke and Lyles, 2013, 184). This similarity in focus allows me to categorize hazard mitigation plans with an adaptation component as "narrow" plans that focus specifically on risks and risk management strategies associated with climate change (For additional evidence of the connections between hazard mitigation and adaptation planning, see Blanco and Alberti, 2009).

As noted above, stand-alone adaptation plans developed out of hazard mitigation planning, as well as out of a concern that greenhouse gas mitigation strategies via climate action plans alone would not adequately address potential climate impacts already occurring. In 2007, the Intergovernmental Panel on Climate Change (IPCC), arguably the most influential global advisory committee for climate change, asserted that even if greenhouse gas emissions were capped to a reasonable level tomorrow, "no mitigation efforts, no matter how rigorous and relentless, will prevent climate change from happening in the next few decades" (IPCC, 2007,

748). This acknowledgment has led local communities to begin constructing stand-alone climate adaptation plans, as well as updating their climate action, sustainability, and hazard mitigation plans to consider adaptation measures. This is where the field stands today, with a mix of climate adaptation, hazard mitigation, climate action and sustainability plans that address adapting to climate change in a variety of ways and with different levels of concern.

2.2.3 Adaptation, Vulnerability and Dominant Climate Change Narratives

Definitions of what adaptation means can vary, however Blanco and Alberti note that in the climate change literature, definitions of adaptation reside within a "context of vulnerability, sensitivity and adaptive capacity" (Blanco and Alberti 2009, 159). This three-fold definition of adaptation then requires a strong understanding of the terms vulnerability, sensitivity, and adaptive capacity. There are many different frameworks with which to understand vulnerability, and the definition a policymaker uses can have significant impacts on the nature of policy implemented. Beginning with the most dominant narrative on vulnerability from the leading advisory institution on climate science and policy, the IPCC defines vulnerability as: "the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes" (IPCC, 2007, 883). These adverse effects and their potential threats are identified through climate models that categorize potential threats through scenario planning, and are generally organized into these categories:

• Temperature change: "0.2°C per decade is projected for a range of SRES emission scenarios. Even if the concentrations of all greenhouse gases and aerosols had been kept constant at year 2000 levels, a further warming of about 0.1°C per decade would be expected" (IPCC 2007, 12). 2013 projections provided by IPCC become even more stringent, based on a variety of different scenarios of emissions. These numbers indicate

21

that the poles and tropics will feel these impacts more dramatically, given their

geographical locations related to weather patterns, ocean circulation patterns, latitude,

etc.

• Sea level rise: Projections of global average sea level rise by the end of the 21st century

from 0.18 to 0.59 m for a range of emission scenarios, not excluding potential changes in

ice flow from temperature rise (IPCC 2007, 13).

• Precipitation change: Average mean precipitation likely to increase, especially in high

latitudes and decrease in most subtropical land regions, while snow cover is projected to

contract (IPCC 2007, 15-16).

• Extreme events: Extreme events include heat waves, heavy precipitation events, as well

as hurricanes, tornados, and other weather events.

As we see, the IPCC's definition of vulnerability reflects a more technical risk hazard framework

based on a system's response to external threats. This is in opposition to a social constructivist

framework used often in political economy and human geography, which focuses on social

vulnerability and "conceives [vulnerability] as an inherent condition of households or

communities determined by socio-economic and political factors, clearly emphasizing non-

climatic factors in vulnerability" (Blanco and Alberti, 2009, 161). Adger addresses the

challenges with identifying vulnerability from this simplistic scientific perspective, stating that

"Vulnerability is determined by social entitlements and differentiated by levels of equity,

livelihood, diversity, potential climate impacts and appropriate institutional forms" (Adger, 2001,

925). O'Lear further challenges the IPCC's reliance on scientific modeling to construct

definitions of climate change. Using a constructivist Science and Technology Studies (STS) lens,

O'Lear notes that the IPCC's definitions utilize a "technoscientific approach that reduces climate

to measurable, quantifiable observations about environmental systems" which neglects other understandings of climate and climate change using natural science "significantly discount the presence of humans and hide uneven power and social relations rooted in neoliberalism" (O'Lear, 2015, 2). The definition of climate and vulnerability rooted in "objective" science as provided by the IPCC promotes certain agendas, while hiding others. Within local climate planning, as evidenced in this dataset, IPCC data is often used as the main source for defining climate change, and identifying our risks, and can therefore shape local policies that may perpetuate this technoscientific perspective without acknowledging the social factors neglected by the process.

The literature on adaptation planning in general discusses the challenges facing adaptation planning regarding capacity, coordination with local hazard mitigation planning and planners, and how to deal with "uncertainty," but generally does not explicitly discuss how different climate impacts will affect different populations and groups within a given community. As discussed in the following chapters, this lack of attention to the disproportionate potential impacts of climate change is also common within the plans themselves, and I argue that this is one of the key issues in formulating a clear understanding of equity values within a given community, or a set of equity values that can be explored more broadly in the field of climate planning.

2.3 Theory on Mixed Methodologies

A mixed method methodological approach is the comprehensive means of analyzing this dataset to both allow for an analysis of relationships among phenomena, and provide a mechanism for engaging with issues of recognition, different conceptualizations of justice, and discourse analysis. Broadly, mixed method projects combine quantitative and qualitative

research methods to construct a fuller understanding of the dataset in question. A mixed-method approach, ideally, ensures a more comprehensive understanding of data, and balances the benefits and weaknesses of both research approaches, as an acknowledgement that all methods "simultaneously enable and disable" (Sui and DeLyser, 2012, 119–20). Generally, quantitative methods are considered valuable because of the replicability, and perceived objectivity of hard numbers and statistics. Quantitative methods allow for researchers to identify relationships between and among phenomena. Stratford and Bradshaw establish distinctions between extensive (quantitative research), and intensive (qualitative research), noting the ways that both approach can answer "what" versus "how" (Stratford and Bradshaw, 2010, 120). The details of my mixed-method approach are outlined in Chapter 3: Methodology, however, the theoretical foundation for my methodological choices, particularly the qualitative content analysis and discourse analysis greatly inform the way that my data is interpreted, and are discussed in more detail below.

The quantitative content analysis stems from existing plan quality literature within the field of hazard mitigation planning. The strong relationships between climate adaptation and hazard mitigation planning have already been discussed, and recent work supports the value in utilizing hazard mitigation practices and methods to understand the growing field of climate adaptation (Lyles, Berke, and Smith, 2014; Berke, Lyles, and Smith, 2014; Lyles, Berke, and Heiman, forthcoming). This form of content analysis focuses on addressing the author agencies, cross-referencing of climate plans with other types of plans (including comprehensive plans, capital improvements plans, etc.), and the presence of land use items to provide an understanding of the strength of climate adaptation plans within a broader planning process. All items are coded according to their presence, with a 1 for present and a 0 for absent, and then utilized in statistical

models to assess correlation and significant relationships. Once significant relationships are identified, planners can begin to identify ways in which the planning process can be strengthened through integration with other types of plans, land use strategies, etc.

This method does not, however, allow for a more detailed analysis of the ways in which terms are used by plan authors, and the ways in which plans represent systems of hierarchy and power that inform the definitions and strategies used. This is where a qualitative content analysis based on a visual analysis of text provides immense detail to the basic plan content analysis. As Craine and Gardner discuss, visual methods can be applied throughout qualitative research, as it is based on a general understanding that "textual representations hold descriptions of the lived experiences associated with everyday life and interpreting these texts can provide insight into the social construction of space and place" (Craine and Gardner, 2014, 284). Quantitative content analysis cannot accomplish a more detailed analysis that includes an understanding of the social construction of space and place, while at the same time, the qualitative analysis provides little replicable material to analyze and formulate potential relationships between phenomena. This is why some proponents of content analysis promote a blend of both quantitative and qualitative practices, arguing that "qualitative analysis deals with the forms and antecedent-consequent patterns of form, while quantitative analysis deals with the duration and frequency of form" (Smith, 1975, 218). Other researchers support this perspective, arguing that "counts" of terms enable identifying, organizing and indexing, while the qualitative analysis of that data allows one to understand the context within which the codes are used (Berg, 2008, 342). My research utilizes these two forms of content analysis to identify, catalog, and index the equity codes within climate plans, while also unpacking the context (both the definitions used, the types of

vulnerable populations and consequent threats identified) to enable a more comprehensive understanding of the role of justice and social concerns.

Qualitative content analysis is often used to code interviews and surveys, however it can also extend to other forms of text, including "newspaper accounts, public addresses, libraries, archives, television shows, movies, and similar sources allow researchers to conduct analytic studies" (Berg, 2008, 364). These pieces can be analyzed as a form of textual landscape within which academics can understand deeper meanings and indications of culture and power. Craine and Gardner provide a brief history of the use of text as landscape as a relevant and useful form of analysis, noting that "Since the publication of Sauer's The Morphology of Landscape in 1925, cultural geographers have recognized landscape as a central concept and subject, particularly how landscapes reflect and symbolize the activities and cultural ideas of a place" (Craine and Gardner, 2014, 276). In this case, I extend this understanding of a textual landscape to the realm of climate change plans, which I argue hold meaning and reflect the power structures in a given space and time, as "the study of how these representations are created and the meanings they contain can offer great insight into the way individuals and social institutions interact and how individual and societal identity is constructed" (Craine and Gardner, 2014, 276). With this perspective, my dataset of 52 municipal climate plans can be analyzed as a textual landscape, where the type of equity code used, and its definition and connotation reflect decision-making structures that impact both policy and social dynamics. The text itself is a product of social interactions that will subsequently impact social interactions. This returns to David Harvey's interpretation of the urban form as a space of conflict and social interactions, and I use this interpretation as I analyze the policies constructed by and for urban spaces and their inhabitants.

In the broadest sense, my work utilizes content analysis to organize considerations of equity by their definitions and frameworks. Developing a catalog of equity terms, definitions, and frameworks is best achieved through the tedious process of coding, described as "a careful, detailed, systematic examination and interpretation of a particular body of material in an effort to identify patterns, themes, biases, and meanings" (Berg, 2008, 338). The literature indicates that the interpretative process can be conducted a variety of ways. My approach utilizes both manifest and latent content analysis; the initial quantitative content analysis, which codes equity term in relation to their presence within plans and frequency provide valuable baseline information, can then be further analyzed with an eye on patterns and trends latent within the presence of these terms, requiring "a determination of the underlying meanings of what was said" (Dunn, 2014, 175).

In this project, the three main equity codes, "social equity/justice, environmental justice, and vulnerable populations" are the manifest codes, while the definitions and topics surrounding these equity terms are the latent items that inform the type and extent of equity considerations. To understand the latent trends, I employ a semiotic analysis, using term codes to identify "systems of meanings found within the signs of a text, thereby allowing the users to gain a better understanding of the ideologies at work in the production of text" (Craine and Gardner, 2014, 278). For the code "social equity/justice," then, the semiotic analysis includes additional codes like: types of equity according to Bullard's three types of inequity, robustness of equity discussion (is it a mere sentence with an actual definition, or several paragraphs with examples and strategies). These items may not be explicitly stated by the authors, but are inherent in the plan and can be understood in the context of broader equity theory.

Along with an understanding of latent meaning and semiotic analysis, qualitative content analysis establishes a distinction between deductive and inductive categorization of coding terms and content. The coding terms for this project were selected using a deductive approach, while the categories and themes created in the qualitative content analysis were selected using an inductive approach, which "begins with researchers 'immersing' themselves in the documents … in order to identify the dimensions of themes that seem meaningful to the producers of each message" (Berg, 2008, 347). Equity categories can also be deductively organized into theoretical classes, like "types" of justice and equity—procedural, geographic, social, etc.

Instead of seeking the essence of climate action and adaptation plans, and their use of equity terms, I employ a discourse analysis that seeks to understand how language shapes policy. Discourse analysis addresses the power structures that exist behind the words we use; as Craine and Gardner describe:

> Discourse refers to groups of statements and practices that not only structure the way we think about things but also allow us to make specific assertions of knowledge in the first place. In this way it is possible to speak of a geographical discourse that refers to the special language of the discipline and how it is practised, with its focus on spatial relations, uneven developments and the power of places… Discursive practices—the ways meanings and are connected through representations, texts, and behaviors—are also a form of disciplining and so discourses are also about power and knowledge production (Craine and Gardner, 2014, 279).

Several discourses on climate change, and its impacts to different populations can be found in my dataset, and an analysis of the ways the terms are used, and the populations are identified provides a stronger idea of the narratives told and repeated within climate planning, and provide insight into how we can improve those narratives. Part of the problem with the ways in which these plans consider equity is that the definition is shallow (this is discussed more in the next chapter), and very infrequently connected to any sort of strategy or objective. Instead, equity is treated as lip service, and the narrative maintains the existing social structures rather than

seeking deeper social change and improvement in the face of climate change. This is where the title of my thesis comes from; these narratives do little to alter the social system as it currently exists, promoting static growth under the guise of "social equity."

However strong a mixed-methods approach may be when compared to using either quantitative or qualitative research methods alone, there are still limitations. Berg notes that qualitative content analysis

> Another limitation (although some might call it a weakness) of content analysis is that it is ineffective for testing causal relationships between variables. Researchers and their audiences must resist the temptation to infer such relationships. This is particularly true when researches forthrightly present the proportion or frequency with which a theme or pattern is observed. This kind of information is appropriate to indicate the magnitude of certain responses; however, it is not appropriate to attach cause to these presentations. (Berg, 2008, 365)

This limitation, of course, is not limited to qualitative discourse analysis. The numbers produced through quantitative methods face the same challenge in proving a strong causal relationship over a mere correlation. There is certainly literature that addresses the challenges of proving causation in statistical methods (as I have heard more than once in my graduate career: "correlation does not equal causation"); however, the myth of objectivity surrounding quantitative methods generally protects it from the harsher criticism within academia. That is usually reserved for qualitative methods. The chapters that follow will provide the results of my quantitative and qualitative content analysis and discourse analysis, as framed by the literature offered here.

Conclusion: Where is the geography?

Finally, some may ask, where is the geography in this project? How does geography relate to a handful of climate plans written by government officials? The geography is implicit in this project both through the methodological foundation of qualitative content and discourse

analysis, which perceives text as landscape; a landscape that represents the result of social and power structures and decisions within space and time. It also exists within the theoretical approach with which I view these plans as representations of social interactions and hierarchical decision-making systems (which we give meaning to), as products that exist within a specific temporal and spatial context (circumstantial), and respond to a dramatically changing world, one municipality at a time (scale). This project is an analysis of how our understandings of space and time respond to changes in that understanding through threats to our environment and existing social structures.

Chapter 3. Mixed-Methodology

Introduction

This project employs a mixed-method approach, utilizing both quantitative and qualitative content analysis to catalog the current state of equity considerations within climate plans. A mixed-approach allows me more comprehensive answer my broadest research question: How are the terms social equity/justice, environmental justice, and vulnerable populations presented in climate change adaptation plans? To answer this, I employ both deductive quantitative content analysis using coding protocol and procedures from established plan quality literature, as well a more detailed inductive qualitative analysis, where I allow the context of the plan's content to determine categories and subjects.

While historically, quantitative and qualitative methods have been perceived and treated dichotomously, researchers have begun to find that "this divide has hindered cooperation, collaboration, and constructive engagement of diversity" (Sui and DeLyser, 2012, 111). It seems only fitting that for a project produced between two vastly different fields of thought should employ a method that features the strengths of both methods, and identifies the ways in which quantitative analysis and qualitative analysis can complement and strengthen research projects and outcomes. This combination of quantitative content analysis (what the numbers tell us about the plans), and qualitative content analysis (what the plans tell us about the numbers) sheds light on the grey area between the 0's and 1's, and identifies the grossly complex and always messy nature of planning for climate change, and planning for equity.

My mixed methods approach begins with the numbers. First, quantitative methods are used to answer the research question: How are the terms social equity/justice, environmental justice, and vulnerable populations presented in climate change adaptation plans? This method

involves using statistical models to provide general information about the current state of equity considerations in climate plans, and to explore and explain the relationships between the presence of equity items in climate plans and other variables like author agencies, demographics, and public participation efforts. These relationships will be more deeply analyzed through content analysis, as numbers and correlations do not provide a full understanding of the definitions used, the role of the participants in the planning process, or the quality of a certain equity consideration. Therefore, quantitative analysis serves as a jumping-off point for more detailed content analysis.

Once significant relationships are identified (or, in some cases, not identified), plan content can be analyzed to assess the accuracy of the statistical tests, connect to broader equity and climate change planning theory, and consider the potential societal structures embedded and reinforced within the planning process that may reinforce these relationships, or lack of relationships. While qualitative methods often use interviews, samples, or participatory research methods to understand individual experiences, content analyses of textual materials are also an effective qualitative technique for deconstructing social structures, and analyzing the "processes [by which they are] constructed, maintained, legitimized, and resisted" (Winchester and Rofe, 2010). Berg defines content analysis as "a careful, detailed, systematic examination and interpretation of a particular body of material in an effort to identify patterns, themes, biases, and meanings" (Berg, 2007, 338). Content analysis is particularly valuable for a mixed-method approach as "qualitative analysis deals with the forms and antecedent-consequent patterns for form, while quantitative analysis deals with the duration and frequency of form" (Smith, 1975, 218). Together, the combination of quantitative and qualitative techniques provides a more

comprehensive analysis of these 52 plans, and bridges the gap between two seemingly dichotomous research methods.

3.1 Statement of Positionality

Self-reflectivity requires us to consider our position within our research and the subjects we may impact as part of "a process of constant, self-conscious scrutiny of the self as researcher and of the research process," (Dowling, 2005, 34). While I am not directly working with stakeholders or community groups, I find it important to identify my own role as a woman with both academic and professional experience, and a background in environmental processes, which shapes my interest in climate change. My experiences in the largely male-dominated academic fields of planning and geography have led me to often question the normative understandings of what planning "is," or the inherent irony in attempting to identify or "empower" communities through publications and the rigid colonial structures of the academy. These considerations lead me to ask questions about the inherent power structures that exist within the planning process, and have shaped my critical perspective on planning practices.

This thesis developed from a separate project in the planning field on climate adaptation planning, land use, and mainstreaming, entitled "Who Plans for Climate Change Adaptation? Local Choices for mainstreaming and incorporating land use policies in municipal adaptation planning" (Lyles, Berke, and Heiman, forthcoming), and the sampling method, coding protocol and procedures were all produced as part of this separate project. My work on this project was funded through the Institute for Policy and Social Research. The equity terms were derived using the above methods, however, the subsequent statistical modeling and qualitative content analysis are my own separate and distinct project.

3.2 Quantitative Content Analysis

This section describes the process by which I designed and created my sample of US municipal plans, and outlines the protocol, procedures and statistical models I used to select, code, and analyze the equity content in my plans. The overall research design, protocol, and procedures replicated methods used in local hazard plan quality research (Lyles, Berke, and Smith, 2014; Berke, Lyles, and Smith, 2014).

3.2.1 Research Design

The research design employed in this project extended from a cross-sectional design of a separate project on municipal climate plans in the United States that address climate adaptation in the context of plan quality assessment and integration (Lyles, Berke, and Heiman, under review). This design included an extensive literature review of the current state of climate adaptation planning in the United States from which to select my sample, followed by a rigorous double-blind coding protocol to ensure thorough and unbiased interpretation of the coding items.

After utilizing this initial research design, I conducted my own separate coding for the three equity terms: social equity/justice, environmental justice, and vulnerable populations, and conducted an inductive qualitative content analysis of the context where the terms were used. The additional coding work included identifying the extent, frequency, and place in plan (goals, fact base, strategy, implementation, appendix, etc.) where these items were included, and the presence of public participation strategies and indications of public participation in the plan-writing process. These additional coding measures were conducted using the same coding protocol as the other project, but are otherwise unrelated.

3.2.2 Sample Size and Plan Selection

A total of 52 climate plans were selected for this project, out of over 200 identified in preliminary sampling. After the preliminary sampling, I narrowed the sample to include only

plans that 1) addressed adapting to the impacts of climate change, 2) were municipally-based, and 3) were either adopted or in final draft format. Those plans that were not included focused solely on climate change mitigation through greenhouse gas reduction, or sustainability plans without consideration of adaptive concerns or measures. I collected the sampling pool between December 2013 and February 2014 using online databases including ICLEI, EPA, Georgetown Climate Center of the Georgetown University Law School, the Center for Climate and Energy Solutions, and state-level climate change information groups such as the California Climate Change Portal.

While all of the plans in the sample address climate adaptation, they do so to different degrees; adaptation-only (n=10), hazard mitigation and climate adaptation (n=2), climate action plans which focused on greenhouse gas emissions and mitigation and adaptation (n=30), and sustainability plans with adaptation considerations (n=10) (Lyles, Berke, Heiman, under review). To account for the notably smaller sample of hazard mitigation and adaptation plans, and because of the distinctions between these different types of plans (in intent, goals, and subsequent strategies), I organized my sample broadly into two categories based on their attention to the impacts of climate change: broad-focus (climate action and sustainability plans, n=39), and narrow-focus (climate adaptation-only plans, and adaptation and hazard mitigation plans, n=13).

Narrow Focus —Adaptation Only	
Boston, MA	*Climate Ready Boston: Municipal Vulnerability to Climate Change*
Chula Vista, CA	*Climate Adaptation Strategies*
Flagstaff, AZ	*Resiliency and Preparedness Study*
Grand Rapids, MI	*Grand Rapids Climate Resiliency Report*
Keene, NH	*Adapting to Climate Change: Planning a Climate Resilient Future*
New York, NY	*PlaNYC 2011 update*
Portsmouth, NH	*Climate Change Vulnerability Assessment and Adaptation Plan*
Punta Gorda, FL	*City of Punta Gorda Adaptation Plan*
Santa Cruz, CA	*City of Santa Cruz Climate Adaptation Plan*
Seabrook, NH	*Adaptation Strategies to Protect Areas of Increased Risk from Coastal Flooding Due to Climate Change*

Narrow Focus—Adaptation and Hazard Mitigation	
Lewes, DE	*The City of Lewes Hazard Mitigation and Climate Adaptation Plan*
Baltimore, MD	*Disaster Preparedness and Planning Project*
Alameda, CA	*Local Action Plan for Climate Protection*
Broad Focus—Climate Action	
Homer, AK	*Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts*
Seattle, WA	*Seattle, a Climate of Change: Meeting the Kyoto Challenge*
San Ramon, CA	*San Ramon Climate Action Plan*
Hillsborough, CA	*Climate Action Plan*
Portland, Multnomah County, OR	*City of Portland and Multnomah County Climate Action Plan*
San Carlos, CA	*City of San Carlos Climate Action Plan*
Benicia, CA	*Benicia Climate Action Plan*
Laguna Beach, CA	*Climate Protection Action Plan*
Baltimore, MD	*Disaster Preparedness and Planning Project*
Olympia, WA	*Olympia's Response to the Challenge of Climate Change*
Alexandria, VA	*Environmental Action Plan 2030*
Berkeley, CA	*Climate Action Plan*
Cleveland, OH	*Cleveland Climate Action Plan At a Glance*
Rockville, MD	*Strategy for a Sustainable Rockville*
Martinez, CA	*City of Martinez Climate Action Plan*
Kingston, NY	*City of Kingston Climate Action Plan*
Santa Barbara, CA	*Final Santa Barbara Climate Action Plan*
Sacramento, CA	*Climate Action Plan*
Union City, CA	*Union City Climate Action Plan*
Eugene, OR	*A Community Climate and Energy Action Plan for Eugene*
Miami, FL	*MiPlan: City of Miami Climate Action Plan*
Key West, FL	*Climate Action Plan*
Chicago, IL	*Chicago Climate Action Plan: Our City, Our Future*
Baltimore, MD	*Baltimore Climate Action Plan*
Albany, CA	*Climate Action Plan*
Santa Rosa, CA	*Climate Action Plan*
Carbondale, CO	*Town of Carbondale Energy and Climate Protection Plan*
Santa Monica, CA	*15X15 Climate Action Plan*
Urbana, IL	*Climate Action Plan Phase 1: Initial Strategies 2013-2015*
Redwood City, CA	*City of Redwood City Climate Action Plan*
Broad Focus—Sustainability Plans	
Fayetteville, NC	*City of Fayetteville Sustainability Master Plan*
District of Columbia	*Sustainability DC*
Somerville, MA	*Sustainable Somerville: An Environmental Strategic Plan*
Salt Lake City, UT	*Sustainable Salt Lake: Plan 2015*
Glendale, CA	*Greener Glendale Plan: The City of Glendale's Sustainability Plan Municipal Operations*
Charleston, SC	*Charleston Green Plan: A Local Roadmap to Sustainability*
Spokane, WA	Sustainability Action Plan: Addressing Climate Mitigations, Climate Adaptation and Energy Security
Santa Fe, NM	Sustainable Santa Fe Plan
Grand Rapids, MI	FY2011-FY2014 Sustainability Plan
Cincinnati, OH	Green Cincinnati Plan

Figure 3.1 List of sample plans by type

3.2.3 Coding Protocol

The coding protocol, or the selection of items used in the coding process, were initially selected as part of another research project which project replicated a protocol used in local hazard plan quality research (Lyles, Berke, and Smith, 2014; Berke, Lyles, and Smith, 2014). This protocol measured planner involvement in local hazard plans by identifying the different stakeholders involved in the writing and construction of plans (including lead agency, planning agencies, government agencies, and a variety of non-governmental organizations), the level of cross-referencing of other plans (local, state, and federal) within the local hazard plans, and the presence of common land-use strategies. All items were coded as present using a score of 1, or not present with a 0.

3.2.3 Plan Quality Coding Procedures

After establishing the protocol, plans were coded between August 2014 and January 2015, and involved two coders (myself and another urban planning masters student), trained in plan quality literature assessments and protocol methods, and environmental planning methods, independently coding items, and then reconciling our separate coding findings to determine overall reliability. Reliability was calculated using both percent-agreement (item range 60.8% to 100.0% with mean 90.2%) and Krippendorff alpha (item range -0.0031 to 1.00 with mean of 0.527).

3.2.4 Equity Protocol and Equity Coding

In addition to the protocol above, I also selected additional items to track the presence of specific equity terms including: social justice and social equity, the environmental justice movement, and vulnerable populations. The equity terms used in my research were selected after careful review (see Chapter 2 for full discussion of equity terms and research) with the intention of capturing as many social equity-based references as possible, to better understand the state

37

and nature of equity considerations within local climate plans. As is common with deductive

approaches, where the categories are selected before analyzing the content, it was challenging to

ensure that all equity terms were captured, and the double-blind coding protocol and content

analysis helped capture additional equity considerations that didn't fit within the pre-selected

terms.

All equity items were further analyzed, after following the established protocol and

procedures discussed above. The detailed analysis of the coding findings included reviewing

each plan that mentioned a given equity item to answer the above exploratory research questions.

The analysis included identifying: 1) the place within the plan where the item is mentioned to

analyze the "strength" of the equity consideration (an equity term associated with a strategy, for

example, may have a more detailed definition or specific topic than one broadly mentioned in the

introduction), 2) number of times mentioned, and 3) length of discussion within the plan

(sentence, paragraph or full section).

3.2.5 Exploratory and Descriptive Analysis

A large part of this project is identifying and cataloging the current state of equity

considerations within climate plans, to answer my broad research question: How are the terms

social equity/justice, environmental justice, and vulnerable populations presented in climate

change adaptation plans? Within this research question are multiple sub-questions relating to the

frequency with which these terms are mentioned, and the context in which they are mentioned.

For these more basic questions, I used simple univariate analyses and then assessed relationships

between the different variables using bivariate analyses including t-tests and chi-square tests.

3.2.6 Univariate Analysis

A univariate analysis involves simple formulas to calculate percentages, means, medians, and standard deviations. This provides a description of each individual variable in my dataset, and can provide an initial understanding of significant relationships (for example, a strong relationship between the presence of the term vulnerable population, and the type of plan—broad, or narrow-focused).

3.2.7 Bivariate Analysis

A bivariate analysis allows me to explore the relationships between different items—answering the research questions:

1. Is there a relationship between the agencies that wrote the plan and the presence of the terms social equity/justice, environmental justice, and vulnerable populations?

2. Is there a relationship between plan type (narrow versus broad) and the presence of the terms social equity/justice, environmental justice, and vulnerable populations?

3. Are there any relationships between demographic conditions (race, median income, population, percent bachelor's degrees, etc.) and the presence of equity terms?

The results, (or sometimes lack of results) from these analyses directed my qualitative analyses focus on the context of specific plans.

3.2.8 Independent Variables

There are many different independent variables change depending on the research question being employed. Independent variables in this research project include the different author agencies, type of plan, and city-characteristics like demographics.

1. Is there a relationship between the agencies who wrote the plan and the presence of the terms social equity/justice, environmental justice, and vulnerable populations?

o   Independent variables: Each specific author agency and group (see Appendix for

complete list of author agency options)

2. Is there a relationship between plan type (narrow versus broad) and the presence of the terms

social equity/justice, environmental justice, and vulnerable populations?

o   Independent variables: Narrow-focus versus broad focus plan

3. Are there any relationships between demographic conditions, and the presence of equity

terms?

o   Independent variables: Demographic statistics including race, median income,

population, percent bachelor's degrees, percent poverty, etc. (See a full list of

demographic variables in the Appendix)

3.2.9 Dependent Variables

The dependent variables considered in the quantitative analysis include the selected

social equity terms: social equity/justice, environmental justice, and vulnerable populations.

Each equity term is assessed individually in the bivariate analyses—so, each relationship is

analyzed between a specific equity term and a specific independent variable. Once identified the

dependent and independent variables, relationships were determined using t-tests and chi-square

tests to assess correlation between the presence (yes or no) of the independent variable on the

dependent variable. The findings below identify strong relationships, or lack of relationships

identified using chi-square tests at p=.05.

3.3 Qualitative Content Analysis

The context-specific content of these plans are also important considerations in the

analysis of these terms, especially for answering the above descriptive and explanatory research

questions regarding the planning process, and current theory on equity, the environmental justice

movement, and vulnerability. As discussed in Chapter 2, a critical qualitative content analysis can take many different forms, however, I have employed a process identified by Bruce Berg that begins with an open coding of the content surrounding the given equity terms, followed by several steps of refining the categories and topics found within the plan content, and finally, organized according to the three relationships identified above in the quantitative analysis.

3.3.1 Content Analysis Coding Procedure

The terms selected for the qualitative content analysis are the same as those for the quantitative analysis—social equity/justice, environmental justice, and vulnerable populations, as well as additional terms I identified during the additional equity coding process—public participation strategies, and public participation efforts. These terms were clipped with the surrounding text of their plans (sentence, paragraph, section, depending on the extent of the discussion), and the section header or title was also included to aid in the coding framing process (David and Sutton, 2004). While it is impossible to ensure that all relevant information was clipped from every plan, when in doubt, I selected larger pieces of text to ensure that the context of the equity item remained intact.

In addition to coding the plans for the presence and frequency of equity concerns, one must be able to assess how these plans are written in a specific context defined by social structures and power dynamics. To accomplish this qualitative assessment of plan content, I began with an "open coding procedure," as identified by Berg (2008), where all hypotheses and predications about the data are suspended as the initial data is collected according to the above protocol (Berg, 2008, 354). During the open coding, I collected all clipped text associated with the established equity terms, organized by plan.

Once open-coding was completed, I created multiple "coding frames," to organize and refine my data by subject and sub-topic. Often in qualitative analysis, these sub-topics can then be counted and coded, providing additional descriptive statistics. However, for the purposes of this mixed-method project, I opted not to focus on additional statically models and instead critically analyze the content itself. When establishing my "coding frames," I organized the material first by the equity term, then organized that data into categories inductively according to the material provided within the plans.

Methodology Conclusion

This section has outlined a methodological style that balances both qualitative and quantitative approaches to understanding and presenting knowledge. Winchester and Rofe (2010) state that "ontology … and epistemology … are linked to the methods we choose to use for research," (Winchester and Rofe, 2010, 4). My own personal ontology and epistemology are reflected in my choice to conduct research with a mixed-methods approach. Working within a joint program has impacted my perception of both the field of human geography and the field of urban planning, allowing me to see both the strengths and weaknesses of their different methodological approaches. A mixed method approach allows me to demonstrate my experiences working in both fields, and to identify ways that both quantitative and qualitative approaches to research can complement each other.

Chapter 4. Content and Context: Equity, Environmental Justice, and Vulnerability

In this chapter, I offer the results of my mixed-method content analyses of the 52 climate plans in this dataset. This chapter will answer my broadest research question: How are equity, justice, and uneven forms of vulnerability defined in relationship to climate change, and what (or who) is missing from these definitions? The results that follow demonstrate my overall argument that while equity, justice, environmental justice, and vulnerable populations are discussed to some extent in a variety of ways throughout the dataset, they do not engage with the principles of equity and justice in deeply meaningful ways. Instead, I found that:

1. Many of the references to equity and justice are brief, vague, and rarely associated with a specific strategy;

2. Discussions of environmental justice are more often connected with strategies of outreach and stakeholder engagement, but environmental justice was the least frequently discussed code in this dataset; and

3. When discussing vulnerable populations, the authors do not connect issues of vulnerability to issues of systemic social inequities, or the cumulative impacts of vulnerability to climate change when race, age, income, gender, etc. interact.

Overall, these findings indicate that while the climate plans do acknowledge equity and justice, the discussion of these concepts is rather shallow. And, in not fully addressing issues of equity and justice, these plans do not adequately prepare their communities to be resilient or sustainable in the face of climate change.

This chapter begins with the baseline findings of all the coded equity terms to give the reader a sense of the climate plan and equity landscape. Then I will outline the findings of each coded term separately, beginning with equity/justice, then environmental justice, and finally

vulnerable populations. Each section will provide information about where within the plan equity codes were found (this includes goals, fact base, strategies, appendices, etc.), different topics, types of justice are discussed in these plans (from Bullard's three types of justice discussed in the literature review), specific vulnerable populations and threats, and any additional unique findings identified in the content analyses.

4.1 Baseline Findings

This short section explores the material obtained through quantitative plan coding methods, and subsequent statistical analyses. It begins with an overview of the baseline material—including frequency of different equity terms and relationships between type of plan and presence of equity terms. The more detailed coding and actual plan content is more valuable to answering my research questions, however, the basic numbers provide an understanding of overall, how climate plans discuss justice, environmental justice, and vulnerable populations, and jumping off point for discussion in the following chapters. Furthermore, these numbers can be used to identify and explore relationships between different phenomena, including plan types, plan authors, and specific urban contexts which can provide further discussion of the existing role of equity and justice considerations within climate change planning, and potential approaches for improvement in future plans.

At face value, there appears to be a fair amount of equity being discussed in climate plans. Of my dataset of 52 climate adaptation, hazard mitigation and adaptation, climate action, and sustainability plans (which contain at least a section on adaptation concerns and strategies), 79% (41 out of 52) considered at least one of the preselected equity terms.
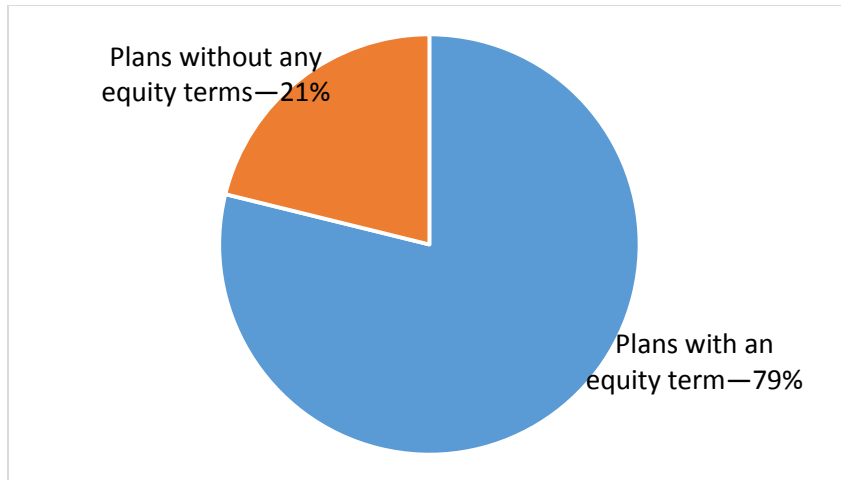
Figure 4.1 Plans with/out Equity Code

Of the different types of terms available, references to "vulnerable populations" was by far the most often selected equity term, with 65% (34 out of 52) featuring a discussion of vulnerable populations. Nearly half of the plans (46% or 24 of 52) included the term "equity" or "justice" (with or without the term "social"), and 17% (9 of the total dataset) referenced "environmental justice" specifically.
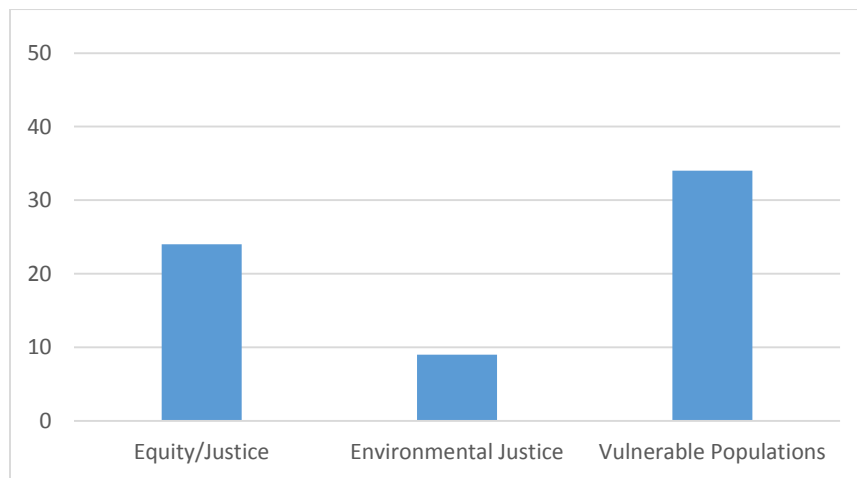

Figure 4.2 Breakdown of Equity Codes

However, the inclusion of one type of equity term or another was not mutually exclusive, and many plans integrated multiple terms within their plans.
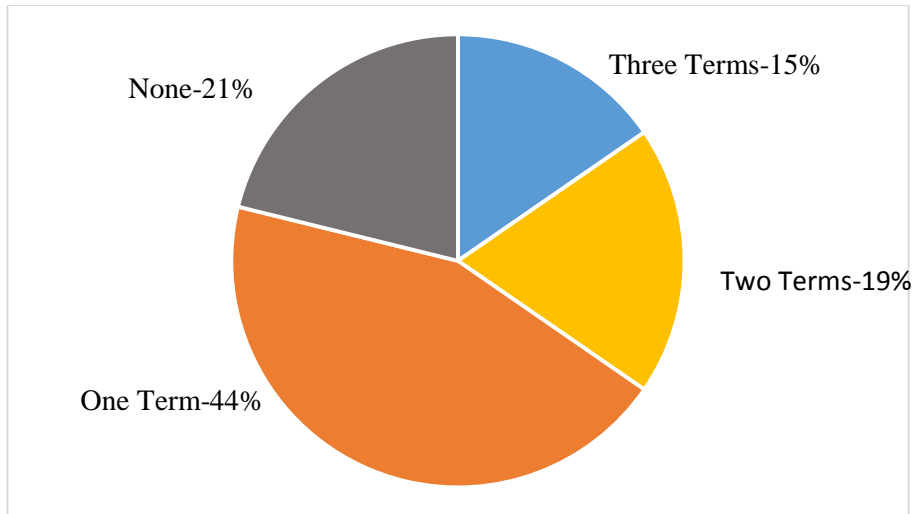
Figure 4.3 Plans and Number of Codes

At first glance, a plan that includes all three of the coded equity terms may seem to have a stronger understanding of equity, however, in the sections that follow, I will explore the ways in which equity and justice, environmental justice, and vulnerable populations are identified, defined, and contextualized to enhance these simple graphs. As the qualitative analysis will indicate, there is no set definition of "equity," "justice," "environmental justice" or vulnerable populations," and in fact some of these terms are used interchangeably. Through a content analysis where I both explore the framework of the plan through the sections in which the codes are discussed, and an analysis of the types of justice considered in the sample, along with an inductive analysis of the categories and topics within which the codes are contextualized, we can assess the current state of equity and justice planning in US municipal climate plans, and provide some insight for future plans.

4.2 Equity and Justice

24 of the 52 (46%) plans in this dataset included at least one reference to either "social justice" or "social equity." This chapter will provide baseline information about:

- Place within the plan: Fact Base, Strategies, Implementation, Authors, Appendix
- Topics: Triple Bottom Line, Outreach, and Public Health

46

- Type (if any) of Bullard's three forms of equity: Social, Procedural, Geographic

In addition to these codes, I noted any overlap among equity/justice codes and either of the other two codes ("environmental justice" and "vulnerable populations"), as these terms do not exist separately from each other, and used together, can help provide a better understanding of how policymakers perceive and respond to justice issues in the face of climate change. Each of these categories is important, especially as we keep in mind that we are considering text as a landscape of social hierarchy and decision-making processes, as discussed in the literature review (Craine and Gardner, 2014, 276). By breaking down the context of these plans into topics and subtopics, we can understand the ways in which the plan authors frame and make decisions regarding environmental justice issues and groups. Many of the relationships found in these findings chapters inform chapter 8, where I highlight key relationships, and discuss the implications of my research for future work and future climate planners.

The dataset indicates that although almost 50% of the plans include a discussion of equity, not all 24 references are high-quality, in the sense that they demonstrate a strong understanding of the term by the authors, or that it is connected to a well-defined strategy with equity or justice aims. Most often we see equity or justice connected to the "triple-bottom line" of sustainability, which highlights the relationship between the environmental, economic, and social world, especially within the set of seven sustainability plans, or acknowledged as an important guiding factor for future outreach efforts. Neither equity nor justice are rarely integrated into more than one topical section as a prominent theme (in only seven of the 24, or 29% plans was justice or equity even mentioned in the context of an actionable strategy) and only in one plan, *Sustainable DC*, is equity integrated throughout the text. *Sustainable DC* is the only plan from my dataset that exemplifies what Schrock and colleagues (2015) refer to as

"prominent equity theme" where "the [equity] issue received at least some prominence as a co-benefit of the plan and/or specific objectives and action items with an equity orientation. Social justice is the most commonly-used type of justice" (Schrock et al. 2015, 286). Together, my findings from these content analyses support Schrock's work that the authors of climate plans generally do not feature equity to be an important discussion point.

4.2.1 Basics: Type of Plan and Frequency

As Table 5.1 indicates, equity considerations occurred in both broad and narrow plans. However, there appears to be more broad-focus plans that consider equity or justice than their more narrowly focused counterparts. Even when accounting for the different amount of narrow-focus plans (n=12) and broad-focus plans (n=39), equity appears in only 25% of narrow-focus plans, and 53% of broad-focus plans. To support this observation, chi-square testing revealed a statistically significant relationship between broad-focus plans and the presence of equity and justice terms, and narrow-focus plans and a stronger consideration of vulnerable populations. As I discuss in Chapter 5, this relationship between plan type and coded equity term relate to existing climate planning literature; narrow-focus plans have a correlated relationship to the code "vulnerable populations," while broad-focus plans have a relationship to the code "equity/justice." This relationship could have larger implications for future climate planners, who could improve their discussions of justice and vulnerability through the plans that they use and the dominant narratives the plans promote.

Table 4.1 Plans, Social Equity/Justice Considerations, Plan Type, and Frequency

Plan	Type of Plan	Frequency
Baltimore, MD *Disaster Preparedness and Planning Project* (2013)	Narrow—Hazard Mitigation/Adaptation	1
Grand Rapids, MI *Grand Rapids Climate Resiliency Report* (2013)	Narrow—Climate Adaptation	4
New York, NY *PlaNYC 2011 update* (2011)	Narrow—Climate Adaptation	1
Alameda, CA *Local Action Plan for Climate Protection* (2008)	Broad—Climate Action	1

Albany, CA *Climate Action Plan* (2010)	Broad—Climate Action	4
Alexandria, VA *Environmental Action Plan 2030* (2009)	Broad—Climate Action	2
Berkley, CA *Climate Action Plan* (2009)	Broad—Climate Action	1
Cleveland, OH *Cleveland Climate Action Plan At a Glance* (2013)	Broad—Climate Action	1
Eugene, OR *A Community Climate and Energy Action Plan for Eugene* (2010)	Broad—Climate Action	5
Homer, AK *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts* (2007)	Broad—Climate Action	2
Kingston, NY *City of Kingston Climate Action Plan* (2012)	Broad—Climate Action	
Los Angeles, CA *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*	Broad—Climate Action	1
Portland, Multnomah County, OR *City of Portland and Multnomah County Climate Action Plan* (2009)	Broad—Climate Action	8
Sacramento, CA *Climate Action Plan* (2012)	Broad—Climate Action	2
San Carlos, CA *City of San Carlos Climate Action Plan* (2009)	Broad—Climate Action	2
Santa Rosa, CA *Climate Action Plan* (2012)	Broad—Climate Action	1
Urbana, IL *Climate Action Plan Phase 1: Initial Strategies 2013-2015* (2012)	Broad—Climate Action	2
District of Columbia *Sustainable DC* (2013)	Broad—Sustainability	22
Glendale, CA *Greener Glendale Plan*(2011)	Broad—Sustainability	1
Grand Rapids, MI *FY2011-FY2014 Sustainability Plan* (2013)	Broad—Sustainability	6
Salt Lake City, UT *Sustainable Salt Lake: Plan 2015* (2005)	Broad--Sustainability	1
Santa Fe, NM *Sustainable Santa Fe Plan* (2008)	Broad—Sustainability	5
Somerville, MA *Sustainable Somerville: An Environmental Strategic Plan* (2007)	Broad—Sustainability	2
Spokane, WA *Sustainability Action Plan: Addressing Climate Mitigations, Climate Adaptation and Energy Security* (2009)	Broad—Sustainability	1

An analysis of frequency indicates that there are no strong patterns between type of plan and the

amount of equity or justice discussed within it. We do see a few outliers—Washington, D.C.'s

Sustainable DC (2013) had the highest frequency of equity or justice references, partly because

the planners integrated "Equity and Diversity" strategies into each section of the plan. The *City*

of Portland and Multnomah County Climate Action Plan (2009) makes 8 references to justice or

equity, and Grand Rapid's *FY2011-FY2014 Sustainability Plan* (2013) made 6. These references are broken down into categories and analyzed for quality the following sections.

4.2.2 Place in Plan: Fact Base, Strategies, and Appendices

Shrock and colleagues (2015) frame their coding process for equity around equity "Problems, Goals, and Actions," and determined that a plan included equity as a "prominent theme" if it discussed equity within the context of an action, or strategy (Schrock et al., 2015, 287). Following this thought process, we can begin to consider how those plans that include equity or justice within a strategy may have a stronger interest or understanding of equity/justice's role within climate planning. As Table 5.2 indicates, seven of the 24 plans that discuss equity or justice do so in the context of a strategy. Four of these integrate equity or justice as both part of their fact base (roughly connected to what Shrock and colleagues refer to as "Problems") and actions, suggesting that equity plays a more prominent role in these plans.

Table 4.2 Place of Social Equity/Justice Considerations within Plans and Frequency

Plan	Place in Plan	Frequency
Baltimore, MD *Disaster Preparedness and Planning Project* (2013)	Strategies	1
Grand Rapids, MI *Grand Rapids Climate Resiliency Report* (2013	Fact Base	3
	Strategies	1
New York, NY *PlaNYC 2011 update* (2013)	Fact Base	1
Alameda, CA *Local Action Plan for Climate Protection* (2008)	Strategies	1
Albany, CA *Climate Action Plan* (2010)	Appendix	4
Alexandria, VA *Environmental Action Plan 2030* (2009)	Goals	1
	Strategies	1
Berkley, CA *Climate Action Plan* (2009)	Fact Base	1
	Implementation	1
Cleveland, OH *Cleveland Climate Action Plan At a Glance* (2013)	Fact Base	1
Eugene, OR *A Community Climate and Energy Action Plan for Eugene* (2010)	Fact Base	5
Homer, AK *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts* (2007)	Fact Base	2

Kingston, NY *City of Kingston Climate Action Plan* (2012)	Fact Base	1
Los Angeles, CA *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*	Fact Base	1
Portland, OR *City of Portland and Multnomah County Climate Action Plan* (2009)	Fact Base	8
Sacramento, CA *Climate Action Plan* (2012)	Strategies	1
	Appendix	1
San Carlos, CA *City of San Carlos Climate Action Plan* (2009)	Fact Base	1
	Strategies	1
Santa Rosa, CA *Climate Action Plan* (2012)	Fact Base	1
Urbana, IL *Climate Action Plan Phase 1: Initial Strategies 2013-2015* (2012)	Fact Base	2
District of Columbia *Sustainable DC* (2013)	Table of Contents	1
	Fact Base	12
	Goals/ Strategies	8
	Appendix	1
Glendale, CA *Greener Glendale Plan: The City of Glendale's Sustainability Plan Municipal Operations* (2011)	Fact Base	1
Grand Rapids, MI *FY2011-FY2014 Sustainability Plan* (2013)	Appendix	1
Salt Lake City, UT *Sustainable Salt Lake: Plan 2015* (2005)	Fact Base	1
Santa Fe, NM *Sustainable Santa Fe Plan* (2008)	Fact Base	5
Somerville, MA *Sustainable Somerville: An Environmental Strategic Plan* (2007)	Fact Base	1
	Goals	1
Spokane, WA *Sustainability Action Plan: Addressing Climate Mitigations, Climate Adaptation and Energy Security* (2009)	Appendix	1

When we include frequency in the analysis, we get a better sense of how often equity is actually discussed—equity is most frequently discussed within a fact based section, like an introduction, or discussion of climate impacts or problems, rather than a strategy which provides "Specific action items likely to yield meaningful equity co-benefits and/or further equity goals" (Shrock et al., 2015, 287). The plans are further coded into topic, providing and even more detailed analysis of what the authors define as equity problems and equity strategies.

4.2.3 Topics: Triple Bottom Line, Outreach, and Public Health

When categorizing the categorical references used to contextualize equity, I used a deductive measure, thereby allowing the plans to show me what categories they should fall into, rather than applying a set of prescribed categories to the dataset. This allowed for the discovery of some interesting categorical entries keywords—social capital, crime, religion and ethics were among the more interesting ways in which the plan authors included discussions of equity, while the triple-bottom line, outreach, and adaptation were the broader categories found in the dataset. Sometimes, these categories were easy to identify by the section of the plan "Public Health," for example, others were less clear, using terms associated with the triple bottom line with little context.

Table 4.3 Social Equity/Justice Considerations by Topic

Plan	Categories
Baltimore, MD *Disaster Preparedness and Planning Project* (2013)	Public Health Resilience
Grand Rapids, MI *Grand Rapids Climate Resiliency Report* (2013)	Outreach Crime Public Health
New York, NY *PlaNYC 2011 update* (2011)	Solid Waste Outreach
Alameda, CA *Local Action Plan for Climate Protection* (2008)	Outreach
Albany, CA *Climate Action Plan* (2010)	Triple-bottom line
Alexandria, VA *Environmental Action Plan 2030* (2009)	Food Public Health
Berkley, CA *Climate Action Plan* (2009)	Adaptation Funding
Cleveland, OH *Cleveland Climate Action Plan At a Glance* (2013)	Triple-bottom line "The Business Case"
Eugene, OR *A Community Climate and Energy Action Plan for Eugene* (2010)	Triple-bottom line Funding Transportation
Homer, AK *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts* (2007)	Ethics/Religion Intergenerational Global and local
Kingston, NY *City of Kingston Climate Action Plan* (2012)	Triple-bottom line
Los Angeles, CA *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*	Smart growth and community development

Portland, OR *City of Portland and Multnomah County Climate Action Plan* (2009)	Transportation Triple-bottom line Economics Outreach Energy Adaptation
Sacramento, CA *Climate Action Plan* (2012)	Adaptation Public Health
San Carlos, CA *City of San Carlos Climate Action Plan* (2009)	Public Health Transportation
Santa Rosa, CA *Climate Action Plan* (2012)	Public Health
Urbana, IL *Climate Action Plan Phase 1: Initial Strategies 2013-2015* (2012)	Triple-bottom line Security
District of Columbia *Sustainable DC* (2013)	Opportunity Outreach Education Health Built Environment Energy Employment Nature Transportation Waste Water
Glendale, CA Greener Glendale Plan: The City of Glendale's Sustainability Plan Municipal Operations (2011)	Triple-bottom line
Grand Rapids, MI *FY2011-FY2014 Sustainability Plan* (2013)	Triple-bottom line Social capital
Salt Lake City, UT *Sustainable Salt Lake: Plan 2015* (2005)	Sustainability
Santa Fe, NM *Sustainable Santa Fe Plan* (2008)	Triple-bottom line Energy Food Education and Outreach Diversity
Somerville, MA *Sustainable Somerville: An Environmental Strategic Plan (*2007)	Intergenerational Triple-bottom line
Spokane, WA *Sustainability Action Plan: Addressing Climate Mitigations, Climate Adaptation and Energy Security* (2009)	Triple-bottom line

Specific references to equity are most often associated with the triple-bottom line, even at times becoming blurred. Spokane's *Sustainability Action Plan: Addressing Climate Mitigations, Climate Adaptation and Energy Security* (2009) defines the term as "Equity: The equal application of social, environmental, and economic operations, services, policies, and programs" (*Sustainability Action Plan: Addressing Climate Mitigations, Climate Adaptation and Energy*

Security, 2009, 21). This definition is very similar to the standard definition triple-bottom line:

economic, social equity, and environmental quality are equally balanced and important in a

sustainable society. Overall, ten plans discuss equity and justice within the context of the triple-

bottom line and sustainable development. All references to the "triple bottom line" occur in the

broad-focus categories of climate action plans and sustainability plans, many of which share

similar language:

- "The City will continue to provide these services while doing our part to promote economic prosperity, ensure social equity, and protect the integrity of the natural environment for all citizens" (*Grand Rapids FY2011-FY2014 Sustainability Plan,* 2013, 6).

- "Sustainability… can be defined as the intersection between three principals; environmental stewardship, economic health; and social justice" (*Sustainable Santa Fe Plan,* 2008, 9).

- "This draft City of Kingston Climate Action Plan (CAP) includes recommendations for comprehensive policies and programs that will reduce greenhouse gas emissions, enhance operational and energy efficiencies, reduce energy costs, support local job growth, and adapt to a changing climate while improving quality of life, saving taxpayer dollars, and promoting social justice" (*City of Kingston Climate Action Plan*, 2012, 6).

As discussed, sustainability narratives like the triple-bottom line can be co-opted to

reflect different priorities and goals. The references to the triple-bottom line in these plans do

have some connections to business interests—for example, Eugene's plan discusses equity in the

same breath as Business Initiatives, with nothing more than a nod to the "triple bottom line of

environmental stewardship, economic success and social equity" (*A Community Climate and

Energy Action Plan for Eugene*, 2010, 5). Give of these justice or equity references in the context

of the triple bottom line are the sole references to equity in the entire plan, suggesting that those

plans that include equity in the triple bottom line are doing mere lip service, rather than deeply

integrating equity or justice principles into their climate change plans.

Outreach is also a common theme discussed in connection with equity and justice considerations. Some plans discuss partnerships with groups like the American Red Cross, community groups, stakeholders and advocates, nonprofits organizations focused on food and public heath, housing associations, and businesses. Additionally, most of the plans include a discussion of outreach strategies—which run from submitting the finished plan for public comment (falling near the bottom of Arnstein's Ladder of Participation, under Tokenism), to constructing and establishing strategies and projects with actual stakeholders, which high on
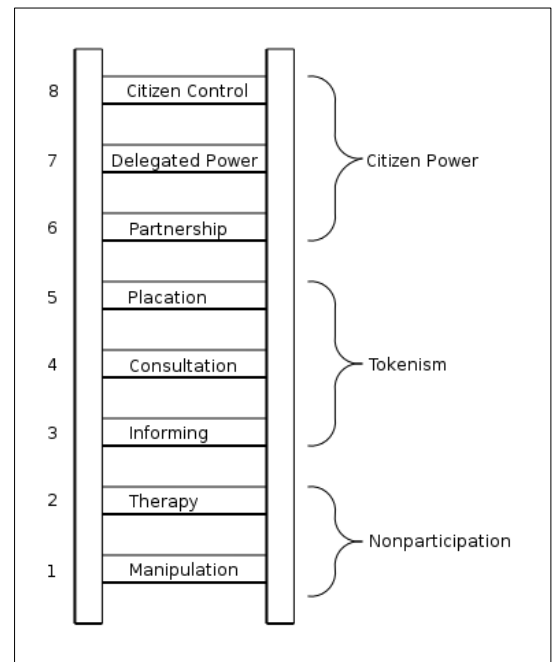

Figure 4.1 Arnstein's Ladder of Participation, 1969.

Arnstein's scale, under Citizen Power (Figure 4.1) (Arnstein, 1969, 217). For example, *Sustainable DC* discusses public participation at length, integrating the working group meetings held during the planning process into guiding principles of the plan overall, noting: "Conversations on education, jobs, health, and equity helped further refine visions and goals, identify underlying barriers to sustainable outcomes, and define better ways of connecting with hard to reach communities" (*Sustainable DC*, 2013, 8). We will return to a larger discussion of outreach to stakeholders in my analysis of environmental justice, and again as we compare the partnerships identified in these plans with those groups present on the author agency in Chapter 5.

Public health is another framework within which equity and justice are referenced, especially in relation to respiratory health, access to nutritional food. The sample's tendency to connect public health with justice concerns is not limited to this specific code. In fact, public

health is a common theme with the environmental justice code and vulnerable populations.

Along with public health, safety is an interesting discussion of equity, climate change, and crime included in *Grand Rapids Climate Resiliency Report* (2013). The plan points out that existing social inequities may provide the groundwork for criminal activity, and climate change may be the catalyst for increased crime; the plan states

> In some communities, low-income populations occupy housing that is within flooding areas, industrial zones, and older, blighted neighborhoods. These situations can exacerbate feelings of unfair practices by decision-makers. While climate change is not responsible for these situations, its impacts can compound an already unstable situation and expose the insufficient resiliency that exists in these areas. (*Grand Rapids Climate Resiliency Report*, 2013, 100)

A discussion like this provides a much deeper definition and understanding of social justice as part of a system of inequitable decision-making processes, than the above examples of the triple-bottom line. It should still be noted, however, that Grand Rapid's statement on crime and blight is not associated with a strategy to attempt and correct this inequity, nor does this address the deeper systemic issues that created this inequitable situation in the first place. Again, we must remember that these issues do not exist in a vacuum of one single discriminatory action; Pulido points out that many environmentally unjust actions that impact public health like pollution concentrations are, "inevitably the product of relationships between distinct places, including industrial zones, affluent suburbs, working-class suburbs, and downtown areas, all of which are racialized" (Pulido, 2000, 13).

4.2.4 Type of Justice: Geographic, Procedural, and Social

Table 5.4 below shows the breakdown of different types of equity according to Bullard's three types: social, procedural, and geographic. Social justice is by far the most frequently used type of justice; 18 out of the 24 plans (or 75%) that discuss equity and justice do so in the context of social justice specifically. The more frequent reference to social justice over procedural or

56

geographic mirrors the findings of Schrock and colleagues (2015), where social justice was the

most commonly referenced, as well.

Table 4.4 Type of Social Equity/Justice Considerations

Plan	Type of Equity
Baltimore, MD *Disaster Preparedness and Planning Project* (2013)	Unclear
Grand Rapids, MI *Grand Rapids Climate Resiliency Report* (2013)	Social Procedural Geographic
New York, NY *PlaNYC 2011 update* (2011)	Geographic
Alameda, CA *Local Action Plan for Climate Protection* (2008)	Social Procedural
Albany, CA *Climate Action Plan* (2010)	Social
Alexandria, VA *Environmental Action Plan 2030* (2009)	Social
Berkley, CA *Climate Action Plan* (2009)	Social
Cleveland, OH *Cleveland Climate Action Plan At a Glance* (2013)	Unclear
Eugene, OR *A Community Climate and Energy Action Plan for Eugene* (2010)	Social
Homer, AK *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts* (2007)	Social Geographic
Kingston, NY *City of Kingston Climate Action Plan* (2012)	Social
Los Angeles, CA *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*	Social Geographic
Portland, OR *City of Portland and Multnomah County Climate Action Plan* (2009)	Social Procedural
Sacramento, CA *Climate Action Plan* (2012)	Social
San Carlos, CA *City of San Carlos Climate Action Plan* (2009)	Social
Santa Rosa, CA *Climate Action Plan* (2012)	Social
Urbana, IL *Climate Action Plan Phase 1: Initial Strategies 2013-2015* (2012)	Unclear
District of Columbia *Sustainable DC* (2013)	Social Geographic
Glendale, CA *Greener Glendale Plan* (2011)	Social
Grand Rapids, MI *FY2011-FY2014 Sustainability Plan* (2013)	Social
Salt Lake City, UT *Sustainable Salt Lake: Plan 2015* (2005)	Unclear
Santa Fe, NM *Sustainable Santa Fe Plan* (2008)	Social Geographic

Somerville, MA *Sustainable Somerville: An Environmental Strategic Plan* (2007)	Social
Spokane, WA *Sustainability Action Plan: Addressing Climate Mitigations, Climate Adaptation and Energy Security* (2009)	Unclear

Social justice is defined by Bullard as "the role of sociological factors such as race, ethnicity, class, culture, lifestyles, and political power, in environmental decisionmaking," social equity demonstrates how existing social structures are perpetuated within environmental decision-making processes (Bullard, 1994, 14). Most of these references relate back to connection between equity and justice and the triple bottom line, because we again see lackluster definitions with little strategic follow-up. Many of the references include the term "social justice," without identifying what social justice is, or how social justice or injustice currently exists. This is problematic, because without an analysis of the spatial and social justice issues within a given community, one cannot hope to provide fair, equitable strategies to protect their population from climate change. Some plans do provide stronger discussions of the term, however, including:

- *Grand Rapids Climate Resiliency Report* (2013) discusses social justice in relation to issues of crime.

- Homer AK's *Climate Action Plan* (2007) highlights distributive justice at a global-level, noting that:

  In obtaining their current standards of living, people from the United States and other developed countries have benefited from their disproportionate consumption of fossil fuels but in so doing have imposed the burdens and costs of adverse impacts on people in poorer developing nations. (*Homer's Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts*, 2007, 21)

- *Sustainable DC* notes the historic social injustices in neighborhood planning: "historically, neighborhood amenities and environmental and health benefits have favored affluent rather than impoverished communities" (*Sustainable DC*, 2013, 34).

- *City of San Carlos Climate Action Plan* (2009) frames social justice in the context of health risks and cost efficiency, arguing 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" (*City of San Carlos Climate Action Plan,* 2009, 24)

These examples demonstrate some of the ways that social justice is used both to maintain the status quo through lackluster lip service, and as a framework for actionable change through an acknowledgement of the history and prevalence of social inequities within our day-to-day. And as we see with *San Carlo's Climate Action Plan* some climate plans are actually considering the economic benefit of serving the least advantaged before climate change impacts occur.

4.2.5 Equity Conclusion

Overall, this analysis suggests that, while equity is often given little more than lip service in municipal climate planning. On one hand, this is unsurprising—these plans are not written by equity planners, but instead mostly by government workers from public works, environmental agencies, representatives of city commissions, or members of the community like business associations or environmental nonprofits (for a full list, see appendix). Furthermore, the framework passed down from higher institutions and advisory agencies, like the IPCC, promote understandings of climate change that are scientifically rigorous, and less interested in the social implications of the science. For the authors of these plans, it can be challenging to integrate social justice into each strategy, when international policymakers are stressing science, and the

most frequent narrative regarding equity starts and ends with the triple-bottom line. And yet these plans are intended to represent and protect their community from the impacts of climate change. Despite a public participation process, and despite saying the words equity or social justice in an appendix, or throwing the term into a Mayoral Message or introduction, equity and justice considerations are given very little opportunity to impact existing social inequities. Furthermore, such a small proportion of plans that discuss procedural justice indicates that many of these plans do not consider the ways in which an inequitable or inaccessible decision-making process may be leaving out individuals or groups in local climate change discussions.

For future planners interested in how to integrate equity and justice into the planning process, *Sustainable DC* is a great starting point—it not only addresses all of Bullard's types of justice once, indicating a more comprehensive understanding the types of equity issues that a community can face, but also integrates equity and diversity considerations into each chapter, connecting equity and justice to the impacts of climate change like rising sea levels, and demonstrating how certain populations may be more capable of achieving greenhouse gas reductions. This lack of strong discussion and integration of equity and justice in the dataset does not mean that disproportionate impacts of climate change are not discussed within my sample of plans. In the following sections on environmental justice and vulnerable populations, we will explore both how these plans engage members of environmental justice movements, and who the authors identify as particularly vulnerable to climate change.

4.3 Environmental Justice

This chapter begins with a basic overview of the nine plans that reference environmental justice. From there, I introduce the results of my qualitative content analysis, identifying the

main categories and subcategories within which environmental justice references fell. Categories include:

- Place within the plan: Fact Base, Strategies, Implementation, Authors, Appendix

- Topic: Public health, Partnerships, and Adaptation

- Type (if any) of Bullard's three forms of equity: Social, Procedural, Geographic

This section reveals that environmental justice is often connected to a discussion of partnerships and groups, and programs, supporting the existing literature on environmental justice as a movement with a grassroots background in the civil rights movement. This could also mean that while environmental justice was a less-frequently used term, it may be a good point of entry for fostering partnerships and relationships between city agencies and environmental justice groups, which could help broaden understandings of social justice and vulnerable populations through an established network of players.

4.3.1 Basics: Type of Plan and Frequency

The table below lists the nine plans that discuss environmental justice, the type of plan according to the broad or narrow-focus discussed in the literature review, and the frequency that EJ was mentioned in each of these plans. Frequency can be a good indicator of how often, or how much the coded term is being discussed. A high frequency of references to environmental justice does not necessarily imply that a plan has a strong understanding of environmental justice issues, however, increased frequency does provide more opportunities for critical analysis of the content, and, as the qualitative analysis below demonstrates, the plans within my sample that discuss environmental justice more times generally demonstrate a stronger understanding of the movement, and of the existing stakeholders and practices.

Table 4.5 Climate Plans that Reference Environmental Justice

Plan	Type of Plan	Frequency
Baltimore, MD *Disaster Preparedness and Planning Project*	Narrow—Hazard Mitigation/Adaptation	3
Grand Rapids, MI *Grand Rapids Climate Resiliency Report*	Narrow—Climate Adaptation	2
New York, NY *PlaNYC 2011 update*	Narrow—Climate Adaptation	1
Homer, AK *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts*	Broad—Climate Action	1
Kingston, NY *City of Kingston Climate Action Plan*	Broad—Climate Action	1
Los Angeles, CA *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*	Broad—Climate Action	6
District of Columbia *Sustainable DC*	Broad—Sustainability	2
Grand Rapids, MI *FY2011-FY2014 Sustainability Plan*	Broad—Sustainability	1
Somerville, MA *Sustainable Somerville: An Environmental Strategic Plan*	Broad—Sustainability	1

The type of plan matches the pattern of the overall dataset, with about a third narrowly focused plans, and two-thirds broad-focus. This suggests that unlike the codes for equity/justice and vulnerable populations, environmental justice does not necessarily have a relationship to a particular type of plan, broad or narrow-focused. Instead, perhaps because of environmental justice's connection to movements like the civil rights movement, it is used to reference a group of stakeholders and is less commonly used to inform understandings of resilience and adaptation, or to frame a philosophy like the triple bottom line, as we see so often in sustainability plans. Geographically, this table mimics the overall dataset as well, with the majority of the cities are located on either the east or west coast, and a few Midwestern communities. Environmental justice was never the sole equity code used by these plan's authors, and eight of the nine plans that discussed EJ also discussed both social justice/equity and vulnerable populations, as well.

4.3.2 Place in Plan: Fact Base, Strategies, and Appendices

Climate plans can take many different forms; some plans organize their content by topic, others by strategies and implementation processes. The majority of climate plans in this sample utilize a hybrid of topical chapters integrated with introductory, fact-based text that addresses the baseline issues of a given topic usually supported with scientific evidence, followed by a series of strategies associated with that specific topic, and a section on how to implement the listed strategies. Some plans go into great detail on implementation options as they outline their strategies, including funding options, development phases, and/or public input, indicating a strong sense of the benefits and limitations of actualizing their proposed actions. While the variety of plan formats is not the focus of this work, an understanding of the different roles an environmental justice reference in a fact-base section may play, as opposed one associated with a strategy that can be implemented. Table 6.2 identifies where environmental justice was referred to within each plan and the frequency within each section.

Table 4.6 Climate Plans and Place in Plan of Environmental Justice Reference

Plan	Place in Plan	Frequency
Baltimore, MD	Fact Base	2
Disaster Preparedness and Planning Project	Appendix: bibliography	1
Grand Rapids, MI	Author list	1
Grand Rapids Climate Resiliency Report	Appendix: bibliography	1
New York, NY *PlaNYC 2011 update*	Strategies	1
Homer, AK *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts*	Fact Base	1
Kingston, NY *City of Kingston Climate Action Plan*	Strategies	1
District of Columbia *Sustainable DC*	Fact Base	2
Grand Rapids, MI *FY2011-FY2014 Sustainability Plan*	Appendix: glossary	1
Los Angeles, CA	Fact Base	2
Green LA: An Action Plan to Lead the Nation in Fighting Global Warming	Implementation	4
Somerville, MA *Sustainable Somerville: An Environmental Strategic Plan*	Fact Base	1

Content analysis reveals that there are few patterns between the place in the plan where an environmental justice reference is made, and the "strength" or depth of an environmental justice consideration. Generally, those plans that included a reference to environmental justice only in an appendices did not do much more than provide a basic definition of the term; for example Grand Rapid, MI's *FY2011-FY2014 Sustainability Plan* (2011) includes environmental justice in its glossary, and other plans reference environmental justice in bibliographic entries. The *Grand Rapids Climate Resiliency Report* (2013) includes an interview with the Director of Climate Justice for the NAACP (who was also present on the author agency), however, the plan does not include references to environmental justice within the plan itself (although it does discuss both vulnerable populations and social equity, and there could be overlap between these terms). Baltimore, MD's *Disaster Preparedness and Planning Project* (2013) includes a bibliographic entry to the EPA's definition of environmental justice as "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (EPA, 2013). The use of the EPA's definition of environmental justice informs the authors' definition, which the authors connect to vulnerability assessments and vulnerable populations noting that "When vulnerability is greater for particular social groups or individuals, it becomes a matter of environmental justice" (*Disaster Preparedness and Planning Project*, 2013, 62). However, this definition of environmental justice does not inform the reader about how Baltimore intends to address vulnerability among particular groups to correct for issues of environmental justice. Here, again, we see an overlap in the different equity concepts, but without a strong indication of how the authors plan to solve issues of vulnerability or environmental justice in response to climate change impacts.

Analyzing these plans according to section alone provides little evidence of patterns or relationships. Some plans provide strategies that are connected to important themes or indicate strong understandings of the threats and impacts of climate change on environmental justice issues, while other strategies do little more than lip service to the term. For example, Los Angeles and New York both offer environmental justice strategies that target specific populations and issues, while Kingston, NY's environmental justice strategy simply recommends to "Identify and address climate/environmental justice areas in the City" (14). Alternatively, some plans, like Baltimore's *Disaster Preparedness and Planning Project* (2013) plan does not offer specific environmental justice strategies, and yet it provides a definition of environmental justice according to the EPA, and connects it to vulnerability assessments, indicating a strong interest in the ways in which environmental justice issues will be exacerbated by climate change. While there are no strong patterns in this dataset, understanding where equity considerations fall within a plan's structure could be valuable, perhaps with a larger sample size. As I discuss in the next section, one of the best options for integrating environmental justice into future climate plans could be through author agencies and participation and outreach strategies.

4.3.4 Topics: Adaptation, Public Health, and Outreach

When organizing environmental justice references in these plans by topic, three main themes became clear: adaptation, public health, and outreach were the main contexts for references to environmental justice. Table 6.3 outlines the different topics (and subtopics) within which environmental justice was discussed. Again, with such a small sample size, we cannot extrapolate these results to all climate plans, however, we can glean some insights about how the plan authors contextualize environmental justice.

Table 4.7 Climate Plans and Categories of Environmental Justice References

Plan	Categories
Baltimore, MD *Disaster Preparedness and Planning Project*	Adaptation→vulnerability and risk assessment
Grand Rapids, MI *Grand Rapids Climate Resiliency Report*	Adaptation→Resiliency
New York, NY *PlaNYC 2011 update*	Public health→solid waste→landfills, Partnerships
Homer, AK *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts*	Partnerships, Ethics
Kingston, NY *City of Kingston Climate Action Plan*	Adaptation
Grand Rapids, MI *FY2011-FY2014 Sustainability Plan*	Adaptation
District of Columbia *Sustainable DC*	Public health→solid waste→landfills
Los Angeles, CA *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*	Partnerships, Public health→industrial toxins, Outreach, Watershed management, "Green Economy"
Somerville, MA *Sustainable Somerville: An Environmental Strategic Plan*	Triple-bottom line, Adaptation

Given environmental justice's history as associated with public health and the siting of

noxious facilities in non-white areas is unsurprising that environmental justice is discussed in the

context of landfills, solid waste, and exposure to industrial toxins. *Sustainable DC* notes that

"Exporting waste from one community to another raises serious questions of environmental

justice," indicating a definition of geographic equity (which will be discussed later in this

chapter) (*Sustainable DC*, 2013, 89). *Green LA* (2007) discusses exposure to industrial toxins

through stormwater flooding in Sun Valley, noting "high incidence of cancer, respiratory

illnesses and asthma, and exposure to toxics-emitting facilities" in and around Sun Valley, CA.

Additionally, New York, NY addresses its history of environmental injustices placed on minority

communities through the existing waste steam, noting that

> Over the past 30 years, a small number of communities in the city have borne the brunt
> of impacts from our waste management system. Those most affected live in
> neighborhoods in close proximity to high concentrations of transfer stations where

thousands of tons of waste are transferred from collection trucks to long-haul trucks or railcars. (*PlaNYC 2011 update*, 2011, 142)

Additionally, both *Green LA* and *PlaNYC 2011 update* highlight the role that public outreach and collaboration with local environmental justice stakeholders has played in previous planning efforts. *Green LA* (2007) points out that after collaborating with stakeholders, policymakers altered their original plan: "To address the chronic flooding, Los Angeles County and City of Los Angeles flood control officials planned to install a nine-mile-long storm drain to transport stormwater. However, through collaboration with the public and other stakeholders, management of the area as an urban forest watershed became the preferred solution" (*Green LA*, 2007, 26). Likewise, *PlaNYC 2011 update* (2011) outlines their public participation efforts to construct the Storm Water Management Plan (SWMP) including "City Council, environmental advocates, environmental justice organizations, and affected communities" (p. 142). These case studies demonstrate how environmental justice issues are framed within issues of toxic and solid waste issues, and how cities engage impacted communities through the planning process.

Los Angeles and New York are not the only plans within this dataset that connect environmental justice with partnerships and outreach. Four of the nine plans that discuss environmental justice refer to either specific environmental justice groups, representatives of the environmental justice movement, or to members of the environmental justice movement broadly. Homer, AK's *Climate Action Plan* (2007) references the National Council of Churches, The National Religious Partnership for the Environment, and the Evangelical Climate Initiative's "Eco-Justice Program," as a means of educating the public on climate change. *Grand Rapids Climate Resiliency Report* (2013) includes the Director of Climate Justice for the NAACP on its author list, suggesting an integration of environmental justice issues throughout the plan (although, there is no discussion of environmental justice specifically within the plan itself). Los

Angeles, CA discusses environmental justice advocates as one of several important partners interested in responding to climate change several times throughout the plan, arguing that "Never before have so many major environmental organizations, community groups, environmental justice organizations, academics, and private businesses worked together to advance a progressive green agenda for Los Angeles" (*Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*, 2007, 11). This acknowledgment of important partnerships with environmental justice organizations occurs several times throughout the plan, and is repeated in the fact base, enforced through a strategy to conduct public outreach on emissions reductions education through these different organizations, and repeated again in the implementation section.

The final topic connected to environmental justice references in these nine plans is adaptation. With the broader category of adaptation, plans discuss environmental justice as an important consideration in framing understandings and definitions of vulnerability, and distribution of environmental harms in the face of climate change. Baltimore's *Disaster Preparedness and Planning Project* (2013) discusses environmental justice in relationship to vulnerability assessments, noting that "geographic areas or social dynamics may contribute to the circumstances that can make one population more sensitive to hazards than others. When vulnerability is greater for particular social groups or individuals, it becomes a matter of environmental justice" (*Disaster Preparedness and Planning* Project, 2013, 62). As we will see in the next chapter on vulnerable populations, this plan conducts vulnerability and risk assessments with special attention to how impacts will disproportionately impact certain groups, suggesting a connection between vulnerability assessments of specific populations and the distribution of environmental injustices that is not found in many other plans. Baltimore's plan is

in contrast to the other plans that frame environmental justice as part of adaptation; Kingston's *City of Kingston Climate Action Plan* (2012), and Grand Rapids' *FY2011-FY2014 Sustainability Plan* (2011) reference environmental justice within a section header focused on "Adaptation," however, in both cases, their definitions do not explain the connection between environmental justice and adaptation measures. Kingston's discussion of environmental justice provides especially little context for environmental justice, merely stating a strategy to "Identify and address climate/environmental justice areas in the City" (*City of Kingston Climate Action Plan*, 2012, 14). This strategy leads to more questions than answers—how do the authors define environmental justice? Who are environmental justice communities? How will they determine who to identify and which issues to address? The lack of definition or understanding of the scope of environmental justice issues in this strategy demonstrates one of the major issues with the ways that environmental justice is discussed; even those plans that attempt to connect environmental justice to adaptation measures do not always demonstrate a strong understanding of history and implications of the movement, and even fewer actually strategize to correct the issues the environmental justice movement was intended to highlight.

4.3.5 Type of Justice: Geographic, Procedural, and Social

An analysis of the types of justice used and discussed in the sample of climate plans can shed light on the current state of justice considerations within climate planning. In the previous section, I found that many of the definitions of justice and equity related to "social justice" but did not necessarily provide a strong understanding of what social equity or social justice means, and how to construct strategies to correct for it. With environmental justice considerations, we see a scant, but nonetheless interesting connection between geographic justice and environmental

justice, and some understanding of procedural justice, i.e., the ways in which the existing

policymaking processes disenfranchise some populations.

Table 4.8 Climate Plans and Environmental Justice according to Bullard's Types of Equity

Plan	Type of Equity
Baltimore, MD *Disaster Preparedness and Planning Project*	Procedural Geographic Social
Grand Rapids, MI *Grand Rapids Climate Resiliency Report*	n/a
New York, NY *PlaNYC 2011 update*	Geographic
Homer, AK *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts*	n/a
Kingston, NY *City of Kingston Climate Action Plan*	n/a
Grand Rapids, MI *FY2011-FY2014 Sustainability Plan*	Social
District of Columbia *Sustainable DC*	Geographic Social
Los Angeles, CA *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*	Procedural Geographic
Somerville, MA *Sustainable Somerville: An Environmental Strategic Plan*	n/a

Geographic Equity

Several plans frame their environmental justice issues around this notion of geographic

equity, using climate change as a catalyst for correcting existing geographic inequities, arguing

"Now is our chance to address these longstanding disparities" (*Sustainable DC*, 2013, 34).

Baltimore's *Disaster Preparedness and Planning Project* notes that "certain geographic areas or

social dynamics may contribute to the circumstances that can make one population more

sensitive to hazards than others" (*Disaster Preparedness and Planning Project*, 2013, 62). *Green

LA* points out the ways in which geographic inequity has caused significant health issues within

parts of their community: "The city has designated Sun Valley as an Environmental Justice

Improvement Zone because of the high incidence of cancer, respiratory illnesses and asthma, and

exposure to toxics-emitting facilities" (*Green LA*, 2007, 26). *Sustainable DC* expands geographic

equity to note how other individuals or communities are benefitting in some way from the

another community's less-than-ideal geographic location, noting the location of public parks,

schools, and playgrounds being located near wealthy neighborhoods, while low-income

populations were generally located near industrial sites and highways, and landfills. The plan

authors argue that "Exporting waste from one community to another raises serious questions of

environmental justice. A sustainable society manages its own waste stream without negatively

affecting the quality of life for others" (*Sustainable DC*, 2013, 89).

Procedural Equity

Bullard's definition of procedural equity implies that all groups and individuals have fair

access to government and policymaking processes, including access to public meetings and

access to publications, plans, and events both through the use of translations and through public

notice and easy availability. The two plans that address procedural equity focus primarily on

"access" and "decision-making processes" within their definition of environmental justice.

Baltimore's *Disaster Preparedness and Planning Project* (2013) defines environmental justice as

"the fair treatment and the equal protection of an individual — regardless of race, ethnicity, or

income — from environmental and health hazards, as well as uniform access to planning and

decision-making processes…" (*Disaster Preparedness and Planning Project*, 2013, 16).

Similarly, *Green LA* (2007) states, "The decision-making process must focus on community

needs and global interconnectedness while remaining transparent, democratic, and accountable"

(*Green LA*, 2007, 11). Green LA goes on to explain how the decision-making process will reflect

transparency, democracy, and accountability through engaging with "residents, businesses,

environmental and environmental justice leadership, labor, and academic institutions," and

"[conducting] multi-lingual, community-based outreach to all neighborhoods, specifically

communities with environmental justice challenges, to inform them of the development of the actions" (*Green LA*, 2007, 27-28). This quote demonstrates a strong understanding of how the process can be altered to be more inclusive and accessible to more populations through active outreach and translations.

Social Equity

Several plans address social equity, mainly through an acknowledgement of the history of social injustices, and how they are manifested within the political process and on the urban landscape. Baltimore's plan notes that "certain … social dynamics may contribute to the circumstances that can make one population more sensitive to hazards than others" (*Disaster Preparedness and Planning Project*, 2013, 16). The plan goes on to discuss how vulnerability assessments can address existing social and geographic inequities, however, it does not specify which social dynamics may make one community more vulnerable to climate change than another. Additionally, acknowledging a history of social injustice is not the same as providing strategies to correct injustices, which remains the main issue with even those plans that do attempt to discuss environmental justice. Grand Rapids' *FY2011-FY2014 Sustainability Plan* does identify certain social conditions that may cause one community to be at higher risk to environmental factors than others, stressing an effort to address how "people of color, low-income, and indigenous communities are not disproportionately adversely affected by environmental problems, such as climate change, or approaches to address them" (*FY2011-FY2014 Sustainability Plan,* 2011, 36). *Sustainable DC* notes "In the past, playgrounds, parks, and schools were better maintained in wealthier neighborhoods while neighborhoods with industrial sites, highways, and other heavy infrastructure were places that became home to low income residents or where those activities otherwise became concentrated" (*Sustainable DC*,

72

2013, 34). This attention to the history of decision-making processes that favored wealthier neighborhoods over low-income populations implies an understanding of how past planning processes have been unjust, giving environmental justice issues in DC a specific historical and social context.

4.3.6 Environmental Justice Conclusion

While environmental justice is the smallest sample from my dataset, the data still indicates connections to existing literature on the types of issues most often associated with environmental justice movements, especially public health related to toxic land uses. Additionally, contrary to equity and vulnerable populations, references to environmental justice often identify specific stakeholders and public participation strategies. Finally, those plans that demonstrated a stronger interest and understanding in environmental justice issues provided examples of ways in which the community has in the past, or will in the future, engage with environmental justice communities, and provided not only a definition of environmental justice, but supported with strategies or implementation measures, as in the case of Los Angeles's *Green LA* (2007). Most of the plans fell short of Green LA's stronger understanding and interest in environmental justice issue and groups, instead providing a definition in a fact base section with no follow-up strategies, or providing a strategy to identify environmental justice issues without providing a definition of the movement or its challenges. In all of these cases, environmental justice is not the only coded term identified in the plan; this means there could be overlap in definitions and understandings of environmental justice, social justice/equity, and vulnerable populations. Indeed, as several of the plans demonstrate—particularly Baltimore's *Disaster Preparedness and Planning Project* (2013), environmental justice can be connected to the other

coded terms, like vulnerable populations, thus demonstrating a stronger understanding of how environmental issues will impact certain communities differently than others.

Further analysis into the environmental justice communities within these cities, as well as a larger sample size could provide more information about the ways in which environmental justice movements could be further integrated into the planning process, however, environmental justice's role as a movement instead of a theory (as with justice) is an important item for future study. As Iris Marion Young laments in her book *Justice and the Politics of Difference* (1990), considerations of social justice too often reside in the theoretical world, and making it challenging for planners to identify representative groups with whom to collaborate on justice issues. However, given environmental justice's role as a movement, with a specific history and generally common set of issues, planners could more easily identify and foster relationships with members of environmental justice groups than perhaps others that have similar equity and justice concerns.

4.4 Vulnerable Populations

By far the most oft-cited of the coded equity terms, the code "vulnerable populations" provides many opportunities to explore further the ways in which these plans consider justice issues. As O'Lear (2015) points out, policymakers' discussions of vulnerability tend to focus on the scientific model presented by the IPCC, with little nuance or understanding of the ways in which the social world shapes and will be shaped by climate change impacts (O'Lear, 2015, 2). While O'Lear's work assesses vulnerability policymaking at a different scale and with a different set of stakeholders than those discussed here, the policy guidance provided by a climate science giant like IPCC has huge implications on local climate policymakers and planners, and the narratives promoted by the IPCC trickle down into local-scale policymaking. With this in mind,

a catalog and examination of the types of vulnerable populations identified in climate plans can enhance this project's analysis of equity and justice definitions with an exploration into who these plans identify as most vulnerable to climate impacts, and to what impacts they are most vulnerable. Additionally, an understanding of vulnerable populations can also highlight those groups that are missing from the discussion. Finally, this section's analysis can provide comparisons between those populations that are identified as vulnerable, and whether they were involved in the plan's construction via public participation, specific-input, or as an author. The 35 plans that discuss vulnerable populations do so to different extents, and with different priorities in mind. We must not forget that these plans do not simply "appear." Instead they are the product of (often) the collective work of multiple city and non-city agencies, with different objectives, goals, and ultimate interests in preparing their communities to be resilient. Certain populations are highlighted, others are not, and still less frequently the referenced population is present at the decision-making table when their vulnerability is discussed. The plans in this dataset are all the product of decisions made by these agencies and stakeholders, who have the power to make determinations about who is vulnerable and who is not. So, when we explore who is "vulnerable," and question who is not, we are really asking who, according to those in positions with decision-making power, view as such.

This chapter outlines how vulnerable populations are defined and identified and in what ways they are thought to be vulnerable. After providing basic information regarding the types of plans that discuss vulnerable populations and where in the plan vulnerable populations are most often discussed, I will provide a list of vulnerable populations as identified in my sample and the threats associated with their vulnerability. I conclude that even despite the acknowledgement of vulnerable populations and their potential threats, most plans still define these groups broadly

75

without identifying specific populations. Even those plans that do identify certain vulnerable

populations rarely provide actionable strategies to address the vulnerability head-on, thereby

limiting the usefulness of these plans to reduce vulnerability in any meaningful way..

4.4.1 Who is Vulnerable? "The elderly, the sick, and the poor…"

The code "vulnerable populations" allows for a more detailed analysis of who these plans

may consider as potentially vulnerable or impacted by the social justice or environmental justice

issues discussed above. Here, we can begin to understand who the authors consider most

vulnerable to the impacts of climate change and how they frame different impacts of climate

change to different populations. Figure 4.5 shows the populations most frequently cited as

vulnerable in my dataset, both in terms of the frequency that the population was discussed (in

blue), and the number of plans that discussed each population (in orange).

Figure 4.5 Vulnerable Populations by Frequency (in blue), and number of plans (in orange)
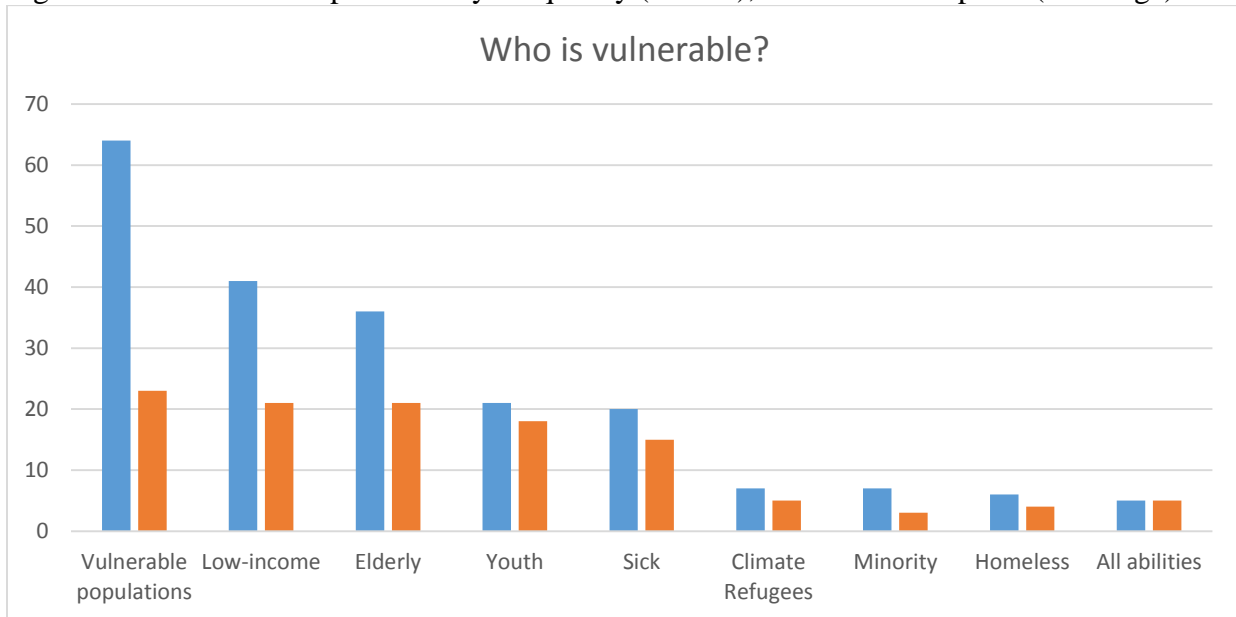
This information is telling—vulnerable populations as a broad concept, was discussed 64

times within 23 different plans. In many of these plans, there was overlap between vulnerable

populations broadly, and examples of specific communities. For example, I found many iterations of the phrase, "Those most likely to suffer include children, the elderly, and other vulnerable populations" (*Sacramento Climate Action Plan*, 2012, 67). Low income populations, the elderly, youth, and sick people are most frequently identified as vulnerable populations, with a smaller incidence of discussions of climate refugees, minority populations, homeless and transient populations, and people with disabilities. And yet, the frequency with which vulnerable populations were discussed broadly rather than specifically, and the variety of vulnerable population groups suggests there is no overarching consensus among climate planning agencies about who is vulnerable to the impacts of climate change.

In addition to the nine categories of vulnerable populations identified here, plans also identified: the immobile, non-English speaking, tourists, those without landlines, unemployed, and outdoor workers as vulnerable populations. References to these populations occurred twice, or less, and within two or fewer plans, making them very infrequent and uncommon populations discussed by policymakers. However, the less-often discussed items demonstrate an important point: there are many populations beyond the old, young, and poor, that will be disproportionately impacted by climate change, and to varying degrees of severity. If city plans do not identify the variety of different populations that will be most adversely impacted, they cannot begin to strategize to protect those populations from a hazard event. Naturally, we cannot plan for every possible situation and potential outcome, however the relatively narrow set of vulnerable populations demonstrates that these plans in their current state will not adequately prepare the most vulnerable for the impacts of a changing climate.

These plans can also be organized into categories depending on how many vulnerable populations they discuss. The assumption here is that a plan that identifies more vulnerable

populations has a more comprehensive sense of who is experiencing vulnerability within their community. It is important to keep in mind that frequency and distribution only reveal so much—the quality of discussion and the ways in which these groups are identified are just as important as their presence within the plan at all. With all of this in mind, the plans that identify five or more populations include:

Grand Rapids, MI *Grand Rapids Climate Resiliency Report* (2013)
New York, NY *PlaNYC 2011 update* (2011)
Baltimore, MD *Disaster Preparedness and Planning Project* (2013)
Santa Cruz, CA *City of Santa Cruz Climate Adaptation Plan* (2011)
Boston, MA *Climate Ready Boston: Municipal Vulnerability to Climate Change* (2015)
Flagstaff, AZ *Resiliency and Preparedness Study* (2012)
Sacramento *Climate Action Plan* (2012)
Eugene, OR *A Community Climate and Energy Action Plan for Eugene* (2010)
Santa Barbara, CA *Final Santa Barbara Climate Action Plan* (2012)

Plans that identify two-to-four specific vulnerable populations include:

Olympia, *Olympia's Response to the Challenge of Climate Change* (2007)
Santa Barbara, CA *Final Santa Barbara Climate Action Plan* (2012)
Hillsborough, CA *Climate Action Plan* (2010)
Alexandria, VA *Environmental Action Plan 2030* (2009)
Portland, OR *City of Portland and Multnomah County Climate Action Plan* (2009)
Cleveland, OH *Cleveland Climate Action Plan At a Glance* (2013)
Berkeley, CA *Climate Action Plan* (2009)
Santa Rosa, *Climate Action Plan* (2012)
San Carlos, CA *City of San Carlos Climate Action Plan* (2009)
Somerville, MA *Sustainable Somerville: An Environmental Strategic Plan* (2007)
Grand Rapids *FY2011-FY2014 Sustainability Plan* (2013)
Homer, AK *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts* (2007)
Lewes, DE *The City of Lewes Hazard Mitigation and Climate Adaptation Plan* (2011)
Chula Vista, CA *Climate Adaptation Strategies* (2011)
Keene, NH *Adapting to Climate Change: Planning a Climate Resilient Future* (2007)
Punta Gorda, FL *City of Punta Gorda Adaptation Plan* (2009)

And plans that only discuss one vulnerable population include:

Key West, FL *Climate Action Plan* (2009)
Seattle, WA *A Climate of Change: Meeting the Kyoto Challenge* (2006)
Charleston, SC *Charleston Green Plan: A Local Roadmap to Sustainability* (2007)

Union City, CA *Union City Climate Action Plan* (2010)
Redwood City, CA *City of Redwood City Climate Action Plan* (2013)
Chicago, IL *Chicago Climate Action Plan: Our City Our Future* (2008)
Santa Fe, NM *Sustainable Santa Fe Plan* (2008)
Los Angeles, CA *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming* (2007)
District of Columbia, *Sustainable DC* (2013)
Portsmouth, NH *Climate Change Vulnerability Assessment and Adaptation Plan* (2013)

Despite the language or quality of discussion associated with each of these vulnerable

populations, the plans that identify five or more vulnerable populations at least demonstrate an

attempt to catalog and consider the disproportionate impacts of climate change on different

populations. Some of these plans have a stronger focus on a particular population—Grand

Rapids' *Grand Rapids Climate Resiliency Report* (2013) for example, is one of the few that

discusses minority populations, (and, interestingly enough, attempts to identify the intersection

between race and class, rather than considering them as separate phenomena). Others, including

Green LA (2007) and Santa Fe, NM *Sustainable Santa Fe Plan* (2008) focus specifically on low-

income populations. The number of vulnerable populations identified in a given plan appears to

be connected to the type of plan; hazard mitigation and adaptation plans generally identified

more vulnerable populations, perhaps as a product of their general focus on vulnerability

assessments (I will discuss this further in Chapter 5). It is also important to remember that these

plans represent different spatial, social, and cultural realities. The relationships among city-

specific conditions (including geographical or demographic characteristics) can be challenging to

prove; as Schrock and colleagues discuss, it is challenging to prove causation, or sometimes even

correlation between demographics and discussions of equity in climate plans (Shrock et al.,

2015, 287). And yet, as we break down the discussions of vulnerable populations identified in

this dataset, there are some potential relationships between city-characteristics and the

identification of certain vulnerable populations, including one between west-coast plans, and the consideration of "climate refugees."

A challenge with interpreting how these plans interact with issues of vulnerability and disproportionate risks to climate change impacts, is that even those plans that frequently discuss specific vulnerable populations still do not identify exactly who those people are. For example, some iteration of low income (including "poor," "working class," "economically disadvantaged") was discussed 41 times within 21 plans. And yet, the distinctions end there. No plan identifies what "low-income" means within their community, or who could represent this population in a decision-making process. Does low-income mean below the poverty line? Unemployed? Participating in the Supplemental Nutrition Assistance Program? Is there a spatial dimension to how these populations are identified—do they live in certain neighborhoods? Do they reside in certain types of structures or spaces? Do they have access to certain services like unemployment? We do see a small discussion of spatial vulnerability, in particular with discussions of flooding and communities that live in floodplains. Additionally, there is a stronger understanding of spatial conditions when we connect environmental justice with vulnerability; for example, *PlaNYC 2011 update*, the authors connect environmental justice with the spatial conditions of low-income populations near waste streams. We can ask similar questions about elderly or young populations: how old is old enough to be threatened? Is it more a product of health or age? If it is an issue of health, how do we identify those aged populations with health risk? Some of the plans do provide additional categories for youth populations, including "infants," and "elementary school" populations, however, again, how refined does a definition need to be to target those most vulnerable?

4.4.2 Vulnerable to What?

As Figure 4.6 indicates, the plans most often discuss threats to vulnerable populations broadly—either in general terms regarding climate change impacts overall, or to hazard events. Heat events are a close second. While threats associated with heat impacts are discussed less frequently than broad climate impacts, more plans identify heat exposure and health issues associated with heat exposure as a threat. Plans also identify economic conditions—primarily associated with affordability of energy costs for both housing and transportation, and threats to local economies and jobs—as a threat to vulnerable populations. Plans also identify air quality and air pollution and flooding as threats to vulnerable populations, and identify increased migration as a strain on city resources and a threat to vulnerable populations. This is interesting to note, as many plans identify climate refugees as both threatened and threatening to existing vulnerable populations. While not the focus of this paper, this dynamic between what is threatened and what is threatening could be explored further in other research. It begs the question: where is the line between threatened and not? Who is considered part of a community and who is outside?

Figure 4.6 Threats to vulnerable populations
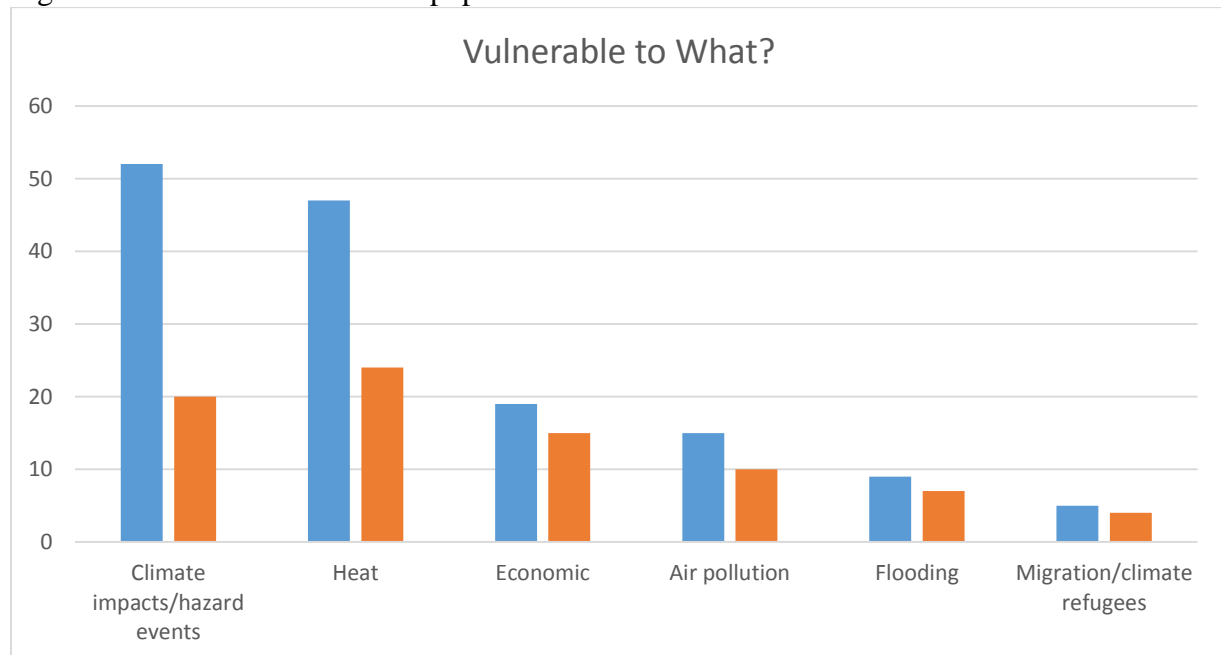
Additional threats not included on this list (mentioned by 3 or less plans) include: fire, sea-level rise, drought, vector-borne diseases, increased car accidents, domestic violence and crime. It is interesting that while sea-level rise, drought, and fires are all hot topics discussed in hazard mitigation and adaptation planning, they are less-often discussed in the context of vulnerable populations and the social world. Perhaps these are all implied in "climate impacts and hazard events," although I argue that such a broad inclusion of all climate impacts does not adequately address how different events will impact different populations, and does little to actually prepare for a threat.

What these tables do not capture are the relationships between how plan authors connect specific threats to specific populations. The following sections include text and examples from plans to demonstrate how authors frame threats to vulnerable populations, and the relationship between who is vulnerable, and the impacts to which they are vulnerable.

Table 4.6 indicates that aside from concerns with heat exposure, threats to vulnerable populations are most commonly discussed in broad terms rather than specifics. We saw a similar trend in the types of vulnerable populations identified, where vulnerable populations were discussed in general terms, perhaps in a fact-base section, or in a broad strategy like "Identify vulnerable populations" rather than discussed in finer detail (*City of Punta Gorda Adaptation Plan*, 2009, 354). When we analyze the ways that authors discuss vulnerability to the broad impacts of climate change, the authors maintain this kind of general language, most often focused on vulnerable populations' resiliency and adaptive capacity:

- "Underserved low-income and minority populations will be disproportionately impacted by climate change. Resiliency efforts in all aspects of community

82

planning should recognize this" (*Grand Rapids Climate Resiliency Report,* 2013, 104).

- "Our vulnerable populations, the economically disadvantaged, the non-English speaking, the elderly and the infirm may have less adaptive capacity to climate impacts" (*City of Santa Cruz Climate Adaptation Plan*, 14, 2011).

- "The various effects of climate change are expected to increase risks to the health and safety of residents. Those most likely to suffer include children, the elderly, and other vulnerable populations" (*Sacramento Climate Action Plan*, 2012, 67).

While these quotes all demonstrate some level of understanding in the ways that climate impacts will disproportionately impact the lives of some populations over others, the dialogue remains vague.

Heat exposure is discussed less frequently, but included in more plans than broader references to hazard events associated with the impacts of climate change. When we look at the most-often identified vulnerable populations, this trend is less surprising—low income populations, the elderly and youth are often identified as vulnerable to extreme heat events. Discussions regarding this threat include:

- "Anticipated impacts on public health include: More heat-related stress, particularly among the elderly, the poor, and other vulnerable" (*Cleveland Climate Action Plan at a Glance*, 2013, 10).

- "Extreme heat events increase the risk of dehydration, heat exhaustion, and respiratory distress, among other things. Children, the elderly, and people who are already ill are especially at risk" (*Berkeley Climate Action Plan*, 2009, 111).

- "Anticipated increases in the frequency, occurrence, and duration of heat waves will disproportionately affect the very young, the elderly, and those with certain chronic diseases such as diabetes" (*Grand Rapids Climate Resiliency Report,* 2013, 88)

The language across plans is very similar—"anticipated impacts" – "particularly the elderly, young, poor, and other vulnerable populations," "heat-exhaustion" — all of these phrases appear again and again within the plans. While most of the references to heat impacts are part of a fact-base section, rather than a strategy, some strategies to these threats include: encouraging citizens to develop their own disaster preparedness plans, expand local infrastructure, outreach and coordination with vulnerable population representatives, and constructing "cooling centers" and planting trees in neighborhoods with vulnerable populations. Many of these strategies focus on how to engage vulnerable populations, or encourage them to take an active role in reducing their vulnerability, however, these strategies are still ambiguous—for example, the plans do not identify which groups or agencies would be in charge of implementing these strategies, or engaging vulnerable stakeholders.

We see a similar trend with a concern with air pollution and threats to populations according to age and income. Air pollution concerns focus on increases in ground-level ozone and fine particulates, for example, Santa Rosa's *Climate Action Plan* (2012, 92) notes:

> According to a new report from the California Air Resources Board, the warming climate will increase ozone levels in California's major air basins, leading to upwards of 6 to 30 more days per year with ozone concentrations that exceed federal clean air standards. The elderly, young, and vulnerable populations most likely to be impacted by climate change are also those that often lack sufficient resources to adapt. Such vulnerable demographics are likely to need assistance to respond to climate change, which leads to social equity issues related to the unequal distribution of resources and increased costs to address community-wide health risks.

My analysis indicates that heath is by far the most commonly discussed threat to climate change—both through heat exposure and increased air pollution. This finding corresponds with

the frequency with which vulnerable populations are identified via age, income, and preexisting health conditions.

Table 4.6 also includes a category for "economic" concerns. Most plans that discuss an economic threat to vulnerable populations focus on access to affordable energy, goods, and emergency services, and threats to employment. Some plans, like *Climate Ready Boston: Municipal Vulnerability to Climate Change* (2015), maintain a rather vague discussion of the "long-term economic impacts of climate change," while other plans get quite detailed in their discussion, connecting multiple threats to the ultimate impacts to the economy. For example, *A Community Climate and Energy Action Plan for Eugene* (2010) considers the ways in which extreme heat events and storms may increase energy uses and costs, noting "As is the case with the effects of climate change, the impacts of rising costs and a weakening economy will be felt broadly across the region and those hardest hit by the changes will be the most vulnerable—children, the elderly, and those with lower or fixed incomes" (13). The *City of Portland and Multnomah County Climate Action Plan* (2009), *Chicago Climate Action Plan: Our City, Our Future* (2008) and Key West's *Climate Action Plan* (2009) all frame threats to vulnerable populations around the disproportionate impacts of energy costs on low-income and vulnerable populations. While most of the discussion of economic threats remains within the fact-base sections of these plans, those that do provide strategies focus on establishing tiered rates for electricity (Key West's C*limate Action Plan*, 2009), implementing and improving affordable transportation options like public transportation (*City of San Carlos Climate Action Plan,* 2009), and considering low-income populations in land-use and planning decisions (Alexandria, VA's *Environmental Action Plan 2030*, 2009). New York also considers the ways in which climate

change could be utilized as an opportunity to train low-income populations in green jobs and the "green economy."

4.4.3 Scales of Vulnerability

Perhaps most concerning about the ways in which the authors of these climate plans identify and discuss vulnerable populations is the lack of interconnection between vulnerability factors. Many of these plans discuss multiple populations according to risk—for example, the elderly and youth populations are most often discussed in relation to air quality issues and health issues associated with extreme heat events. However, my dataset does not indicate an understanding of how vulnerabilities may be connected, exacerbating the risk to one's health and environment. Populations are frequently identified as "most vulnerable," without a discussion of potential cumulative effects that may occur when age, income, and race interact. How can we protect low-income populations from increased costs of electricity or hikes in the price of fruits and vegetables, if we have not identified what low-income means? Or, if we do not acknowledge a historical system of inequitable development patterns that have dislocated minority groups or are pricing minorities out of their neighborhoods? Again, without an understanding of the overlapping and cumulative impacts of vulnerability, these plans offer little more than lip service to the concept of justice, and do little to promote actual strategies that target vulnerable populations before an impact of climate change occurs. The plans in this dataset, do not provide scales of vulnerability according to the relationship between different types of vulnerability and their associated threats. Vulnerability can take many forms, and these forms can interact to render an individual or group even more at risk than others, and since these plans do not address this issue, their approach to vulnerable populations is one-note.

To address this inadequacy, policymakers could use a scaled understanding of vulnerability as a framework for risk and vulnerability assessments. I envision the scales of vulnerability as a metric that identifies vulnerable populations according to the specific types of inequities they face—from the historical, geographical and social conditions that render them vulnerable. This would require planners to identify vulnerability as the product of the cumulative impacts of race, class, income, ability, gender, and more.

4.4.4 Vulnerable Populations Conclusion

This section of the chapter has highlighted the ways in which US municipal plans identify vulnerable populations and the threats they face. While the higher frequency of vulnerable populations discussed in these plans appears strong (certainly much higher than the frequency of equity or environmental justice considerations), a deeper analysis into who is identified as vulnerable, and what they are most vulnerable to, supports my overall argument that these plans do not adequately serve the least advantaged in their communities, and in the face of disaster, will not sufficiently protect those most threatened. It is from these analyses that I derive my thesis title: changing climate, static society. Attention is growing toward the disproportionate impacts of climate change on certain populations, but not fast enough, and the knowledge is not nuanced enough to make dramatic impacts.

Conclusion

This section has covered the ways in which authors of US municipal climate plans address equity, justice, environmental justice, and vulnerable populations. The combined results of this finding suggest to me that the principles of equity and justice are not well-defined in current US municipal climate plans, nor are vulnerable populations adequately identified or protected according to the content of these plans. How can we plan for a resilient future if those

that are the least-advantaged in society are not explicitly defined, defined, and understood in our climate planning process? The following chapter will discuss this dataset in more detail, highlighting additional traits and relationships of these plans to provide some thoughts for future climate policymakers. At the end of the day, climate change policymakers must understand their role within a hierarchical decision-making process, which allows some points of view to be highlighted, and others to be hidden. Inequity will only continue to grow if policymakers do not use their power to make decisions that acknowledge the existing inequities within our social world, and engage with those populations that suffer from it.

Chapter 5. Discussion

The previous chapter outlined the findings on equity/justice, environmental justice, and vulnerable population codes. Through the quantitative content analysis, I found that while a significant portion of the plans discuss vulnerable populations, few consider equity or justice, and still fewer include a discussion of environmental justice. My qualitative content analysis found that when we dig into the content more deeply, most of the plans do little more than lip service to the concepts of justice and vulnerability, and could expand their discussions to be more equitably-minded to the different ways that climate change will impact different populations. To expand on these findings, this chapter will highlight a few relationships and traits that shed light on the role of equity, justice, and vulnerability in the broader context of climate change planning:

1) The relationship between the type of plan and the type of coded equity terms suggests that the type of plan shapes some of the ways that equity is framed and considered;

2) The lack of relationship between city characteristics, namely demographics, and justice or equity concerns suggests that planning for climate change is more a function of who is at the decision-making table than city-characteristics; and

3. If equity considerations are a function of those at the decision-making table, vulnerable populations and their representatives must be more strongly integrated into the planning process.

Together, these points demonstrate the current trends in planning for a more equitable future in the face of climate change as products of adaptation planning and citizen engagement.

5.1 Broad vs. Narrow Focus: Equity, Environmental Justice, and Vulnerable Populations

As discussed, climate adaptation planning resembles hazard mitigation planning in many ways, especially in their shared focus on identifying vulnerabilities and responding to risk.

Climate action and sustainability plans, on the other hand, do not share the same narrow focus on vulnerability, and risk, and generally focus on the broader impacts of climate change including sustainability and greenhouse gas mitigation strategies. A chi-square test comparing the independent variables narrow-focus to the code vulnerable populations indicates that the distinction between broad and narrow-focus plans in relation to vulnerability and risk is maintained in the context of equity, justice, and disproportionate forms of vulnerability. While the results did not find a strong relationship between the independent variable broad-focus plans and the equity terms, a chi square test did reveal that narrow-focus plans are more highly correlated with "vulnerable populations" (p=.01). This means that for planners and policymakers interested in integrating equity and stronger identifications of vulnerable populations into their plans, they should first consider what type of plan their legislative and executive branches are asking for (Sustainability? Climate action? Adaptation?), and then consider how they can expand the existing dialogue to address their interests.

The figures below show the breakdown of equity terms between broad-focus and narrow-focus plans. Generally, the proportions between the two types of plans seems similar, with one exception in the "social equity/justice" category. Broad-focus plans, including climate action and sustainability plans, discuss social equity at a much higher rate than narrow-focus plans. Narrow-focused plans, on the other hand, have a relatively low rate of both "social equity/justice" and "environmental justice" considerations, while 85% of narrowly focused plans include a discussion of vulnerable populations.

Figure 5.1 Breakdown of Coded Equity Terms in Broad- Focus Plans
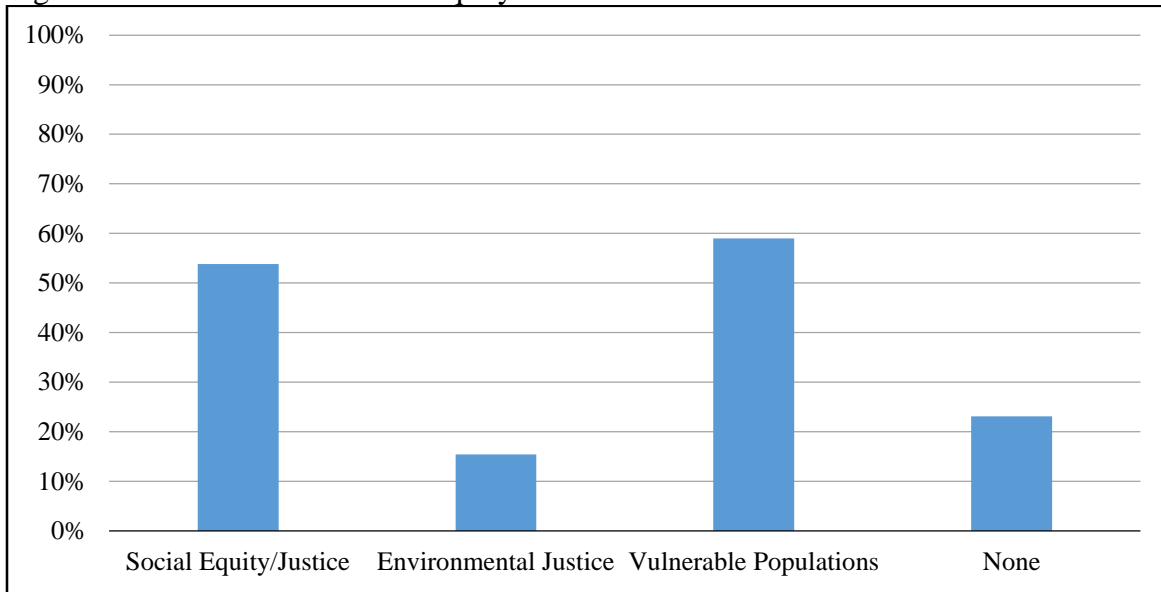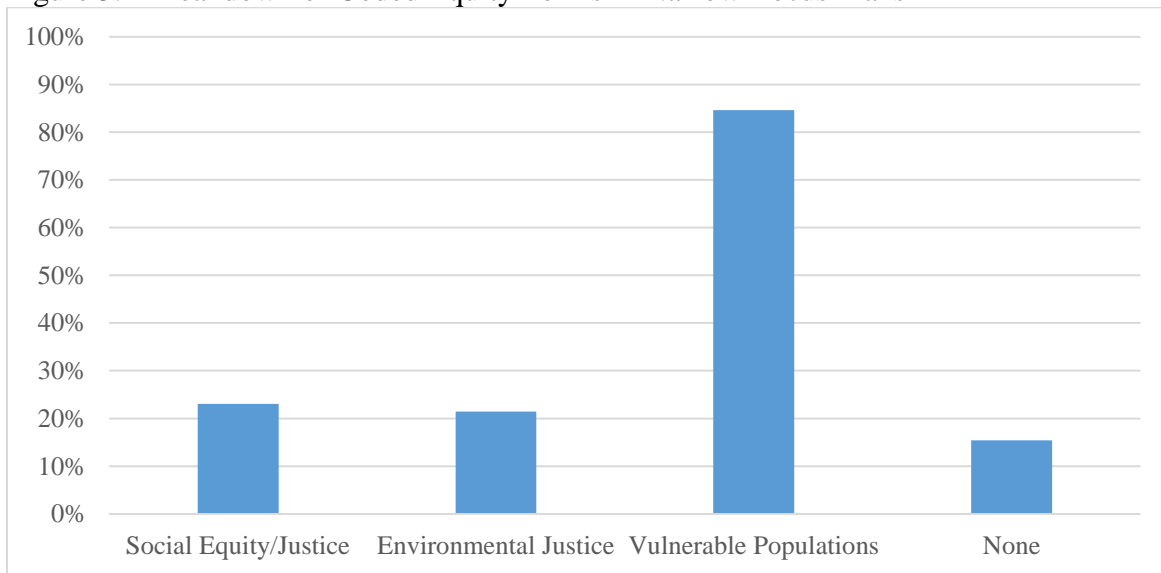

Figure 5.2 Breakdown of Coded Equity Terms in Narrow-Focus Plans

Chi-square tests support this finding, revealing a relationship between narrow-focus plans and the identification of "vulnerable populations" (p value .01), and less strong, but still present relationship between broad-focus plans and the presence of the term "social equity/justice" (p=.1)

These findings support the distinctions between broad and narrow based plans focused on climate impacts. However, they also suggest that when coding for specific items, like equity

considerations, there are deeper distinctions at play beyond the focus on risk and vulnerability. On the one hand, the relationship between plans narrowly-focused on the impacts of climate change and a discussion of vulnerable populations supports the existing literature on climate adaptation planning and its relationship to hazard mitigation planning, which share a concern for vulnerability assessments (Blanco and Alberti, 2009, 163). It is unsurprising, then, that both the climate adaptation and hazard mitigation with adaptation strategies both display a strong focus on identifying vulnerable populations within their larger conceptualization of risk, over climate action and sustainability plans which focus on other aspects of climate change. On the other hand, Blanco and Alberti note that the field of study for climate adaptation is relatively untapped, and so the distinctions between the focus and goals of hazard mitigation and climate adaptation have not yet been established. However, the authors do make a significant point that weaves throughout this analysis of the scope and scale of planning documents and environmental policymaking in general. The authors note that "Climate change impacts are systemic," and may significantly alter environmental conditions for decades or centuries, while hazard mitigation planning generally focuses on responses to episodic catastrophic events where the environment will eventually return to a more stable state (Blanco and Alberti, 2009, 162). This dynamic between hazard mitigation and climate adaptation planning could become a significant point of difference within the climate planning field, and relates to a key point discussed in the STS literature regarding how policymakers frame risk and vulnerability. If climate adaptation plans follow a rigid hazard mitigation framework, there may be a lack of understanding as to the long-term impacts of climate change through long-range planning measures, perhaps perpetuating the same systems of distributive and procedural injustice that exist today, resulting in "latent, gradual, and invisible negative externalities relate to mis- or abuse of environmental resources

92

and ecosystems" (O'Lear, 2015, 2). As the findings indicate, the plans in this dataset address vulnerable populations in a variety of different ways. It is important to note, that the history of climate adaptation planning and hazard mitigation planning clearly impact the nature of equity and vulnerability discussed in these documents.

Additionally, the chi-square test indicates a relationship between sustainability plans and the term "social equity/justice." Sustainability discourses are imbued with the "three e's" of sustainability: environment, economy, and equity, and therefore equity tends to make its way into most discussions of suitability. Furthermore, between climate action sustainability plans, there is a nearly statistically significant relationship between sustainability plans and the presence of social equity (p=.06), suggesting that the nature of the plan can have an impact on the way equity is discussed. As noted in the findings section, most often, equity is vaguely defined and rarely associated with an actual strategy, rending equity discussions as little more than a nod to the concept.

These findings have implications for future climate planners. On the one hand, a quantitative analysis indicates a strong relationship between the type of equity consideration discussed and a plan's focus on risk and vulnerability or broader concepts like sustainability and greenhouse gas mitigation. On the other hand, a qualitative analysis of the plan content as identified in the findings section indicates that even though some plans discuss certain types of equity more, these discussions are rarely more than a reference in the fact-base section rather than connected to a more actionable strategy, or understood as the product of broader social, procedural, and geographic conditions.

5.2 Demographics and Equity Terms

Another relationship worth exploring in this dataset is between city-characteristics and discussion of justice. My statistical analysis indicated very few relationships between demographics and the presence of equity and justice considerations, save small statistical relationships (p=.05) between percent under 5 years old, and a higher percent white population with equity/justice terms. Other than these two relationships, I found no statistically significant relationships between demographics and the three coded equity terms (see appendix for a full list of the demographic conditions included in the analysis). This result corresponds with the findings from Shrock and colleagues (2015) work, which found no relationship between city-characteristics and equity considerations noting, "Even weaker statistical relationships existed between equity and a city's share of populations of color and median household income level" (Schrock et al., 2015, 287). Schrock et al. argue that "the relationship between local conditions is complex in nature, and does not automatically correspond to city characteristics" (Schrock et al., 2015, 287). With Shrock and colleague's findings and my own, I argue that the relationship between demographics and equity and justice discussions in climate planning is certainly complex, and perhaps is less of a function of city characteristics and more a function of who is present during the planning process.

Interestingly, as I began to break down further the different equity definitions and groups identified as vulnerable populations through the qualitative content analysis, one geographical relationship became clear. Climate refugees were discussed in southwest, and west coast plans almost exclusively, including:

- *City of Santa Cruz Climate Adaptation Plan* (2011)

- *Flagstaff Resiliency and Preparedness Study* (2012)

- *A Community Climate and Energy Action Plan for Eugene* (2010)

- Portland *City of Portland and Multnomah County Climate Action Plan* (2009).

Climate refugees were also identified as vulnerable populations in Keene, NH's *Adapting to Climate Change: Planning a Climate Resilient Future* (2007), and Homer, AK's *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts* (2007). A geographic pattern can be seen here: communities in the southwest and west-coast perhaps have a larger concern with populations migrating from impacts associated with sea level rise, drought and water shortages, or perhaps changing economic conditions associated with climate change impacts. Even the seemingly obvious outlier, Keene, NH, frames climate refuges as a response to sea-level rise (*Adapting to Climate Change: Planning a Climate Resilient Future*, 2007, 39). This is one place where the numbers do not tell the deeper story, where a deeper analysis identifies climate refugees mostly as a response to sea-level rise over other potential climate change impacts.

5.3 Plans versus Reality: Who "should" be at the table, and who is at the table

Returning to my discussion of the role, or rather lack of role, of demographics in relation to equity and vulnerability discussions, I propose that the presence of the coded equity terms is more function of which members of the community are involved in the plan's construction than a reflection of the community it represents. This issue becomes increasingly problematic when we look at the different groups and agencies that were included in the "planning committee," and were active in the construction of the plan. Plans were coded with an eye for author agencies, and groups and individuals present on the planning committee (Here, "planning committee" refers not necessarily to an urban planner or Planning Office, but instead the group of individuals, groups, and government offices that came together to construct these plans). A

complete list of the agencies and groups included in the coding process are included in the appendix.

An analysis of authors and author agencies from these plans can be beneficial in understanding who is representing the community within the planning process, but it is important to keep in mind that in most cases, we have no way of knowing who, or which agency wrote a specific sentence or section of a plan. I do not believe this renders an analysis of author agencies irrelevant. However, the limitations of such an analysis must be understood. Therefore, it is not my intent to say that the equity terms and their definitions included in these plans can represent the ethos of every planner, simply that a connection between the Planning Offices working on this project and equity considerations can help provide an understanding of the ways in which the field of urban planning treats and defines equity and vulnerable populations. A lack of a significant relationship here is as telling as a strong one, and the implications of no relationship between equity considerations or a discussion of vulnerable populations supports existing literature on the field's disagreement over what a planner "is," and who and what a planner should represent when constructing plans for the public.

5.3.1 Who is at the table…

Unsurprisingly, when exploring the agencies present on the planning committee, the Planning Office was most often present (56% of all plans in the dataset had a governmental Planning Office on the planning committee). Despite their strong presence on the planning committee, chi-square testing did not reveal a significant relationship between a Planning Office on the planning committee and the presence of any equity considerations. Essentially, as many plans had equity considerations both with and without a Planning Office contributing to the plan content. While this point requires more detailed analysis and a bigger dataset to make any

definitive statements, this observation could perhaps suggest that there are very few advocacy planners writing climate plans. Perhaps even more so, this trait is telling of the nature and history of planning itself, with its roots in the rational planning model that separates the planner from the communities they serve in order to solve problems without bias. I return again to O'Lear's (2015, 3) discussion of science-based vulnerability assessments in climate change policymaking, "data are not necessarily stable but instead are imbued with social meaning embedded in scientific practice." Planners and policymakers must acknowledge their decision-making power within a political system, and not hide behind a "value-free" narrative of unbiased science that does not exist.

In addition to Planning departments, Public Works departments (42%), and Executive Offices (50%) were most frequently on the planning committee, with Environmental departments (39%), Legislative (39%), Universities (35%), and Environmental nonprofits (32%) being the other most common groups and agencies to be present on the planning committee. Electric Utilities (25%), Business Organizations (17%), Individual Businesses (33%), and Realtors (25%) also were present on planning committees rather often, and these numbers are particularly compelling as we begin to consider the agencies and groups that were much less often present in the plan-writing process.

When we look at potential representatives of equity, environmental justice, or vulnerable populations, very few were included on the planning committee: Only three plans included some sort of Housing Authority (6%), four included a Social Services agency (8%), three included a neighborhood organization (8%), and six included a school district (12%). While these are certainly not the only groups that could potentially represent interests associated with equity,

justice and vulnerable populations, these are some of the more obvious options, and also, some of the groups identified within the plays as valuable representatives.

While in most cases, chi square tests also found no statistically significant relationships between the presence of these agencies on the planning committee and the presence of any of these three equity codes, there are a few relationships worth pointing out—at p=.08 (slightly more than the generally acceptable .05), chi square testing indicated a relationship between the presence of a vulnerable population reference and a public health agency's presence on the planning committee (eight of the nine plans that featured a public health agency on the planning committee discussed vulnerable populations). Additionally, there was a relationship (p=.05) between the broadly categorized "non-city" organizations, and the discussion of vulnerable populations. While not all of these non-city agencies necessarily represent vulnerable populations, it should be noted that an increase in non-governmental agencies involved in the writing process had a relationship to the plans that discussed vulnerable populations according to a chi-square test (p=.05). Common NGOs included representatives from food systems councils, bicycle coalitions, and independent public health representatives, indicating that while public agencies associated with concerns like public health may not always be represented on the planning committee, non-governmental and private entities may be a valuable means of representing the interests of vulnerable populations.

5.3.2 Who Isn't at the Table… Environmental Justice Representatives

However, there are some places where this lack of relationship is confusing, especially when we look deeper at the plan content. For example, when analyzing the environmental justice code, a series of chi-square tests did not reveal any significant relationships between different author agencies and the presence of environmental justice considerations. This is despite my

findings that many of the plans associated the environmental justice with groups, stakeholders, and actors, including neighborhood organizations, the NAACP, and public health officials. However, chi-square testing found little-to-no relationship between the discussion of environmental justice and a public health organization, neighborhood organization, or other "non-city organizations." Part of the issue is the small sample size—it is very difficult to identify a relationship where only nine plans discuss environmental justice. However, especially in this case, the plans explicitly identify certain groups as instrumental to planning for environmental justice, and yet these groups are generally absent on the planning committee, where they would have the most power to steer decisions in ways that promote environmental justice.

5.3.3 Who Isn't at the Table… Vulnerable Population Representatives

As the previous chapter revealed, public health is by far the largest topic within which vulnerable populations are discussed. There is a strong focus on the elderly, youth, and the homeless in response to urban heat island and increased extreme heat events. Despite this focus on public health, however, the coding revealed very few instances where public health agencies were present on the planning committee. In fact, only nine plans, or 17% of all plans within the dataset, had a public health agency present on the planning committee. Of those nine plans (Los Angeles, CA, Boston, MA, Keene, NH, Chicago, IL, Alexandria, VA, Berkeley, CA, Santa Rosa, CA, Eugene, OR, Portland, OR) six of them included a reference to social equity, one referred to environmental justice, and all nine included references to vulnerable populations. This suggests a relationship between those on the planning committee and an identification of public health issues associated with vulnerable populations.

But do we see this relationship with other agencies that may have a justice focus or represent a specific type of vulnerability or vulnerable group? Social Services agencies were

involved in the construction of the plans in this sample only four times, three of which discussed

vulnerable populations, and two that discussed equity. Of the 17 plans with environmental

nonprofit groups present on the planning committee, 13 discussed vulnerable populations, 3

mentioned environmental justice, and 11 discussed social equity/justice. Only three plans had a

neighborhood organization (Baltimore, MD, Eugene, OR, Cincinnati, OH), two of which

discussed equity/justice and vulnerable populations; Cincinnati did not include any equity terms.

We see a similar situation with vulnerable populations where, most often, there is not a

relationship between the presence of potential representatives on the planning committee and a

discussion of specific vulnerable populations. Yet even if representative groups are not included

in the plan writing process, a closer reading of the text suggests that one of the strongest ways in

which these plans strategize for the threats and impacts to vulnerable populations is by

identifying representative groups and strategizing for opportunities to engage with said

threatened populations. The plans that discuss representatives demonstrate an understanding of

procedural equity, attempting to identify gaps in the existing planning and political process that

disenfranchises and disengages those that may need assistance the most. This is a small subset of

plans, but their approach and understanding of procedural equity could serve as a solid example

for future climate planners interested in both identifying vulnerable populations, and engaging

with them in the process. Strategies included:

- *Chicago Climate Action Plan: Our City, Our Future*: "Share climate research findings with groups most affected—social service agencies, garden clubs, etc. Help individual households to take their own steps to reduce flooding and manage heat waves, such as installing rain barrels and back-up power for sump pumps and planting shade trees" (*Chicago Climate Action Plan: Our City, Our Future*, 2008, 52).

- *City of Baltimore Disaster Preparedness and Planning Project*: "Action 5: Increase the urban tree canopy and target areas with urban heat island impacts. In order to better understand the impact on health outcomes of the proposed actions, community stakeholders were gathered to provide feedback and guidance … The stakeholder group

was recruited through the Citizen's Planning and Housing Association to represent vulnerable stakeholders including residents, non- profits, City agencies, and community organizations. The stakeholders, in collaboration with the City agency representatives, prioritized their health concerns and indicated the magnitude of the potential health outcomes, keeping equity in mind." (*Disaster Preparedness and Planning Project*, 2013, 55).

- "1. Prior to a hazard event, identify lead contacts serving vulnerable populations and coordinate actions to maximize safety and information sharing so as to guarantee the proper dissemination of emergency and early warning information, the City should identify key points of contact who can convey safety information prior to, during, and after a hazard event." (*Disaster Preparedness and Planning Project*, 2013, 114).

- *Berkeley Climate Action Plan:* "For example, the City's Public Health Division is in regular contact with several types of community groups that will be impacted by climate change but that may not list the environment as their main focus. Such groups include youth and youth organizations; faith-based organizations; food, nutrition, and cultural organizations; and advocacy groups for low-income and other vulnerable populations. Such groups must be included in community outreach efforts to ensure broad input and participation in turning the plan into action" (Berkeley *Climate Action Plan*, 2009,119).

- *Alexandria Environmental Action Plan 2030:* "Continue to ensure representation and participation by affected groups in the Master Plan and Small Area Planning processes. Continue outreach efforts to engage low income and minority residents in land development project decisions within their neighborhood" (Alexandria *Environmental Action Plan 2030*, 2009, 46).

- *Grand Rapids Climate Resiliency Report*: "Public Health Services to better prepare the city for a climate-related event. Issue public statements informing residents of ways to avoid heat-related illness/injury, encouraging them to check on vulnerable neighbors and family members and providing them with information regarding shelter locations." (*Grand Rapids Climate Resiliency Report,* 2013, 88)

- *Flagstaff Resiliency and Preparedness* Study: "Continue to coordinate with social service and public health agencies that assist with vulnerable residents, including transient populations. (*Flagstaff Resiliency and Preparedness Study,* 2012, 24)

These actions and considerations demonstrate that while vulnerable population

representatives are most often not a part of the actual plan construction, they are important

assets in strategizing for the disproportionate impacts of climate change on certain populations.

Although this is a small subset of the overall plans, they point to useful strategies that currently exist, and the ways in which they can be expanded in future planning efforts.

5.4 Conclusion

The findings of this discussion serve to develop some key points about the types of plans, and the ways that they are created. With a dataset of this size, it can be challenging to prove correlation, and even when we do, proving causation can be equally tough. However, if we want to obtain more sustainable, resilient communities, then planners must understand where equity, justice, and vulnerability lie within climate planning, and how these priorities can be better developed in future planning mechanisms. I highlighted the following three points in this chapter:

1) A relationship between type of plan and equity code used;

2) Planning for climate change is more a function of who is at the decision-making table than city-characteristics; and

3) Vulnerable populations and their representatives must be more strongly integrated into the planning process

With these three discussion points, I found that the current state of equity and justice in climate planning does not reflect the communities it is intended to serve. Instead, equity in climate change planning reflects a more standardized planning process that may engage key stakeholders to some degree, but does not incorporate their perspectives directly into the plan's construction process. Some may argue that incorporating vulnerable populations and their representatives is not necessary, and planning should be left to the professionals. I do not agree with this argument, as planning's history has shown time and again that planners do not always make the best decisions, engage the right stakeholders, or act in the best interests of their

communities. Instead, I argue that policymakers can improve upon the conditions identified in this project by strategizing to do more than simple outreach to vulnerable populations and their representatives. Instead, policymakers could construct more robust citizen engagement process, encouraging vulnerable populations, their representatives, and representatives of justice interests broadly to participate in the planning process as co-contributors with essential local and social knowledge to share about their day-to-day life. I am reminded of John Rawls' difference principle, where "social and economic inequalities, for example inequalities of wealth and authority, are just only if they result in compensating benefits for everyone, and in particular for the least advantaged members of society" (Rawls, 1971, 13). Climate change is only going to exacerbate existing social inequities unless planners are able to engage those least-advantaged in a much deeper way than we see in this dataset.

Chapter 6. Conclusion and Implications for Future Work

I conclude this project where I began it, with Linda Shi's contribution in *New Security Beat*. In this piece, Shi asks one final and crucial question of her audience:

> Whether existing mechanisms for city planning and regional governance, created in an era when the climate was stable and most people lived in rural areas, can be the foundation of a just society when most people live in cities, the boundaries of which bleed into one another, and the climate is increasingly unstable. (Shi, 2016).

While I cannot answer this contention definitively, my research suggests that existing climate planning mechanisms in the United States are not adequate to achieve a just society in a changing world. I argue that not only do existing mechanisms not meet the standards for a just society because they reflect a bygone era of rural, stable governments, but because the history of planning has often promoted and mirrored the existing social inequities in a community. My dataset indicates that—rural or urban, small or big, ethnically diverse or majority white—most municipal US climate plans do not strongly represent their larger constituency in the planning process and instead perpetuate the existing inequities behind the guise of "adaptation."

My major findings indicate that while equity, justice, environmental justice, and vulnerable populations are discussed to some extent in a variety of ways throughout the dataset, they do not engage with the principles of equity and justice in deeply meaningful ways. Instead, many of the references to equity and justice are piecemeal, vague, and rarely associated with a specific strategy. Discussions of environmental justice are more often connected with strategies of outreach and stakeholder engagement, however, environmental justice codes were the least frequently discussed in this dataset; and when discussing vulnerable populations, the authors do not connect issues of vulnerability to issues of systemic social inequities, or the cumulative impacts of vulnerability to climate change when race, age, income, gender, etc. interact. Overall, these findings indicate that while the climate plans do acknowledge equity and justice, the

discussion of these concepts is rather shallow. As I explored some potential relationships between different variables, I found several additional items: First, the relationship between the type of plan and the type of coded equity terms suggests that the type of plan shapes some of the ways that equity is framed and considered by policymakers; Second, the lack of relationship between city characteristics, namely demographics, and justice or equity concerns suggests that planning for climate change is more a function of who is at the decision-making table than city-characteristics; and Lastly, if equity considerations are a function of those at the decision-making table, vulnerable populations and their representatives must be more strongly integrated into the planning process.

These findings are ripe for additional study. My project could be expanded to include a larger sample size; to feature interviews of city planning officials, local nonprofits/groups that could represent equity interests and vulnerable populations, or the members of vulnerable populations themselves; a researcher could use case studies of different cities to explore more deeply the ways that certain cities discuss equity and justice in their plans versus a more detailed analysis of city-specific characteristics or planning processes. My project could be analyzed further: what definitions of equity did she use? How could equity be defined in other terms not identified here? How would the project be different if it focused on adaptation-only, or hazard mitigation plans? My project could be replicated in different types of plans to assess perhaps how policymakers plan for equity in the comprehensive planning process, or through other plans, or could be repeated for confirmation of results. That is the beauty of a mixed-method approach—the quantitative content analysis offers a standardized protocol and set of procedures for obtaining the initial coding information in a way that is thorough and replicable, while the

qualitative content analysis is flexible enough to be adjusted to meet the questions of the researcher and the trends provided in the plan content.

Throughout this paper, I have noted subject areas where additional research could be focused. One that I find particularly interesting is the concept of climate refugees. While this was not the most common code, it appeared several times, and within different objectives and strategies. Some plans identified climate refugees as a fact of climate change, and simply wanted to prepare for an influx of population. Other plans identified climate migrants as both a vulnerable population and a threat, leaving the researcher to wonder where the line between vulnerability and threat, insider and outsider can be drawn through the climate plan? I feel that nearly every section of the findings and discussion could be developed into additional research projects, made valuable by the methodology they represent, and the significant topic of equitable adaptation to climate change.

Climate plans demonstrate who has the power to make decisions, and this project has attempted to shine a light into those spaces and groups who are absent in the plans, and in the planning process. This project has indicated that future climate planners and policymakers have a long road ahead of them; beyond that arduous task of planning for climate change, they must invest time and resources in truly understanding how inequity and vulnerability will be increased by climate change. This work requires drawing back the "rational planner's" veil of science to acknowledge the planner's role within a political, powerful process and a larger set of social conditions that they have the power to shape and improve. If municipal plans hold the future of climate adaptation, then the local planning office is a space of immense power. What I have attempted to demonstrate with this research is that planning professionals and policymakers have a choice in planning for climate change. We can continue to throw the term "equity" into plans

when its convenient, or frame vulnerability as a set of scientific facts that lead one population to experience more impacts than others. Or we can put ourselves, our biases, or subjectivities front and center, and engage others who can bring their subjectivities and their knowledge to the planning table, acknowledging that climate change is as much a social issue as it is an environmental one. Perhaps the next debate over climate change no longer needs to be anthropocentric vs. natural, but instead should be a series of questions about how the social world shapes our understandings of climate change, and how planners can better acknowledge and improve upon existing social conditions as a byproduct of climate change. Without a discussion of the social world, the best we can hope for is "unequal adaptation," but I hold out hope that planners and policymakers can smartly look at the past, acknowledge the present conditions, and plan for a more equitable future for the communities they represent and serve.

Bibliography

Agyeman, Julian. 2005. *Sustainable Communities and the Challenge of Environmental Justice*. New York: New York University Press.

Berg, Bruce. 2008. *Qualitative Research Methods for the Social Sciences* 7th ed. Needham Heights: Pearson.

Berke, Philip and Ward Lyles. 2013. "Public Risks and the Challenges to Climate Adaptation: A Proposed Framework for Planning in the Age of Uncertainty" *Cityscape* 15(1): 181-208.

Berke, Philip, Ward Lyles, & Gavin Smith. 2014. Impacts of Federal and State Hazard Mitigation Policies on Local Land Use Policy. *Journal of Planning Education and Research* 34(1). 60-76.

Bierbaum, R., J.B. Smith, A. Lee, M. Blair, L. Carter, F. S. Chapin III, P. Fleming, S. Ruffo, M. Stults, S. McNeeley, E. Wasley, and L. Verduzco. 2013. "A comprehensive review of climate adaptation in the United States: more than before, but less than needed" *Mitigation and Adaptation Strategies for Global Change* 18: 361-406.

Blanco, Hilda and Marina Alberti,. 2009. Chapter 2: Building Capacity to adapt to climate change through planning in "Hot, Congested, Crowded and Diverse: Emerging Research Agendas in Planning," *Progress in Planning* 71(4): 153–205.

Boswell, Michael, Adrienne Greve, and Tammy Seale. 2012. *Local Climate Action Planning*. Island Press: Washington, DC.

Bradshaw, Matthew and Elaine Stratford. 2010. "Qualitative research design and rigour." In: *Qualitative Research Methods in Human Geography* 3rd ed. Oxford University Press: New York. 69-80

Bulkeley, Harriet and Castán Broto. 2013. "Government by experiment? Global cities and the governing of climate change." *Transactions of the Institute of British Geographers* 38. 361–375.

Bulkeley, Harriet and Castán Broto. 2013. "A survey of urban climate change experiments in 100 cities." *Global Environmental Change* 25. 92-102.

Bulkeley, Harriet, Gareth A.S. Edwards, Sara Fuller. 2014. "Contesting climate justice in the city: Examining politics and practice in urban climate change experiments." *Global Environmental Change* 25. 31-40.

Bulkeley, Harriet, JoAnn Carmin, Vanesa Castán-Broto, Gareth Edwards,Sara Fuller. 2014. "Climate justice and global cities: Mapping the emerging discourses" *Global Environmental Change* 23. 914-925.

Bullard, Robert D. 1994. "Overcoming Racism in Environmental Decisionmaking." *Environment* 36(4). 11–44.

Cole, Luke, and Sheila Foster. (2001). *From the Ground Up: Environmental Racism and the Rise of the Environmental Justice Movement*. New York University Press: New York.

Craine, J. and Gardner, C. 2014. "Visual Methodology." In: *Qualitative Research Methods in Human Geography* 3rd ed. Oxford University Press: New York. 274-287.

Dunn, Kevin. 2014. "Interviewing." In: *Qualitative Research Methods in Human Geography* 3rd ed. Oxford University Press: New York. 149-188.

Environmental Protection Agency. 2013. "Environmental Justice." https://www.epa.gov/environmentaljustice

Fainstein, Susan. 2010. *The Just City*. Ithaca: Cornell University Press.

Farley, Heather and Smith. 2013. *Sustainability: If It's Everything, Is It Nothing? (Critical Issues in Global Politics)*. Routledge: New York.

Füssel Hans Martin. 2007. Adaptation planning for climate change: concepts, assessment approaches, and key lessons. *Sustainability Science* 2(2). 265–275.

Goldan, Benjamin and Laura Fitton. 1994. *Toxic Waste and Race Revisited: An Update of the 1987 Report on the Racial and Socioeconomic Chatertistics of Communities with Hazardous Waste Sites I.* Center of Policy Alternatives, NAACP, United Church of Christ Commission for Racial Justice.

Harper, Thomas and Stanley Stein. 1992. "The Centrality of Normative Ethical Theory to Contemporary Planning Theory." *Journal of Planning Education and Research* 11(2). 105-116.

Harvey, David. 2002 [1993]. "Social Justice, Postmodernism, and the City." In *Readings in Urban Theory*, edited by S.S. Fainstein and S. Campbell, 2nd ed. Wiley-Blackwell: London. 386-402.

Harvey, David. 1973. *Social Justice and the City*. Athens: University of Georgia Press.

Intergovernmental Panel on Climate Change. 2007. *Climate change 2007: Impacts adaptation and vulnerability*. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva: IPCC.

Intergovernmental Panel on Climate Change. 2007. *Climate change 2007: The physical science*. Working Group I contribution to the Intergovernmental Panel on Climate Change. Summary for policy makers. Geneva: IPCC.

Krumholtz, Norman. (1982). "A Retrospective View of Equity Planning: Cleveland, 1969-1979," Journal of the American Planning Association 48(2). 163-74.

Krumholz, Norman and John Forester. (1990). *Making equity planning work: leadership in the public sector.* Philadelphia: Temple University Press.

Lyles, Ward, Philip Berke, and Kelly Heiman. Forthcoming. "Who Plans for Climate Change Adaptation? Local choices for mainstreaming and incorporating land use policies in municipal adaptation planning. 1-35.

Lyles, Ward, Philip Berke, and Gavin Smith. 2014. "Do planners matter? Examining factors driving incorporation of land use approaches into hazard mitigation plans." *Journal of Environmental Planning and Management* 57. 792-811.

O'Lear, Shannon. 2015. "Climate science and slow violence: A view from political geography and STS on mobilizing technoscientific ontologies of climate change" *Political Geography* 52. 4-13.

Ozawa, Connie and Ethan Seltzer. 1999. "Taking Our Bearings: Mapping a Relationship Among Planning Practice, Theory, and Education**"** *Journal of Planning Education and Research* 18(3). 257-266.

Pettenger, Mary. 2007. *The social construction of climate change: Power, knowledge, norms, discourses*. Aldershot: Ashgate.

Pulido, Laura. 2000. "Rethinking Environmental Racism: White Privilege and Urban Development in Southern California," *Annals of the Association of American Geographers*, 90(1). 12-40.

Rawls, John. 1971. *A Theory of Justice* revised edition. Cambridge: Belknap Press of Harvard University Press.

Rawls, John, and Erin Kelly. 2001. *Justice as fairness: a restatement*. Cambridge: Harvard University Press.

Reisch, Michael. 2002. Defining Social Justice in a Socially Unjust World. *Families in Society: The Journal of Contemporary Social Services* 83(4). 343-354.

Rice, Jennifer. 2014. Public Targets, Private Choices: Urban Climate Governance in the Pacific Northwest. Professional Geographer 66(2): 333-344.

Sandercock Leonie (Ed). (1998). *Making the Invisible Visible: A Multicultural Planning.* Berkeley: University of California Press.

Shit, Linda. "Adapting to Climate Change in Cities May Require a Major Rethink." *New Security: the blog of the Environmental Change and Security Program.* February 1, 2016.

https://www.newsecuritybeat.org/2016/02/adapting-climate-change-cities-require-major-rethink/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+The NewSecurityBeat+%28New+Security+Beat%29

Schrock, Greg, Ellen M. Bassett, and Jamaal Green. 2015. "Pursuing Equity and Justice in a changing Climate: Assessing Equity in Local Climate and Sustainability Plans in U.S. Cities." *Journal of Planning Education and Research* 35:3. 1-14.

Shonkoff, Seth, Rachel Morello-Frosch, Manuel Pastor, James Sadd. 2011. "The Climate Gap: Inequalities in How Climate Change Hurts Americans & How to Close the Gap." *Climate Change* 109:1. 485-503.

Smit, Barry, Ian Burton, Richard J.T. Klein, and J. Wandel. 2000. "An anatomy of adaptation to climate change and variability." *Climatic Change* 45(1): 223–251.

Smith, Herman.1975. *Strategies of Social Research: The Methodological Imagination*. Englewood Cliffs: Prentice Hall:.

Sui, Daniel and Dydia DeLyser. 2012. "Crossing the qualitative-quantitative chasm I Hybrid geographies, the spatial turn, and volunteered geographic information (VGI)" *Progress in Human Geography* 36(1). 111-124.

Thomas, June Manning. 1998. "Racial Inequality and Empowerment: Necessary Theoretical Constructs for Understanding U.S. Planning History," in *Making the Invisible Visible: A Multicultural Planning History*. Berkeley: University of California Press. 198-208.

Thomalla, F., Downing, T., Spanger-Siegfried, E., Han, G., & Rockström, J. 2006. "Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation" *Disasters*, *30*(1), 39-48.

United Nations World Commission on Environment and Development. 1987. *Our Common Future - Brundtland Report*. Oxford University Press, p. 204.

Young, Iris Marion. 1990. *Justice and the politics of difference*. Princeton, N.J.: Princeton University Press.

Appendix

1. Eight rungs on the ladder of citizen participation from Arnstein, 1969
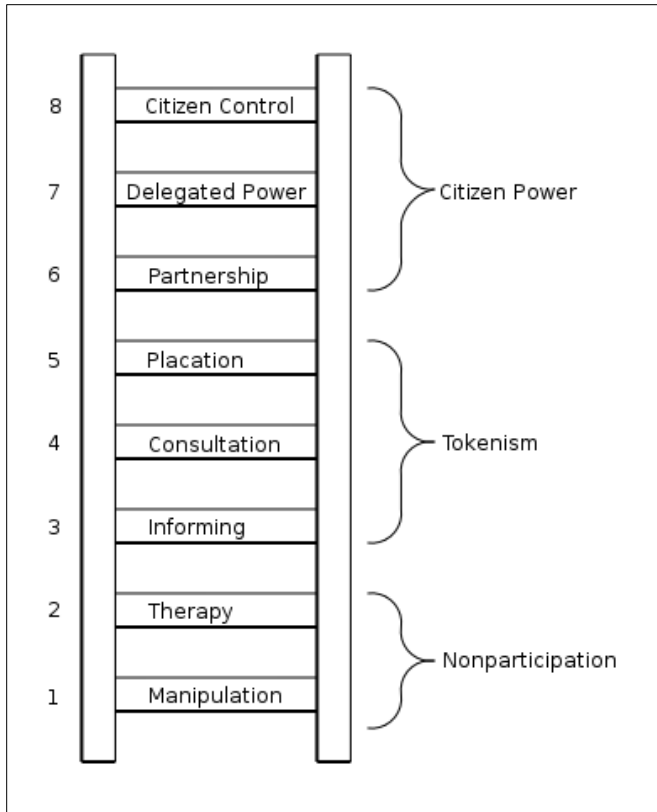
2. Sample Overlap between my project and Shrock and colleagues, 2015

	Schrock et al. (2015)	Overstreet (Thesis, 2016)
Boston, MA	*A Climate of Progress 2011*	*Climate Ready Boston 2013*
Chula Vista, CA	*Climate Change Working Group Measures Implementation Plan 2008/2011*	*Climate Change Working Group Measures Implementation Plan 2008/2011*
New York, NY	*PlaNYC 2011 update*	*PlaNYC 2011 update*
Portland, OR	*City of Portland and Multnomah County Climate Action Plan 2009*	*City of Portland and Multnomah County Climate Action Plan 2009*
Seattle, WA	*Seattle, a Climate of Change: Meeting the Kyoto Challenge 2006*	*Seattle, a Climate of Change: Meeting the Kyoto Challenge 2006*
Washington, D.C.	*Climate of Opportunity*	*Sustainability DC 2009*

3. Author Agencies in Quantitative Coding Protocol

- City Agencies/Departments
- Planning
- Environmental Agency
- Forestry
- Parks and Recreation
- Public Works/Engineering
- Faciltiies
- Executive Office
- Legislative/City Council
- Attorney/Legal
- Fire
- Police
- Emergency Management
- Economic/Redevelopment
- Water/Sewer/Stormwater
- Finance/Budget/Tax/Assessors
- Public Information
- Information Technology
- Housing
- Social Services/Youth/Families
- Public Health
- Transportation Agency
- Inspections/Building Department
- GIS
- Other City Agency or Department
- Business/NGOs/Other Governments
- Electric Utility
- Chamber of Commerce/Business Organizations
- Builder/Developers/Realtors
- Individual Business/Corporation
- Environmental Non-Profit
- Neighborhood Organization
- University
- Regional Planning
- County Government
- State Government
- Federal Government
- Neighboring Jurisdiction (other than county city is in)
- Media
- Disaster Volunteer Groups
- Professional Organizations
- School District
- NOAA/NWS
- Other non-city organization

4. Demographic Variables

- Population
- Percent aged under 5
- Percent aged under 18
- Percent elderly
- Percent women
- Percent White
- Percent Black
- Percent American Indian
- Percent Asian
- Percent Native Hawaiian
- Percent 2+ races
- Percent Hispanic
- Veterans
- Percent Foreign Born
- Percent First Language non-English
- Percent High school diploma
- Percent bachelor's degree
- Percent disability
- Percent without insurance
- Percent unemployment
- Median income
- Percent in poverty