DISSERTATION

# PILLARS OF STONE OR PILLARS OF SAND? AN ANALYSIS OF SUSTAINABILITY DISCOURSE IN U.S. CITIES

Submitted by

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# ABSTRACT

## PILLARS OF STONE OR PILLARS OF SAND? AN ANALYSIS OF SUSTAINABILITY DISCOURSE IN U.S. CITIES

Sustainability has emerged as a common governance paradigm in the United States, supplanting traditional top-down command-and-control regulations with a policy approach characterized by decentralization, municipal innovation, and the goal of ensuring that economic, environmental, and social systems function symbiotically. With institutional gridlock preventing comprehensive policy change at the national level coupled with state-by-state disparities in addressing environmental concerns, cities currently operate at the forefront of the sustainability movement. City governments have taken up the task of translating the broad precepts of sustainability into concrete policy decisions and planning trajectories.

Despite its widespread adoption, the sustainability concept is as elusive as it is pervasive. While numerous cities throughout the United States have embraced sustainability as a guiding paradigm, the concept lacks an agreed-upon meaning and clear standards for practice. The recent rise of cities at the center of sustainability governance opens up numerous questions about how city officials navigate the definitional ambiguity of sustainability and integrate the core tenets of the concept into their planning frameworks. This dissertation contributes to a broader understanding of sustainable cities in the United States by analyzing three distinct, yet interrelated, aspects of municipal sustainability governance.

First, through a content analysis of 200 U.S. cities, Chapter Two paints a picture of how cities conceptualize sustainability and the various factors (such as municipal demographics,

structure of government, etc.) that correlate with a city's tendency to prioritize certain aspects of sustainability while deemphasizing others. Chapter Three builds upon this analysis by exploring the meaning of sustainability in disaster-vulnerable cities. Through both quantitative analysis and qualitative interview data, the chapter analyzes the nuances of policy change, issue definition, and the focal power of natural disasters in the sustainability domain. Chapter Four uses data from interviews conducted with city officials to examine the role of citizen participation in structuring the meaning of sustainability and the policy goals that cities incorporate under the sustainability umbrella.

The core ideas from each of these chapters are discussed holistically in Chapter Five, which identifies how the findings from this dissertation provide empirical support for certain theories and assumptions related to sustainable cities, while challenging others. Taken as a whole, this dissertation finds significant variance in how cities conceptualize sustainability, shedding light on the contested meaning of the term. While the sustainability paradigm is often touted for its capacity to reduce tradeoffs between environmental protection, economic development, and social equity and to bring these three systems into a productive balance, this research shows that the meaning of sustainability is constructed situationally and that cities often prioritize only one or two pillars of the concept. Each chapter also sheds light on the nuances of issue definition and policy change in sustainable cities, including the catalytic impacts of natural disasters and the role that citizen participation plays in shaping cities' unique conceptualization of sustainability.

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lit the fire of my intellectual curiosity and continues to rekindle it with every conversation we have.

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# CHAPTER ONE: INTRODUCTION

*"Nothing is built on stone; all is built on sand, but we must build as if the sand were stone."*
*~Jorge Luis Borges~*

Sustainability has emerged over the last several decades as a governance model that promises to bring economic, environmental, and social systems into a mutually beneficial alignment. As the sustainability paradigm continues to diffuse widely, local governments are increasingly taking on primary responsibility for policy innovations that fall under the sustainability umbrella. Within the United States, limited attention to the pillars of sustainability by the federal government coupled with uneven performance in improving environmental conditions among the states has resulted in a complex system in which a decentralized, loosely coupled network of cities has taken on the task of applying the ambiguous principles of sustainability to ameliorate pressing problems and establish economic development trajectories that correspond with finite ecological limits (Mazmanian and Kraft 2009; Keeley and Benton-Short 2019).

This decentralized governance system is accompanied by substantial ambiguity in the core meaning of sustainability, as evidenced by the variation in how U.S. cities integrate sustainability-related goals into their broader planning frameworks (Brandtner and Suárez 2021). Despite its prevalence, the meaning of sustainability remains highly elusive. Relevant literature in environmental politics predominantly discusses sustainability using the classic three-pillar metaphor, defining the concept as a governance framework that brings economic development, environmental protection, and social equity into a supportive balance (Connelly 2007, 262-263; Paehlke 2013). In practice though, the landscape of municipal sustainability is characterized by a lack of definitional clarity in terms of the optimal policies to address each pillar, minimal

consensus about the meaning of sustainability among local administrators (Zeemering 2009), and the absence of an agreed-upon set of indicators for cities to evaluate the degree to which they have achieved sustainability-related goals (Latawiec and Agol 2015, 4-5). Some cities that have been identified as sustainable engage in an extensive planning process and define the sustainability concept holistically by including diverse objectives—i.e., restructuring public transit systems, attracting green industries, reducing vulnerability to natural disasters, providing recreational areas and green spaces, and numerous other goals—in their policy agendas and planning frameworks (Keeley and Benton-Short 2019, 2-3). Other cities, however, practice sustainability less holistically. For instance, local-level sustainability initiatives tend to revolve around the environmental pillar while relegating the social equity dimension to the periphery (Schrock et al., 2015; Zeemering 2018, 138).

Despite the growing commitment of cities to the indistinct prescription to "become sustainable", the vagueness of the sustainability concept means that its definition and parameters are constructed situationally through on-the-ground decisions by administrators. Thus, sustainability has different meanings in different contexts and its definition is contingent upon the policy goals, economic needs, and environmental conditions of each individual city attempting to implement sustainable practices. This ambiguity simultaneously constitutes the greatest strength and most profound weakness of the sustainability paradigm. Because of its vagueness and conceptual openness, sustainability represents a flexible framework whose meaning can be strategically expanded, contracted, and augmented to meet the needs of diverse cities. The sustainability umbrella is wide enough to capture numerous concrete policies and can accommodate cities' multifaceted priorities (Long 2016, 150). In this sense, sustainability has become a highly malleable yet indistinct concept that is "constructed around a loose assemblage

of problems" (Brand 2007, 623-624) affecting contemporary cities, ranging from air pollution to poverty, that the framework promises to ameliorate.

On the negative side though, critics of the broad diffusion of sustainability rhetoric have raised the concern that the concept lacks value as a planning paradigm due to the instability and ambiguity of its meaning. Sustainability runs the risk of becoming both "everything and nothing" (Connelly 2007, 260), thus making it impossible to distinguish between municipal decisions that count as sustainable and those that do not. Considering that "local conditions may…draw policy makers' attention to some aspects of sustainability and not to others" (Zeemering 2009, 250), the sustainability framework takes on different forms across localities and city officials must mediate between contested meanings of the term. Given the vagueness of the sustainability paradigm coupled with the absence of agreed-upon indicators to evaluate policy effectiveness, sustainable cities truly are building their development trajectories and planning frameworks on a foundation of sand.

In light of the lack of conceptual clarity, this dissertation revolves around the goal of analyzing why cities vary in their definition of sustainability and the process by which relevant local officials arrive at a specific meaning of this ambiguous concept. While each chapter addresses a unique aspect of sustainability governance, the core purpose of the project centers on exploring the question of how U.S. cities navigate the ambiguity and competing meanings of sustainability, settle on an actionable definition that shapes the trajectory of municipal planning, and design concrete policies and planning frameworks within a paradigm that is inherently amorphous.

Analyzing the nuances of how cities define sustainability and give concrete meaning to the concept holds value both in terms of advancing academic research and in providing

information to local administrators seeking to either implement new sustainability frameworks or augment existing ones. Current scholarly work has painted a clear picture of the plethora of sustainable practices that localities commonly adopt and is also beginning to parse out the various factors (such as the decision to house sustainability-related programs in a separate municipal office) that facilitate effective policy implementation. Existing studies have pursued answers to the questions of which cities tend to be the most sustainable, why some cities act as leaders in sustainability policy while others lag behind, and how various political and organizational factors shape program implementation. Missing from current research, though, is an understanding of how city officials define sustainability in the first place. In other words, there is a paucity of empirical work exploring the earliest stages of municipal policymaking. Few studies have examined the nuances of how cities arrive at a specific definition of sustainability, the role that citizens play in constructing the concept's meaning, and how local officials integrate the precepts of sustainability into their city's broader planning framework. In light of these gaps, this dissertation project focuses on the process by which cities give concrete meaning to the vague sustainability concept.

**Rationale for Analyzing Sustainable Cities**

Sustainable cities provide significant fodder for empirical research, largely due to the increasing popularity of the sustainability paradigm as a framework for addressing interlocking economic, environmental, and social concerns. Environmental policy has largely—although not wholly—shifted away from a federal command-and-control regulatory approach to a localized pursuit of sustainability initiatives (Portney and Hannibal 2022). Over the last several decades, cities have become the level of government most heavily involved in embracing sustainability as a viable "organizing concept under which public organizations reconsidered the social and

environmental implications of public policy" (Zeemering 2018, 138). Despite the central position that local governments occupy in the sustainability policy domain, the emergence of the "sustainable city" is an unlikely phenomenon for myriad reasons.

First, cities are resource-intensive and, from a historical perspective, they hold substantial culpability as engines of environmental degradation. As "economic growth machines" (Portney 2013, 18) that have long been tasked with the core objective of attracting and retaining job-creating industries as part of their drive to "constantly seek to upgrade their economic standing" (Peterson 1981, 22), cities have high metabolisms both in terms of natural resource consumption and waste production. Cities also provide numerous services to citizens. Despite ongoing advancements in energy-efficiency technologies coupled with growing public concern about the environmental impacts of human activity, the provision of essential services that typically fall under the jurisdiction of local governments remains highly resource-intensive. This voracious urban metabolism is particularly evident when it comes to solid waste production, energy usage, and the material inputs necessary to support the growth in food consumption among U.S. cities, which have all increased steadily over the last 50 years (Gardner et al. 2016, 27). In this sense, the resource-intensity and high material need of cities makes it somewhat counterintuitive that local governments have embraced the principles of sustainability and—in many cases—have done so without top-down mandates, extensive funding, or technical support from higher levels of government.

Secondly, from a political standpoint, the sustainable city represents an unlikely phenomenon due to the pressure that local officials face to pursue policies that fall outside of the three-pillar sustainability paradigm. Municipal government officials tend to favor infrastructure projects and economic development strategies with observable short-term benefits that are highly

visible to the media and the public in order to enhance their popularity and re-electability—decisions that are often neither ecologically regenerative nor socially equitable (Cohen 2018, 10-11). Even among cities that self-identify as sustainable, some scholars have raised concerns that the economic growth imperative facing local administrators leads to a narrow, weak practice of sustainability in which only environmental goods that have immediate economic value are preserved (Hodson and Marvin 2017, 16-17). In this sense, the longer-term holistic thinking necessary to pursue a strong three-pillar approach to sustainability can be somewhat antithetical to the short-term nature of political cycles and the overarching economic growth imperative at the municipal level.

Lastly, the limited formal authority that local governments hold make cities unlikely candidates as leaders in the sustainability movement. Cities are creatures of the state with little independent authority and relatively small geographic jurisdictions over which they can legitimately govern (Krause et al. 2019, 478), thus restricting their capacity to effectively manage expansive natural systems, such as watersheds. The geography of municipal governance does not align with the transboundary nature of many environmental concerns. In this sense, city officials can experience a strong incentive to overconsume finite resources and export environmental harms—most notably air pollution—to nearby localities, as opposed to trying to create closed-loop urban systems.

Despite the ambiguity of the sustainability concept and the numerous political, economic, and institutional obstacles facing local governments that were highlighted above, cities have assumed primary responsibility for addressing various environmental concerns and bringing both economic and social systems into better alignment with the realities of environmental conditions. They have done so partially out of need. Cities rely on extensive physical capital and material

consumption to function and, therefore, must be in tune to the viability of the ecosystems on which they rely (Dryzek 1987, 216-218). Over the last several decades as population growth in urban areas has sped up, a "pattern show[ing] an increase in the wastefulness of cities, illustrating an unsustainable trend in material consumption" has emerged (Chini and Stillwell 2019, 1357). Given the rise in energy usage, waste production, and other environmental harms that has accompanied recent trends in urbanization, some local officials perceive the adoption of robust municipal sustainability frameworks as essential in ensuring the ability of city governments to deliver vital services and provide a high standard of living for local residents in the long term (Cohen 2015). Numerous administrators have posited the model of unfettered economic growth and ongoing efforts to attract new industries as outmoded, unsustainable, and antithetical to the purpose of contemporary local governments (Portney 2013, 16-17).

While many environmental concerns do not conform to the jurisdictional boundaries of localities and could, arguably, be more optimally addressed by a higher level of government or through regional collaboration, city governments are uniquely positioned as leaders in sustainability (Zeemering 2009, 251). It is widely recognized in the public administration literature that cities are loci of policy innovation and that the responsibility for addressing wicked problems often falls on municipal governments (Brandtner and Suárez 2021, 123-124). City governments have gained a reputation for being agile, innovative, and capable of implementing pragmatic solutions to pressing societal problems by sidestepping partisan tensions that often stymie policy action at the national level (Barber 2013, 7-8). Recent efforts by U.S. cities to curb environmental degradation speak to this point. As multipurpose governments, cities are responsible for solid waste management, recycling services, brownfield redevelopment, utilities, safe drinking water, and the provision of innumerable other services directly related to the health

of the natural environment and the quality of life for residents. In addition, local governments often possess jurisdictional authority over nearby ecosystems and the services that they provide, giving them the ability to impact the sustainability policy domain. With pervasive political stalemates at the federal level and a patchwork state-level response to environmental challenges across the U.S., cities now occupy the center of the sustainability paradigm (Wang et al. 2012, 841).

The emergence of local governments at the forefront of the sustainability movement draws attention to several paradoxes. Given the fact that cities are a "less-than-ideal level at which to pursue sustainability" (Portney 2013, 20) for the reasons discussed earlier, why is it that local governments have assumed primary responsibility for implementing sustainable practices? Why have numerous cities embraced such an ambiguous framework and worked to translate the broad principles of sustainability into concrete planning decisions? In light of the ambiguity of the sustainability paradigm, how are cities navigating the vagueness of the concept and applying it as a useable guide for policymaking? Existing research in environmental politics, public policy, and other relevant fields has not yet deeply analyzed how cities give meaning to sustainability and the potential factors that shape their conceptualization of the term. This dissertation aids in filling this gap.

**Structure and Goals of the Dissertation**

The crux of this dissertation centers on exploring how cities navigate the ambiguity of the sustainability concept and determine what sustainability means within the context of unique local conditions. The overarching purpose of the project is to develop a clearer understanding of how city government officials arrive at a concrete definition of sustainability, as well as their rationale for including certain policy and planning priorities under the sustainability umbrella while

deemphasizing others. Each chapter examines the potential factors (such as the structure of city government, the demographic characteristics of a locality, the prevalence of natural disasters, the power of citizen-participants, etc.) that are relevant in the process by which the meaning of sustainability is constructed at the local level.

Each substantive chapter explores a different aspect of the question of how cities are defining sustainability and integrating the principles of this concept into their policy decisions and planning frameworks. Chapter Two paints a broad picture of how U.S. cities construct the meaning of sustainability through a quantitative analysis of 200 randomly selected cities with populations over 60,000. By conducting a content analysis to determine how city governments formally define the sustainability concept, the chapter explores how local officials perceive the three-pillar model of sustainability and the degree of priority that they place on each individual pillar. Various demographic factors (population size, wealth, etc.) and organizational variables (such as whether or not the city has created a separate sustainability office) are evaluated in an effort to shed light on the municipal characteristics that shape cities' tendency to define sustainability in particular ways. The chapter paints a broad picture of local governments' conceptualization of the sustainability framework and explores the factors contributing to the notable variance in the meaning assigned to the sustainability concept.

The next substantive chapter builds upon this foundation by narrowing in on a particularly understudied aspect of sustainable cities—namely, the relationship between natural disaster vulnerability and the pursuit of sustainability. It has become axiomatic in the public policy literature that high-salience, high-consequence natural disasters often function as focusing events that catalyze major policy change and reorient existing planning paradigms. However, little research has focused specifically on whether or not natural disasters motivate the adoption

of sustainability-related practices and alter city officials' perception of what sustainability means. Thus, Chapter Three analyzes how disaster-vulnerable communities think about sustainability. The chapter revolves around the question of how a city's experience with severe natural hazards impacts the ways in which the sustainability concept is defined and articulated by local-level officials. Drawing from a combination of quantitative data from FEMA and qualitative analysis from interviews conducted with local administrators in disaster-vulnerable cities, this chapter speaks to the complex interplay between sustainability, resilience, and hazard mitigation.

Chapter Four similarly explores the earliest stages of the municipal policy process. Drawing from interview data, the chapter addresses the question of how city officials utilize citizen input when defining sustainability and determining which policy priorities should fall under the sustainability umbrella. A growing body of scholarship in the fields of environmental policy, public administration, urban planning, and democratic theory posits a robust commitment to citizen participation as an essential element of local-level sustainability governance (Gardner et al. 2017, 62-64). In the presence of meaningful public participation in which citizens have the authority to cocreate policy decisions, the sustainability framework can be structured in a way that aligns with local needs and public preferences. Absent mechanisms for citizen participation, local governments run the risk of conceptualizing sustainability in a way that is detached from community needs, does not generate sufficient public buy-in, and fuels citizen backlash during implementation (Wang et al. 2012; Yang and Pandey 2011). Despite the value of participatory opportunities articulated by scholars and practitioners, minimal scholarly work has focused on the role that citizen participation plays in constructing the meaning of sustainability. Chapter Four seeks to fill this gap by analyzing the types of participatory avenues that are being

facilitated by city governments to integrate citizens into the process of conceptualizing sustainability and deciding on relevant policy priorities.

Drawing from in-depth interviews, the chapter analyzes the value that city officials place on various participatory strategies, the degree of authority that citizens are granted to influence policy change, and local government officials' motivation for incorporating citizen input into the sustainability planning process. Taken together, all of the chapters in this dissertation project center on the goal of facilitating a stronger understanding of how cities navigate the unstable terrain of the sustainability policy landscape and create workable sustainability frameworks despite the ambiguity of the concept.

# CHAPTER TWO:
# EMBRACING AMBIGUITY: DEFINING SUSTAINABILITY IN U.S. CITIES

## Introduction and Purpose

The concept of sustainability is as pervasive as it is elusive. While there is broad agreement among scholars and policymakers that sustainability entails a commitment to the interlocking goals of economic development, environmental protection, and social equity, there is significant ambiguity over what achieving these three pillars entails in practice (Demeritt et al. 2011; Hopwood et al. 2005). Despite ongoing debates over the meaning and applicability of the concept, sustainability has recently emerged as a prolific governing paradigm, most predominantly at the municipal level. Given recent political stalemates related to environmental policy at the federal level, numerous U.S. cities have taken up the task of structuring their comprehensive planning process, land use and zoning decisions, and service provision around the principles of sustainability. Widespread commitment to sustainability has led some scholars to suggest that the environmental policy landscape in the United States has largely transitioned away from command-and-control regulatory policies originating at the federal level and towards a more decentralized, flexible policy landscape centered on local sustainability efforts (Mazmanian and Kraft 2009).

Cities carry much of the burden not only of practicing sustainability, but of operationalizing it into a concrete term with measurable objectives and indicators in order to provide a framework for local officials to meet economic, environmental, and social policy goals. Many guiding documents place cities front and center in the sustainability policy domain both as primary contributors to environmental degradation and as important actors capable of adopting innovative sustainable practices. Agenda 21, for instance, states that the "increase in

both the number and size of cities calls for greater attention to issues of local government and municipal management" (United Nations Conference on Environment and Development, 1992).

A burgeoning commitment to sustainability has occurred in a variety of U.S. municipalities within the last several decades—most notably in large cities such as Portland, Austin, and Seattle. Importantly, the widespread commitment to sustainability has occurred despite (or, perhaps, because of) the fact that cities—more than other levels of government—operate on the imperative of creating jobs and cultivating a climate that is amenable to business and industry investment through their authority over zoning and land use, their power to levy taxes, and other policy and planning decisions that are in the realm of local government authority (Berry and Portney 2013, 2082).

Numerous U.S. cities are adopting the language of sustainability in municipal policymaking and navigating through definitional ambiguity to build communities that are designed to be environmentally, economically, and socially viable in the long-term (Campbell 1996, 2-4; Zeemering 2018). Even as a growing number of cities are embracing sustainability as a core component of local policymaking, however, the concept remains ambiguous. Lack of definitional consensus has fueled doubt among some scholars and practitioners regarding the utility of the concept as a paradigm for planning and policymaking (Connelly 2007). Despite the increasing effort of cities to adopt sustainability policies coupled with the proliferation of studies analyzing these practices, existing scholarly knowledge remains underdeveloped, particularly due to lack of research "investigating how sustainability is conceptualized….and how this understanding leads to distinct programmatic priorities" (Zeemering 2009, 267).

There is significant debate among scholars and policymakers over what sustainability means and the types of policies and planning decisions that can reasonably be placed under the

sustainability umbrella. In light of this contestation over the meaning of the concept coupled with recent widespread (and highly variable) attempts of cities to institute sustainability as a planning framework, this chapter explores the question: Why do U.S. cities vary in their conceptualization of sustainability? In particular, this research analyzes municipal sustainability efforts with an eye towards explaining the variance in how the concept is defined across U.S. cities. After reviewing the relevant literature on the theory and practice of sustainability, this chapter presents the findings of a content analysis conducted on 200 U.S. cities in order to provide a clearer picture of how sustainability is being defined by government officials. The chapter then explores a variety of city-level factors—such as population size, average educational attainment of local residents, poverty levels, racial composition, whether or not the city is home to a university, and the structure of municipal government—that are anticipated to impact how city officials conceptualize sustainability. These factors were selected due to findings in earlier studies identifying their impact on the strength of cities' commitment to sustainability.

*Why focus on cities?*

The concept of sustainability emerged on the political scene with the recognition that human activities, such as resource consumption and energy extraction were degrading the natural environment, harming public health, and if left unchecked would eventually hinder economic growth on a global scale. The Brundtland Report's well-known call to rethink development to ensure that "it meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development 1987) brought sustainability into mainstream policy discourse. A substantial body of research has focused on comparing countries' progress towards reaching their sustainability goals and, recently, indicators have been developed to rank countries' national-level policy efforts towards

achieving sustainability (Dahl 2012, 14-15). However, despite the origin of sustainability as a global concept intended as a framework for facilitating economic development within countries that is both environmentally benign and equitable across generations, cities currently function as the heartbeat of sustainability.

There are multiple reasons why cities play such a central role in sustainability policy and why additional systematic research on sustainable cities is needed. To begin with, issues of environmental degradation, social inequality, and economic instability are particularly impactful at the local level. City residents experience the direct effects of air pollution and other environmental issues, as well as equity concerns such as lack of access to public transit or healthy food sources (Cohen et al. 2015, 14-16). Cities are also ground zero for many environmental policy innovations (Krause 2011; Yanarella 1999, 211). Local government officials are closer to their constituents than elected officials at other levels of government and, arguably, have a strong capacity to identify and respond to the challenges facing city residents.

Relatedly, increasing urbanization in the United States means that cities are vital to the pursuit of sustainability. With over 80% of the U.S. population living in urbanized areas[1] and rapid population growth taking place in urban and suburban communities (U.S. Census Bureau, 2021), cities now operate at the forefront of sustainability largely in response to the challenges of urbanization. If urban development is unmanaged, cities have the potential to cause significant environmental damage, such as air pollution and carbon emissions from vehicles, loss of ecologically important natural areas from development projects, and unsustainable energy consumption (Cohen et al. 2015, 14). Because cities are typically "sites of high consumption of

[1] "Urbanized areas" are defined by the U.S. Census Bureau as localities with a population of 50,000 or more.

energy and production of waste" (Bulkeley and Betsill 2005, 45), local governments are in a unique position to innovate and experiment with sustainability policies.

Much of the policy change related to sustainability resides in the jurisdiction of municipal government. Provision of services such as solid waste collection, recycling and composting, public transportation, energy efficiency programs for residential and commercial buildings, and numerous other services, largely falls on the shoulders of local governments (Cohen et al. 2015, 14-15). Cities have significant authority over zoning and land use decisions that not only structure the character of a community, but also impact its environmental footprint, economic development path, and overall livability for residents (Levy 2013, 143). In this sense, cities are responsible for many of the concrete policy and planning decisions inherent in the sustainability paradigm.

Lastly, additional research on sustainable cities is necessary due to the large number of U.S. cities currently embracing sustainability as a core principle guiding long-term planning and policy priorities. By doing so, cities grapple with the ambiguous nature of sustainability and may define the concept in a way that meets their communities' unique needs and most closely aligns with citizens' core political and social values. In this sense, when it comes to the pervasive question of what sustainability means in practice, cities likely "provide their answers based on what they believe to be appropriate for themselves" (Portney 2013, 9). Despite this recognition though, there is a paucity of research describing the variance in how sustainability is defined among cities and exploring the potential factors that contribute to this variance. This study endeavors to fill that gap.

## Review of Applicable Literature

To understand the reasoning behind the ambiguity that characterizes the definition and practice of sustainability, this chapter draws from two interrelated literatures. First, this chapter highlights scholarly work that discusses the meaning of sustainability and applicability of the concept as a framework for policy action. Secondly, it builds on existing empirical studies of sustainability that provide insight into how and why cities adopt policies and planning decisions that relate to the three pillars of sustainability. As a whole, these bodies of theory and research establish a roadmap to determine which variables might be expected to impact the ways in which sustainability is defined, while also drawing attention to important gaps in existing knowledge that this study seeks to fill.

### *Theories and Critiques of Sustainability*

Sustainability represents a pervasive concept that has garnered widespread attention across a diverse and multidisciplinary body of literature. In practice, it is often articulated as the optimal solution for addressing both the causes and consequences of climate change and other environmental concerns (Portney 2009). The sustainability concept holds significant political appeal due to its capacity for concomitantly addressing environmental issues, encouraging economic development, and integrating a concern for social equity into the processes and outcomes of policymaking (Saha 2009, 18-19). Despite the perceived value of sustainable practices accompanied by the recent influx in cities, states, countries, corporations, and international organizations adopting sustainability as a foundational objective, the meaning of the term remains highly amorphous (Connelly 2007). Due to the concept's inclusiveness—taking into consideration economic, environmental, and societal factors—and because of the differing

interpretations of its components (debates over the concrete practices that facilitate social equity, for instance), sustainability resists a single, concise definition.

Lack of consensus over sustainability's meaning has both positive and negative consequences for policy adoption and implementation. On the one hand, sustainability is a malleable concept that can be adapted to a variety of situations and political contexts. Cities have adopted a vast array of diverse policies and programs under the umbrella of sustainability, effectively shaping the ambiguous concept to conform to a city's overarching policy goals, its local economic and environmental needs, and its citizens' beliefs and values (Krueger and Agyeman 2005, 416-417; Zeemering 2009). On the other hand, however, conceptual ambiguity opens up the possibilities for greenwashing—the use of the sustainability framework as a label for practices that are economically, rather than environmentally or socially, beneficial (Yanarella et al. 2009). The lack of a consistent definition, as well as a paucity of agreed-upon goals and indicators for sustainable practice, can therefore lead to suboptimal policy outcomes. This dark side of sustainability can be observed in many cities' proclivity to ignore social equity in their quest for economic development, as well as the tendency for some smart growth policies to fuel gentrification and compromise overall livability in urban areas (Godschalk 2004, 7-9).

While the ambiguity of sustainability is well-documented in the literature, there is a general sense of agreement over the core principles of the concept among both practitioners and scholars. This agreement manifests in the widespread acceptance of three pillars—economic development, environmental protection, and social equity—as necessary and equal components of a truly sustainable governing paradigm (Dryzek 2005; Kuhlman and Farrington 2010; Yanarella et al. 2009; Yanarella and Levine 2014). Despite the prominence of the three-pillar

approach[2] in the academic literature, however, recent scholarship has suggested that in practice the three pillars are unequally prioritized among cities labeled as "sustainable".

In this vein, Cohen (2018) draws attention to the tendency for the environmental dimension to be overshadowed by the drive for economic growth. In contrast, some empirical studies find that local policymakers tend to pursue narrow policy changes, such as wilderness and open space preservation, that primarily address the environmental pillar as opposed to more comprehensive decisions that encompass all three pillars (Saha and Paterson 2008, 30-31). Other scholars suggest that, while sustainability's "inherent vagueness and flexibility contribute to its broad appeal" (Bostrom 2012, 3), the social equity dimension tends to be pervasively neglected, especially since policy measures to alleviate social injustices are highly complex and tangible outcomes are difficult to measure (Deslatte et al. 2017, 5; Opp 2017). This sentiment is corroborated by Saha and Paterson's (2008) survey of local sustainability efforts, which finds that city officials tend to place far less priority on social equity than on either economic development or environmental protection. More recently, Hess and McKane's (2021) analysis of fifty U.S. cities illustrates a fairly weak inclusion of equity-related goals into municipalities' sustainability planning efforts.

Because of its inherent ambiguity and multi-faceted nature, sustainability as it is currently defined does not lend itself to a clear framework and concise indicators for policymakers to follow (Kates et al. 2005, 10). Instead, it is "a fuzzy concept that everyone purports to understand intuitively but somehow finds it difficult to operationalize into concrete terms" (Gunder 2006, 211). Sustainability is ineluctably political. The conventional visual depiction of sustainability as existing at the center of three overlapping circles—with each circle representing one of the three

[2] The "three pillar" model is also referred to as the "balanced approach" or the "triple bottom line" approach throughout the academic literature and by government officials in sustainable cities.

pillars—illustrates the contested nature of the term. In the first place, there is no objective dividing line to determine what types of policies exist within the center of the circle and, therefore, can reasonably be labeled sustainable and which fall outside the boundaries altogether and are thus considered unsustainable (Cohen 2018, 4; Connelly 2007, 270-271). Moreover, sustainability represents a "discursively 'created' rather than authoritatively 'given' product" (Barry 1996, 116). When cities adopt certain definitions of the term, they are inevitably making normative decisions regarding what types of practices are included within the bounds of sustainability, as well as difficult choices regarding policy and budgetary priorities.

Due to its political and contested nature, many scholars argue that fully understanding the meaning of sustainability necessitates engagement with on-the-ground practices designated as sustainable by practitioners (Cohen 2018; Connelly 2007; Zeemering 2009). The burgeoning literature on sustainable cities has attempted to examine these on-the-ground practices in order to determine why sustainability is being adopted even in the face of limited definitional consensus. Although widely perceived as an ideal framework for addressing environmental concerns, economic inefficiencies, and social inequities, the emergence of sustainability as a policy priority often simply "result[s] in ambiguous admonitions to act sustainably" (Norton and Toman 1997, 553).

Numerous cities have taken up the task of responding to these "ambiguous admonitions" by making zoning decisions, implementing programs, and encouraging changes in the behavior of citizens and businesses in order to create sustainable communities. Although not initially designed to be practiced primarily by cities, sustainability has emerged largely as a local issue necessitating political action at the municipal level (Berry and Portney 2013, 2078; Krause and Hawkins 2021, 5).

*Analyzing Sustainability in U.S. Cities*

The recent emergence of cities at the forefront of the sustainability movement creates pressing questions, particularly regarding the reasons why municipalities prioritize sustainability on their agendas and how city officials cope with the ambiguous nature of the concept. There are two main lines of empirical research that have formed in an attempt to answer these questions. In the first line of research are studies that focus on sustainability policy adoption. These studies identify cities that are most committed to practicing sustainability and center on the question of why some cities choose to become sustainable while others do not.

In this vein, Portney's (2013) analysis of sustainable cities suggests that the types of policies associated with sustainability in U.S. cities varies significantly. Although recognizing that important definitional differences do exist, Portney's analysis revolves around understanding the various municipal-level factors that impact the tendency to pursue sustainability efforts in the first place. To begin with, Portney anticipates that cities with a highly educated population will "take sustainability most seriously" (Portney 2013, 230). The author also argues that cities with high levels of economic instability, such as low median family income, possess fewer resources and less space on the agenda to pursue sustainability initiatives. A large percentage of the workforce in manufacturing or other industrial occupations and a conservative political ideology among city officials are also shown to lessen a municipality's propensity to adopt sustainability policies. Interestingly, a city's population size and poverty levels are not found to be strong predictors of sustainability policy adoption (Portney 2013, 305; 312).

Opp and Saunders' (2013) analysis of U.S. cities similarly draws attention to the multiplicity of demographic and political factors impacting a city's decision to adopt sustainability as a guiding policy framework. The study finds that geography and demographic

composition—including the region a city occupies, population size, and racial diversity—impact the tendency to advance sustainability initiatives. Political ideology, as well as the structure of local government, was additionally shown to have an effect. Recent research has also identified political and institutional factors that shape sustainable cities. For instance, Portney and Berry's (2010) study shows that cities characterized by high levels of civic participation in the political process[3] are more likely to demonstrate a robust commitment to sustainability.

While the majority of existing analysis centers on policy adoption, a second, more nascent line of research in the sustainable cities literature sheds light on other stages of the municipal policy process. Conroy's (2006) study, for instance, emphasizes the need to better understand how prevalent sustainability is on municipal agendas. This research draws attention to a broad sense of familiarity with sustainability and its core principles among city officials, but less support for sustainability as a unified framework to structure a city's policies and planning decisions. Krause et al. (2016), as well as Krause and Hawkins (2021), further draw attention to significant variance in the location of sustainability programs in the broader structure of city government. Their analysis points out that some cities have created separate sustainability departments, while others either integrate responsibility for sustainability programs under an existing department or house sustainability within the mayor's office.

Other work has drawn attention to the paucity of research on the implementation stage of local sustainability policies. In this vein, Saha (2009a) seeks to understand why some cities have succeeded in implementing sustainability policies while others have failed and finds that political culture is a significant predictor of effective implementation. In short, cities in which support for

[3] Civic participation in Portney and Berry's study includes a variety of activities such as voting, attending political rallies, signing petitions, etc.

sustainability is constitutive of a community's culture are more likely to successfully implement innovative sustainability programs than cities without a supportive culture (Saha 2009a, 44).

As a whole, existing empirical literature sheds light on the characteristics of sustainable cities. This body of literature also identifies potential causal mechanisms behind engagement with sustainability programs at the municipal level and begins to identify factors that make certain cities central players in the recent sustainability movement. Findings from current studies provide a foundation for this research, which seeks to expand on existing knowledge of sustainable cities by focusing, not on the topic of policy adoption as several other studies have done, but on the variance in how sustainability is conceptualized by U.S. cities.

## Data and Methodology

### *Research Question*

Given debates in the literature and ambiguity in practice over the meaning of sustainability, this chapter centers on the question: How do U.S. cities vary in their conceptualization of sustainability and why does this variance occur?

### *Case Selection*

In order to paint a picture of how U.S. cities are defining sustainability, a list of cities from the American Community Survey (ACS) is used[4]. This database includes all cities with a population size of 60,000 or above (615 municipalities in total from the 2017 dataset). While only analyzing cities above this specific population size necessarily limits the generalizability of this project's results[5], demographic and economic data on small communities is sparse and the

[4] Puerto Rican cities were excluded from the analysis, as the government websites of Puerto Rican cities are not currently publicly accessible.

[5] See Conroy (2006) for a discussion of how existing research on sustainability often focuses on a small number of large urbanized cities at the expense of understanding sustainability policies in smaller, more rural, or less well-known municipalities.

ACS represents one of the most thorough and up-to-date sources of municipal-level data, making this database a valuable source despite its exclusion of less populated municipalities. From this list, 200 cities were randomly selected in an effort to construct a relatively large, representative sample.

*Operationalizing and Measuring the Dependent Variable*

A content analysis of city websites and planning documents was performed on the 200 randomly selected cases to identify how sustainability is defined by cities. Content analysis is an appropriate method for the research question at hand, since the primary objective of this method revolves around "recognizing meanings" assigned to certain concepts and articulated by relevant actors (Krippendorf 2012, 27). In order to analyze various definitions of sustainability put forth by cities, official websites and relevant documents were coded and scored in four different categories—1) how strongly the economic pillar is discussed, 2) how strongly the social equity pillar is discussed, 3) how strongly the environmental pillar is discussed, and 4) whether cities articulate the balanced/three-pillar approach in which each of the three dimensions is prioritized[6]. The coding scheme initially proceeded deductively by constructing the categories for the content analysis based on the three-pillar approach that is common throughout the literature and by deriving words and phrases to delineate each category from the expectations of current theoretical and empirical analyses of sustainability.

After the construction of the categories, an inductive methodology was adopted in which a cursory overview of fifteen city websites was undertaken. This was done to determine the types of policy goals and mechanisms cities are using to describe each of the three pillars. Drawing both from the theoretical literature and from a small sample of city websites combines the

[6] A description of the words and phrases that constitute each coding category is included in Appendix A.

techniques of "conventional content analysis" in which coding categories are derived directly from the texts subject to analysis with the "directed approach" that generates categories from the literature (Hsieh and Shannon 2005). The technique of using both conventional and directed strategies enhances the inclusiveness, as well as the thoroughness, of the conceptual categories. In order to understand how cities define sustainability, the coding system takes into consideration the goals of sustainability emphasized on city websites and in planning documents (waste reduction, for instance) and the policy mechanisms proposed to achieve these objectives (recycling and composting programs, for example).

Prioritization of the economic pillar is indicated through the articulation of goals such as long-term economic development, sustainable growth, maximizing the cost-effectiveness of industrial operations through waste minimization, and making the city more attractive to investment by green businesses and industries. The social equity dimension is articulated through goals centering on enhancing the livability of a city, increasing equitable access to open space and other resources, strengthening the social resilience of neighborhoods, and addressing public health concerns. The environmental protection pillar centers on actions such as preserving natural resources, encouraging environmental stewardship among city residents, and protecting the resilience of ecosystems[7].

Due to variation in the quality of official city websites and in the amount of information publicly available on these sites, it was necessary to establish boundaries around the content analysis to determine which aspects of a webpage to analyze in an effort to ensure that all cities were examined with equal thoroughness. Thus, only the following were examined: a specific link or page devoted to a city's sustainability efforts; an explicit, separate section in a municipality's

[7] For a complete list of the words and phrases used in the content analysis, refer to Appendix A.

comprehensive plan, action plan, or vision statement discussing sustainability; a page or link devoted to a city department, commission, office, or permanent task force directly relating to sustainability; or a sustainability plan. By focusing relatively narrowly on documents and areas of city webpages that explicitly discuss sustainability on a designated page, program/commission description, or section of a comprehensive plan, this research excludes instances in which sustainability is mentioned in passing or in the context of other policy objectives. This measurement choice corresponds with this chapter's broader research purpose by directly identifying the ways in which sustainability is defined.

*Operationalizing and Measuring the Independent Variables*

The factors hypothesized to impact how cities define sustainability include municipal population size, the percentage of residents with a bachelor's degree or above, the percentage of adults living below the poverty level, racial composition and diversity, whether or not there is a university located in the city limits, and if the city houses a separate government department or office devoted to sustainability. In terms of racial composition, existing research comes to contradictory conclusions about the impact of this variable on sustainability policy. Portney (2013, 311), for instance, finds no significant relationship between racial and ethnic diversity and a city's commitment to sustainability, while other research suggests that a high percentage of Hispanic residents correlates with the adoption of sustainability efforts (Opp and Saunders 2013). Given the mixed results in existing studies, two separate variables are included to measure racial composition—the percentage of white residents and the percentage of Hispanic residents in a city.

Demographic data were gathered from the 2017 American Community Survey database. Information from the National Center for Education Statistics was used to determine whether or

not each city in the dataset houses a college/university. In order to maintain consistency with the education variable mentioned above (which indicates the percentage of the population that has attained at least a four-year degree), the university variable is presented as a dichotomous variable and is divided into two categories—cities that are home to at least one four-year college/university and those that are not.

In addition to demographic factors, this research also explores the ways in which city governments are structured around sustainability policy goals. In particular, this study analyzes whether or not cities that have a separate government department or office dedicated solely to sustainability define the concept differently than cities that incorporate sustainability into already-existing institutions of local government, such as an office of economic development, environmental protection, or waste management. Official city government websites were analyzed to determine if a separate sustainability office or department exists[8].

*Methodology*

The dependent variable (definitions of sustainability) was divided into three separate ordinal variables—the environmental protection pillar, economic pillar, and social equity pillar. For each separate variable, cities were assigned either a 0 (does not mention this pillar), a 1 (weakly emphasizes this pillar), or a 2 (strongly emphasizes this pillar) depending on the findings of the content analysis. A pillar is considered strongly emphasized when there is a clear mention of this pillar in key guiding documents—such as a city's comprehensive plan, mission statement, sustainability webpage, etc.—coupled with concrete discussions of the types of policies and programs the city plans to pursue (or has already put in place) to achieve objectives related to the specific sustainability pillar. A pillar is coded as weakly emphasized when it is

[8] See Appendix B for a more complete description of the independent variables.

mentioned as part of the definition of sustainability, but is not explicitly discussed. For instance, some cities explain their approach to sustainability using visual depictions of three overlapping circles (representing the three pillars of sustainability), but only explicitly discuss policy goals, programs, or planning decisions related to two sustainability pillars. See Table 2.1 below for a detailed explanation of the coding categories.

A variable that totals cities' scores in each of the three pillars is also included. This total category ranges from 0 (no pillars of sustainability discussed by a city) to 9 (all three pillars are strongly emphasized on a city's website) and is included in an effort to provide a rough measure of cities' overall adherence to the three-pillar framework. To test the relationship between the independent variables and the propensity of cities to emphasize different aspects of sustainability in their definition, Poisson regression was performed on the separate dependent variables (i.e., each pillar of sustainability), as well as on the total sustainability measure.

**Table 2.1: Explanation of Dependent Variable Measurement**

| **Content analysis category** | **Explanation of category** | **Example** |
|---|---|---|
| None (0) | Either does not explicitly mention this pillar in its definition of sustainability or does not have any sustainability program to analyze | A city might emphasize the environmental pillar of sustainability, but not mention either the economy or social equity in its definition. In this case, the city is assigned a 0 on the economic pillar and the social equity pillar. Cities that do not have any mention of sustainability are assigned 0s in all three categories. |
| Weak (1) | Briefly mentions this pillar as part of a broader definition of sustainability, but does not strongly emphasize it | A city mentions the environment as part of its definition of sustainability, but there is no evidence of the environmental pillar in its policy goals, planning framework present in its comprehensive plan (in the section related to sustainability), and/or on its sustainability page. A city might make reference to the three-pillar metaphor, but not discuss the environment in any other context in its sustainability-related documents and webpages. |
| Strong (2) | Explicitly discusses this pillar of sustainability in its definition of the concept and in its policy goals and/or planning framework | A city incorporates environmental protection into its definition of sustainability and discusses distinct policies related to the environmental protection pillar in its comprehensive plan (in the section related to sustainability) and/or on its sustainability page. |

In addition, a dichotomous variable is included to determine whether or not cities adopt a balanced/three-pillar approach to sustainability by discussing the economic, environmental, and social equity pillars in their definition of the concept. Cities fall into this category by mentioning all three pillars of sustainability in their conceptualization, even if some pillars are emphasized more heavily than others.[9] Logistic regression was performed to test the relationship between the various independent variables and the dichotomous measure of whether or not cities define sustainability in the language of the balanced/three-pillar approach.

**Hypotheses**

The idea that sustainability represents the equal prioritization of the economy, environment, and social equity in policy and planning decisions is assumed throughout much of the relevant literature. In order to test the prevalence of the three-pillar approach, this chapter explores the possibility that, in reality, cities may put forth definitions of sustainability that are inconsistent with the heuristics in the literature. Instead, it is anticipated that U.S. cities articulate a wide variety of definitions of sustainability and that some cities prioritize certain pillars, while either completely ignoring or only minimally addressing others. Thus, this research tests whether the three-pillar approach, although a viable heuristic in theory, actually informs how sustainability is defined in practice. Based on the sustainable cities literature discussed above, several hypotheses are included to test the relationship between key characteristics of cities, such as demographic composition, and their definition of sustainability.

[9] In an effort to capture the idea that sustainability is designed as a flexible policy and planning framework in which city governments can adapt the term to meet the unique needs of each city, coupled with the recognition in the literature that it is nearly impossible to balance all three pillars equally, this project operationalizes "balanced/three-pillar approach" in a fairly lenient way. Cities score a 0 on the balanced category if there is no mention of one or more of the pillars in their conceptualization of sustainability (i.e. if a city defines sustainability without mentioning social equity). Cities score a 1 on the balanced category if they mention all three pillars, even if one pillar is discussed in stronger terms (i.e. a city that strongly discusses the environmental and social equity pillars, but only briefly mentions the economic dimension of sustainability).

*Descriptive Hypothesis*

H1: Although the vast majority of the theoretical literature conceptualizes sustainability as existing at the intersection between economic development, environmental protection, and social equity, this research anticipates that U.S. cities vary in their conceptualization of sustainability and often prioritize one or two dimensions of the concept, rather than balancing all three pillars.

Given the argument proposed here that, in practice, sustainability does not always represent an equal prioritization of all three pillars, but rather that cities can prioritize certain aspects of the concept, this chapter explores specific characteristics of cities that might impact their unique conceptualization of sustainability. These characteristics include a variety of municipal demographic factors (including population size, percentage of residents living in poverty, percentage of the population with a bachelor's degree or higher, racial composition, and whether or not the city is home to a four-year college or university), as well as an exploration of how sustainability programs and policies are organized within city government. The specific explanatory hypotheses follow.

*Balanced/Three-Pillar Approach*

H2: Based on findings in previous research that populous cities are more likely to have sufficient resources necessary to invest in sustainability policies and place a wider variety of issues on local governments' agendas (Krause et al. 2016, 117; Opp and Saunders 2013; Wang et al. 2012), it is anticipated that cities with a larger population size will be more likely to prioritize all three pillars of sustainability when defining the term. Population size is, therefore, expected to be positively correlated with the *balanced/three-pillar* variable and with the *total* variable in the regression results.

H3: It is expected that cities with a separate sustainability department will be more likely to articulate the balanced/three-pillar approach than cities that house their sustainability programs in an existing department, such as economic development or recycling/waste management.

H4: Existing research has found that many of the highest-ranking sustainable cities in the United States are also home to institutions of higher education (Opp and Saunders 2013, 694). Given these findings, it is expected that the presence of a college or university in a city is correlated with the tendency to emphasize all three sustainability pillars.

*Pillar-Specific Variables*

H5: It is hypothesized that cities with a high percentage of citizens living in poverty will emphasize the social equity pillar, while cities with lower poverty levels will tend to neglect social equity discourse in their definition of sustainability, as concerns about social equity might not be high on the agenda in cities with fewer residents living in poverty.

H6: Cities composed of high levels of racial minorities are hypothesized to prioritize the social equity pillar more so than cities with a predominantly white demographic composition. Thus, the *%white* variable is expected to be negatively correlated with the *equity* variable. Given findings from other studies suggesting that the most sustainable cities are also the most racially diverse, it is also anticipated that the *%white* variable will be negatively correlated with the *balanced/three-pillar* variable.

H7: Similar to the previous hypothesis, it is expected that the *%Hispanic* variable is positively correlated with both the *equity* variable and the *balanced/three-pillar* variable, as other studies have identified a correlation between communities with a large percentage of Hispanic/Latino residents and a strong commitment to sustainability.

H8: It is expected that cities in which residents have a high level of formal education are more likely to emphasize the environmental pillar in their definition of sustainability, compared to cities in which the percentage of residents earning a bachelor's degree is low. A growing body of research across a variety of disciplines suggests that high levels of educational attainment are strongly correlated with public support for environmental protection policies (National Opinion Research Center 2015; Steel 1996). The variable *BA* is expected to be positively correlated with the *environment* variable.

H9: Taking into consideration Portney's (2013) argument that cities adopt sustainability policies in order to meet their most vital needs, it is anticipated that cities with a high poverty rate are more likely to emphasize economic development in their definition of sustainability. The *poverty* variable is expected to be positively correlated with the *economy* variable.

**Situating the Project**

Sustainability is innately complex and ambiguous. In academic work, scholars debate the overall meaning and utility of sustainability as a broad framework for organizing societies that are equitable, environmentally benign, and economically stable in the long term. In practice, there are contradictions and tradeoffs between economic prosperity (especially if prosperity is understood as synonymous with economic growth), environmental protection, and social equity that cities are currently taking substantial responsibility for reconciling (Berry and Portney 2010;

Paehlke 2001; Rosenbaum 2022, 21). While sustainability in the abstract is understood as the equal prioritization of the three pillars, in practice it is governments—most notably cities—that actively shape what sustainability means in terms of concrete policies and planning decisions.

In addition, governments are responsible for "regulating the interactions between the three spheres" and arbitrating the "variety of claims [that are] made about the roles that are, or should be (or should not be) played by one sphere relative to the others" (O'Connor 2006, 286). Sustainability, therefore, is an innately political concept that involves concrete tradeoffs. These tradeoffs are particularly profound within cities, as municipal budgets tend to be constrained and the provision of vital public services—such as water, trash collection, and many others—are directly linked to the practice of sustainability. Given the role of city governments in making decisions regarding how best to balance the three pillars and how to structure long-term economic planning, environmental protection efforts, and social policy in a way that is mutually beneficial, further research on the role of cities in defining sustainability is necessary for the development of the environmental politics field. Scholarly work analyzing sustainable cities is extensive. However, there are several myopias in existing literature that blur the overall picture of how sustainability is conceptualized, adopted, and implemented in U.S. cities.

First, empirical work on sustainable cities focuses heavily on policy adoption (Saha 2009) and, to a lesser degree, on the implementation process (Krause and Hawkins 2021). While the question of how many cities are adopting sustainable practices and what factors cause these cities to integrate sustainability into their policy and planning paradigms is unquestionably an important line of inquiry, current research would benefit greatly from an analysis of how sustainability is defined in the first place. Studying policy adoption without first understanding how sustainability is conceptualized by relevant political actors ignores an important step in the

policymaking process. Due to the inherent ambiguity and contestation that characterizes the sustainability concept, overlooking the role of city officials and other actors in defining sustainability hinders the ability of current research to explain and critically evaluate the diversity of sustainability efforts among U.S. cities. This chapter seeks to fill this gap by exploring how sustainability is conceptualized. In this sense, this project develops a more thorough understanding of why cities adopt *certain* conceptualizations of sustainability.

Secondly, most studies do not include a diverse set of U.S. municipalities. Instead, they tend to only include cities with well-developed sustainability initiatives that have consistently scored highest on various sustainability rankings (Saha 2009; Portney 2013). As a result, existing research cannot yet describe precisely how widespread sustainability has become as a policy and planning paradigm nor how cities outside the most highly ranked sustainable communities are defining and practicing the concept. While it is vital to explore the policy practices of the highest performing sustainable cities (such as Portland, OR and Denver, CO, among others) as they are widely recognized as policy leaders, it is equally important to paint a broad picture of how a variety of U.S. cities are grappling with the ambiguous nature of sustainability in their policy/planning frameworks. As Cohen et al.'s (2015) discussion of "unlikely innovators" implies, the practice of sustainability is likely far more varied and complex than research solely analyzing the most well-recognized sustainable communities can shed light on. By analyzing a random sample of 200 cities—some of which have well-developed sustainability programs in place, some that do not practice sustainability in any form, and many that fall somewhere in the middle of the pack in terms of their commitment to sustainability—this project hopes to paint a clearer picture of the variance in how sustainability is conceptualized across a diverse set of cities.

Third, existing research does not typically distinguish between cities that explicitly pursue sustainability as a guiding framework and those that implement environmentally beneficial, socially equitable, or economically advantageous policies in a more piecemeal manner that are not intended to be part of a broader sustainability agenda. A city that has implemented an extensive clean energy program simply for its cost savings, for example, might be conceptualized as practicing sustainability in current research even if this particular city does not use the term "sustainability" or view its clean energy policies as a component of an inclusive sustainability paradigm. Thus, existing empirical analyses might include cities that have implemented some policies typically contained under the sustainability umbrella but that do not explicitly adhere to the core principles of the concept. This can distort scholars' understanding of what sustainability means to municipal policymakers. By focusing on how sustainability is defined and analyzing cities that explicitly discuss sustainability as a policy goal, this research seeks to address this gap.

Lastly, while there is widespread recognition in the literature that the three-pillar model is limited in its ability to understand how practitioners put sustainability into practice, empirical studies have done little to reflect this important nuance. Most studies take sustainability as a complete concept, as opposed to analyzing each pillar separately and exploring the relative importance of economic development, environmental protection, and social equity in a city's sustainability framework. Correcting this myopia could move the current conversation about municipal sustainability forward, as it would provide a clearer picture of how cities navigate the definitional ambiguity associated with practicing sustainability. This chapter is intended to be a first step in this direction, as the assumptions and methodology of this study remain open to the possibility that cities might not adhere to the three-pillar metaphor.

A key contribution of this research is a deeper analysis of the idea that the three-pillar metaphor might not accurately depict the realities of city planning and policymaking. Alternatively, it is anticipated that the actual definitions attributed to the sustainability concept are more complex and do not necessarily strike a balance between the three pillars. As some scholars have pointed out, there are inherent normative and practical tensions between the objectives of economic development, social equity, and environmental protection, even though these values are often assumed to be compatible (Campbell 1996, 5; Long 2016). By including each pillar of sustainability as a separate variable, this analysis can determine whether or not cities prioritize one dimension of sustainability over others and what factors influence these definitional choices. Thus, this research opens up the space to consider that some cities might only prioritize a single pillar, while still defining their policy efforts as acts of sustainability. Existing research tends to either take the three-pillar metaphor for granted by assuming that the different dimensions are practiced equally or to operationalize sustainability in the language of one pillar (almost exclusively environmental protection) to measure cities' commitment to sustainability.

## Analysis

### *Descriptive Findings*

Out of the random sample of 200 U.S. cities with populations of 60,000 or more that forms the basis of this analysis, 120 cities explicitly discuss sustainability on their website and/or in planning documents (such as their comprehensive plans). 80 cities have no mention of the sustainability concept[10]. Based on this data, sustainability represents a relatively pervasive policy

[10] This is not to say that these 80 cities have not implemented practices such as recycling services and energy efficiency programs that embody the principles of sustainability (although this is likely the case with some cities in the sample). However, this measure does show that the sustainability concept is not explicitly mentioned and is, therefore, not used as a policy/planning paradigm in these 80 cases.

paradigm that local governments are articulating as a broad framework for organizing diverse policy goals—goals such as improving access to public transportation, increasing energy efficiency, diverting waste through recycling and composting programs, making a locality attractive to investment from green industries, and many other actions. Despite the fairly widespread usage of sustainability discourse, however, the ways in which cities define the concept varies widely both in scope and content. While some cities articulate the three-pillar metaphor as a guiding framework for their policy and planning efforts, others use the term "sustainability" extensively on their websites and in their comprehensive planning process but define the concept solely in terms of one of the three pillars (most predominantly the environmental pillar).

**Table 2.2: Distribution of the Dependent Variable (Balanced/Three-Pillar Approach) among Total Sample**

| | |
|---|---|
| **Percent mentioning all three pillars** | 39.50 |
| **Percent mentioning two or fewer pillars** | 60.50 |

Findings from the descriptive analysis broadly support this project's foundational hypothesis that, despite the adoption of the three-pillar metaphor within much of the literature, this discourse does not consistently play out in practice. This is evidenced by the fact that slightly over 60% of cities included in this project either do not discuss sustainability as a policy goal at all or prioritize fewer than three dimensions in their unique conceptualization of the term. In contrast, nearly 40% of cities in the sample articulate a balanced approach. While the three-pillar metaphor is articulated by a substantial number of cities, many are actively pursuing sustainability without adhering to the core idea that environmental protection, economic development, and social equity should be addressed in tandem. In this sense, viewing sustainability as a unified concept with an agreed-upon, consistent definition is both oversimplified and empirically inaccurate.

**Table 2.3: Distribution of the Dependent Variable among Total Sample of Cities**

| **Sustainability Pillar** | Environment | Social Equity | Economy |
|---|---|---|---|
| **Percent Scoring 0 (none)** | 40 | 59 | 53 |
| **Percent Scoring 1 (weak)** | 5 | 12 | 10.50 |
| **Percent Scoring 2 (strong)** | 55 | 29 | 36.50 |

Notably, the descriptive analysis shows that the environmental component tends to be the most strongly prioritized pillar. 55% of cities mention environmental concerns as a central component of their sustainability efforts, while 5% articulate only a weak focus on the environment and 40% either do not mention this pillar or do not have any discussion of sustainability to analyze. In contrast, 36.5% of cities in the sample strongly prioritize economic development. Social equity concerns are central to a city's definition of sustainability in only 29% of the cases in this analysis, adding further evidence to the well-documented finding in the literature that environmental and economic issues often overshadow social equity concerns in sustainable communities. The descriptive component of this study broadly aligns with ICMA survey data suggesting that a minority of sustainable cities on a global scale actively pursue equity-related policies (Svara et al. 2014, 1).

Previous research has pointed to the difficulties in gaining sufficient public support for policies and programs that enhance social equity, as well as in effectively and efficiently implementing these policies, since addressing equity concerns is costly and complex (ICMA 2014). The data in this study show that the social equity pillar is not only ignored at the adoption and implementation phase of the policy process; in a majority of cities in this analysis, social equity is not even discussed as a core component of sustainability—or is discussed as a lower priority than environmental and economic concerns. In this sense, many cities set the foundation of their sustainability efforts with a definition of sustainability and, therefore, with a policy and planning framework that limits the priority placed on social equity upfront. Interestingly, 12% of

cities in this analysis briefly mention equity as a key component of sustainability, but do not include any discussion of policy goals on their websites or in planning documents that indicate a concrete commitment to addressing social equity. This observation provides empirical weight to concerns in the literature that the inclusion of equity in a municipal government's sustainability framework might be "more political than material" (Long 2016, 151) and may be the product of political pressure to include the equity pillar rather than a reflection of an actual commitment to equity-enhancing policy interventions.

**Table 2.4: Distribution of the Dependent Variable among Sustainable Cities Only**

| **Sustainability Pillar** | Environment | Social Equity | Economy |
|---|---|---|---|
| **Percent Scoring 0 (none)** | 1.67 | 31.67 | 21.67 |
| **Percent Scoring 1 (weak)** | 7.50 | 20 | 17.50 |
| **Percent Scoring 2 (strong)** | 90.83 | 48.33 | 60.83 |

The tendency for cities to neglect the social equity dimension while prioritizing the environmental protection pillar is even more evident when only including the 120 cases in this sample that explicitly discuss sustainability on their webpages or in planning documents. Among sustainable cities, the environmental pillar is strongly emphasized in over 90% of sustainability definitions and there are only two cases in which environmental protection is not explicitly mentioned as a key component of sustainability. In comparison, fewer than half of sustainable cities in this sample strongly emphasize social equity, while over 31% do not mention equity-related policy goals in their conceptualization of sustainability at all. Prioritization of economic development falls in the middle of these two extremes, as approximately 61% of sustainable cities in this analysis place a strong emphasis on the economic dimension.

*Explanatory Findings*

**Table 2.5: Correlation Matrix**[11]

| | Total | Balanced | Enviro | Equity | Economy | BA | Pop size | %white | %Hispanic | Poverty | University |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 1.0 | | | | | | | | | | |
| Balanced | .87* | 1.0 | | | | | | | | | |
| Enviro | .85* | .67* | 1.0 | | | | | | | | |
| Equity | .89* | .92* | .64* | 1.0 | | | | | | | |
| Economy | .90* | .79* | .69* | .79* | 1.0 | | | | | | |
| BA | .12 | .12 | .20* | .12 | .05 | 1.0 | | | | | |
| Pop size | .32* | .25* | .25* | .30* | .30* | .05 | 1.0 | | | | |
| % white | -.03 | .03 | -.05 | -.02 | -.02 | .27* | -.05 | 1.0 | | | |
| % Hispanic | -.04 | -.09 | -.07 | -.08 | -.03 | -.38* | .14 | -.05 | 1.0 | | |
| Poverty | .12 | .15* | .07 | .14 | .15* | -.45* | .07 | .22* | -.06 | 1.0 | |
| University | .18* | .21* | .16* | .23* | .15* | .04 | .29* | -.02 | -.24* | .39* | 1.0 |

[11] The asterisk (*) indicates statistical significance at the .05 level.

The correlation matrix draws attention to multiple possible explanatory factors affecting cities' conceptualizations of sustainability. In the bivariate analysis, a city's population size appears to hold significant explanatory weight, as this variable is positively correlated with the number of sustainability pillars that are prioritized by cities, the tendency for cities to articulate a balanced/three-pillar approach, and the tendency to address each of the three sustainability pillars individually. The relationship between population size and each measure of the dependent variable is significant at the .05 level. Educational attainment also plays a role in how sustainability is defined. As hypothesized, the percentage of city residents holding a bachelor's degree or higher is positively correlated with the proclivity for city officials to conceptualize sustainability in terms of environmental protection.

In contrast to existing research on sustainability policy adoption that highlights racial heterogeneity as a demographic characteristic that positively impacts the likelihood that cities will pursue sustainability (Opp and Saunders 2013, 693), this analysis finds no significant relationship between racial composition and the ways in which sustainability is defined. Poverty, however, does have a statistically significant effect, although the relationship is more complex than originally hypothesized. The lack of correlation between a high poverty rate and the inclusion of social equity concerns in a city's definition of sustainability is unexpected and contradicts this project's hypothesis that issues such as affordable housing, access to sustainable food sources, public transit, and other policy problems under the umbrella of the social equity pillar are likely to be higher on the local agenda in communities in which a large number of residents live below the poverty line. In addition, the positive correlation with the economic dimension of sustainability, as well as the tendency to define sustainability in the language of the

three-pillar approach is less intuitive and will be explored in more depth in the multivariate analysis and corresponding discussion.

Consistent with recent studies that highlight a link between sustainability policy adoption and higher education institutions (Mosier and Ruxton 2018; Opp and Saunders 2013), the presence of a university appears to impact conceptualizations of sustainability. The university variable is positively correlated with each pillar of sustainability, as well as with the tendency for cities to define sustainability in terms of the balanced/three-pillar approach.

In addition, the correlation matrix indicates that some of the independent variables are statistically related to one another. Level of formal education, a city's poverty rate, and racial composition, for instance, are all correlated. The relationship between the independent variables, as well as the correlation between several municipal characteristics and the sustainability variables, draws attention to the need for regression analysis in order to construct a model capable of measuring the effect of a single independent variable while controlling for other potential explanatory factors. The regression results are discussed below.

**Table 2.6: Factors Related to the Environmental Protection Pillar**

| Variable | Standard Error | Z Score | P>z (Significance) |
|---|---|---|---|
| BA | 1.011867 | 2.83 | 0.005 |
| Population Size | 3.14e-07 | 2.24 | 0.025 |
| %white | .3843677 | -0.93 | 0.352 |
| %Hispanic | .3801975 | 0.31 | 0.760 |
| Poverty | 1.065489 | 1.70 | 0.089 |
| University | .1692348 | 0.21 | 0.830 |

Prob > chi2 = 0.0066
Pseudo R2 = 0.0335

In terms of the various factors corresponding to a prioritization of the environmental protection pillar, the two strongest and statistically significant independent variables are level of education and population size (both significant at the .05 level). The relationship between education and an emphasis on the environmental pillar in cities' definitions of sustainability is unsurprising. There is a well-documented connection between an educated public and increased awareness of environmental issues, along with the proclivity for well-educated citizens to advocate for stronger environmental policy intervention (National Opinion Research Center 2015; O'Connell 2008, 1357-1358). Importantly, the education factor impacts environmental conceptualizations of sustainability independent of the number of universities located within a city.

Although more exploration is needed to draw definitive conclusions, it can also be reasonably argued that a population with higher levels of formal education might also possess significant political and social capital. This form of capital could manifest in an enhanced awareness of issues impacting the city's prosperity, access to quality information regarding these concerns, stronger social ties that affect individuals' ability to gain knowledge of current issues and to mobilize politically, and an increased sense of efficacy allowing citizens to influence municipal-level policy discourse and agenda setting. Additional analysis is needed to explain the relationship between education and concepts such as efficacy, access to the municipal political agenda, issue awareness, and overall support for the environmental component of sustainability.

The regression results also suggest that municipal population size is positively correlated with the prioritization of the environment in cities' conceptualization of sustainability. The proclivity for larger cities to include an explicit concern with the environment in their definition of sustainability has many potential explanations, all of which are beyond the explanatory power

of this data and, without additional empirical analysis, are in the realm of theoretical conjecture. It is possible that the environmental pillar is explicitly included in large cities' definitions of sustainability more often than in smaller cities because solving the most pressing problems in populous cities necessitates placing environmental protection front and center on the agenda. Heavily populated cities have high metabolisms both in terms of energy consumption and waste production. Large cities are often posited as key contributors to climate change, resource depletion, and other environmental concerns (Cohen 2018). Thus, it is plausible that the environment is forefront in large cities' sustainability frameworks simply because preserving the natural environment is viewed as an immediate, pressing need given the resource intensity and potential for harmful environmental degradation in large cities.

Racial composition and the poverty level are not significant determinants of a city's tendency to emphasize the environmental pillar in its definition of sustainability. This finding is fairly intuitive, as there is scant evidence in existing scholarly work that points to an association between these factors and a prioritization of environmental protection. Somewhat surprisingly though, the presence of a university is also unrelated. The bivariate analysis shows a possible correlation between the presence of higher education institutions and a focus on the environmental pillar, but this correlation drops out in the multivariate analysis. This finding further complicates an already complex relationship between the existence of universities and a city's tendency to adopt sustainability policies that is documented in current research. Although recent scholarly work suggests that university-city partnerships can assist in the implementation of local-level sustainability programs in some cases (Mosier 2015; Mosier and Ruxton 2018), the impact of higher education institutions on municipal sustainability appears to be less relevant when explaining how cities choose to define the term. It is possible that the impact of

universities in the bivariate analysis is actually a reflection of the relationship between educational attainment and environmental protection.

**Table 2.7: Factors Related to the Social Equity Pillar**

| Variable | Standard Error | Z Score | P>z (Significance) |
|---|---|---|---|
| BA | 1.313184 | 1.91 | 0.056 |
| Population Size | 3.53e-07 | 3.08 | 0.002 |
| %white | .5022377 | -0.24 | 0.807 |
| %Hispanic | .5056188 | -0.28 | 0.780 |
| Poverty | 1.309759 | 1.80 | 0.072 |
| University | .2272398 | 1.24 | 0.215 |

Prob > chi2 = 0.0003
Pseudo R2 = 0.0567

In terms of the tendency to include equity concerns in definitions of sustainability, population size is the only variable with a statistically significant impact when controlling for other potential explanatory factors. Factors related to the prioritization of equity among sustainable cities are particularly important to explore, considering that this pillar is vastly understudied. Policy scholars frequently leverage critiques against municipal policy and planning paradigms that are labeled as sustainable but neglect to address equity explicitly. Developing an understanding of what characteristics make cities more likely to prioritize social equity in the way they initially define sustainability fills an important gap in existing empirical work.

The literature suggests that social equity is the most under-prioritized dimension of sustainability in both discourse and practice (Agyeman 2008; Bostrom 2012; Opp 2017). While this analysis confirms that finding, it also indicates that populous cities might possess higher capacity to address equity concerns, as population size is positively correlated with the tendency

to prioritize the equity pillar. Other research on sustainable cities alludes to the idea that highly populous municipalities have greater agenda capacity. Large cities are more likely to have active agendas that contain a diverse array of sustainability-related policy issues (Portney 2013, 232), many of which are multi-faceted and costly to ameliorate. Large cities, on average, also have greater fiscal resources to draw on when implementing sustainability-related policies and tend to have stronger political networks compared to smaller cities. For instance, political officials in populous cities can utilize their relationships with state government officials to procure funding, technical assistance, or other resources necessary for implementing local-level sustainability policies (Homsy and Warner 2015). For smaller cities that have more limited agenda space and do not reap the benefits of economies of scale or strong political relationships with state-level officials, environmental and economic issues might gain priority over equity concerns, which are typically complex, costly to address, and primarily impact populations that have limited interest group representation and political efficacy.

Contrary to the hypotheses stated above, neither a high poverty rate nor racial diversity is correlated with a city's tendency to prioritize the social equity pillar. These findings open the possibility for further development of the sustainable cities literature, critically evaluating the assumption that a high percentage of racial minorities and/or a large number of residents living in poverty are sufficient factors to result in an explicit policy focus on social equity. Instead, this research suggests that racial composition and poverty alone are not sufficient factors to impact cities' policy discourse and priorities. Social capital and control over agenda setting might be mediating factors. Although many cities have a large percentage of racial minorities and residents living in poverty, scholars suggest that minority populations and impoverished individuals often do not possess the sense of political efficacy, representation, and trust in

government necessary to voice their interests and play a meaningful role in agenda setting (Avery 2006; Beaumont 2011). Further research is needed to explain the seemingly inconsequential role of these two variables on city-level equity discourse, focusing specifically on the amount of efficacy and trust in local government held by disadvantaged populations.

**Table 2.8: Factors Related to the Economic Pillar**

| Variable | Standard Error | Z Score | P>z (Significance) |
|---|---|---|---|
| BA | 1.224864 | 1.05 | 0.292 |
| Population Size | 3.27e-07 | 3.47 | 0.001 |
| %white | .4535634 | 0.05 | 0.963 |
| %Hispanic | .4480581 | -0.19 | 0.850 |
| Poverty | 1.221371 | 2.08 | 0.038 |
| University | .2015887 | -0.09 | 0.925 |

Prob > chi2 = 0.0051
Pseudo R2 = 0.0383

Population size and poverty (significant at the .05 level) impact a city's propensity to discuss economic development in their definition of sustainability. Similar to the correlation between population size and the other two pillars, the link between this variable and the economic pillar is intuitive. Large cities typically possess the resources necessary to attract green jobs and invest in clean industries—a key component of the economic dimension (Nowak 2008). In addition, as Portney (2013, 312) discusses, larger cities are able to capitalize on economies of scale and can invest in economically beneficial and environmentally friendly endeavors such as retrofitting buildings, energy efficiency programs, incentives for businesses/industries to green their input and output, and sustainable purchasing. Populous cities might additionally have a higher fiscal capacity to engage in long-range economic planning that is focused on developing policies and programs to encourage sustainable growth (Homsy and Warner 2015).

Cities with high poverty levels are more likely to articulate economically-oriented definitions of sustainability. This finding adds to a complex and unsettled conversation in the literature on sustainable cities that, taken as a whole, presents an idiosyncratic picture of the relationship between poverty and sustainability. For instance, Portney's analysis of sustainable cities suggests that poverty is not a significant determinant of a city's propensity for adopting sustainability-related policies (Portney 2013, 305). Aligning with the findings in this research, however, O'Connell's (2008, 1367-1368) evaluation of municipal smart growth policies suggests that in situations of widespread economic insecurity, policies that focus on economic development and long-term growth take precedence over environmental protection. The findings from this chapter demonstrate that, despite current disagreements over the impact of poverty on sustainability policy adoption in general, this variable has a strong positive correlation to the prioritization of the economic development pillar as part of a city's definition of sustainability.

Although level of education has a significant impact on cities' proclivity to emphasize the environmental protection pillar in their definition of sustainability, there is no ostensible relationship between educational attainment and the economic pillar. The presence of a university is also insignificant, despite suggestions in a related body of literature that city-university partnerships can be vital to economic development (Mosier and Ruxton 2018).

**Table 2.9: Factors Related to the Balanced/Three-Pillar Approach**

| Variable | Standard Error | T Value | P>t (Significance) |
|---|---|---|---|
| BA | .5370786 | 1.91 | 0.058 |
| Population Size | 2.03e-07 | 2.94 | 0.004 |
| %white | .195177 | 0.63 | 0.527 |
| %Hispanic | .1926328 | -0.28 | 0.780 |
| Poverty | .5792687 | 2.36 | 0.019 |

| | | | |
|---|---|---|---|
| University | .0827166 | 0.48 | 0.632 |

Prob > chi2 = 0.0005
R-squared = .1192

Factors that are positively correlated with cities' tendency to articulate the conventional three-pillar approach to sustainability include population size and poverty levels. These findings provide further support for the notion that a city's size impacts its capacity to devote resources and agenda space to a multiplicity of concerns simultaneously, since the balanced approach necessitates a relatively equal prioritization of all three dimensions of sustainability. In part, this finding could be explained by the idea mentioned earlier that large cities tend to have greater capacity to solve a multiplicity of policy problems (Opp and Saunders 2013, 692-693). In this sense, large cities might have more agenda space to accommodate interlocking environmental protection, social equity, and economic development programs that fit under the three-pillar framework compared to smaller cities. Populous cities also benefit from a larger tax base that translates into additional resources to expand the local agenda space and accommodate a comprehensive approach to sustainability (Portney 2013, 312).

Agenda capacity and a large tax base are some of many possible explanations to understand the relationship between population size and the tendency to define sustainability using all three pillars, however. It is equally plausible that because heavily populated cities tend to suffer disproportionately from air and water pollution, loss of ecologically vital land, lack of affordable housing, and other environmental concerns that plague large urban centers (Portney 2013, 305-308), a multifaceted approach to sustainability is perceived as necessary by local policymakers and citizens. The literature on sustainable cities would benefit from more in-depth analysis into the intervening factors linking population size both to a stronger commitment to sustainability that has been identified in previous research and to the tendency to use the three-

pillar discourse that this study highlights. Additional empirical work on the motivation of policymakers in large urban areas to adopt sustainability and define it in the framework of the three-pillar approach would be particularly valuable.

A high poverty rate is also correlated with the balanced/three-pillar approach. This finding highlights a contradiction in the extant literature on sustainable communities, which often points to economic insecurity, low average household income, or high poverty rates as impediments to embracing sustainability as a guiding policy/planning paradigm (Opp and Saunders 2013). What this project demonstrates, however, is that cities that are most profoundly impacted by poverty are the most likely, not only to emphasize the economic development pillar, but also to articulate the balanced approach as integral to sustainability policy and planning. While identifying the exact causal mechanism behind this correlation requires additional research, the relationship between poverty and the prioritization of a three-pillar approach might highlight an emerging trend among local government officials—specifically, a tendency to recognize the interrelatedness of economic, social, and environmental concerns in their communities and to see sustainability as a viable framework for addressing these issues.

**Table 2.10: Factors Related to the Total Sustainability Measure**

| Variable | Standard Error | Z Score | P>z (Significance) |
|---|---|---|---|
| BA | .6811904 | 3.35 | 0.001 |
| Population Size | 1.91e-07 | 5.13 | 0.000 |
| %white | .2568439 | -0.67 | 0.502 |
| %Hispanic | .251883 | 0.31 | 0.758 |
| Poverty | .6966438 | 3.21 | 0.001 |
| University | .1137936 | 0.43 | 0.666 |

Prob > chi2 = 0.0000

Pseudo R2 = 0.0551

Poisson regression was also performed on the total sustainability scale in order to further assess the explanatory power of this model. This scale ranges from 0 (no presence of sustainability on a city's website or in planning documents) to 9 (all three sustainability pillars are strongly prioritized). As expected, the same independent variables that are correlated with a city's tendency to use the balanced/three-pillar discourse also influence the number of pillars discussed in a city's definition of sustainability and the degree to which they are prioritized. High levels of education are also positively correlated with a city's tendency to strongly emphasize multiple pillars of sustainability.

**Table 2.11: Impact of City Sustainability Department on Balanced/Three-Pillar Approach**

| Variable | Standard Error | T Value | P>t (Significance) |
|---|---|---|---|
| Department | .0793951 | 6.95 | 0.000 |

Prob > chi2 = 0.0000
Pseudo R2 = .1587

Along with the demographic composition of cities, this study also finds that the ways in which cities integrate sustainability programs and policy goals into their broader governmental structure impacts how sustainability is conceptualized. Out of the 120 cities that articulate sustainability as a policy goal in this project's sample, 38 have a separate city department or office[12] dedicated to sustainability planning and policy implementation. Thus, while the sustainability concept is widespread in municipal planning and policymaking, assigning

[12] This measure includes sustainability departments that have independent authority in city government, as well as offices of sustainability which typically report to the mayor. In many cases, cities that have either a separate department or office devoted to sustainability also employ an individual who is responsible for overseeing municipal sustainability efforts, such as a "Sustainability Director" or a "Sustainability Coordinator".

responsibility for sustainability-related goals in a separate department or office is not a particularly common practice.

Consistent with this study's hypothesis, housing sustainability under its own department increases the likelihood that a city includes all three pillars in its definition of sustainability. Many cities in this research integrate their sustainability efforts into existing departments—most predominantly in departments of economic development, recycling and/or waste management, environmental protection, public works, and planning/zoning. As the regression results demonstrate, cities that give existing municipal departments responsibility over sustainability policies are more likely to emphasize only one or two pillars of the concept, compared to cities that institute a separate sustainability department or office.

These findings are relatively intuitive. Previous research has drawn attention to the potential for cities to advance their commitment to sustainability and strengthen the effectiveness of related policies by "establishing administrative structures for managing decision-making processes and project implementation" of sustainability initiatives (Krause et al. 2016, 117). Because sustainability is such a complex, multi-dimensional concept, housing it in an existing municipal department—such as a department of environmental protection or a public works department—that has limited scope and responsibilities naturally results in a narrower definition of sustainability that fits within the goals and jurisdiction of the specific department.

However, given the data limitations of this project, it is impossible to determine which variable precedes the other. It is hypothesized that locating responsibility for sustainability in a separate department or office increases the likelihood that a city articulates the balanced/three-pillar approach. It is equally possible though that cities with a strong commitment to all three pillars of sustainability are more likely to organize these efforts within a single department or

office in the first place, as opposed to placing them under an already-existing department that has a preconceived mission and goals, limited operational scope, and finite resources with which to pursue sustainability policies. More in-depth research and additional data is needed to make definitive conclusions about the direction of causality.

**Summary of Key Contributions**

The ambiguity of sustainability is both praised and critiqued in the literature. On the one hand, concerns over greenwashing, a lack of serious commitment to the core principles of sustainability, and widespread neglect of the social equity pillar have all led to a push towards better indicators and a more universal, concrete definition of the concept (Hopwood et al. 2005). On the other hand, the malleability of sustainability is its greatest strength. Considering that all cities face unique policy problems (i.e. some cities suffer higher levels of air pollution than others; some experience pervasive deficits in affordable housing and other equity-related problems, while others do not), the ambiguity of the sustainability concept allows local policymakers to apply sustainability as an overarching planning framework that encompasses a plethora of environmental, economic, and equity-related issues.

Given the multifaceted responsibility of local governments over a wide variety of public services, as well as the complex nature of sustainability-related policy problems currently impacting numerous cities throughout the United States, it can be argued that the problems facing U.S. cities cannot be effectively addressed through a more rigid, one-size-fits-all paradigm. However, while this ambiguity comes with its benefits, it also presents challenges for both practice and research. Creating reliable indicators capable of accurately measuring a city's progress towards achieving sustainability, for instance, has proven exceedingly difficult (Abraham and Iyer 2021; Hempel 2009, 51-54). The ambiguous nature of the concept leaves

policymakers without a concise framework for adopting and implementing sustainability programs and researchers without a systematic mechanism for critically evaluating cities' commitment to sustainability.

In light of these inherent difficulties in analyzing and practicing sustainability, this chapter seeks to understand how cities navigate the ambiguity of sustainability when integrating it into policy and planning decisions by mapping how the concept is defined. A growing body of literature sheds light on both the mutable factors (i.e. how sustainability programs are structured in city government) and immutable factors (i.e. a municipality's unique geography) that relate to the strength of cities' commitment to sustainability. Although this line of research is indescribably valuable for understanding municipal sustainability, existing studies are built on a shaky foundation. Due to the ambiguous nature of sustainability, research on policy adoption has proceeded with a limited understanding of the meaning of the concept being adopted in the first place.

Without understanding how cities are defining sustainability, research on policy adoption and implementation is likely to be fraught with assumptions about what counts as "sustainable" when operationalizing cities' policy and planning efforts. Many studies skillfully navigate these assumptions by using existing sustainability indexes to operationalize the concept. However, little empirical work has taken on the task of examining the variance in how sustainability is defined and the types of policy goals that are included in cities' unique conceptualizations of the term. For example, while scholars consistently critique the equity deficit in sustainability policy, empirical studies measuring how often the equity pillar is neglected by policymakers in sustainable communities are lacking. In response to these gaps, this chapter seeks to fortify the foundation of research on sustainable cities by painting a picture of 1) how cities conceptualize

sustainability and how often the conventional three-pillar approach is articulated in practice, as well as 2) what factors impact a city's tendency to define sustainability in certain ways.

This study is relatively unique compared to other empirical work on municipal sustainability in the sense that it includes a large sample size that is randomly selected, which allows for a comparison of sustainable cities with cities that do not have an explicit sustainability policy and planning framework. Other research in the environmental policy field tends to rely on a smaller sample of communities, largely selected from among the most widely recognized and celebrated urban sustainability leaders. The inclusion of a wider variety of cities through random sampling allows for a more comprehensive dataset that can reflect variance both in the conceptualization of sustainability and in municipal demographics. The descriptive findings demonstrate that sustainability represents an ambiguous concept that does not necessarily have a single meaning despite the literature's identification of the three-pillar approach as a widely shared understanding of the term. While some cities in this sample do articulate sustainability as a tool to concomitantly achieve environmental protection, economic development, and social equity, a sizeable portion of cities only mention one or two pillars. Cities also demonstrate varying degrees of commitment to each pillar of sustainability, with many only weakly emphasizing (or completely neglecting) social equity in their sustainability discourse.

The environmental politics literature points to a paradigm shift away from command-and-control approaches to environmental policy and towards a more inclusive sustainability paradigm that integrates environmental, economic, and equity-related goals into a unified framework (Mazmanian and Kraft 2009; Vig et al. 2022; 149-150). Discussions of this shift towards a sustainability paradigm is particularly evident in scholarly work on large U.S. cities. However, it is important to note that in the sample of cities with populations over 60,000 analyzed in this

research, 40% of cities still show no evidence of a sustainability commitment. In addition, out of the 200 cases in this analysis, only 79 cities mention all three pillars in their conceptualization of sustainability—and, notably, many of these cities weakly emphasize some of the pillars even when articulating a balanced approach. In this sense, the empirical findings from this study point to the possibility that the broad paradigm shift towards integrating economic, environmental, and equity concerns under a single framework alluded to in existing literature might be overstated.

In addition, given the finding that each pillar of sustainability is correlated with a different mix of explanatory factors, the results of this research suggest that empirical studies analyzing sustainability as a unified concept are missing critical nuance. For instance, while poverty levels positively impact the prioritization of economic development in local sustainability efforts, this relationship does not hold when evaluating a city's tendency to prioritize environmental protection or social equity. By operationalizing sustainability as a single, unified concept, existing research might not accurately measure the relationship between municipal sustainability and various independent variables, such as the poverty rate, since these variables might only impact the prioritization of one or two pillars. This study fills a critical gap by disaggregating the sustainability concept into separate measures of each of the three pillars in conjunction with a variable operationalizing sustainability more holistically in the language of the balanced/three-pillar approach.

In terms of the empirical findings, one of the most consistent correlations is the relationship between a city's population size and its definition of sustainability. Since larger cities tend to have more financial and technical resources to deal with a multiplicity of policy problems, the finding in this analysis that population size is positively correlated with the likelihood of prioritizing all three pillars of sustainability makes intuitive sense. In the face of

resource constraints and limited agenda space, policymakers in smaller communities might be forced to prioritize certain dimensions of sustainability at the expense of others.

Importantly, this study suggests that population size is a significant explanatory factor among a large and diverse sample of cities. The link between population size and the definition of sustainability adds to other research that has shown either inconclusive or contradictory relationships between city size and sustainability policy, especially in the body of research that focuses solely on the highest performing sustainable cities—many of which, by nature, are heavily populated and urbanized. In addition, this finding demonstrates that, although there is a profound equity deficit in the conceptualization, adoption, and implementation of sustainability policies throughout the United States, large cities appear to have the greatest capacity (or perhaps the greatest need) to prioritize equity as a key part of their sustainability goals.

Another important finding is the relationship between poverty and sustainability discourse. A high poverty rate is correlated with the usage of the balanced/three-pillar metaphor when defining sustainability. This finding complicates the common assumption in the literature that impoverished communities face resource disadvantages that prevent local governments from building enough capacity to place sustainability high on the agenda and implement it effectively (Wang et al. 2012, 842-843). Instead, poverty can act as a catalyst. Cities facing high levels of poverty might see sustainability as a valuable, comprehensive framework for achieving long-term development. This theory is supported by the fact that poverty is directly correlated to cities' tendency to prioritize the economic development pillar. Given this finding, research on sustainable cities would benefit from qualitative work that directly engages with government officials in communities that have both high poverty rates and a strong commitment to

sustainability in order to better understand the motivation for prioritizing sustainability as a guiding policy framework and for emphasizing particular aspects of the term.

Another consistent finding—and perhaps the most intuitive one—is the positive correlation between a highly educated public and a high score on the total sustainability measure, as well as the prioritization of the environmental pillar. There is a well-documented connection in the literature between high education levels, awareness of environmental issues, and public support for environmental protection policies. Surprisingly though, the relationship between education and sustainability is relatively idiosyncratic, as the positive correlation does not play out when analyzing the prioritization of the economic development pillar or social equity pillar. It is also counterintuitive that, while the percentage of the population with a bachelor's degree is related to definitions of sustainability, the presence of a university in a city does not have substantial explanatory power.

**Concluding Thoughts and Directions for Future Research**

As a whole, this research draws attention to the diverse conceptualizations of sustainability among U.S. cities and highlights a number of important correlations that help explain why some cities define sustainability comprehensively using the three-pillar metaphor, while others articulate a narrower definition that emphasizes only one or two pillars. While these findings shed light on the ways in which cities embrace the ambiguity of sustainability, the results of this analysis draw attention to several questions that remain unanswered and would benefit from additional research.

First, and perhaps most importantly for the advancement of research on sustainable cities and in the field of public policy more broadly, it is important to determine whether or not the discourse that is being used to define sustainability aligns with practice. While this chapter

highlights the need to understand how the sustainability concept is defined in order to accompany the burgeoning literature on sustainability policy adoption, the scope of this analysis is limited. In particular, the findings here cannot speak to the important question of whether or not cities that define sustainability using the three-pillar metaphor are effectively implementing policies, programs, and planning decisions that reflect this language. To construct reliable indicators, as well as to develop a more thorough understanding of the factors that shape cities' sustainability policies, it is essential to determine whether the definitions of sustainability and related policy priorities that are articulated in planning documents and on city websites are an accurate reflection of a city's policy practices or if there are disparities between cities' articulated approach to sustainability and their actual policy commitments.

Secondly, while this research identifies numerous variables related to city demographics and the structure of government, some of the regression results did not yield the expected relationships. In particular, the lack of a statistically significant correlation between the presence of a university and a city's definition of sustainability could benefit from more in-depth exploration in future work. More nuanced analysis of this variable would be useful to determine if the number or type of universities (i.e. public vs. private) located in a city, as opposed to the sheer presence of a university, has any effect on sustainability discourse.

Racial composition and poverty levels, similarly, were expected to shape cities' prioritization of social equity, but did not yield any statistically significant correlations. While some literature on sustainable cities points to a link between racial heterogeneity and local support for equity policies, this study found no evidence of this relationship. Additional research that takes into consideration political efficacy, social capital, trust in government, and other factors that might complicate the relationship between the need for social equity policies among

minority groups and impoverished communities and the reflection of these needs in municipal sustainability efforts would add a valuable piece of information to this complex puzzle.

As a whole, this study suggests that while a commitment to the three-pillar metaphor is not uncommon among cities, there is significant variance in conceptualizations of sustainability and the policy goals and mechanisms that city officials locate under the sustainability umbrella. There are clear patterns in cities' definitions of the concept and prioritization of certain pillars, such as a broad focus on environmental protection coupled with a widespread social equity deficit among sustainable communities.

Cities must navigate the definitional ambiguity of sustainability, as well as the limited development of best practices and indicators, in order to construct effective sustainability policies capable of meeting citywide environmental protection, social equity, and economic development objectives. The recent influx of local governments taking on responsibility for sustainability policy adoption has done little to clarify the meaning of the concept and the types of practices and planning decisions that are necessary to be counted as a truly sustainable city. It is on the shifting sands of the sustainability concept that cities navigate competing priorities, resource constraints, and unique policy problems to build a policy and planning framework that best aligns with the individual needs and circumstances of a city. As this research points out, in the process of defining and practicing sustainability, tradeoffs between the three pillars are likely. It is the goal of this research to, first of all, describe how these tradeoffs manifest in cities' prioritization of different pillars and, secondly, to begin to identify potential factors that shape cities' diverse approaches to sustainability. This study undertakes these tasks in an effort to open avenues for more robust theoretical development and empirical analysis of the process by which cities arrive at a concrete definition of the inherently amorphous concept of sustainability.

# CHAPTER THREE:
# SUSTAINABILITY CATALYSTS: NATURAL DISASTERS AND MUNICIPAL SUSTAINABILITY EFFORTS

## Introduction and Rationale

Sustainability is increasingly discussed among scholars and practitioners as a holistic policy and planning framework capable of restructuring municipal development trajectories around the overlapping goals of long-term economic prosperity, environmental protection, and social equity in U.S. cities. The centrality of the sustainability concept in the comprehensive planning process (Berke and Conroy 2000), the growing commitment to sustainability among a regionally diverse group of cities over the last several decades (Saha 2009, 40), and the high priority placed on policies associated with the environmental protection pillar in the face of widespread concern over climate change (ICMA 2010) all point to the prominence of sustainability in U.S. localities. Despite the prevalence of sustainability as a guiding policy framework, there are significant gaps in research on the meanings assigned to the sustainability concept by policymakers and on the municipal characteristics that impact how sustainability is defined and practiced.

Knowledge of the various municipal characteristics that shape how sustainability is conceptualized and which pillars are prioritized in the definition and implementation of the concept is limited in existing scholarly work. While studies have pointed to demographic and political factors that influence the adoption of sustainability policies, little attention has been paid to other aspects of a community's experience that can reasonably be expected to influence sustainability policy discourse. Most notably, it is a broadly accepted proposition in the sustainable cities literature that communities with the highest need are most likely to prioritize

sustainable practices (Portney 2013, 305-309). As Portney (2013, 305) explains, “cities with more serious problems would likely see the need for reforms along the lines of sustainability” compared to more economically advantaged or environmentally sound cities. However, need is typically defined very narrowly in the context of a city’s poverty level and immediate concerns about natural resource degradation and harmful levels of pollution. Overlooked in existing studies is the idea that persistent vulnerability to natural disasters or the sudden experience of a major disaster might play a role in how local government officials and citizens conceptualize the need for sustainability. As sustainability is increasingly being viewed as a potential remedy for the impacts of climate change, natural disaster vulnerability can represent a key component of a city’s perceived need for robust sustainability programs.

There is scant scholarly work analyzing the interplay between local-level sustainability efforts and natural disaster vulnerability, specifically examining if disaster-vulnerable communities are more likely to practice sustainability and if vulnerability shapes the unique conceptualization of sustainability articulated by local government officials. This issue has not been subject to systematic research despite the fact that a comprehensive sustainability framework is often discussed as a key element of effective disaster planning and mitigation (Achour et al. 2015). This gap in existing knowledge is critical to fill considering that there is empirical evidence of a mutually supportive relationship between resilience to natural hazards and a commitment to the core principles of sustainability. Vulnerability to natural disasters can threaten a city’s capacity to implement sustainability policies (Alibašić 2018, 9). Disasters can uproot citizens, cause damage to vital infrastructure, negatively impact a locality’s economy, necessitate extensive environmental cleanup, and limit the equitable delivery of vital public services, thus interfering with a city’s ability to practice sustainability. In this vein, studies in

environmental politics highlight a strong correlation between local resilience attributes and a well-developed, comprehensive sustainability planning process (Pierce et al. 2011).

There are numerous discussions both in academic work and planning documents regarding the necessity of embracing sustainability in order to enhance communities' capacity to effectively prepare for and recover from natural disasters. It is widely recognized, for example, that "careful physical planning, environmental care, and judicious urban management" (Vinod 2017, 127) are essential to protect communities against natural hazards and that some of the central objectives of the sustainability paradigm—such as stable local economies and strong community networks—are correlated with a higher capacity to recover from natural disasters (Kim and Marcouiller 2016).

Cities, particularly heavily populated and highly urbanized ones, experience substantial vulnerability to damage from natural hazards for a variety of reasons. First, the population size of large cities can limit strong social networks from forming—a factor that is critical in building resilience (Pelling 2003, 55-56)—and can make disaster preparation logistically complex and difficult to implement effectively (Rose 2014, 2). Wealth disparities and inequities in overall well-being between neighborhoods endemic across urban areas, along with heavy population density, also make cities increasingly vulnerable to economic loss, infrastructure damage, and threats to human life from major natural disasters, especially since evacuation efforts in dense cities are challenging to orchestrate. Moreover, the historical development of cities often makes them more vulnerable to natural hazards compared to rural areas. In order to thrive economically, many cities are located in coastal areas, near waterways, or close to abundant natural resources—geographic characteristics that, while enhancing economic prosperity, can result in increased vulnerability to hurricanes, floods, and other hazards (Rose 2014, 2-3).

While natural hazards are innately uncontrollable and occasionally unforeseeable, studies in the fields of disaster research and public policy have pointed to the ability of cities to mitigate the impacts of disasters by pursuing the threefold goals of economic prosperity, environmental protection, and social equity embodied in the sustainability concept (Mileti and Gailus 2005, 497). Cities hold a large stake in disaster planning. Not only do local governments play a substantial role in facilitating (and often partially funding) cleanup efforts following a disaster, the planning process, zoning and building decisions, and development choices made by city officials can have a profound impact on a city's ability to prepare for and recover from various hazards (Platt 1999, xvii). Consequentially, much of the impetus behind national-level natural disaster policy in the United States centers on enhancing the capacity and willingness of local governments to effectively engage in disaster planning (Birkland 2006, 104).

With over $152 billion in property, infrastructure, and crop damage from natural hazards in the U.S. in 2021 alone (NOAA, 2022), coupled with loss of human life and displacement of residents in disaster-prone areas, natural disaster vulnerability in U.S. cities is garnering significant attention from the scholarly community and municipal government officials. Cities vary widely in their vulnerability to natural disasters based on immutable factors, such as their unique geography and location. However, risk to vital infrastructure and human life can be partially managed through local planning and policy choices, leading some scholars to predict that urban policy, design, and planning decisions will shape cities' vulnerability to natural disasters far more profoundly than climate change and the accompanying shifts in the frequency and intensity of natural hazards that are expected to occur (Jones 2017). The level of concern among state and local government officials related to natural disaster risk is rising concomitantly with recent increases in severe natural hazards, leading planners and policymakers to explore a

wide range of preparation and mitigation strategies (Pelling 2003). Foremost among these strategies is a focus on sustainability as a guiding paradigm for disaster management and community resilience (Gonick and Errett 2018). In some cases, major natural disasters can illuminate vulnerabilities inherent in poorly planned urban and suburban communities and can facilitate a stronger commitment to sustainability (Close et al. 2017, 509).

What is unclear, however, is whether the sustainability framework is consistently employed as a guiding policy paradigm in disaster-vulnerable cities and what conceptualization of sustainability these cities—compared to less vulnerable ones—are articulating. It is also unknown whether or not natural disasters act as catalysts in the sustainability policy domain by propelling sustainability (or certain pillars of the concept) onto the policy agenda in municipalities that did not initially subscribe to a comprehensive sustainability paradigm. Despite the recognition in the sustainable cities literature that natural disaster mitigation strategies and the related planning process are often nested within a broader sustainability policy framework (Achour et al. 2015, 348), existing research has not yet identified how cities that have experienced natural disasters or are at a high risk for future major disasters discuss and practice sustainability. The extent to which natural disaster vulnerability impacts cities' process of conceptualizing sustainability is, therefore, explored throughout this chapter.

## Literature Review

### *Sustainability, Resilience, and Natural Disasters*

Natural disaster policy in the United States has gradually shifted from a predominant focus on immediate disaster relief and post-disaster cleanup to the incorporation of community-level resilience over the last several decades (Birkland 1997, 14-15; Mileti and Gailus 2005, 496). This movement towards proactive preparedness, in conjunction with reactive relief efforts,

is paralleled by a related shift in the responsibilities of local governments in natural disaster planning. In addition to responding to disasters through rebuilding and recovery efforts, numerous local governments are taking concrete action to adopt a more comprehensive approach to disaster management based on the principles of sustainability (Mileti and Gailus 2005, 496). City officials and scholars often argue that the development pattern of urban areas—such as the location of vital infrastructure, the density and pace of development, the ratio of green space to paved roads, and many other mutable factors—have a direct impact on economic loss and other effects of natural disasters. Thus, resilience and sustainability are inherently linked both conceptually and in practice, as sustainability is increasingly perceived among scholars and government officials as a comprehensive framework in which natural disaster planning can be nested (Pelling 2003, 10-12).

Conceptually, it is widely recognized in the relevant literature that resilience and sustainability are interrelated. Resilience, which can be defined as the "ability to 'bounce back' or return to a state of functioning that was in place prior to exposure to a significant stressor such as a natural hazard" (Kim and Marcouiller 2016, 983), is frequently discussed as a core component of a comprehensive sustainability paradigm. Some authors suggest that the concepts of sustainability and resilience are so intertwined that addressing natural disaster vulnerability within communities necessitates a process of "reorienting cities towards a vision of sustainability where environmental risk can be minimized" (Pelling 2003, 12). Other scholars relatedly point out that municipalities' efforts to strengthen their resilience against natural disasters and their commitment to the principles of sustainability are too often analyzed separately in empirical research, despite the fact that it is not uncommon for disaster resilience to be deeply integrated into a city's sustainability goals and planning process (Pierce et al. 2011, 348-350).

In practice, local governments not only operate at the forefront of the sustainability movement, but are also key actors in natural disaster policy. Much of a city's authority over decisions that impact disaster resilience and recovery, such as planning and zoning choices, overlaps with its authority over sustainability-related policies. Some scholars have even suggested that the capacity to recover from short-term economic, social, and environmental disturbances caused by natural disasters is a prerequisite for achieving long-term sustainability (Rose 2014, 2). Research on disaster-vulnerable cities and the strategies at their disposal to enhance resilience is crucial for understanding communities' capacity to adequately respond to the impacts of hazards, especially considering that "local governments have the greatest influence over policy tools in the realm of natural disasters" (Birkland 2006, 104). Despite the interconnectedness of resilience and sustainability among cities, however, there is a profound lack of research analyzing the interplay between natural disaster vulnerability and cities' diverse approaches to sustainability policy.

*Focusing Events and Policy Learning*

Although there is sparse research that directly studies the links between sustainability, resilience, and disaster vulnerability, it is a widely accepted maxim in the field of public policy that major events—such as severe natural disasters—can disrupt status quo policymaking and lead to ostensible changes in policy discourse and agenda priorities. Natural disasters have been identified within the literature as key drivers of policy learning related to hazard mitigation, disaster preparedness, and environmental management in general (Birkland 2006). While not all natural disasters facilitate the passage and adoption of new policy approaches or a reconceptualization of a problem and its viable solutions, numerous studies have cited the catalytic quality of disasters that are particularly severe, unanticipated, uncommon, or costly

(Birkland 1996, 224-225). These disasters are often categorized and analyzed as "focusing events"—sudden occurrences that draw attention to certain problems, elevate issues on the agenda, and ultimately shape policy discourse and the government's response to a problem (Berardo et al. 2015; Birkland 1998, 53-54). Despite variation in the impacts of these occurrences (such as loss of human life, property damage, and destruction of infrastructure), natural disasters are typically assigned high symbolic significance. The meaning attributed to disasters, combined with tangible social or economic effects, increases the possibility of "problem recognition" by the public and political officials, which can result in substantial shifts in a government's policy priorities (Kingdon 2003, 114-115).

Relevant empirical studies paint a complex picture of the focal quality of natural disasters and the ways in which they can shape policy priorities. At their most impactful, catastrophic events hold the potential to disrupt normal policymaking, cause certain problems and solutions to be redefined by policymakers, and catapult relevant issues to the top of the agenda (Farley et al. 2007; Kingdon 2003, 96). Some disasters, such as severe earthquakes, fit the classic mold of a focusing event by calling attention to existing policy failures and triggering rapid policy change or, at the very least, substantial attention by government officials and the public (Birkland 1996, 225-228; Birkland 2006, 130-134). In these situations, natural disasters act as catalysts that disrupt the process of incremental policymaking. These events can trigger shifts in public opinion, alter the accepted rhetoric around a problem and its solutions, restructure political officials' policy priorities, and—if the disaster is particularly "focal"—contribute to the passage of new policies or planning decisions.

More commonly though, focusing events operate simply as "reinforcement for something already taking place and as something that…focuses attention" (Kingdon 2003, 97). Events

function as mobilizing forces that bring interest groups, affected communities, political officials, and other actors together to either draw attention to a preexisting yet neglected problem or to identify a new concern. In this sense, rather than causing a restructuring of agenda priorities, some natural disasters simply speed up the pace of policy change or a redefinition of a problem that likely would have occurred without a punctuating event. In this context, natural disasters can ease the process of implementation by enhancing public buy-in or softening political stalemates over proposed changes that were placed on the agenda before the event occurred (Bishop 2014, 18). In illustration, Johnson et al.'s (2005) study of severe flooding suggests that unanticipated flooding events do not always provide an impetus for non-incremental policy change, but instead can allow ideas about disaster planning that are already on the agenda to move through necessary institutional processes towards implementation more efficiently and with less conflict (Johnson et al. 2005, 573).

It is axiomatic in the public policy literature that change in the policy process comes in two forms—incremental and catalytic—and that focusing events are often necessary to disrupt incremental policymaking (Baumgartner and Jones 2009). It is important to note that catalytic change refers to both speed and content, as it applies to policy change or issue redefinition that occurs quickly, as well as the creation of new priorities or frameworks stemming from event-driven learning that represent a major paradigm shift compared to government officials' previous policy approach. Although focusing events can include any type of symbolic occurrence that generates interest among the public and political officials[13] and disrupts normal policymaking, natural disasters represent a particularly powerful type of event (Birkland 1996, 221-222).

[13] Focusing events can include industrial accidents, harms such as aviation incidents that have an identifiable cause and can be addressed through legislation or regulations, and other major events that place new issues on the agenda and perpetuate policy change.

In this vein, severe disasters such as hurricanes and earthquakes generally possess significant symbolic weight due to catastrophic impacts on human lives, vital infrastructure, and local economies (Birkland 1997, 47-48). Images of the aftermath of major natural disasters are heavily disseminated through media, while the enduring economic, social, and ecological impacts of these events often linger in a community's collective memory. Natural disasters can draw attention to latent environmental concerns, harness the awareness of the public and policymakers, and, in consequence, often push environmental issues—or other related concerns—to the top of policy agendas (Birkland 1997).

Policy learning, which entails utilizing knowledge from past policy experiences or from shocks that occur outside of a subsystem to enhance policymaking and adopt new approaches to a problem, can directly stem from natural disasters (Rouillard et al. 2012). Michaels et al. (2006), for instance, highlight the tendency of major disasters to open policy windows and solidify the political will to rethink an existing disaster management approach. Natural disasters can draw attention to flaws in existing policies, technologies, and infrastructure and can fuel changes in both policy discourse and planning decisions (Michaels et al. 2006, 190). Other research has identified the role of natural disasters in mobilizing diverse political actors and motivating a learning process that results in substantial changes in the policy approach to environmental management and disaster recovery (Albright 2011, 500-501).

Studies documenting the role of focusing events on policy discourse and learning consistently highlight natural disasters as a powerful agenda setting force. However, existing research is replete with uncertainties regarding the characteristics of events that best facilitate public attention and result in tangible learning. A key source of ambiguity is lack of scholarly consensus on the relationship between the frequency of events and their focal power. Rochefort

and Cobb (1994, 20) suggest that the "frequency and prevalence of a hazardous or unjust situation are a potent trigger to it being considered a social problem", implying a cumulative effect of catastrophic events on the policy process. Minor events (disasters that either possess little symbolic value or cause minimal effects), it is commonly argued, only effectuate change in the aggregate. While a single minor occurrence might not generate agenda change, multiple events that can be symbolically related to one another accumulate and can eventually be perceived as a pervasive concern necessitating new policy alternatives (Birkland 1998, 55).

On the other hand, scholars also suggest that the novelty and relative rarity of a disaster is one of the main characteristics that gives the event focal power and facilitates mobilization in an effort to establish policy solutions to unprecedented, novel problems. Birkland (2006, 10-11), for instance, contends that characteristics of suddenness and rarity generate "disproportionate attention" compared to chronic problems or hazards with a gradual onset. A single major disaster can, thus, lead to dramatic shifts in the policy process, particularly when the event is unpredictable and results in significant economic loss or the threat of such loss within the affected community (Bishop 2014). Some empirical work points to both frequency and novelty as important factors, suggesting a more complex process by which disasters influence policymaking. In the context of floods, for instance, O'Donovan (2017) finds evidence of policy learning that stems both from the accumulation of multiple focusing events that shed light on a chronic problem and from a single major event that temporarily disrupts normal policymaking and overtakes the agenda.

Ongoing conceptual and empirical questions related to the effects of event frequency and focal power have resulted in uncertainty over how best to measure the impact of natural disasters on the policy process—particularly in terms of determining the appropriate latency period

between an event and expected changes in policy priorities. Some scholars argue that the propensity for focusing events to effectuate policy change often takes place gradually (Kingdon 2003, 98-100). After the occurrence of a disaster, time is necessary for issues to reach the agenda and be perceived by policymakers as "'objective' problems whose meaning is established and is…amenable to government action" (Pralle 2009, 782). However, others suggest that the impetus for policy learning can take place immediately following a disaster and that, given short political cycles coupled with the rapid pace at which issues dissipate in the public's collective memory, the window of time through which focusing events impact policy discourse closes quickly following an event (Fleming et al. 2016, 1147). This contention in the literature has profound implications for empirical work, as there is ambiguity in terms of the appropriate way to evaluate the impact of major perturbations, such as natural disasters, on the policy process.

Despite nascent understandings of the mechanisms by which focusing events impact policy discourse coupled with the current lack of research on the interplay between sustainability and natural disaster vulnerability in U.S. cities, there are several reasons to expect that a community's experience with natural disasters might impact their approach to sustainability. First, sustainability is an ambiguous concept. Lack of conceptual development and limited consensus pertaining to the overarching goals of sustainability and the optimal way to balance the three pillars—economic development, environmental protection, and social equity—has resulted in a multiplicity of policies and programs being housed under the sustainability framework (Hopwood 2005, 39-40). Taking the three-pillar definition at face value, therefore, ignores ongoing debates over what practices count as "sustainable" and overlooks tensions and tradeoffs between the three pillars (Long 2016, 150; Purvis et al. 2019, 685). Due to the ambiguity of the sustainability concept and the well-documented presence of competing

narratives shaping the meaning of the term, it is reasonable to expect that sustainability policy discourse might be easily shaped by relevant focusing events, such as major natural disasters.

Secondly, sustainability is increasingly perceived as a viable—and even necessary—framework for altering production and consumption patterns in the urban landscape in an effort to address climate change. Widespread recognition of the impact of development choices on the health of the natural environment and on human well-being (Edenhofer et al. 2012), coupled with recent increases in the awareness and fear of disaster vulnerability among the general public (Healthcare Ready 2018), has elevated disaster resilience on the agenda in many cities. Major disasters could have the focal power to change policy discourse related to sustainability, especially given the burgeoning predilection among scholars and practitioners to view sustainability policies as potential solutions to communities' disaster vulnerability. In this sense, natural disasters could shape city officials' and citizens' perceptions of their city's environmental, economic, and social risks and overall need for a commitment to sustainability.

**Research Purpose**

Building on the previous chapter which demonstrated significant variance in the definitions of sustainability articulated by U.S. cities, this chapter seeks to further answer the question of why this variance occurs by analyzing the potential role that natural disaster vulnerability plays in shaping how cities conceptualize sustainability. Specifically, this project explores the question: What role does natural disaster vulnerability play in cities' conceptualizations of sustainability and how does it shape the process by which certain aspects of the sustainability concept are prioritized?

## Data and Methodology

*Dependent Variable: Case Selection, Data Sources, and Measurement*

This chapter utilizes the sample of 200 randomly selected cities from the American Community Survey that forms the foundation of this dissertation research. Content analysis was performed on city government websites for the 200 cities in order to determine how sustainability is defined by city government officials. Using the three pillars of sustainability—economic development, environmental protection, and social equity—that are ubiquitous throughout the literature as a starting point, the content analysis measures how strongly each pillar is discussed on official government websites and relevant planning documents[14]. In order to maintain consistency in analyzing definitions of sustainability across the cities in the sample, the content analysis examines sections of comprehensive plans that are specifically dedicated to sustainability; sustainability pages on official city websites; vision statements detailing a city's sustainability goals; or pages devoted to a municipal office, permanent task force, commission, or department that has responsibility over sustainability efforts.

*Independent Variables: Case Selection, Data Sources, and Measurement*

To explore the role that natural disaster vulnerability plays in the conceptualization of sustainability within U.S. cities, the frequency and severity of disasters are examined. This project draws from the Federal Emergency Management Association's (FEMA) national database that compiles incidents of natural disasters at the county level to measure the prevalence of major events in close proximity to each city included in the sample. While the comparison of county-level data for natural disasters with city-level analyses of sustainability discourse is an imperfect measurement, data on hazards at the city level are not readily available. Furthermore, it

[14] See Appendix A for a full description of the coding categories and a list of the words and phrases used in the content analysis.

can be reasonably assumed that significant ecological events within a county will broadly impact municipal policymaking, since focusing events that are geographically proximate often possess political, economic, social, and environmental effects.

Since all types of events are reported in the FEMA database, human-caused events (i.e., intentional acts of arson and terrorism) and non-natural disasters such as chemical spills, explosions, and industrial fires are excluded from this analysis. While non-natural disasters can operate as significant focusing events calling attention to regulations, industrial standards, and energy development practices, these incidents are less relevant in the study of municipal sustainability. The list of disasters was further narrowed by only including ecological events declared by FEMA as "major disasters" or "emergency declarations"—classifications that, together, encompass all types of events that qualify for federal monetary assistance under the provisions of the Stafford Act (FEMA, n.d.). The decision to only include natural disasters that are severe enough to qualify for federal aid reflects the notion in the focusing events literature that disasters typically must be fairly catastrophic before gaining sufficient salience to impact the agenda and restructure policy priorities (Birkland 1998, 50). This measurement decision eliminates weather events, such as hailstorms or snowstorms, that are likely too routine to impact local sustainability priorities.

Furthermore, given the ambiguous and often issue-specific findings in the literature regarding the latency period between the occurrence of a catastrophic event and shifts in policy priorities, several time frames (one-year, two-year, five-year, and ten-year frames) are used to measure the correlation between the prevalence of natural disasters and a city's conceptualization of sustainability[15]. Following the suggestion in the literature that focusing events typically result

[15] See Appendix C for a list of the independent variables and an abbreviated discussion of the rationale behind including each variable in the analysis.

in “peak institutional response” by government officials fairly quickly after the event takes place, followed by a gradual decline in public interest and institutional activity over time (Birkland 1997, 30), this project starts by measuring the number of natural disasters occurring within a one-year time frame (2017-2018) in a given county. In reflection of recent research that predominantly utilizes a two-year time frame to analyze the potential impacts of focusing events on the policy process[16] coupled with the suggestion in the literature that the agenda is typically most active during a two-year period following a disruptive event (Birkland 1997, 30), the number of natural disasters occurring between 2016 and 2018 is also counted.

A five-year time frame (2013-2018) and a ten-year time frame (2008-2018) are included to ensure a long enough latency period between the occurrence of disasters and possible changes in a city’s sustainability framework in an effort to reflect the lengthiness and complexity that often characterizes changes in relevant discourse and policy priorities. The focusing events literature highlights the limited staying power of natural disasters on the agenda and has found that public attention wanes quickly; however, changes in a city’s sustainability framework or priorities evidenced in planning documents are likely to occur more slowly after a disaster. Thus, the longer time horizons are included out of recognition that official city websites and relevant documents might be updated infrequently—typically during the comprehensive planning process, following a major change in policy priorities, or after a substantial shift in the composition of local government.

While the sheer frequency of natural disasters reflects a locality’s overall vulnerability to ecological events and is anticipated to impact city officials’ approach to sustainability, this research also takes into consideration the relatively wide variance in the severity of natural

[16] See for instance Birkland (1996) and Fleming et al. (2016).

disasters that fall into the major disaster or emergency declaration categories[17]. FEMA data detailing the provision of federal funds are, therefore, included to calculate the amount of federal money given directly to the county government for post-disaster recovery and rebuilding to capture a rough measure of natural disaster severity. Although the distribution of federal funding is not a perfect measure of severity, economic factors such as the costs associated with disaster recovery, are broadly recognized as reasonable proxies for an event's impact on a community (Gad-el-Hak 2009). This measure of natural disaster impact only includes funding given directly to county governments from federal sources in order to maintain consistency with the unit of analysis used to measure disaster prevalence[18]. A measure of the number of years that have passed since a city's most recent experience with a natural disaster is also included as a separate variable.

These different measures help ensure thoroughness considering the lack of agreement in terms of how best to assess the effects of focusing events on policy priorities. Since there is little consensus in the literature over whether it is the severity of a single natural disaster, the rarity and unpredictability of hazards, or the cumulative impact of multiple events that matters most when analyzing impact on the policy process, the approach of this project takes into consideration the frequency/prevalence of major natural disasters near the cities included in the analysis, as well as their severity (operationalized as the amount of funding received for recovery) when examining how disaster vulnerability might shape sustainability policy.

[17] There are no objective standards to determine whether or not a disaster is impactful enough to receive a disaster declaration, especially considering that the Stafford Act gives the U.S. President the authority to make emergency and major disaster declarations. Because of this ambiguity over which events fall into the "emergency" or "major disaster" categories, it is beneficial to analyze other measures of severity, such as the amount of funding provided for relief and recovery efforts.

[18] Funding given to other units of government, such as townships, school districts, water districts, public utilities, and other local entities is excluded.

Along with the quantitative analysis of natural disasters, interviews were conducted to undertake a deeper exploration of the potential impacts of natural disaster vulnerability on a city's conceptualization of sustainability. Purposive sampling was employed to select relevant cases for the qualitative component of this research. From the list of 120 cities in the sample that have an identifiable commitment to sustainability, interview requests were sent to city officials in the ten cities experiencing the largest number of nearby natural disasters within a two-year time frame (2016-2018). Pertinent individuals were identified by referring to city websites to determine which city officials have primary responsibility for overseeing policy and planning decisions related to sustainability. Interview respondents hold a diverse array of positions including city manager, chief sustainability officer, sustainability coordinator, and senior planner, which reflects the different ways in which municipal governments structure sustainability programs and policy responsibility.

*Methodology*

Definitions of sustainability are divided into three separate variables to measure how strongly a city emphasizes the environmental protection pillar, the economic development pillar, and the social equity pillar. In the content analysis, a value ranging from 0 to 2 is assigned to each of these three variables depending on how strongly a city articulates a given sustainability pillar. Cities that strongly emphasize a pillar by explicitly mentioning it as a foundational element of its sustainability framework and discussing tangible goals or examples of policies that reflect a commitment to that dimension of sustainability are coded as 2. Cities are coded as 1 on a specific pillar if they only weakly emphasize that pillar, such as by briefly mentioning it in their broad definition of sustainability but not discussing it explicitly or concretely in their policy goals, vision statements, or planning process. Cities score a 0 if they either have no mention of a

specific pillar in relevant documents or do not articulate a commitment to sustainability in general. Poisson regression is performed on each of these three dependent variables to identify correlations between cities' prioritization of certain aspects of sustainability and their experience with natural disasters.

Another dependent variable—a total sustainability measure—is also included to evaluate the overall strength of cities' commitment to sustainability. This measure ranges from 0-9 and assesses both how many pillars a city articulates in its unique conceptualization of sustainability and how strongly each pillar is prioritized. A city scoring 0 on this variable has no identifiable discussion of sustainability, while a score of 9 indicates a strong, balanced commitment to each of the three pillars. Scores in the middle of this measure suggest that either a city is neglecting a specific pillar or only weakly emphasizing certain aspects of sustainability in their policies and planning frameworks. Poisson regression is performed on this variable as well.

In terms of the qualitative component, elite interviews were conducted with city government officials that have direct responsibility over municipal sustainability policy. Government officials from the ten cities that experienced the largest number of major natural disasters over a two-year period (2016-2018) were contacted for interviews. Individuals in four cities either responded and offered to participate in an interview or directed me to a different government official in the city with expertise and authority in local sustainability efforts who agreed to an interview. Thus, a 40% response rate was achieved[19]. Participants were asked questions pertaining to their city's unique approach to sustainability, their perception of the city's

[19] A second email was sent to the officials that did not answer the original request, but either no response was received or the respondent declined to participate.

vulnerability to natural disasters, and the ways in which that vulnerability might have impacted local-level sustainability efforts[20]. The interviews lasted between 25 and 60 minutes each.

The four cities that participated in this research are relatively regionally diverse, as they include one city in the west, one in the northeast, and two in the south[21]. Importantly, the sample of cities that participated in the interviews roughly reflects the regional distribution of natural disasters and disaster-related mortality rates in the United States, both of which predominantly cluster in southern states (Borden and Cutter 2008). Other studies also show high levels of social vulnerability to natural disasters in the south and vulnerability of infrastructure and other aspects of the built environment in the eastern U.S. (Borden et al. 2007, 9-10), suggesting that the cities included in the qualitative component of this analysis represent a reasonable sample of disaster-vulnerable communities. City names are not specified throughout this project due to participants' requests for anonymity.

Interviews were analyzed qualitatively and inductively by identifying core themes discussed by participants relevant to the intersection of natural disaster vulnerability and cities' approaches to sustainability. This method is particularly appropriate for this project, as the "primary purpose of the inductive approach is to allow research findings to emerge from the frequent, dominant or significant themes inherent in raw interview data" (Thomas 2006, 238), which ensures that city officials' perspectives on their community's experience with natural disasters, as well as their unique understanding of sustainability, are reflected in the analysis. Thus, analyzing interview data centered on identifying important events, themes, and policy developments highlighted directly by the participants.

[20] See Appendix D for a list of interview questions.
[21] Regional designations are based on U.S. Census divisions (U.S. Bureau of the Census, n.d.)

*Research Expectations and Hypotheses*

Given the widespread recognition in a diverse, interdisciplinary body of literature that a strong commitment to sustainability often exists hand-in-hand with the ability of a community to build resilience against disasters, there is an expected correlation between a city's experience with natural disasters and its conceptualization of sustainability. In addition, the public policy literature emphasizes the ability of focusing events—sudden occurrences that disrupt normal policymaking, focus attention on an issue, and crowd out space on the agenda—to significantly impact how a problem and its solutions are defined. Thus, major natural disasters are anticipated to shape policy discourse in sustainable cities. The specific hypotheses follow.

H1: It is anticipated that the two-year, five-year, and ten-year natural disaster variables will be positively correlated with the environmental protection pillar of sustainability. A large body of research has called attention to the focal power of natural disasters and their ability to focus public and government attention on the need for a more effective environmental policy framework, better disaster planning mechanisms, and a stronger emphasis on preparing for the ecological impacts of climate change. Thus, it is expected that the accumulation of severe disasters will positively impact a city's tendency to articulate environmental protection as a key element of sustainability.

H2: Similarly, it is expected that disaster-vulnerable communities are more likely to emphasize social equity in their conceptualizations of sustainability. In light of the burgeoning literature recognizing the connection between sustainability and resilience, which entails a focus on building strong, socially connected neighborhoods with the capacity to recover from natural disasters, it is expected that city governments in disaster-prone areas are more conscious of equity issues and more likely to incorporate these concerns into their sustainability policy goals.

Thus, the two-year, five-year, and ten-year disaster variables are anticipated to be positively associated with the equity variable.

H3: Given the suggestion throughout the focusing events literature that natural disasters tend to have an immediate impact on policy priorities, followed by a decline in both public attention and government prioritization of an issue, it is expected that the number of natural disasters occurring within the single year time frame will be positively correlated with cities' tendency to prioritize the environmental and social equity pillars of sustainability. It is plausible that this correlation will not be evident in the content analysis and quantitative component of this research, as city websites and planning documents might not immediately reflect shifts in policy discourse. However, it is expected that city officials will reference recent natural disasters during interviews as impactful events shaping sustainability frameworks.

H4: Frequent natural disasters are not anticipated to impact cities' tendency to prioritize the economic development pillar, as there is little theoretical or empirical evidence of a direct link between local governments' experience with natural disasters and the motivation to reorient economic development trajectories independently of the other sustainability principles.

H5: However, it is anticipated that frequent natural disasters will be positively correlated with the total sustainability measure, suggesting that disaster vulnerability might encourage cities to adopt a "stronger" approach to sustainability by prioritizing multiple pillars and by articulating more concrete policy goals under each pillar.

H6: The amount of time that has passed following a natural disaster (reflected in the *timesince* variable) is expected to be negatively correlated with a city's prioritization of the environmental and social equity pillars, as well as with the total sustainability score. Recent occurrence of a major natural disaster will likely keep the sustainability concept central on the

municipal policy agenda and focus attention on the environmental and social equity components of sustainability in particular, while a long span of time since a city has experienced a disaster is expected to cause sustainability-related concerns to fade from collective attention.

H7: The *funding* variable is similarly expected to be positively associated with the total sustainability measure. Since the amount of funding provided for relief efforts is a reasonable proxy for disaster severity, it is anticipated that cities within counties that receive the highest amounts of post-disaster federal funding will be more likely to articulate a stronger version of sustainability, as highly vulnerable cities are expected to respond to costly disasters by increasing their commitment to sustainability.

**Situating the Project**

By analyzing the topic of natural disaster vulnerability specifically among communities with an ostensible commitment to sustainability, this research positions itself at the intersection between the sustainable cities literature and public policy studies analyzing the potential focal power of natural disasters and the circumstances under which these disasters result in policy learning. This project offers a valuable contribution to these interconnected, but distinct, literatures in a variety of ways.

To begin with, research on the interplay between natural disaster vulnerability and the tendency of a city to pursue sustainability—and, importantly, to prioritize certain pillars of the concept—is lacking. This paucity is somewhat surprising considering the widespread recognition that sustainability frameworks are conceptually incomplete and practically insufficient in terms of balancing environmental, equity, and economic goals without the inclusion of disaster resilience as a key objective (Grafakos et al. 2016, 3). The ability to withstand and recover from disasters is an essential foundation for all three sustainability pillars to stand upon. Building

cities with the capacity to manage the impacts of extreme weather events and other major disturbances is vital to maintaining stable economies, protecting natural resources while preventing waste and contamination, and ensuring that local governments have the ability to equitably and effectively deliver vital public services (Alibašić 2018, 86). In this sense, sustainability and resilience are inextricably linked. Some scholars even argue for the inclusion of a "governance" pillar in the definition of sustainability that addresses aspects of resilience planning, citizen engagement, and climate adaptation (Alibašić 2017; Alibašić 2018, 4-9). This chapter, therefore, directly addresses the question of how natural disaster vulnerability shapes cities' development of a sustainability framework and related policy priorities.

In addition, this research positively contributes to existing knowledge of focusing events, particularly the dynamics of natural disasters and the policy outcomes and learning process that major disasters can motivate. A burgeoning literature provides answers to many pressing questions about the ways in which catastrophic events can open policy windows and, consequentially, catalyze non-incremental changes in legislation and regulations at the national level. However, few studies analyze the impact of natural disasters or other focusing events at the subnational level (Michaels et al. 2006). This gap in understanding the potential focal power of disasters exists despite the fact that several decades of devolution and gridlock in national politics—specifically in the environmental policy domain—have made municipalities key players in sustainability policy. Substantial municipal involvement in environmental policy, the predilection for cities to adopt environmental standards that exceed national-level regulations (Krause et al. 2019), municipal responsibility for disaster preparation and cleanup efforts (Birkland 2006, 129-130), and a growing movement among cities to adopt sustainability as a guiding policy paradigm all currently characterize the environmental policy landscape in the

United States. Existing research on sustainability, as well as on natural disaster vulnerability, has not kept pace with municipal involvement and innovation in these policy areas. This research addresses this gap by homing in on the connection between a city's experience with natural disaster vulnerability and its conceptualization of sustainability.

This project is also unique in its approach. Few studies on either the focal dynamics of natural disasters or on sustainable cities utilize both quantitative data from a large number of randomly selected cities and qualitative data from in-depth interviews with individuals directly responsible for sustainability policies and planning decisions. In addition, recognizing the difficulties in accurately quantifying natural disaster vulnerability, this research draws from more traditional measures of disasters (such as FEMA data on disaster prevalence and funding) and on the direct interpretation of these disasters and their potential impacts on policy learning from city officials with firsthand experience in orchestrating sustainability efforts.

While other studies have fruitfully analyzed congressional or interest group response to natural disasters by examining changes in legislation, little research has engaged directly with relevant government officials to gain a deeper understanding of the policy learning process in communities experiencing natural disaster vulnerability. Relevant literature has not yet substantively connected the post-disaster learning process with an analysis of sustainability discourse. This lack of empirical research has occurred despite the fact that sustainability as an ambiguous, highly contested concept, is likely to be molded to the unique needs, experiences, and administrative capacity of each individual city (Zeemering 2009). Therefore, this research seeks to understand whether or not the process of defining sustainability and articulating key sustainability-related policy goals among cities is responsive to the focal power of major natural disasters. The combination of quantitative analysis and interview data used in this project allows

for a richer discussion of the interplay between natural disaster vulnerability and the process of constructing and articulating a sustainability framework.

## Analysis

### *Descriptive Findings*

Despite the core idea found throughout the sustainable cities literature that sustainability is most meaningfully achieved through a holistic commitment to each of the three pillars, this analysis finds that cities vary substantially in their conceptualization of sustainability and often prioritize certain pillars over others. Out of the 200 cities included in this analysis, 120 cities have an identifiable commitment to sustainability. Slightly over 60% of the cities in the 200-city sample either do not have viable sustainability programs to analyze or only discuss one or two pillars in their conceptualization of the term. Breaking down the sustainability concept into each individual pillar reveals even more ambiguity over its meaning and practice, as cities differ widely in how many pillars are prioritized.

The two tables below depict the percentage of cases prioritizing each pillar both among the total sample of 200 cities and among only those cities that have an identifiable commitment to sustainability. The findings broadly correspond to other empirical work that highlights a disconnect between the ideal type of sustainability as an equal balance between all three pillars and the actual practice of sustainability that often centers on more narrow or technical conceptualizations that prioritize one or two pillars and systematically neglect others (Hodson and Marvin 2017; Opp 2017).

**Table 3.1: Distribution of the Dependent Variable among Total Sample of Cities**

| **Sustainability Pillar** | Environment | Social Equity | Economy |
|---|---|---|---|
| **Percent Scoring 0 (none)** | 40 | 59 | 53 |
| **Percent Scoring 1 (weak)** | 5 | 12 | 10.50 |
| **Percent Scoring 2 (strong)** | 55 | 29 | 36.50 |

**Table 3.2: Distribution of the Dependent Variable among Sustainable Cities Only**

| **Sustainability Pillar** | Environment | Social Equity | Economy |
|---|---|---|---|
| **Percent Scoring 0 (none)** | 1.67 | 31.67 | 21.67 |
| **Percent Scoring 1 (weak)** | 7.50 | 20 | 17.50 |
| **Percent Scoring 2 (strong)** | 90.83 | 48.33 | 60.83 |

One particularly noticeable pattern is the lack of attention devoted to social equity compared to the other two sustainability pillars. Consistent with a burgeoning literature pointing to the equity deficit and the challenges of creating policies that adequately address social inequities in urban spaces (Long 2016; Opp 2017), this research provides empirical weight to the critique that sustainable cities chronically neglect equity concerns. For instance, only 29% of cities in the total sample place strong priority on the equity pillar, compared to 55% of cities that strongly emphasize environmental protection. Social equity is also more likely to be only weakly emphasized than either of the two other pillars. When the cities in the sample that do not have any identifiable discussions of sustainability are removed, the patterns of policy priorities are even more apparent. Among the cities articulating a commitment to sustainability, approximately 48% strongly discuss social equity, while over 90% strongly emphasize environmental protection as a core and well-developed feature of their sustainability efforts.

Concerns that the ambiguity of sustainability perpetuates economic-oriented understandings of the concept and that sustainability is frequently utilized as a framework to promote growth without adequate consideration of natural resource consumption and other potentially harmful ecological impacts of development and urbanization are common in the more critical branches of the sustainable cities literature (Hodson and Marvin 2017). However, while this research does confirm a profound social equity deficit in cities' sustainability discourse, it does not find evidence of a similar ecological deficit. It instead finds that sustainability is most often expressed as a framework for a city's environmental protection efforts, leaving economic

development as a secondary consideration and social equity as a tertiary goal. This analysis corresponds with other recent work positing that sustainability is often defined synonymously with environmental protection (Opp et al. 2018).

The findings of the content analysis point to the complexity of the sustainability concept and its malleability as a policy and planning framework, as a majority of cities in this sample define sustainability more narrowly in the language of one or two pillars—most predominantly as an environmental protection framework—and, therefore, likely focus their funding, resources, and policy capacity on achieving goals relevant to that pillar. Despite the holistic interpretation of sustainability throughout much of the theoretical literature, in practice many cities are articulating visions of sustainability that center on a handful of narrow policy priorities. This finding is consistent with Zeemering's (2018) point that, although some cities adhere to a comprehensive sustainability framework that structures all facets of local government, it is typically the case that sustainability "has entered the practice of public management through an emphasis on a narrower dimension of the broader concept" (138)—most notably through a single-pillared approach based on environmental protection efforts.

**Quantitative Analysis**

The variance in how sustainability is conceptualized and the priority given to each pillar in relevant planning documents presents an interesting puzzle. As the last chapter demonstrated, demographic factors (most notably a city's poverty rate and population size) as well as governmental factors such as the organization of sustainability programs in city departments, shape the meaning assigned to the sustainability concept. However, the demographic and governmental factors paint an incomplete picture, as there is variance in definitions of sustainability that remains unexplained. To develop a more thorough and nuanced understanding

of sustainability discourse, and in response to a growing body of literature that links resilience, sustainability, and natural disasters, the following analysis explores the potential correlation between disaster vulnerability and cities' proclivity to define sustainability in certain ways.

**Table 3.3: Correlation Between Natural Disasters and the Environmental Protection Pillar**

| Variable | Standard Error | Z Score | P>z (Significance) |
|---|---|---|---|
| natdisaster1yr | .1220978 | -2.13 | 0.033 |
| natdisaster2yr | .0252533 | 0.25 | 0.801 |
| natdisaster5yr | .055258 | 1.02 | 0.306 |
| natdisaster10yr | .0188531 | 0.79 | 0.780 |
| Timesince | .0413007 | 1.55 | 0.121 |
| funding | .0133953 | 0.53 | 0.598 |

Prob > chi2 = 0.1382
R-squared = .0177

Contrary to the research expectations and indication in the literature that an accumulation of natural disasters over time can refocus policy priorities, the quantitative component of this analysis finds no evidence that major natural disasters over the two-year, five-year, and ten-year time frames are correlated with an increased likelihood of prioritizing environmental protection in cities' definitions of sustainability. This finding is somewhat surprising, as the impacts of severe, highly visible disasters can inject new information and priorities into the policy process. Other research has demonstrated how natural disasters can act as focusing events, reorienting policymakers' priorities towards pressing environmental concerns that can be symbolically linked to the occurrence of a hazard (Johnson et al. 2005). However, cities in this sample that have experienced a large number of natural disasters are no more likely than less disaster-prone

cities to prioritize the environmental protection pillar. The length of time since the most recent nearby natural disaster, as well as the amount of funding granted to counties, is also unrelated.

The one-year natural disaster variable, however, is significantly and negatively correlated with the tendency to prioritize the environmental protection pillar, suggesting that as the number of disasters in a one-year time frame increases, the likelihood of emphasizing environmental protection decreases. While this finding contradicts the stated hypotheses, the literature points to a plausible explanation. Following a natural disaster, city governments must focus their attention on garnering funding for recovery, providing immediate relief to individuals impacted by the event, and funneling resources into rebuilding and recovery to ensure that local residents' basic needs are met. As Birkland (2013, 365) suggests, natural disasters often engender a rapid, temporary mobilization of citizens, policy experts, government officials, and other relevant actors in order to push for disaster recovery efforts. This mobilization is typically centered on immediate relief and dissipates before a focus on environmental protection or disaster mitigation can be sustained on the agenda (Birkland 1996, 223). In these situations, few resources are available for the longer time horizons necessary for policy decisions that align with the environmental pillar of the sustainability framework. Thus, a focus on disaster relief, as opposed to long-term mitigation, might help explain the negative association between these variables.

**Table 3.4: Correlation Between Natural Disasters and the Social Equity Pillar**

| Variable | Standard Error | Z Score | P>z (Significance) |
|---|---|---|---|
| natdisaster1yr | .1664498 | -2.26 | 0.024 |
| natdisaster2yr | .1285838 | 0.61 | 0.542 |
| natdisaster5yr | .0704315 | 0.62 | 0.535 |
| natdisaster10yr | .0286242 | 1.26 | 0.206 |
| Timesince | .033607 | 1.34 | 0.181 |

| | | | |
|---|---|---|---|
| funding | .2689493 | -0.86 | 0.391 |

Prob > chi2 = 0.0463
R-squared = .0278

Similarly, the one-year disaster variable is negatively associated with social equity discourse. There is no statistically significant correlation between the two-year, five-year, and ten-year variables and cities' prioritization of the equity pillar. These findings are surprising when taking into consideration recent trends in the literature and among local governments to combine disaster resilience—which entails a substantial focus on addressing equity-related concerns—and sustainability goals into a unified planning framework. The resource-related explanation for the negative correlation between a high number of disasters in the prior year and the tendency to frame sustainability in the language of environmental protection might also be relevant in the discussion of the social equity pillar. Municipal policies and programs that strive for more affordable housing, neighborhood-level resilience, equitable access to public transit and sustainable food sources, among other equity-related efforts come with significant challenges. Policies that fulfill the equity pillar tend to be resource-intensive, more controversial to citizens than policies pertaining to the economic development pillar, and difficult to implement effectively (Bostrom 2012a; Deslatte et al. 2017).

Given state and local governments' preoccupation with providing immediate relief following a major natural disaster, social equity policies—with their substantial formulation and implementation challenges—might not generate sufficient traction on local agendas in the face of pressing disaster cleanup and rebuilding needs. It is, however, somewhat unexpected that a concern for equity does not amplify following multiple disasters over a longer time frame, as there is increasing awareness among scholars and practitioners that disaster vulnerability can be reduced through appropriate urban design and a more equitable distribution of resources

(Freudenburg et al. 2008). The complex relationship between natural disaster vulnerability and equity-related sustainability priorities will be explored in more depth in the qualitative analysis.

**Table 3.5: Correlation Between Natural Disasters and the Economic Pillar**

| Variable | Standard Error | Z Score | P>z (Significance) |
|---|---|---|---|
| natdisaster1yr | .152337 | -2.13 | 0.033 |
| natdisaster2yr | .1194025 | 1.42 | 0.154 |
| natdisaster5yr | .0683751 | -0.17 | 0.866 |
| natdisaster10yr | .0272824 | 1.45 | 0.146 |
| Timesince | .0289351 | 2.69 | 0.007 |
| funding | .2505524 | -1.14 | 0.255 |

Prob > chi2 = 0.0056
R-squared = .0368

The economic development pillar is associated with a slightly different set of factors than the other dimensions of sustainability. Most notably, the *timesince* variable is significantly positively correlated, indicating that the more time that has elapsed between cities' last experience with a natural disaster, the more likely local governments are to prioritize a conceptualization of sustainability that centers on economic development. This finding makes intuitive sense when considering the nature of the sustainability concept. Whereas the equity pillar is often either passively neglected or actively rejected by the public and policymakers, the economic development pillar, which centers on the continued growth and prosperity of a city's economy, tends to be taken for granted as a core goal of sustainability and of urban policy in general (Hodson and Marvin 2017, 12-13).

Because of the centrality of economic prosperity in municipal policy, it is likely that city officials' decisions to prioritize the economic pillar simply are not subject to the potential focal

power of natural disasters and to the dramatic policy changes that focusing events can cause. Instead, lengthy periods of normal policymaking without perturbations caused by major natural disasters appear to facilitate greater attention to economic development in cities' sustainability paradigms. This is evidenced by the regression analysis, showing a correlation between long periods of time since the most recent disaster and the tendency to articulate sustainability in economic terms.

Similar to the other two dependent variables, frequent natural disasters within the previous year are associated with a lower likelihood of prioritizing the economic development pillar in sustainability discourse. Despite this correlation, a cumulative effect of disaster vulnerability on sustainability policy priorities over the longer time frames included in this analysis is not present. These findings, taken in combination, further point to the possibility that prioritization of the economic development pillar might be more likely to occur in periods of normal, incremental policymaking, as opposed to instances of disruption by natural disasters that can trigger a broad rethinking of sustainability-related goals.

**Table 3.6: Correlation Between Natural Disasters and the Total Sustainability Measure**

| Variable | Standard Error | Z Score | P>z (Significance) |
|---|---|---|---|
| natdisaster1yr | .08411 | -3.29 | 0.001 |
| natdisaster2yr | .06719 | 1.07 | 0.285 |
| natdisaster5yr | .0370653 | 0.86 | 0.390 |
| natdisaster10yr | .0154113 | 1.94 | 0.052 |
| Timesince | .0171077 | 3.22 | 0.001 |
| funding | .0171273 | -0.72 | 0.474 |

Prob > chi2 = 0.0000
R-squared = .0316

The overall strength of the commitment to sustainability among cities is associated with the *timesince* variable, suggesting that a large gap in time since a city's most recent experience with major natural disasters relates to the tendency to prioritize more pillars of sustainability or to articulate a stronger emphasis on each pillar. In addition, the one-year disaster variable is negatively correlated with the total sustainability measure. Analyzed holistically with the other findings in this study pointing to the accumulation of disasters as an insufficient explanation for differences in conceptualizations of sustainability across cities, this analysis highlights a lack of empirical evidence for the hypothesis that repeated experiences with natural disasters proximate to a city independently influence how sustainability is defined.

It is possible that natural disaster vulnerability is not directly relevant to how sustainability is conceptualized—specifically to differences among cities in terms of which pillars are prioritized—but instead is correlated with cities' tendency to commit to sustainability in the first place. As the regression results below confirm, cities that have most recently experienced a natural disaster are less likely to articulate an identifiable commitment to sustainability. This is evidenced by the positive correlation between discussions of sustainability on city websites and the *timesince* variable, as well as the negative association between the presence of a sustainability framework and the one-year disaster measure.

**Table 3.7: Correlation Between Natural Disasters and Presence of Sustainability**

| Variable | Standard Error | T Value | P>t (Significance) |
|---|---|---|---|
| natdisaster1yr | .0610164 | -2.16 | 0.032 |
| natdisaster2yr | .0461369 | 0.70 | 0.487 |
| natdisaster5yr | .0294235 | 1.24 | 0.215 |
| natdisaster10yr | .0125364 | 1.08 | 0.281 |
| Timesince | .0143097 | 2.64 | 0.009 |

Prob > F = 0.0077
R-squared = 0.0773

As a whole, the quantitative component of this analysis shows no evidence of a cumulative impact of frequent, severe natural disasters either over a two, five, or ten-year time frame on cities' unique conceptualization of sustainability. The lack of consistent results that align with the research expectations is suggestive of a more complex relationship between the frequency and severity of natural disasters and the priority placed on each pillar of the sustainability paradigm. Given the unexpected results of the quantitative analysis, interviews with city officials in disaster-prone communities can add valuable insight into the dynamics of defining sustainability and the ways in which this process might be shaped by a city's experience with natural disasters. In particular, the qualitative component addresses the role that a city's experience with natural disasters plays in city officials' and citizens' understanding of sustainability and sheds light on the learning process by which certain aspects of sustainability gain prominence on local agendas.

**Qualitative Analysis**

Despite the limited—and somewhat unanticipated—correlations between natural disaster vulnerability and conceptualizations of sustainability highlighted by the quantitative component of this project, the interviews with city government officials paint a richer picture of the process of defining sustainability in disaster-prone cities. Due to the limited nature of qualitative research with a small number of cases, this analysis cannot illuminate broad trends that impact all sustainable cities, but it can draw attention to patterns in sustainability policy discourse and provide nuanced descriptions of the learning process in disaster-prone communities that are not accessible through quantitative analysis. While there is a tendency to suggest that cities' conceptualizations of sustainability are simply not shaped by focusing events based solely on the

quantitative findings, the interview data present a more nuanced picture. To answer the question of how municipal-level natural disaster vulnerability might impact the ways in which sustainability is defined, consistent patterns and core themes were derived from the interviews. Three main themes emerged.

The first theme draws attention to the characteristics of natural disasters that possess focal power within the sustainability policy domain. Specifically, the interviews provide a valuable contribution to the tension in the literature regarding the relative importance of a single major event compared to an accumulation of multiple symbolically-related disasters on policy priorities, as well as whether disasters must be geographically proximate or simply occur within a community of interest in order to induce learning. Findings within this theme are particularly important, as they engage with ambiguous and complex discussions in the literature pertaining to the importance of certain disaster characteristics (such as rarity of a disaster vs. the accumulation of events, immediate impacts vs. long periods of learning, proximity of an event, etc.) on the likelihood that disasters will have an ostensible impact on the municipal policy process.

The second core theme centers on how the definition of sustainability shifts in response to a major natural disaster and to a community's recognition of their vulnerability to future hazards. City officials spoke to the idea that disasters can impact the choice to emphasize certain pillars of sustainability. The interview data relatedly highlight the tendency among disaster-vulnerable communities to perceive the concept of resilience as inseparable from a city's broader sustainability planning paradigm. Findings within this theme speak to the need for scholarly research to more deeply engage with how sustainability is defined and how practitioners' and the public's understanding of sustainability evolves in response to perceptions of vulnerability. Lastly, the interview data draw attention to the mechanics of how disaster-induced learning

occurs in the municipal sustainability policy domain. In particular, the analysis points to citizens' crucial role in interpreting the meaning and significance of natural disasters, drawing connections between disaster vulnerability and sustainability efforts, and pressuring city government officials to prioritize certain elements of sustainability.

*Impact of Natural Disasters on Sustainability Policy Discourse: Disaster Characteristics*

As a whole, the interviews highlight a relationship between a city's experience with natural disasters and the perception and practice of sustainability in the four cases examined. Each of the respondents discussed natural disasters as a driving force for either pursuing new sustainability policies in response to weaknesses in the previous approach made evident by a disaster or for rethinking key priorities under the sustainability framework. City officials discussed disasters as powerful forces capable of focusing public attention and government resources on the most vulnerable aspects of a city (such as stormwater management, neighborhood-level resilience, and other concerns that were mentioned). Respondents also highlighted major disasters as pivotal occurrences making visible policies, zoning choices, and planning decisions that can amplify the harms of natural hazards.

Importantly, when making decisions about policies and programs under the sustainability umbrella, the interview data show that city officials draw lessons from natural disasters that occur inside the city limits and have a direct impact on residents, those that occur in communities that are geographically similar but not proximate (i.e. a coastal city drawing policy lessons from another coastal community in a different state), and natural disasters within a variety of time frames (ranging from very recent events to disasters that took place over a decade in the past). Case-specific information and the relevance for the literature on focusing events, policy learning, and sustainable cities is discussed in detail below.

**Table 3.8: Characteristics of Natural Disasters that Shape Approaches to Sustainability**

| | Disaster Type | Proximity | Time Frame |
|---|---|---|---|
| **City #1** | Flooding; severe winter storms; occasional tornadoes | Within city limits; in nearby cities within the same state; similar types of disasters in other states | 1 – 5 years |
| **City #2** | Hurricanes, flooding, tornadoes, earthquakes, tropical storms | Within city limits; in neighboring cities | Several months – 3 years; predominantly focused on disasters within prior year |
| **City #3** | Flooding | Within city limits; major flood-related disasters throughout the U.S. | Mostly discussed disasters within past 3 years, but also highlighted planning for future disasters anticipated by climate models |
| **City #4** | Flooding; wildfires; heat waves and related droughts | Within city limits; in neighboring cities | 1 – 5 years mostly, but also highlighted several decade long history of flooding |

In terms of the characteristics of natural disasters that appear to have the most impact on conceptualizations of sustainability and the associated policy priorities, this analysis adds to the complex and contentious literature in two main ways—first, by shedding light on whether geographic proximity is an important factor in the focal power of natural disasters and, secondly, by adding empirical evidence to discussions of the time frame within which disasters generate attention and shape policy learning. Existing work on focusing events, agenda setting, and policy learning posits myriad possible ways in which natural disasters can shape policy discourse. Much of the focusing events literature suggests that the proximity of an event increases the likelihood that learning will occur, while also pointing to the possibility that a geographically distant event can have an impact across communities of interest—broad, often ambiguously delineated communities that share common characteristics or experiences (i.e. “coastal communities”)

(Birkland 1997, 24-25; Birkland 1998, 54-55; Michaels et al. 2006, 985). Thus, natural disasters within (or nearby) a city are likely to shape municipal priorities and focus attention on disaster-related policy and planning issues shortly after an event occurs. At the same time though, highly visible disasters that occur a significant distance from the jurisdiction of a specific city can still function as a policy shock if the disaster draws attention to the city's own vulnerability or highlights the possibility of future disasters in closer proximity.

The focal power of natural disasters that occur within or adjacent to a city and those that occur in other states but are symbolically relevant to a broader community of interest are both evident in this research. As illustrated in the table above, when asked to assess their city's overall vulnerability to natural disasters and to identify the main events that shaped the city's approach to sustainability, respondents referenced major events—most predominantly floods—that occurred either within the city limits or in nearby localities. These events were discussed as particularly visible and impactful, as they required substantial local recovery efforts and directly affected citizens' well-being. One city official in particular discussed how consecutive disasters and severe weather events that occurred both in the city limits and in adjacent communities within a several year time-frame motivated the city council to place "climate resilience" on their list of sustainability-related policy priorities and to request that budget allocations in local departments appropriately reflected this new priority (City Official Four 2018). Another interviewee cited catastrophic flooding within the city as an impetus to undertake infrastructure improvements and evaluate neighborhoods' disaster vulnerability (City Official One 2018).

Along with geographically close events, several city officials also articulated a fairly broad perception of "communities of interest" when discussing the impact of natural disasters, drawing examples from municipalities throughout the United States in order to evaluate their

own sustainability practices, disaster vulnerability, and preparedness for natural hazards. Major events with policy impacts that reverberated across the U.S., such as the severe flooding in Houston Texas in 2017, Hurricane Sandy, and even Hurricane Katrina (despite the long time horizon) were organically referenced by two city officials. These events were discussed when highlighting lessons learned from other disaster-vulnerable communities and identifying key events that triggered new developments in local sustainability policy. Importantly, the relevant community of interest in these cases appears to be defined less by geographic proximity and more by disaster type. City officials in this study that had direct experience with severe flooding evaluated their own disaster response, vulnerability to future hazards, and approach to sustainability based on the policy successes and failures of other flood-prone cities despite lack of geographic proximity.

One city official, for instance, mentioned the 2017 Houston floods as an example of how building strong, socially connected neighborhoods can reduce loss of life during a severe disaster and discussed how this event elevated strategies to enhance neighborhood-level resilience to the forefront of their city's sustainability goals (City Official One 2018). Policy learning, reflected in the broad rethinking of priorities, occurred despite Houston being located several states away from this particular city. Similarly, an interviewee in another city suggested that major events, such as Hurricane Sandy and Hurricane Katrina, helped citizens understand the need for more comprehensive sustainability policies and gave city officials "an example of something that we can expect" (City Official Three 2018) and should prepare for considering the increasing frequency of extreme weather events in this particular city. In this sense, disasters that were highly visible on the national scale pushed local-level vulnerability high on the agenda in the

broader sustainability framework within these two cities and provided examples of the extreme disasters that could harm the community without adequate planning.

The cases in the qualitative analysis also illustrate the potential of focusing events across a wide variety of time frames to impact policy learning related to sustainability. While the interview respondents all highlighted events within the prior year as significant contributors to rethinking their approach to sustainability, as illustrated in the table above several city officials also identified natural disasters occurring multiple years in the past that continued to impact policy priorities. One city official even discussed a several-decade long history of flooding that left a legacy in the community and, in conjunction with more recent natural disasters, continued to shape policymaking by elevating resilience as a core component of sustainability (City Official Four 2018). Another respondent suggested that models predicting future disasters, as opposed to actually occurring disasters, also motivated a stronger prioritization of sustainability policy goals (City Official Three 2018).

While the ability to extrapolate from a small number of cases is limited, evidence from interviews points to the possibility that city officials in sustainable communities draw lessons from natural disasters within a wide variety of time frames and a large geographic area. This recognition helps explain some of the unanticipated findings in the quantitative component of this research. Although the regression analysis found no significant relationship between the occurrence of a natural disaster in the two-year, five-year, and ten-year time frames and the conceptualization of sustainability, the interview data highlight the possibility that only analyzing disasters in close proximity to a city might be too narrow. City officials discussed drawing lessons both from geographically proximate disasters and from severe events affecting a broad community of interest. In addition, the qualitative data points to a variety of time frames

that are appropriate to analyze natural disasters' impact on policy learning. City officials referenced recent disasters, those occurring over a decade in the past, and an overall history of vulnerability in their discussion of the factors shaping their approach to sustainability. Thus, this project supports Birkland's (1997, 148) point that the characteristics that make "an event unique, and therefore focal, may best be described through qualitative study" due to nascent scholarly understanding of the dynamics of natural disasters and policy learning.

*Conceptualizations of Sustainability*

As part of the learning process illustrated by city officials, natural disasters shaped sustainability-related priorities in identifiable and patterned ways in the four cases. Specifically, in terms of the impact of natural disasters on the ways in which sustainability is conceptualized and the goals included in the sustainability framework, several respondents discussed tangible shifts in policy priorities. While discussions of policies or planning decisions related to the environmental and economic pillars were relatively sparse during the interviews, policy learning pertaining to the social equity pillar appears to be particularly impacted by the focal power of natural disasters. In several cases, the presence of a disaster either within the city itself or within a broader community of interest drew attention to the distribution of vulnerability across neighborhoods. For instance, one city official discussed how scientific predictions of sea-level rise coupled with local blue-sky flooding and highly salient floods in other states encouraged the city to undertake a "neighborhood-wide resiliency planning process" (City Official Three 2018). This process was incorporated into their sustainability program and centered on identifying vulnerable infrastructure and populations in order to make substantive improvements in the community's capacity to withstand disasters.

Another respondent discussed how severe disasters in other states that gained widespread attention, along with localized flooding, triggered a learning process that fueled the creation of new programs focused on equity and resilience. According to the city official, these programs were implemented with the intent of making citizens aware of the interconnectedness of problems such as homelessness, lack of strong social ties among city residents, and overall disaster vulnerability in an effort to leverage the power of the sustainability framework and better prepare for natural disasters (City Official One 2018). The city official remarked that "our biggest lesson from that [major flood event within the city]…was to really form a philosophy around community resilience and neighborhood resilience" (City Official One 2018). At the core of these efforts was the emerging recognition that effective sustainability policies and natural disaster management begin with strong, self-sufficient neighborhoods. In a similar vein, another city official posited frequent floods and other disasters within the city as the reason "why we have a significant focus on community planning and resilience" in the city's broader sustainability goals (City Official Four 2018).

Post-event prioritization of the equity pillar in these disaster-prone communities centered on an increased focus on social resilience and addressing disparities in neighborhood-level disaster vulnerability. All of the city officials interviewed for this project mentioned resilience as a core component of their sustainability programs, citing natural disasters as the main impetus behind sustainability-related efforts, particularly those pertaining to social equity. These findings speak to the growing recognition in relevant literature that resilience and sustainability are often pursued codependently (Pierce et al. 2011).

One city official discussed organizational changes that occurred following severe flooding within the city and in nearby communities in order to better integrate the pursuit of

neighborhood-level resilience to disasters or extreme weather into the city's existing sustainability framework. In this case, major flooding events fueled a rethinking of the responsibility of various municipal employees, the creation of a new position in government to address resilience planning, and more explicit discussions of vulnerability to natural disasters (City Official One 2018). An interviewee from a coastal city similarly discussed how the increasing prevalence of floods focused city officials' and community members' attention on the growing likelihood of flood-related disasters given predicted rises in sea level. Even though the flooding was minor, it motivated the city to center its sustainability efforts on identifying disaster-vulnerable neighborhoods and pursuing redevelopment projects to design public spaces and buildings in a way that enhanced resilience in the most susceptible areas (City Official Three 2018). In this city, flooding events encouraged a process of post-disaster learning and government reorganization in which resilience planning was strategically nested under the city's existing sustainability program.

Despite emerging predictions in the literature that resilience might be gradually replacing sustainability as a viable policy and planning framework, particularly for municipal governments (Gleeson 2014), the qualitative analysis of communities that are both committed to sustainability and vulnerable to natural disasters shows little evidence of this shift. Instead, it appears that the sustainability concept is being expanded to include an explicit focus on resilience in order to ensure that communities can withstand natural disasters on an economic, environmental, and social scale. Interviewees discussed resilience as a key policy goal housed under their broader sustainability framework. This finding is consistent with scholarly work highlighting the inseparability of short-term resilience planning and a long-term commitment to sustainability (Alibašić 2017; Pierce et al. 2011).

*Natural Disasters and the Role of Citizens in Sustainability Policy Learning*

Another core theme highlighted during the interviews centers on the mechanisms by which policy learning and a rethinking of sustainability took place following natural disasters. The literature discusses policy learning following focusing events as a process that occurs among relevant policymakers, planners, and other government officials, but that is fueled by increased public awareness and involvement. Findings from the qualitative component of this project suggest that citizens perform a vital function in translating the identification of a problem through a focusing event into an impetus for change in how the city government conceptualizes and practices sustainability. The table below summarizes city officials' discussions of the role of citizens in rethinking sustainability-related goals and priorities.

**Table 3.9: Citizens' Role in Post-Disaster Policy Learning Related to Sustainability**

| | Citizens' Response to Natural Disasters | Impact on Sustainability Framework |
|---|---|---|
| **City #1** | Flooding encouraged citizens to take responsibility for neighborhood resilience through volunteering and strengthening social ties | Better integration of sustainability and resilience in the city's policy framework; stronger recognition that improving safety, security, and resilience of neighborhoods is an essential part of sustainability. |
| **City #2** | After multiple disasters, citizens began speaking out at city council meetings, questioning zoning choices, and calling for new policy priorities. Citizens became interested in resilience strategies and were more understanding of city planners' push for sustainability policies. | Enhanced community support for sustainability, which put pressure on the city council to rethink development priorities, zoning decisions, etc. Increased support for the planning department's sustainability plan, making implementation of key policy goals possible. |
| **City #3** | Flooding raised public awareness of natural disaster vulnerability | Increased the public's understanding of the city's rationale for pursuing sustainability; enhanced public support for sustainability goals. |
| **City #4** | Citizens became aware of weaknesses in the city's existing approach to disaster preparation | Citizens advocated to strengthen very specific elements of sustainability—particularly, better flood management practices. |

In terms of citizens' role in policy learning, one city official suggested that the experience of a tropical storm, major flood, multiple hurricanes, and several other natural disasters within a relatively short time frame (approximately three years) significantly impacted citizens' perceptions of sustainability, resilience, and vulnerability (City Official Two 2018). This city official discussed state laws that prevented substantial local authority over development decisions coupled with a city council that was unsupportive of a strong commitment to sustainability as major impediments to implementing a rigorous sustainability framework. Furthermore, contentious beliefs among citizens about the veracity of climate predictions and concerns about using local resources to pursue sustainability policies halted the development of a comprehensive sustainability paradigm. Economic growth frequently overrode other policy and planning concerns and limited the planning department's ability to pursue sustainability. While the planning department attempted to push for a more comprehensive framework, without a policy mandate from citizens and support from the city council, the sustainability concept remained on the sidelines and did not function as an overarching planning paradigm (City Official Two 2018).

Following the multi-year experience of consecutive natural disasters, local citizens' understanding of disaster vulnerability and vision for city planning noticeably shifted. For instance, the city official cited stronger support for stormwater infrastructure upgrades and other relevant investments as a key outcome of the wave of natural disasters. Following the disasters, citizens became more supportive of sustainability policies and planning decisions, leading the city official to suggest that "all of the challenges we had ten years ago are getting a little bit easier because of these disasters" (City Official Two 2018). Despite the longstanding hesitation of the city council to embrace sustainability as a broad planning framework, the city official

highlighted how major disasters triggered citizens to advocate for planning decisions and infrastructure projects that aligned with the core principles of sustainability.

This city's experience illustrates the ways in which shifts in policy priorities can follow in the footsteps of natural disasters when the public mobilizes around a shared concern. Citizen pressure on the city council triggered a more expansive conceptualization of sustainability— mainly the recognition of the connection between sustainability and resilience— and a stronger sense of urgency (City Official Two 2018). This case illustrates a classic story of how focusing events can manifest policy learning. First, a series of major events grabbed public attention. Second, citizens united with city planners around the concept of sustainability (which functioned as a viable solution for natural disaster vulnerability that the planning department had already formulated but was unable to implement effectively due to lack of support). Lastly, concerned citizens placed pressure on city government officials to restructure policy priorities and adopt a more comprehensive, rigorous sustainability framework.

While this case highlights the most poignant example of the interplay between natural disasters, citizens' perceptions, and shifts in policy priorities in this analysis, the other cities in the sample also drew attention to similar dynamics. In one city, severe flooding encouraged citizens to take responsibility for disaster preparation and to work with government officials to pursue enhancements in the safety, security, and resilience of vulnerable neighborhoods (City Official One 2018). Another city experienced an increase in overall citizen engagement in sustainability-related planning decisions following severe natural disasters in other states along with local flooding. In this case, the city official suggested that, while the community was already relatively supportive of a strong commitment to sustainability, the flood events

mobilized citizen support, resulting in more pressure for additional sustainability goals to be placed on the agenda (City Official Three 2018).

One city official, however, cautioned against overstating the impact of citizen involvement in reshaping sustainability priorities. In this particular city, natural disasters fueled a stronger focus among the public on narrow policies, such as more effective flood management strategies. While these policies fit under the sustainability umbrella, the city official suggested that citizens did not necessarily perceive their requests for better disaster preparation as part of a broader sustainability paradigm (City Official Four 2018). This insight suggests that natural disasters alone might not directly fuel support for sustainability as a comprehensive framework, even when they facilitate citizen pressure on city government for narrow sustainability-related policies and planning decisions geared specifically towards disaster mitigation.

Analyzed in combination, these cases illustrate an important dynamic of post-event policy learning. Natural disaster vulnerability tends to generate relatively low interest among the public and political officials until a community's risk becomes salient through the experience of a major event (Birkland 1996, 221-222). Considering that a community's perception of risk is fluid, mutable, and often underestimated when applied to disaster vulnerability (Lewis 2019), community resilience and sustainability policies are not always intuitive priorities for the public. Citizen resistance to a long-term planning process, urban design decisions, and an economic development framework that fits comfortably under the sustainability umbrella is often strong, as the long-term benefits of increasing resilience and preparing for natural disasters are typically undervalued in comparison to potential short-term disadvantages of adopting sustainability policies, such as costly implementation efforts and limits on natural resource consumption (Birkland 1996, 223). However, as this analysis demonstrates, major natural disasters can

function as focusing events in the municipal sustainability policy domain. By calling attention to disaster vulnerability and mobilizing citizens and government officials around sustainability-related goals, salient natural disasters in these four cases had a substantial impact on the conceptualization and implementation of a sustainability framework. Natural disasters—when translated by citizens into broader support for sustainability goals—appear to be key ingredients in Kingdon's (2003, 116) "primeval soup" of policymaking in the sustainability domain.

**Overview of Key Findings and Contributions**

As a whole, this project identifies several patterns in the process of conceptualizing sustainability and determining relevant policy priorities in disaster-vulnerable communities, which contributes new insight to the literatures on sustainable cities, focusing events, and the dynamics of post-disaster policy learning. By analyzing a random sample of U.S. cities while also homing in on a small subset of sustainable communities that are highly susceptible to natural disasters, this research sheds light on several facets of sustainability policy discourse that have not yet been addressed in existing studies. Examining cities as the unit of analysis provides insight into an under-analyzed aspect of disaster vulnerability and its impact on the policy process. A vast majority of scholarly work on natural disasters and their role in policy learning only examines the most salient, severe natural disasters that gain national-level attention due to the magnitude of their impacts and visibility in the media (Staupe-Delgado 2019, 625). While this type of research has immense practical value in facilitating a better understanding of the effects of natural disasters on policymaking, broad emphasis on the most well-known, impactful disasters means that our current understanding of resilience, sustainability, and vulnerability is derived from empirical studies of a very limited number of cases.

Research that emphasizes the most salient disasters also underestimates the policy impacts that smaller, less focal, and more localized disasters or extreme weather events can have on the communities impacted by them. Throughout the interviews in this study, several city officials referenced relatively minor, localized events that lingered in the community's collective memory as pivotal forces shaping municipal policy despite their relative lack of severity and salience beyond the affected city. While the quantitative analysis in this project relies on existing identifications of natural disasters by FEMA, the interview process allowed relevant city officials to independently identify the main events impacting policies and planning choices under the sustainability framework. Thus, the qualitative component of this research recognizes that focusing events at the municipal scale may not be particularly severe compared to other disasters and do not always receive substantial attention outside of the impacted community. By analyzing only the most catastrophic events, such as hurricanes and earthquakes that generate widespread attention and function as national-level policy shocks, other studies on focusing events and post-disaster learning miss this critical nuance.

In addition, theories of focusing events—specifically, the impacts that natural disasters can have on policy discourse—have not been systematically applied to sustainability policy. Empirical analysis examining the interplay between natural disaster vulnerability and sustainability is in its infancy despite emerging theoretical work highlighting the interdependence of sustainability, resilience, and disaster mitigation. This paucity of research is consequential given the ambiguity that surrounds the meaning of sustainability. Not only is sustainability a contested concept that defies consensus over its goals and the practices that can be reasonably labeled as "sustainable", inherent tradeoffs between the three pillars can lead to intense disagreements among administrators about which policy priorities should be included in

a sustainability framework. Therefore, a more thorough understanding of the ways in which this policy domain is subject to conflicts over the conceptualization of sustainability and how these conflicts are shaped by pertinent focusing events is beneficial. In response to this gap in current research, this chapter takes a step towards better connecting scholarly knowledge of natural disasters, focusing events, and policy learning with the burgeoning body of work exploring sustainable cities.

This project also adds valuable insight to existing research due to its focus on policy discourse and the ways in which natural disasters impact the policy goals that are prioritized within cities' unique sustainability paradigms. Policy scholars have drawn attention to the multiplicity of outcomes that can stem from focusing events—ranging from increased public awareness of a problem to the adoption and implementation of a substantially different policy than was in place before the precipitating event. However, most studies in environmental policy only analyze concrete changes, such as the passage of new legislation or regulations. This project demonstrates that policy learning resulting from natural disasters can take a multitude of forms including rethinking implementation strategies, restructuring the responsibilities of government positions, and—most importantly in the context of municipal sustainability—shifts in the meaning of sustainability and the key priorities housed under the framework.

In terms of the empirical results of this project, several findings are particularly important to discuss in light of ongoing questions and contentions in existing research. To begin with, findings from both the quantitative and qualitative components, when analyzed in combination, shed light on the characteristics of natural disasters that shape municipal policymaking in the sustainability domain. Counterintuitively, the regression analysis demonstrates a lack of correlation between the number of natural disasters experienced within a two-year, five-year, and

ten-year time frame and the tendency for cities to emphasize certain pillars in their sustainability paradigm. There are two primary explanations for these findings—a substantive explanation and a methodological explanation.

First, given the negative correlation between the presence of an identifiable commitment to sustainability and both the *timesince* and one-year natural disaster variables, this research shows that cities that have recently experienced a natural disaster are less likely to articulate a sustainability framework to begin with. Thus, instead of assessing the relationship between natural disaster vulnerability and the ways in which sustainability is conceptualized, it is possible that the findings simply reflect a tendency among disaster-prone communities to not articulate sustainability as an overarching policy and planning paradigm.

The lack of correlation might also be explained by methodological choices. Given the argument in the literature that focusing events in close proximity to a certain jurisdiction have the potential to elevate issues on the agenda and induce policy change, the quantitative component of this project centers on county-level natural disasters with the expectation that events either within a city or in close proximity will impact that city's policy discourse and priorities. However, the interview data elucidate the limitations of this approach. While city officials did reference localized disasters, events occurring near a city were discussed as only part of a broader equation. City officials described learning valuable policy lessons from disaster-vulnerable cities across the country.

For instance, officials in flood-prone areas highlighted cities' response to severe floods in other states as triggers for rethinking their own approach to natural disasters, adopting new sustainability-related priorities, and reorganizing positions in city government to better reflect these priorities. Thus, both proximity and disaster type appear to matter, lending empirical

evidence to the notion that policymakers learn from disasters within their jurisdiction and from major events that occur within a broadly defined community of interest. City officials in this analysis were able to symbolically relate the impacts of major natural disasters within a broader community of interest to their own cities' disaster vulnerability and harness public attention to catastrophic events—such as Hurricane Sandy and the 2017 Houston flooding—to facilitate policy learning and enhance support for sustainability goals.

Moreover, focusing on the actual occurrence of major disasters in close proximity to a city might provide an overly narrow understanding of the types of community vulnerabilities that shape sustainability policy priorities. Scholars have suggested that increasing concern over the impacts of climate change on community well-being is a key motivator in the recent push for robust sustainability programs among U.S. cities (Turner II 2010). While natural disasters are one manifestation of climate-related risk, analyzing the relationship between a city's overall sense of climate vulnerability and their unique approach to sustainability might generate beneficial insight into how sustainability is defined and practiced. Information from the qualitative piece of the project highlights the possible benefits of analyzing climate vulnerability more broadly, as opposed to solely focusing on the occurrence of major disasters. For instance, when asked about the contributing factors shaping their city's approach to sustainability, several respondents mentioned scientific projections indicating high levels of climate-related risk that drew attention to their own city's climate vulnerability, even if this vulnerability had not yet translated into tangible severe disasters. In this sense, only focusing on disasters that have already occurred might overlook the relationship between perceptions of climate-related risk and approaches to sustainability.

Another finding that is particularly relevant for developing a stronger understanding of sustainable cities is the relationship between natural disaster vulnerability and a city's prioritization of the equity pillar in their conceptualization of sustainability. In response to the ongoing recognition that social equity is pervasively neglected in municipal policies, as well as chronically overlooked in empirical work on sustainable cities, the equity pillar has become a core focus of various scholarly critiques of the ways in which sustainability is practiced. This study adds another voice to this refrain by positing natural disaster vulnerability as a potential factor shaping a city's tendency to prioritize the equity pillar. Accompanying other work on this topic, the content analysis demonstrates that, not only is social equity neglected in practice, it is often either not present or not strongly emphasized in the very definition of sustainability that structures cities' policy priorities.

The equity pillar is the least frequently or strongly prioritized pillar in cities' conceptualizations of sustainability. In addition, the regression analysis shows that experiencing a large number of natural disasters within a one-year time frame negatively corresponds to the tendency of cities to discuss equity as a core principle of sustainability. In this sense, it is plausible that due to the complexity, resource-intensity, and—in many cities—limited citizen support for equity-related policies, the social equity pillar is crowded off the agenda by immediate relief efforts following a major natural disaster.

Although the equity pillar appears not to be impacted by natural disasters occurring in other time frames (two-year, five-year, and ten-year frames) in the regression analysis, the interview data paint a more nuanced picture. Each of the city officials discussed the ways in which natural disasters either within their city or within a broader community of interest facilitated a stronger focus on identifying vulnerable populations, enhancing neighborhood

resilience, or addressing interconnected problems such as homelessness and disaster vulnerability. Several of the respondents even posited natural disasters as the primary motivating factor for integrating a stronger focus on equity and resilience into their sustainability plans, suggesting that absent a major disaster the pursuit of equity-related policy efforts likely would not have occurred. Interestingly, interviewees predominantly highlighted policy changes and a rethinking of sustainability that centered on strengthening the equity pillar, while discussions of the environmental protection and economic development pillars were very sparse in the interview data. In the four cases, the equity dimension of sustainability appears to be most sensitive to the focal power of natural disasters.

While the data do not point to an exact reason for this dynamic, it is possible that relevant focusing events might trigger a stronger prioritization of social equity due to the broad lack of focus on this pillar during periods of normal policymaking (i.e. policymaking that is not shaped by a disruptive event). Since social equity is frequently neglected or only weakly emphasized in cities' conceptualizations and practice of sustainability, it might be the case that a major policy shock—in the form of a natural disaster—is necessary to elevate equity issues onto a city's agenda. Considering that environmental protection and economic development are already core components of many cities' sustainability paradigms, it is plausible that these two pillars are simply less responsive to focusing events. This explanation is somewhat supported by the quantitative analysis, as the economic development pillar is negatively correlated with the *timesince* variable. In this sense, the decision to emphasize the economic pillar does not appear to be responsive to the perturbations in issue awareness and policy discourse perpetuated by natural disasters. Instead, economic development tends to be prioritized in cities experiencing long periods of time without a major ecological event.

## Concluding Thoughts

Examples abound in the literature of floods, hurricanes, tornadoes, and other natural disasters that trigger substantial policy change. However, existing literature sheds minimal light on the precursors to catalytic change in the sustainability policy domain—specifically, the role that major natural disasters play in shaping policy discourse and structuring how relevant government officials prioritize certain aspects of the sustainability framework. This is a particularly important area of study considering that sustainability is a highly amorphous concept that is subject to disagreements over its definition and relevant policy priorities. This research demonstrates that sustainability policy discourse in U.S. cities is shaped by a combination of incremental and catalytic forces. On the one hand, the results of both the quantitative and qualitative analysis show little evidence that certain aspects of sustainability policy—particularly an emphasis on the economic development pillar—are responsive to the focal power of natural disasters at the municipal level. On the other hand, findings—such as the impact of natural disasters on the prioritization of social equity, the ways in which city officials draw lessons both from geographically proximate disasters and from the broader community of interest, and the tendency for disaster-vulnerable cities not to articulate a sustainability framework in the first place—add valuable insight to existing work on sustainable cities.

Despite the contributions of this research, limitations inherent in the available data and in the methodological approach leave space for critiques that future work can address. Importantly, similar to many other studies of focusing events, this research relies on cross-sectional data instead of time-series analysis to measure the potential impact of natural disasters on the ways in which city governments conceptualize sustainability. The results of this analysis, therefore, are limited to explaining how an overall sense of vulnerability (measured by the frequency and

severity of natural disasters) correlates with certain conceptualizations of sustainability, as opposed to elucidating the finer details of how a single natural disaster might directly result in changes in policy discourse. While this project illustrates a complex relationship between cities' vulnerability to natural disasters and their sustainability-related priorities, additional studies comparing cities' understanding of sustainability before and after a major disaster would be particularly valuable. The interview data, which shed light on some aspects of the process by which an experience with a natural disaster can lead to a rethinking of municipal policies, speaks to the need for more research on this topic.

In addition, while this project sheds light on the complex interplay between a city's experience with natural disasters and its approach to sustainability, it cannot speak to the important question of how the adherence to certain conceptualizations of sustainability might impact a city's overall resilience and capacity to manage disaster vulnerability. A beneficial avenue for future research could center on analyzing whether or not disaster-prone cities that practice sustainability are more resilient, better prepared, and able to recover more effectively following a hazard compared to disaster-prone cities that do not adhere to the principles of sustainability. It would also be useful to examine if certain permutations of sustainability—such as the prioritization of a specific pillar vs. the adoption of a more balanced approach—improves a community's capacity for resilience. While these questions would be methodologically challenging to explore, studies on this topic could have significant value for both scholars and city administrators, especially considering predicted rises in the severity and frequency of natural disasters in numerous American cities.

As suggested earlier, the measure of focusing events and natural disaster vulnerability used in this project is imperfect. Not only does the qualitative component of this research draw

attention to the possibility that only analyzing geographically proximate events might not fully capture the dynamics of post-disaster policy learning, it is also the case that the disaster declarations included in the FEMA database are less reflective of actual event severity/costs and more reflective of the complex political process through which hazards are officially designated as natural disasters (Platt 1999, 17-20). Thus, it is important to recognize that natural hazards with economic, social, and environmental impacts within a specific community might not be included in the dataset used in the quantitative analysis. Because of the political dynamics of disaster declarations, a qualitative assessment of disaster vulnerability in which policymakers, planners, and other relevant actors can discuss their community's experience with natural disasters is vital to developing a thorough understanding of vulnerability, resilience, and sustainability in U.S. cities.

Lastly, this project carves a space for additional work examining the process by which the goals, priorities, and policy tools associated with cities' sustainability frameworks are formulated and reformulated in response to precipitating events. In light of some of the interview respondents' points about how natural disasters softened political conflicts that had previously stymied sustainability efforts and engendered more constructive interactions between the city council, planners, and the public, additional empirical work on the impacts of natural disasters in situations of political conflict and lack of agreement over core policy goals would be a valuable addition to the public policy literature.

# CHAPTER FOUR:
# CONSTRUCTING SUSTAINABILITY FROM THE GROUND UP: CITIZEN PARTICIPATION IN SUSTAINABLE CITIES

## Introduction and Purpose

The core tenets of sustainability are increasingly being used as a roadmap to guide the municipal planning and policy process. Even though U.S. cities were relatively late adopters of sustainability policies compared to municipalities in other parts of the world, the concept of sustainability has recently become a key feature in the landscape of municipal governance throughout the United States (Keeley and Benton-Short 2019, 3; Portney 2013, 23-24). The emerging logic among planners and policymakers in many U.S. cities centers on the idea that cities must become sustainable and resilient in order to face the environmental, economic, and social challenges of the 21st century without disruptions to the vital public services that this level of government provides. The growing commitment to sustainability as a foundational policy framework is evident even in the earliest stages of the municipal planning process, as the core principles of sustainability—environmental protection, ecologically benign economic development, and social equity—are viewed by numerous scholars and city administrators as necessary components of modern, effective comprehensive plans (Rouse and Piro 2022, 157-158).

Although the sustainability framework has gained prominence across U.S. cities, the definition of this concept remains ambiguous, as "city governments operationalize what sustainability means in their communities in different ways and structure their initiatives accordingly" (Krause and Hawkins 2021, 189). Diversity among cities in terms of natural resource availability, wealth, the policy preferences of citizens, vulnerability to climate hazards, and myriad other factors makes the creation of a single, concise definition of sustainability that is

relevant to all municipalities an unworkable task (Gardner 2016, 3). Instead, sustainability discourse is constructed situationally. In the absence of a clear definition, lack of consistent benchmarks, and few policy mandates from higher levels of government when it comes to building sustainable communities, local governments often create their own conceptualization of sustainability. They do so directly by delineating a specific definition of sustainability in planning documents, as well as indirectly by prioritizing certain aspects of the sustainability framework in policy decisions while ignoring others[22]. Ambiguity over the meaning of the concept has resulted, not only in wildly variable policies and planning decisions that have been placed under the umbrella of "sustainability", but also in questions about the optimal process by which city governments should decide which principles of sustainability matter most to their communities.

At the forefront of this challenge is the unresolved question about what role citizen participation does (and should) play in municipal sustainability planning. Meaningful engagement of the local community is widely discussed by scholars and city administrators as a core element of effective sustainability efforts (Cohen 2018; Rouse and Piro 2022, 18-22). A robust citizen participation process can aid local government officials in determining which aspects of sustainability to invest in and how the sustainability framework can be molded to fit unique local circumstances (Stockholm Environment Institute, 2021). Given the current absence of clear standards to delineate the policy outcomes that sustainable cities should achieve, defining sustainability—along with formulating and implementing relevant policies—is typically a bottom-up, highly localized process shaped by the expertise and political will of city officials

[22] One notable example of how city governments conceptualize sustainability in diverse ways is the well-documented equity deficit. Research has found that cities self-identifying as "sustainable" tend to underprioritize the social equity pillar, thus defining and practicing sustainability as a purely environmental or economic framework (Godschalk 2004; Deslatte 2017; Opp 2017; Saha and Paterson 2008).

combined with the support and input of citizens. The ambiguity of the sustainability concept coupled with the "great variety in topical priorities emphasized in sustainability plans across U.S. cities" (Keeley and Benton-Short 2019, 14) speaks to the potential merits of a participatory process in which meaningful citizen engagement is used to formulate the city's sustainability goals according to shared values or pressing needs.

When carried out effectively, participatory processes can bridge the information gap between administrators and citizens, ensuring that city officials understand core public values and make policy decisions accordingly (Nabatchi 2012). In addition, some scholars have argued that direct citizen participation is necessary to build "a common understanding and language for sustainability" through meaningful dialogue (Calder and Beckie 2011, 676). The process of building this common language through citizen engagement could result in a situation in which the definition of sustainability differs based on deeply held community values and dominant cultural frames (Foss 2018, 344), as evidenced by the varied, complex landscape of sustainability policies across U.S. cities.

Citizen participation is essential for pragmatic reasons when it comes to both defining and practicing sustainability. For instance, considering that achieving the environmental protection pillar of sustainability requires substantial behavior changes (consuming less energy or adopting different transportation habits, for example), public dialogue and support from citizens can ease implementation challenges and increase the likelihood of successful policy outcomes (Cohen 2018, 12; Zeemering 2009, 252). Others have argued that citizen participation is not simply pragmatic and advantageous for local-level officials, but is deeply embedded within the sustainability framework. Key guiding documents, such as Agenda 21, posit the active engagement of citizens in the governance process as inherent in the sustainability concept

(UNCED 1992). From this perspective, opportunities for participation should not solely be created for the sake of buy-in and political expediency, since citizen input is not just a means to ease implementation but can also be a valuable end in itself. Citizen participation is increasingly viewed as an essential element in a city's process of defining sustainability and deciding which policy priorities should be included under the sustainability umbrella.

In this vein, a growing number of cities are including public participation and a stronger citizen-administrator relationship as a non-negotiable aspect of their sustainability frameworks (Portney 2013, 152-153). For instance, the City of Denver identifies collaboration with various community partners and a focus on citizen engagement as main elements in its definition of sustainability (City of Denver 2022). Some scholars point to citizen participation as a necessary foundation for building sustainable communities (Calder and Beckie 2011, 672), suggesting that cities that do not engage in meaningful dialogue with citizens fall short of a full commitment to the principles of sustainability.

Despite the implicit assumption that citizen participation is a key aspect of the sustainability paradigm—either for practical purposes to enhance buy-in and ease implementation or based on beliefs about the normative value of government-citizen communication—research on this topic is limited. It is not yet clear in existing research how sustainable cities facilitate citizen participation, as well as how citizen involvement might affect local officials' understanding of core community values and shape a city's unique approach to sustainability. This project seeks to enrich current scholarship by analyzing the role of citizen participation in sustainable communities. More specifically, this research centers on the question: How are cities in the United States engaging citizens in the sustainability policy process and what types of participatory mechanisms are being used? As part of this broader question, the

chapter explores how city officials perceive the goals and value of participatory processes within the sustainability domain, as well as how government-citizen communication is structured in participatory venues. By drawing from interview data with local government officials, this project empirically analyzes the various mechanisms for citizen participation that city governments are utilizing, government officials' motivation for engaging the public, and the ways in which participatory efforts are shaping the conceptualization of sustainability.

**Review of Relevant Literature**

To analyze how citizen participation fits within the sustainability concept and to enhance existing knowledge of the ways in which participatory practices are used in sustainable communities, this research draws from three distinct, but conceptually interrelated, bodies of literature. First, this project situates itself within public administration research, which has analyzed the normative and practical value of citizen participation in policymaking. Practitioners and scholars of public administration have constructed various typologies to categorize different types of citizen engagement (Fung 2006), have explored the relationship between participatory processes and policy outcomes in a wide range of policy domains[23], and have parsed out the key features of meaningful forms of participation (Berner et al. 2011; Nabatchi 2012).

Secondly, this research is grounded in existing studies of sustainable cities. Implicit within both theoretical and empirical work on local-level sustainability is the notion that "decentralization and democratic control over public decisions are among the key components of a sustainable society" (Geczi 2007, 378-379). According to this literature, governing a

[23] See, for instance, Sutcliffe and Cipkar's (2017) analysis of the opportunities that are available for citizens to directly participate in public transportation policy, Li et al.'s (2015) qualitative assessment of the impacts of public involvement in health policy decision-making, Switzer's (2019) discussion of how citizens' political preferences can impact local-level implementation of federal safe drinking water standards, and Pidgeon et al.'s (2014) study of incorporating various participatory processes, such as surveys and public workshops, into the energy policy domain.

sustainable city necessitates deep engagement with relevant stakeholders in order to determine what sustainability means within the community and to decide on the policy priorities that city government officials should incorporate within their version of the sustainability paradigm (Wang et al. 2012, 843-844).

Lastly, a rich body of work in democratic theory has discussed the merits of shifting from participatory venues that elicit one-way communication between citizens and policymakers and towards more collaborative, deliberative forms of participation. Scholars within this field emphasize the benefits of extending decision-making authority to individuals that might not normally be involved in municipal policymaking (Papadopoulos 2012, 126). This literature also critically examines who participates in decision-making processes, what government officials' motivations are for facilitating citizen engagement, and whether or not direct citizen participation leads to objectively better policy outcomes (Parkinson 2012, 166-168). The key findings from this chapter build upon and contribute to these three interrelated literatures.

*Models of Participation*

Direct citizen participation differs from traditional forms of political participation (such as voting) by facilitating communication "primarily at the administrator-citizen interface" (Yang and Pandey 2011, 880). Through direct participation, citizens are "personally and actively engaged in a process" (Nabatchi and Amsler 2014, 65S), rather than simply having their broader interests represented by elected officials. There is no one-size-fits-all model of how citizen involvement in local governments is structured. Possible venues include surveys with the purpose of understanding the public's preferences, informational meetings and public hearings to educate citizens on proposed policy changes, mediation activities intended to resolve conflicts over value-laden issues, citizen commissions that play a direct role in policy formulation, citizen-

led advisory boards, and many other forums for engagement (Beirle 1998, 4; Fung 2015; Irvin and Stansbury 2004). Each of these venues has a distinct objective and set of processes by which citizens are included in policymaking, ranging from gathering information about public preferences to creating deliberative spaces in which citizens can engage in dialogue to reach a collectively acceptable policy decision.

With the diversity of participatory venues in mind, scholars have categorized different types of citizen participation into various models to systematically study their merits. These models classify opportunities for participation based on the intensity of citizen involvement and the decision-making authority that the public is invested with. One of the more well-known classifications is Arnstein's ladder of participation, which has been pivotal in shaping scholars' and administrators' understanding of the various types of civic engagement that can be utilized. The model also articulates a critical view of government-citizen interactions by calling attention to the potential for public participation to become a veneer under which citizens have little formal power and are simply given the illusion of participation to persuade the public of the merits of a policy trajectory that has already been decided on (Gaber 2019, 196).

| | |
|---|---|
| **Citizen control** | Citizen power |
| **Delegation** | |
| **Partnership** | |
| **Placation** | Tokenism |
| **Consultation** | |
| **Informing** | |
| **Therapy** | Nonparticipation |
| **Manipulation** | |

**Figure 4.1: Arnstein's Ladder of Participation (Source: Adapted from Arnstein, Sherry. 1969. "A Ladder of Citizen Participation." *Journal of the American Institute of Planners*. Vol. 35(4): 216-224.)**

The ideas behind Arnstein's model have more recently been adapted into a typology by the International Association for Public Participation (IAP2) that serves as a guide for practitioners and illustrates the distribution of authority between citizens and government officials, as well as the characteristics of citizen-administrator interactions. In this typology, types of participation are organized on a spectrum ranging from participatory opportunities that give citizens the least formal impact over policy decisions on the left side to more impactful venues in which citizens have final decision-making authority on the right side.

| | **Inform** | **Consult** | **Involve** | **Collaborate** | **Empower** |
|---|---|---|---|---|---|
| Goal of participation | To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions | To obtain public feedback on analysis, alternatives and/or decisions | To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered | To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution | To place final decision making in the hands of the public |
| Promise to the public | We will keep you informed | We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision | We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision | We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible | We will implement what you decide |

**Figure 4.2: IAP2's Spectrum of Participation (Source: Adapted from The International Association for Public Participation. 2018.)**

The "inform" category on the spectrum signifies instances in which government officials involve citizens in policymaking with the purpose of educating them with unbiased, fact-based information (IAP2 2018). In cities practicing this type of public participation, administrators are perceived as being capable of formulating and executing policies that best meet the needs of the community, while citizens simply must be educated about pressing problems and the available policy options being considered (Nabatchi 2012, 703). Arnstein critiqued this type of participation as an "empty ritual", since citizens are granted no formal influence over problem identification or policy formulation (Arnstein 1969, 24-25). This type of participation does not redistribute decision-making authority by fully incorporating citizens into the policy process and, therefore, can easily devolve into a method for "engineering support" for a decision that has already been made (Arnstein 1969, 26). In addition, communication in this category is unidirectional, as information flows solely from administrators to the public—typically through informational meetings or public hearings in which citizens listen to policymakers.

The "consult" category similarly entails one-way communication, but information moves in the opposite direction, as government officials seek public feedback. This category includes advisory boards, surveys, focus groups, comment periods on policy changes, and other venues in which administrators call upon citizens to proffer advice (Nabatchi 2012, 703). While both informing and consulting the public are key steps towards creating a system of meaningful participation, due to the reliance on unidirectional communication, these participatory venues promise only that citizens will either listen or be listened to (Arnstein 1969, 27-28). There is no guarantee that the concerns and policy preferences of the public will be incorporated into the decision-making process. Informing and consulting the public might facilitate greater buy-in and a stronger sense of efficacy, but these participatory mechanisms stop short of giving any formal

authority to citizens (Gaber 2019, 196). Some degree of citizen influence is evident in the "involve" category in the middle of the typology, which includes participatory processes guaranteeing that policy decisions reflect public concerns and goals (IAP2 2018).

On the right side of the IAP2's spectrum, citizens' ability to shape government action is the most intense, authoritative, and impactful. The "collaborate" and "empower" categories describe instances in which power shifts from government officials to the public and in which citizens possess either shared or primary decision-making authority. In these situations, relevant government officials and citizen-participants engage in joint planning efforts that require extensive dialogue, debating the range of policy options and collaboratively deciding on the best solution (Arnstein 1969, 31; Nabatchi 2012, 703). Communication is multidirectional and the distribution of power flattens and becomes less hierarchical. When power shifts, the character of citizen-government interactions also tends to change. As citizens gain more authority over policy choices, the policy process generally becomes more deliberative, as the public, administrators, and experts engage in dialogue through which diverse preferences are discussed, competing community values are reconciled, and these preferences and values are translated into concrete policy decisions (Fung 2006, 68).

Both the IAP2's typology and Arnstein's ladder inform contemporary work on public participation in the academic literature and among practitioners[24]. Models of participation are not only useful in descriptive studies that explore levels of citizen engagement in current participatory practices, but are also employed to identify and critique what some scholars have labeled as a "government-centric approach under the veneer of a citizen-led process" (Stark and

[24] See most notably the City of Seattle's Inclusive Outreach and Public Engagement Guide (City of Seattle 2009) and Fung's categorization of citizen participation practices based on the criteria of who holds power, how communication is structured, and who participates (Fung 2006).

Taylor 2014, 311) that has emerged in some cities. Following Arnstein's critique of the bottom rungs of the ladder, existing methods of participation in local-level politics have been widely criticized as being disempowering, largely characterized by unidirectional communication, and implemented simply for political expediency rather than to construct policy frameworks that reflect community values. In this vein, some scholars have argued that participatory opportunities are presented to citizens as a way for them to influence policy outcomes, but in practice are typically utilized either in fulfillment of a legal mandate to acquire public input or to achieve citizen support for a specific policy alternative (Hall et al. 2016; Stark and Taylor 2014, 311; Summerville and Adkins 2007; Yang and Pandey 2011, 880). Government officials often elicit public participation with the goal of generating support from citizens for pre-determined policy options or to allow policymakers to anticipate potential backlash during implementation (Papadopoulos 2012, 126).

In this vein, empirical studies in public administration have found divergent beliefs between administrators and citizens when it comes to the purpose and value of public participation. According to this line of research, citizens typically believe that effective participation must facilitate multidirectional communication and that it should be evident that the public's opinions are not only heard, but are also thoughtfully considered by those in power (Berner et al. 2011, 151-152). City administrators, on the other hand, tend to believe that traditional, aggregative forms of participation (such as voting) are sufficient for effective policymaking and that more direct forms of engagement in which citizens shape policy decisions could lead to unwise actions that serve the interests of a vocal, politically active minority (Berner et al. 2011, 141-142). This disconnect between citizens' expectations and city officials' rationale for facilitating participation can worsen distrust in government institutions, reduce political

efficacy, and cultivate the perception that administrators open up participatory opportunities simply to persuade or manipulate the public (Hall et al. 2016, 732; Yang and Pandey 2011, 808).

In light of these critiques, some scholars—both within public administration and in the field of democratic theory—argue for a more deliberative approach in which citizen-government communication is multidirectional and relevant stakeholders are granted some degree of decision-making authority. Deliberative participation differs from traditional, aggregative participation. Aggregative participation is centered on the notion that citizens enter into the political arena with individual interests and that simply allowing everyone to vote will cause the optimal policy alternative to emerge (Geczi 2007, 381). This type of citizen involvement includes voting, referenda, and other indirect means of engagement. Deliberative participation, in contrast, is centered on the idea that voting based on individual interests might not naturally lead to policies that align with the good of a community. Deliberative forms of participation are interactive, focused on collectively finding well-reasoned solutions to pressing problems, and entail engaging in dialogue and presenting clear reasoning or justification for the policy preferences that participants hold (Mansbridge et al. 2012). In an ideal deliberative forum, power hierarchies between participants flatten and policy decisions reflect the "forceless force of the better argument" (Habermas 1975, 108). This process centers on understanding the positions of all affected citizens and collaboratively generating a broader public interest that informs policy choices (Christiano 2012, 27-28).

The recent interest in deliberative participation is partially driven by citizens, as growing pressure is being placed on local governments to include community members as active participants in policy and planning decisions. The public administration literature has found that, while city officials (on average) tend to believe that participatory processes that either inform the

public of an upcoming policy decision or ask for citizen input through surveys and other traditional methods are sufficient and effective, citizens are increasingly seeing unidirectional communication as inadequate (Pincock 2012, 152). Researchers have noted that citizens tend to perceive participation as being effective only when it is collaborative, interactive, and meaningful in the sense that all citizens' concerns are taken into account when establishing policy priorities and passing ordinances (Berner et al. 2011, 148-151).

The argument that "citizens are capable of sophisticated and democratically legitimate political judgments" (Mackenzie and Warren 2012, 95) has grown within the public administration and democratic theory literatures within the last several decades. There is broad agreement among scholars in these fields that citizens can discuss complex problems facing their communities, navigate pervasive value disagreements, and understand the tradeoffs inherent in available policy options when given the appropriate tools to do so (such as a participatory venue that encourages multidirectional, deliberative communication) (Pidgeon et al. 2014, 13606). Many scholars suggest that structured dialogue among government officials, relevant experts (climate scientists, for instance), and affected citizens can lead to optimal policy outcomes, particularly in the environmental policy domain. While citizens might not possess the technical knowledge of environmental issues to make wise policy decisions, government officials do not always have sufficient information about public values to formulate reasonable policy options. Thus, when meaningful dialogue is facilitated, experts, administrators, and affected citizens can cocreate policies that simultaneously align with the best science, reflect core community values, and are feasible to implement (Christiano 2012, 42-44).

*Citizen Participation in Sustainable Communities*

Within the last several decades, governments—particularly at the local level—have experienced mounting pressure to incorporate citizen engagement into policymaking, shifting towards more participatory methods in which citizen-government communication flows in multiple directions (Dryzek 2010, 30; Pidgeon et al. 2014). Considering that "urban policy making can offer opportunities for direct citizen involvement" (Portney and Berry 2010, 120), local governments are increasingly experimenting with the integration of participatory mechanisms into their decision-making processes. This proliferation of experiments with participatory practices is partly attributable to the growing recognition that many contemporary problems are transboundary, complex, and mired in competing value systems (Innes and Booher 2003, 36-37; Parkinson 2012, 151-152). Thus, some of the most pressing problems facing society do not align with traditional governance structures that are top-down, centralized, hierarchical, and—in consequence—separated from the public sphere (Hajer and Wagenaar 2003, 17-18).

The value of citizen participation is embedded in the sustainability paradigm, as evidenced by the emphasis placed on meaningful civic engagement and participatory decision-making processes in several founding documents. Beginning with the 1987 Brundtland Report, which is widely recognized as one of the earliest attempts to define sustainability and its close relative sustainable economic development, participation by diverse publics is highlighted as a central element of the sustainability framework. The Brundtland Report highlights citizen engagement as an integral component of sustainability planning, calling for "political systems that secure effective citizen participation in decision-making" (WCED 1987, 16). Meaningful participation, according to the report, is necessary to overcome the immense challenge of

encouraging environmentally benign behavior changes and reorienting the trajectory of economic development to minimize ecological harm. Agenda 21 similarly calls on all levels of government to "implement mechanisms for popular participation" (UNCED 1992, 16) within the sustainability policy process. This guiding document specifically highlights the need for public dialogue at the local level to ensure that environmental goods are managed wisely and in accordance with the vision of the community. More recently, the 2030 iteration of the United Nations' sustainable development goals (SDGs) includes an explicit focus on ensuring "responsive, inclusive, participatory and representative decision-making at all levels" when it comes to sustainability-related policy interventions (United Nations, n.d.).

Along with the link between sustainability and citizen engagement in guiding documents, a diverse body of academic literature has analyzed the role of citizen participation in the sustainability paradigm. Within these literatures, there is a general consensus that some degree of participation is necessary in environmental policymaking due to the complex and frequently divisive character of policy decisions regarding the management of natural resources (Irvin and Stansbury 2004, 56; Seyfang and Smith 2007, 587-590). Public involvement is particularly critical when defining sustainability and formulating relevant policies, as the three pillars often lead to distinct tradeoffs, such as the tradeoff between preserving urban green spaces and using available tracts of land to increase a city's supply of affordable housing (Rosenbaum 2022, 21; Zeemering 2009, 249). Informing the public of these tradeoffs and facilitating citizen-government collaboration can aid city officials in executing policy decisions in a way that aligns with community values. In this sense, participatory processes can be vital for translating diverse value systems and competing goals into a coherent policy prescription (Christoff 1996, 157-159; Bryson et al. 2012, 25-26).

The sustainable cities literature is centered on the idea that some form of public participation is essential in navigating the definitional ambiguity inherent in the sustainability framework (Connelly 2007; Zeemering 2009, 252) and that direct citizen participation is the most legitimate means to achieve sustainability-related goals (Holden 2011). In practice, municipalities are increasingly experimenting with engaging citizens in the process of defining sustainability, establishing clear policy priorities under the sustainability umbrella[25], creating workable indicators to measure policy success (Mascarenhas et al. 2015, 298), and enhancing the legitimacy of local-level decisions (Calder and Beckie 2011)[26].

Scholars point to several rationales to explain the merits of participatory processes in sustainable cities. The main rationale is a strategic one. Due to the complexity and ambiguity involved in building sustainable communities, city officials will likely avoid devoting time, resources, and agenda space to sustainability-related goals in the absence of citizen pressure (Portney 2005, 583). Adopting a sustainability paradigm is resource-intensive and the motivation to do so often comes from the ground up through public demand (Cohen 2018, 12). Furthermore, involving community members in the policy process can facilitate smoother implementation by garnering buy-in from relevant stakeholders. Wang et al. (2012), along with Yang and Pandey (2011, 885-886) show that involving citizens in various stages of the sustainability policy process can improve the success rate of implementation and can prevent citizen backlash against actions that might otherwise be unpopular. By creating a sense of buy-in and "convincing

[25] One example of the ways in which citizens can play an active role in determining what the sustainability concept means to the local community can be seen in the citizen-led Sustainability Advisory Board in the Village of Pelham, Westchester County, New York. The board is responsible for delineating core sustainability goals and recommending policies to local government officials that align with the community's vision of sustainability (Village of Pelham, n.d.).

[26] It is important to note that some scholars have pointed out that calls for a shift away from one-way communication and towards deeper forms of citizen engagement are far more prevalent in the academic literature than in practice (Pidgeon et al. 2014, 13606).

participants of the value of sustainability" (Wang et al. 2012, 844), decisions made by city officials are not only perceived by the public as being more legitimate when citizen participation is facilitated, but can also be more feasible to implement and enforce. Unpopular policy decisions (i.e., budget cuts or mandates to change citizens' behavior) tend to be prime candidates for facilitating greater participation (Leighninger 2012, 25-26).

Even when citizens support their city's goal of becoming more sustainable, disagreements over concrete policy decisions—such as emissions reduction strategies or changes in the available energy mix provided by public utilities—often emerge. These disagreements can pit citizens, business owners, environmental advocacy groups, and other stakeholders against one another and, in the worst-case scenario, can perpetuate policy stalemates and prevent city officials from acting on their sustainability commitment in tangible ways. Considering these challenges, Portney and Berry (2010) suggest that receiving community input and engaging in transparent discussions about the costs of sustainability programs is essential in generating "real buy-in from citizens" (Portney and Berry 2010, 122). Citizen support is particularly consequential in communities in which "social values need to be changed in order to embrace the basic tenets of sustainability" (Portney 2013, 154-155).

Along with the strategic importance of citizen participation, a second rationale for implementing participatory processes is more normative—namely, the belief that meaningful civic engagement can create good governments, good citizens, and good policies. As Portney and Berry (2010) suggest, citizen participation has inherent benefits separate from its impact on public buy-in and ease of policy implementation since "broader levels of participation are linked to greater responsiveness by city governments" (Portney and Berry 2010, 120). In this sense,

opportunities for participation can strengthen the citizen-government relationship and can ensure that policy decisions stem from bottom-up mandates from the local citizenry.

Citizen participation—particularly in its deliberative form—is commonly touted as a mechanism for facilitating good citizenship by creating a public that is well-educated on policy issues and is able to make thoughtful decisions with the benefit of the entire community in mind. Scholars have suggested that deliberative participation can enhance community ties, tolerance of diverse viewpoints, the capacity to understand complex information, and an overall sense of efficacy and empowerment (Pincock 2012, 142-144). For instance, a key barrier to citizen participation in defining sustainability and formulating relevant policies is the concern that members of the public may not always have the technical knowledge of local environmental conditions and the policy expertise necessary to understand the tradeoffs inherent in the sustainability framework (Kraft 2004, 260-280). Issues, such as sustainability, that are either technically or politically complex can often benefit from more deliberative forms of participation that give citizens the opportunity to understand their own interests and voice their policy preferences (Mackenzie and Warren 2013, 103). In other words, citizen participation can increase the public's policy competence (Yang and Pandey 2011, 887-888).

A related assumption in the public administration and democratic theory literatures is that involving the public in various stages of the local-level policy process can lead to wiser policy decisions that align with community needs. When participatory processes are structured in a way that citizens are required, not only to communicate their positions (which policy option they prefer), but also to discuss their interests (the underlying rationale behind their position), the likelihood that well-reasoned, thoughtful policy options will be put on the table increases (Bryson et al. 2012, 25-26; Nabatchi 2012, 701). Moreover, through public engagement, city

administrators gain valuable information about the community's needs from the vantage point of citizens, which can catalyze concrete policy changes that address pressing problems.

**Purpose of the Chapter**

Although citizen participation is widely discussed in several fields, scholars face significant challenges in studying the nuances of participation since there are a wide variety of venues employed by policy practitioners coupled with extensive debate over the ideal process by which the public should be included in decision-making (Arias-Maldonado 2000; Nabatchi 2012). Due to the challenges of studying this topic, existing research lacks a well-developed understanding of the motivation behind incorporating direct participation into local decisions, the various participatory strategies that are used, and how citizen-administrator communication is structured (Nabatchi and Amsler 2014, 69S-70S). This lack of understanding is particularly evident when it comes to research on sustainable cities.

Some studies rely on proxies (such as the likelihood to vote, sign petitions, etc.) to study the link between civic engagement and cities' commitment to sustainability. Portney and Berry (2010), for instance, explore the relationship between sustainability and citizen participation by analyzing the correlation between a city's commitment to sustainability and residents' tendency to vote in elections, sign petitions, participate in protests or rallies, or engage in other types of political action. While valuable in understanding the relationship between a city's culture of participation and its pursuit of sustainability-related goals, this type of research cannot determine the direction of correlation between a broader participatory spirit and a city's commitment to sustainability. In addition, it cannot paint a clear picture of the various participatory venues that city governments in sustainable communities utilize or their rationale for doing so. Other studies

have focused on either a single case study or a small number of municipalities with little regional variance to explore the nuances of citizen participation in sustainability-related decisions[27].

The sustainable cities literature is replete with prescriptions for meaningful citizen participation as a core principle of sustainability, such as those embodied in the Brundtland Report and Agenda 21. However, the impacts of citizen participation are not yet clear and there is a paucity of empirical research exploring the various participatory strategies that are implemented at the municipal level. Scholars have pointed out that sustainability policies often originate from the bottom-up through local-level environmental advocacy organizations, neighborhood associations, or other loosely organized groups of citizens (Fung 2015), but little research has been done to understand the mechanisms behind this bottom-up process and to explore how sustainable cities facilitate citizen participation. Many of the claims in the literature that deeper public engagement will create good citizens, lead to more responsive government, and improve the outcomes of local-level policymaking are still in the realm of theoretical conjecture.

In addition, numerous scholars have theorized the key challenges that could emerge when localities implement participatory practices. In this vein, scholars have discussed the risk that meaningful civic engagement could devolve into unproductive conflict (Yang and Pandey 2011, 880), that local participation will not be representative of diverse interests (Geczi 2007, 380-381), and that participatory opportunities will be poorly designed and, therefore, will be a missed opportunity for city administrators to better understand public values (Nabatchi 2012). Missing

[27] See, for instance, Holden's (2011) analysis of citizen participation in the process of selecting sustainability indicators in Vancouver, Canada and Maiello et al.'s (2013) study of public involvement in creating policies to address environmental vulnerabilities in the Rio de Janeiro metro area.

from most of these analyses, though, is direct information from government officials who have implemented participatory practices and have experienced challenges firsthand.

In light of these gaps, more exploratory work is needed to understand how citizen participation plays out in sustainable communities, most notably the types of participation that are currently being put into practice and the ways in which citizen engagement might shape the conceptualization of sustainability. This project represents an initial step towards filling some of these gaps by drawing from the expertise of local government officials in sustainable cities. The interview data from relevant city officials can shed light on the types of citizen participation being facilitated, the motivation behind public engagement, and the ways in which citizen participation has shaped cities' sustainability paradigms.

**Data Collection and Methodology**

To explore the question of how sustainable cities are involving citizens in the process of defining sustainability and formulating relevant policies, as well as the types of participatory mechanisms that are being used, interviews were conducted with local government officials in five sustainable cities[28]. To select cases for this analysis, the sample of 200 cities that was used for the previous chapters of this dissertation project served as the starting point. Out of this sample, cities that do not have a sustainability framework in place were eliminated, considering that the purpose of this analysis centers on exploring the role of citizen participation in cities that explicitly practice sustainability. Eliminating cities that had no mention of sustainability on their websites, comprehensive plans, or other planning documents left a remaining sample of 120 cities. These 120 cities were then separated into four geographic categories (the Northeast region, Midwest region, South region, and the West region) based on the U.S. Census Regions

[28] Due to interviewees' requests to remain anonymous, the names of the cities will not be provided.

and Divisions. Once cities in the sample were categorized into their Census region, three cities from each region were randomly selected to achieve geographic variance, leading to a total of twelve possible cases. Interview requests were sent to local government officials from each of these twelve cities and five respondents replied to the request and agreed to participate in a phone interview (a 41.7% response rate).

The selection method for this research separated cities by their Census region to maximize geographic variation. This selection decision helps account for regional differences in cities' commitment to sustainability that have been identified in previous research (Opp and Saunders 2013, 689), as well as the relationship between political culture and citizen participation. It is well-documented that states in the U.S. differ based on their political culture, which includes the value placed on citizen participation and the likelihood that the public will be actively involved in state and local policy decisions (Mondak and Canache 2014). Based on Elazar's (1984) classic study of political culture, citizen participation tends to be the highest in moralistic areas (which includes much of the Northern U.S., parts of the Northeast, and some Western states) and lowest in traditionalistic states (predominantly in the Southern U.S.). In this sense, relying on a single case study approach or only analyzing sustainable cities across states with a single political culture would likely lead to a skewed understanding of how local governments are facilitating citizen participation and the opportunities that are available for the public to shape cities' sustainability-related policy priorities. Classifying cases based on their Census region and randomly selecting cities from each of these areas ensures variance in both geography and political culture. In terms of geography, one city in the sample resides in the Northeast region, one in the Midwest, one in the South, and two in the West. One of these cities

is located in a state with a predominantly traditionalistic culture, three in states with moralistic cultures, and one in a state with an individualistic culture (based on Elazar's classification).

Directories on city government websites were used to identify relevant city officials for the interviews—namely, those with primary authority over sustainability policy and planning decisions. Considering that cities vary in terms of the structure of government and the department under which sustainability programs are housed, the interviewees have diverse roles and job titles. The respondents in this analysis include a City Manager, a Sustainability Coordinator, an Energy Conservation Coordinator, a Recycling Coordinator, and an Environmental Program Manager. While these positions differ, all the interviewees were identified as having primary responsibility for orchestrating sustainability programs in their communities. Several of the respondents had spearheaded the adoption of their city's first sustainability plan and, therefore, possessed invaluable knowledge of how sustainability is both defined and practiced, as well as how citizen participation impacted the city's sustainability planning process.

Interviews were conducted between May 2019 and July 2019 and the length of these interviews ranged from approximately 25 minutes long to 105 minutes long, depending on the respondent's time availability and level of detail that they wanted to provide. All of the conversations took place over the phone. Three of the five interviewees followed up via email after the initial phone conversation to provide additional clarification or to send relevant city documents containing information about the integration of citizen participation into the sustainability framework. During the interviews, city officials were asked questions about the ways in which citizens could participate in the sustainability policy or planning process, the motivation behind involving the public in sustainability-related decisions, how citizen-

participants were selected/recruited, and what impacts (if any) citizens had on the city's approach to defining or practicing sustainability[29].

The interviews were semi-structured and data from the conversations was analyzed inductively to identify common patterns across the five cases. While the same core set of questions was asked of all respondents, the interviewees' answers elicited follow-up questions and valuable dialogue about their experience with incorporating opportunities for citizen participation into the sustainability planning process. The semi-structured approach was chosen due to its effectiveness when it comes to topics that are complex and nuanced, since this approach can give the researcher the flexibility to probe more deeply into relevant points that respondents might highlight (Herzog and Ali 2015, 46). Interviews with government officials were chosen as the primary method for this analysis, since elite interviews are relevant in research that seeks to understand motivation, intent, or goals—such as the motivation behind city officials' decision to integrate citizen participation into the sustainability planning process and to utilize certain participatory mechanisms. Elite interviews with government officials are also an optimal method when the research question at hand necessitates in-depth "information or context that only that person can provide about some event or process" (Hochschild 2009).

The qualitative case study method is appropriate for an analysis of citizen participation in sustainable cities for several reasons. First, because this topic has been understudied in existing literature, exploratory work that can provide rich details about cities' decisions to facilitate citizen participation is needed to better understand the role that public participation plays in the conceptualization of sustainability. Secondly, a small-N qualitative case study approach is optimal for answering "how" questions that are designed to explore the nuances and context of

[29] See Appendix E for a complete list of interview questions.

an event, phenomenon, or trend (Yin 2009, 9). Thus, the qualitative case study approach is a natural fit for the question of how U.S. cities are engaging citizens in the process of defining and practicing sustainability. In addition, given the diverse participatory mechanisms utilized by local governments coupled with the recognition in existing literature that cities vary widely on the ways in which they engage citizens in the policymaking process, a multiple-case design is most appropriate. This method allows for variance between cases to be noted and can allow for strong analytic conclusions to be drawn (Yin 2009, 60-61) about how cities are utilizing participatory processes in the design and formulation of their sustainability frameworks.

**Findings and Analysis**

Interview data from the five cities in this analysis shed light on several understudied aspects of citizen participation within sustainable communities. First, this research highlights the various mechanisms of citizen participation that are being implemented at the city-level to conceptualize sustainability and decide on actionable policy goals within the sustainability framework. Each of the interview respondents discussed a variety of efforts that were used to elicit public input, educate citizens on sustainability-related concerns, or determine the policy priorities that should fall under the city's sustainability paradigm.

The second key theme from the interview data deals with the mechanics of citizen participation (how participants are recruited, how communication is structured, and what the main goals of implementing a participatory process are), along with the key question of how citizen participation shapes policy outcomes. While the generalizability of the findings from this project are limited by a small sample size that might not be representative of all sustainable cities, the observations discussed by local government officials with direct responsibility over

sustainability policies provides valuable insight into how public involvement might influence the process of defining and practicing sustainability.

Lastly, the information provided by interviewees elucidates complex challenges that city officials face in their attempts to facilitate greater public participation and translate citizens' preferences into tangible policy outcomes. Some of the challenges discussed by respondents echo concerns identified in existing academic work and include issues with overcoming conflicts during the participation process, concerns about how to ensure that citizen feedback is meaningfully inputted into municipal policymaking, and problems that emerge when the goals of participatory venues (such as advisory committees) are not clearly communicated to citizens.

Taken in combination, these three main themes that emerged from the interview data can deepen scholars' understanding of the types of participatory venues that are being integrated into the sustainability planning process and the roadblocks that might prevent citizen participation from achieving its potential as a valuable input into local-level policy decisions. The subsequent analysis begins with a brief overview of the relevant characteristics of the five cities examined in this project, followed by an in-depth discussion of each of the main themes that were derived from the interview data (namely, the types of participatory venues utilized by the five cities, the mechanics of how participatory opportunities were structured, and the challenges that each city faced in its attempts to incorporate citizen-participants into the sustainability planning process).

*Snapshot of the Cases*

The five cities comprising the cases for this research were selected primarily for regional variance, but they also differ in terms of population size, the person or office responsible for sustainability planning, and the unique problems (such as a high prevalence of natural disasters or ongoing budgetary shortfalls) that they face. The table below provides a brief description of

each city, based on key characteristics that are relevant to their experience with sustainability governance and citizen participation.

**Table 4.1: Snapshot of Cities**

| | City #1 | City #2 | City #3 | City #4 | City #5 |
|---|---|---|---|---|---|
| **Population size** | ~105,000 | ~71,000 | ~134,000 | ~118,000 | ~65,000 |
| **Position responsible for sustainability management** | Recycling Coordinator | Energy Conservation Coordinator | Environmental Program Manager | City Manager | Sustainability Coordinator |
| **Relevant problems** | Significant budgetary shortfalls; failing infrastructure due to lack of funding | Small office; few staff members; limited resources to devote to sustainability efforts; state government not amenable to environmental regulations | Recent increase in natural hazards; state government not amenable to environmental regulations | High vulnerability to natural disasters | Limited resources to devote to sustainability efforts; high poverty rate in the city |

## Types of Participation in Sustainable Cities

The governance of U.S. cities is characterized by great variation in the avenues available for citizen participation and the techniques used for eliciting public feedback (Nabatchi 2010, S310; Papadopoulos 2012, 26). Among the five sustainable cities examined in this analysis, variation in participatory venues is evident and no single picture of participation in sustainable cities emerged, even though several notable patterns (such as the prevalence of a citizen-staffed advisory body responsible for making policy recommendations) were observed. As outlined in Table 4.2 below, all five cities in this research have a board, commission, task force, or steering committee in place in which citizens are given the opportunity to provide advice to government officials pertaining to sustainability policy. However, the purpose of these advisory bodies, their

degree of authority, the methods by which citizens are selected to serve on them, and the character of citizen-administrator communication differ among the cases.

**Table 4.2: Types of Citizen Participation**

| | Type of Participation | IAP2's Category of Participation | Process for Recruiting/Selecting |
|---|---|---|---|
| **City #1** | Sustainability Commission staffed by citizen volunteers; public meetings; neighborhood associations | Consult | Citizens volunteer to serve on the Sustainability Commission and city councilmembers choose from the list of volunteers; focus on expertise |
| **City #2** | Citizen-led task force; sustainability summits | Consult<br>Collaborate | Sustainability summits are open to the public, but also include community members who are personally invited; participants in the task force are hand-selected by the mayor's office for their expertise |
| **City #3** | Advisory board that makes annual policy recommendations; public meetings; online comments | Consult | Participants to the advisory board are recruited by the city based on their expertise |
| **City #4** | Sustainability Advisory Committee staffed with citizen-experts; events to educate citizens on sustainability and energy conservation | Inform<br>Weak form of the "involve" category (informal influence without formal authority) | City council chooses among applicants for the advisory committee and makes decisions based on applicants' expertise |
| **City #5** | Public meetings that are typically well-attended; steering committee to help guide the city's Climate Action Plan | Consult<br>Weak form of the "involve category" (informal influence without formal authority) | Steering committee members are recruited to maximize both expertise and diverse ideas; targeted outreach to underrepresented populations |

Aside from the prevalence of a citizen-led advisory body, the five cities vary greatly in terms of other forms of participation, which include traditional public meetings, educational events to inform residents about sustainability-related goals, and deliberative summits in which citizens have the opportunity to discuss community concerns and establish key policy priorities in collaboration with government officials. While participatory venues falling on the less impactful side of the IAP2's participation spectrum are most prevalent among the cities in this analysis, deliberative dialogue in which citizens and government officials cocreate policy decisions is also evident. The information provided from the interviews in each of the five cases illustrates the various types of participation that sustainable cities are utilizing, the motivation for facilitating participatory processes, and the methods used to generate greater public engagement. The following analysis discusses these key findings in depth.

*City #1*

The first city in the sample is home to a Sustainability Commission—an advisory body that is staffed by citizen volunteers and was initially created with the purpose of allowing knowledgeable citizens to recommend policy actions, track the city's progress towards its sustainability-related goals, and hold local officials accountable by helping to "keep sustainability in the forefront" of the city's agenda (City Official #1, 2019). The process for selecting participants to serve on the advisory commission is described by the interviewee as "simple and pretty quiet" (City Official #1, 2019). Interested citizens submit their intent to serve as vacancies arise and the "city council will put it on their agenda to infill members", typically selecting individuals with expertise in sustainability-related goals (such as retired city planners, former elected officials, architects, and engineers) (City Official #1, 2019). Public meetings are also a key form of citizen participation related to this city's sustainability efforts, as members of

well-organized neighborhood associations often attend city council meetings where they pressure local officials to uphold their sustainability commitments by advocating for various policies, such as preserving urban green spaces (City Official #1, 2019).

Participatory opportunities within this city fit neatly into the "consult" category on the IAP2's citizen participation spectrum. Public meetings in which neighborhood associations and individual citizens advocate for certain policy changes and place pressure on city officials to integrate sustainability-related concerns into planning decisions are illustrative of consultation in which citizens' opinions are invited into the policy process through one-way communication (from citizens to administrators) to obtain information about the preferences or needs of the community. Placation (using Arnstein's language) is evident in the city's creation of the Sustainability Commission, as this mode of participation is characterized by the hand-selection of a small number of citizens (typically with expertise in a specific policy domain) to serve on boards or commissions in an advisory capacity (Arnstein 1969, 29). While both consultation and placation can be valuable steps in engaging the affected public in planning decisions, this type of participation is limited due to the absence of a guarantee that citizens' feedback or policy advice will be thoughtfully considered and translated into formal decisions (Arnstein 1969, 29; Nabatchi 2012, 703).

This shortcoming of participatory strategies on the less impactful side of the participation spectrum was evident in the interview data, as the city official described the Sustainability Commission as "anemic", "never well-focused", and largely dissatisfied by a perceived lack of responsiveness by the city council to the commission's recommendations (City Official #1, 2019). A notable cause of dissatisfaction with participatory venues stems from the fact that opportunities for participation—most notably, the creation of the Sustainability Commission—

were implemented after the city had already formulated and adopted their sustainability plan, which established the definition of sustainability and delineated both short-term and long-term policy priorities (City Official #1, 2019). The timing of participatory opportunities, thus, hampered citizen buy-in and reduced the public's sense of empowerment and efficacy in the decision-making process. The city official highlighted how the advisory commission has few accomplishments and is plagued by frustration and dissatisfaction among participants (City Official #1, 2019)

This city's experience draws attention to the idea that incorporating citizen participation into the planning process after major planning decisions have already been made can be more of a detriment than a benefit. When citizens believe that their participation will not be translated into tangible policy outcomes but instead is sought simply to enhance public support for pre-determined government decisions, efforts to generate greater participation can backfire by fueling distrust, worsening citizen-administrator relationships, and reducing the community's sense of political efficacy (Parkinson 2012, 732-733).

*City #2*

The second city in the sample—"a city of 70,000 with very limited resources and an office of one" (City Official #2, 2019) located within a state that generally does not support rigorous environmental regulations—stands out as the only city in this research that utilizes methods of participation located on the more impactful end of the IAP2's typology. This city's main form of citizen participation in sustainability policy and planning decisions centers on the facilitation of multiple "summits" in which the mayor, members of the city council, the city employee responsible for managing sustainability programs, and a local-level environmental nonprofit group worked together to orchestrate community events and recruited a large number

of citizens in an effort to engage in meaningful dialogue and collaboratively decide on the city's sustainability-related priorities (City Official #2, 2019).

The first series of summits focusing on environmental concerns facing the city were well-advertised, open for public attendance, and generated significant interest among local residents. The interviewee described the summits as consisting of "deliberative exercises to sort of have conversations about climate action and home in on some focus areas. That ended up being about twelve focus areas or buckets—everything from traditional renewable energy all the way to what we call healthy and thriving communities" (City Official #2, 2019). These twelve focus areas that were constructed by summit participants (including citizens and local government officials) formed the building blocks for the city's sustainability plan, which was drafted throughout the following year and was later endorsed by the mayor. Throughout the drafting process, additional summits were held to develop concrete policy strategies and programmatic priorities under each of the twelve focus areas. During these summits, participants from the local community narrowed their policy recommendations to a shortlist of actionable goals—most notably, a zero-waste initiative, various programs to enhance resiliency against extreme heat, and a renewable electricity initiative (City Official #2, 2019). These programs were integrated into the city's sustainability framework. In this sense, citizen-participants played a direct role in defining sustainability and constructing the city's first formal sustainability planning paradigm.

According to the interviewee, the summits were carefully structured to elicit meaningful dialogue by citizens, business leaders, academics, local government officials, and other participants to draw on the unique preferences and expertise of diverse community members when developing the city's sustainability plan. Participants engaged in brainstorming activities, discussed their vision for the community, and collaboratively explored how a citywide

commitment to sustainability might best align with local values. Participants discussed broad community needs and debated which policy priorities should be included in the city's sustainability framework. The deliberative exercises and the government-public cocreation of the city's planning paradigm facilitated during the summits resulted in the formulation of a sustainability plan that is highly supported by the citizenry, characterized by actionable goals that speak to all three pillars of sustainability, and is in alignment with the unique problems (such as severe drought) facing the city (City Official #2, 2019). This city exhibits the key characteristics of an ideal form of deliberative participation in which citizens determine the broad aims of the community and work alongside experts and administrators to decide on the best policy tools to achieve these aims (Parkinson 2012, 153). The deliberative summits allowed citizens (in collaboration with local government officials) to collectively decide on the city's sustainability-related policy priorities—priorities that were subsequently fleshed out by policymakers and translated into the core tenets of the city's guiding planning documents.

In terms of selection and recruitment, the summits were well-attended and drew participants from a variety of backgrounds including interested members of the public (both those in support of and in opposition to the city's adoption of a sustainability framework), local business owners, industry representatives, government officials, and nonprofit leaders. Some of the participants were directly invited by local government officials due to their expertise, but many attended based on personal interest (City Official #2, 2019). The techniques used in the summits sit squarely in the "collaborate" category of the IAP2's participation spectrum. This category is characterized by a redistribution of decision-making authority through the empowerment of citizens to cocreate policy priorities and planning decisions (IAP2 2018; Nabatchi 2012, 703). While the city still exercised final authority for writing the sustainability

plan and implementing relevant policies, citizen-participants played a lead role in defining sustainability in a way that aligns with community values, determining the concrete focus areas that should be included in planning documents, and creating a clear mandate for certain aspects of sustainability to be prioritized over others. Importantly, reflective of the core characteristics of collaborative engagement in which citizens are involved in "each aspect of the decision" (IAP2 2018), participation in the sustainability summits was iterative, allowing for citizen involvement in the initial conceptualization of the meaning of sustainability, the determination of key policy priorities, and the formulation of concrete policy actions (such as the creation of various environmental initiatives). In this sense, collaborative participation in this city took place at multiple stages of the sustainability planning and policy process.

Along with the deliberative exercises that formed the basis of the sustainability summits, this city also relies on more traditional forms of public participation, including a citizen-led task force that plays an advisory role. While the summits represent more impactful forms of participation, the task force falls on the least impactful side of the IAP2's spectrum. Task force members are directly selected by the mayor's office with the goal of maximizing expertise to ensure that the task force is "loaded to be successful" (City Official #2, 2019). Local climate and environment experts are recruited through a personal invitation from the mayor. The task force serves a purely advisory function and there is no formal guarantee that city leaders will take its policy recommendations into consideration. Although, the interview respondent did point out that, in practice, the task force's recommendations are frequently adopted and citizen-participants are viewed as valuable players in local government due to their expertise in sustainability-related fields. In reference to the interactions between city officials and the task force, the interviewee suggested that, "we would be fools to think that we had all of the

knowledge, expertise, and resources in house in an office of one, so we see it as an opportunity to gain strength and do it right and incorporate some really brilliant ideas that we would never think of or have access to without involving the public" (City Official #2, 2019).

*City #3*

The third city in this sample facilitates traditional forms of participation, such as public meetings and opportunities for online comments on draft sustainability plans as the main avenues for public involvement. The interviewee described a relatively passive, inactive citizenry and suggested that, rather than citizens placing pressure on government officials to open up avenues for participation or to pass sustainability-related policies, city administrators have voiced the desire for a more involved public and a stronger interest among local residents in pursuing sustainability (City Official #3, 2019)[30]. In reference to inactive neighborhood associations throughout the city, the respondent stated that "we are trying to get them more interested. That would be a way to have a single voice for a particular neighborhood" (City Official #3, 2019). The experience of this city aligns with key findings in other empirical work, as some studies have identified a pattern in which there is a high degree of support for sustainability among local government officials (particularly among strong mayors) coupled with either apathy or outright backlash from citizens (Wang et al. 2012, 849-850).

While citizen involvement in this city remains passive in most circumstances, poignant issues occasionally generate participation from local citizens, which leads to sudden, intermittent waves of high pressure on the city council and relevant administrators. For instance, inefficiencies in the recycling system mobilized public participation at city council meetings

[30] The passivity of the citizenry might not be attributable to the limited participatory avenues available in the city, but could be a product of political culture. This city is located in a state with a strong traditionalistic culture, which is typically characterized by distrust in government, a weak sense of political efficacy, and low priority placed on direct participation.

through which citizens advocated strongly for service improvements to be included in the city's broader sustainability agenda (City Official #3, 2019). This type of participation, although typically passive and weak in this particular city, falls into the "consult" category, as the city has mechanisms in place to generate citizen input (public meetings, for instance) but no process to ensure that feedback is incorporated as a meaningful, authoritative input into policymaking.

The city also draws on the feedback of a sustainability advisory board tasked with providing annual recommendations to city officials. The interview respondent described the board as purely advisory with no formal authority over policymaking and stated that, while the board provides policy recommendations on a variety of issues—ranging from landfill siting to recycling services—the annual suggestions formulated by the board have not achieved sustained attention by city councilmembers (City Official #3, 2019). Participants are recruited based on their professional experience, as the board must contain representatives from the recycling industry, nonprofit organizations, an educational institution, and several other categories in an effort to enhance the expertise of the advisory body and ensure that its annual recommendations reflect current best practices in sustainability governance (City Official #3, 2019). In this sense, all the participatory venues in this city fall into the "consult" category and few mechanisms are in place (beyond public meetings and comment sections on draft planning documents) for interested citizens to provide input or gain information about the city's sustainability goals.

*City #4*

The fourth city in this research is characterized by several avenues for participation in the sustainability policy domain. A notable feature of this city's participatory efforts that was not as ostensible in the other cases in this research is a focus on the educative benefits of citizen participation. In this vein, the key motivation behind establishing opportunities for participation

stems from city officials' desire to inform the public about the value of sustainability planning, the need to adopt more robust energy conservation initiatives and reduce carbon emissions, and the actions that citizens can take to assist the city with environmental protection goals codified in various planning documents. The interview respondent—a city manager who, along with the mayor, plays an active role in the implementation of sustainability policies—spoke to the benefits of informing citizens about the complexities of environmental concerns and the range of policy options available to address them. Describing a "more educative approach", as opposed to an "enforcement-based approach" to sustainability, the interviewee emphasized the city's decision to hold frequent community events in an effort to create a well-informed public that has strong awareness of local-level environmental concerns, suggesting that "we do a lot in the area of outreach and environmental education." (City Official #4, 2019). The city manager, mayor's office, and other departments within the city play an active role in informing citizens about energy use, water conservation, solid waste reduction, and other key goals within the municipality's sustainability framework (City Official #4, 2019).

When asked about the merit of taking a more educative approach, the city official discussed the notion that citizens, when provided with accurate, unbiased information and educated on their role in energy conservation and other sustainability-related goals, will typically embrace ambitious sustainability policies. Reflecting on the city's goals, the interviewee suggested that many local community members are already fairly supportive of sustainability policies and want to decrease their personal energy usage and encourage greener city operations. "As we continue to nurture that, and encourage that, and continue to educate and present these things to people around the importance of sustainable practice, and energy conservation, and reducing greenhouse gases, and things like that, I think people will be more and more inclined to

want to do it." (City Official #4, 2019). This type of participation fits neatly into the IAP2's "inform" category, since the purpose of the educational events held by the city focus on one-way communication and the provision of information with the goal of raising citizens' support for sustainability more broadly and for local-level environmental ordinances more specifically.

Along with the educative approach, administrators in this city also rely heavily on the policy recommendations of a Sustainability Advisory Committee staffed with citizen volunteers that have "either a professional or educational association with sustainable practices" (City Official #4, 2019). Members of the city council and their staff recruit participants by advertising vacancies on the advisory committee through social media and other avenues, encouraging community members with professional experience in sustainability-related fields to apply. With approximately five applicants per vacancy on the committee, the city council reviews the applications and selects committee members from the list of volunteers (City Official #4, 2019). The interviewee suggested that the main reason that the committee has been successful in catalyzing changes in local ordinances and ensuring that the city's budget reflects sustainability-related priorities stems from the fact that the city's approach to citizen participation emphasizes the value of expertise. Engineers, academics, energy company executives, and others with expert knowledge of sustainable practices are typically selected for committee service (City Official #4, 2019).

While this city's educative approach to citizen participation fits in the "inform" category, the type of participation elicited through the Sustainability Advisory Committee eludes a concise classification in existing models of citizen participation. The fact that the committee is purely advisory and that the city council selects members based on their knowledge and experience suggests a more limited form of participation in which expertise takes priority over inclusivity

and in which the committee's advice does not necessarily influence policy outcomes. However, although the committee lacks formal authority, the interview respondent highlighted the substantial informal power that this advisory body has assumed. Recounting an instance in which the committee put immense pressure on the city council to focus on sustainable agriculture and address worsening food insecurity in impoverished neighborhoods, the interviewee described how the citizen-led advisory body caused food security to be incorporated within the city's sustainability framework. Even though the risk-averse city council typically leans towards inaction, minor budgetary adjustments, and a "wait and see" approach when it comes to responding to local-level problems through policy change (City Official #4, 2019), citizens on the Sustainability Advisory Committee effectively pushed for ordinances related to community agriculture and sustainable food systems—ordinances that were relatively quickly adopted by the city council. In this sense, citizen participation through the committee resulted in an expansion of the meaning of sustainability and the priorities included under the sustainability framework.

While the lack of formal authority given to the advisory committee at first glance indicates the presence of consultation since there is no guarantee that the committee's advice will be considered by local government officials and meaningfully incorporated into the planning process, the informal power that the citizen-led committee exercises signifies a less shallow form of participation. Defining the members of the advisory body as "strong advocates" for sustainability and "an absolutely essential part of city government" (City Official #4, 2019), the city official emphasized at multiple points in the interview the substantial power that the committee holds and the tendency for the city council to incorporate the advisory body's feedback into the policymaking process. In this vein, the interviewee pointed out that:

> "That's how we were able to bring forward some ordinances around community agriculture. Honestly, there were a couple of councilmembers who were still not sure it was a good idea, but they voted for it because of the strong advocacy of this committee. I can tell you right now, we

> would not have sustainable community agriculture, or let me put it this way, we would not have had it as soon as we did if not for that committee. When people say 'You can't change city hall, you can't fight city hall', I can tell you, maybe it doesn't happen as fast as everyone wants, but that group has definitely changed us." (City Official #4, 2019).

The ability of the citizen-led committee to influence policy outcomes and to shape local-level ordinances, even in instances in which the proposed ordinances go against the beliefs of city councilmembers illustrates a relatively impactful type of participation, despite limited formal decision-making authority. In the case of community agriculture within the city, citizen-experts were granted the trust and power necessary to facilitate the adoption of ordinances that the more risk-averse city council was initially unwilling to incorporate into their sustainability planning paradigm, thus broadening the conceptualization of sustainability. This type of participation seems to rest in a gray area between the IAP2's "consult" and "involve" categories. While the cocreation of local ordinances is occurring (a key characteristic of the "involve" category), participatory efforts in the city do not facilitate a formal redistribution of authority between government officials and citizens and communication remains primarily unidirectional, as information flows from the advisory body to elected officials.

*City #5*

The fifth city in this research—a coastal community with approximately 65,000 residents that has recently engaged in extensive sustainability and resiliency planning in an effort to mitigate environmental vulnerabilities typical of coastal areas—relies heavily on a citizen-staffed steering committee in all stages of the sustainability planning and policy process. The steering committee was originally established by the Planning Department to assist in writing the city's sustainability plan and deciding which policies should be prioritized under the sustainability framework. The creation of the steering committee and the decision to construct a formal sustainability plan (as opposed to simply integrating sustainability-related concerns into the

broader planning and policy process) was triggered by a major reorganization of the city government's structure[31]. This reorganization signified a pivotal moment in the city's sustainability efforts, as responsibility for this policy area was consolidated into a separate Sustainability Office, rather than being housed under the local Department of Public Works, and a Sustainability Coordinator was hired. While the city had attempted to integrate the core principles of sustainability into the provision of public services for several decades—most notably in solid waste management and recycling services—these major organizational shifts solidified sustainability as a core policy goal shaping the city's actions and also opened up additional avenues for citizen participation (City Official #5, 2019).

Public administration research has found that the establishment of a dedicated sustainability office reduces responsibility shirking and creates a clear sense of authority over sustainability goals by moving beyond the "functional fragmentation" that characterizes many sustainable cities (Krause and Hawkins 2021, 40). Building on these findings, recent efforts by this coastal city to eliminate functional fragmentation and consolidate responsibility for administering sustainability into a single office has not only changed how sustainability plans are created and how relevant programs are administered, but has also shaped the citizen participation process. Suggesting that the creation of the Sustainability Office elevated the value that city administrators place on citizen participation, the interview respondent explained that the reorganization allowed city officials to seek citizen involvement at the earliest stages of the planning process (City Official #5, 2019). Opportunities for public participation were opened up and the citizen-led steering committee helped structure the city's definition of sustainability by making concrete recommendations related to policy priorities and suggesting which policy issues

[31] The reorganization process started slightly less than two years before this interview took place.

did (and which did not) logically fit under the broader sustainability umbrella. In the initial sustainability planning process, the steering committee also played a critical role in determining which local problems were most urgent and should be given highest priority on the city's sustainability agenda (City Official #5, 2019). In this sense, the citizen-led committee determined what counts as "sustainability" and identified the types of community concerns that can be best addressed by the Sustainability Office, as opposed to other functional units.

As a relatively new adopter of a comprehensive, formal sustainability framework, the city official emphasized the value of the steering committee as a mechanism for ensuring that the local sustainability plan is thoughtful, that resources are allocated wisely, and that current and future policy decisions reflect the community's most pressing needs. Considering that "every sector of the community is going to be affected [by the sustainability plan]", the interviewee stressed the value of drawing on the expertise of the citizenry (City Official #5, 2019). Recruitment and selection for participants on the city's first sustainability steering committee was focused on the goal of maximizing expert knowledge while also prioritizing inclusivity in order to "lend some credibility to the process" (City Official #5, 2019). The interviewee suggested that the selection process ensured that "people can feel like someone that they know and respect had a seat at the table. It lends it more credibility" and ultimately enhanced the community's support for sustainability policies once they were implemented (City Official #5, 2019).

In this vein, participants were strategically identified by personnel in the city's Sustainability Office to ensure that citizens from various sectors of the community could have the opportunity to shape the city's first sustainability framework. Land developers, renewable energy experts, and other community members with sustainability-relevant industry expertise

were targeted for service on the initial steering committee (City Official #5, 2019). Like the fourth city in this research, participation on the steering committee fits loosely, but not perfectly, within the "involve" category of the IAP2 model. Although the committee technically has no formal authority and was created at the behest of administrators, it has exercised substantial influence, seeing that the committee was tasked with defining the key tenets of sustainability early in the planning process. While at the time of the interview, the city was still developing its guiding planning documents following the major reorganization, the interview respondent indicated that the recommendations of the steering committee would likely serve as the foundation for the city's approach to sustainability (City Official #5, 2019). In this sense, the meaning of sustainability and decisions about policy priorities were being cocreated by citizen-experts and local government officials.

Along with the steering committee, the interviewee also mentioned several efforts at enhancing citizen participation within the "consult" category, including citizen surveys and targeted outreach in which city officials schedule meetings in neighborhoods that have high vulnerability to underrepresentation and low political efficacy. Discussing the city's plans for encouraging citizen engagement in future climate action planning processes, the interviewee suggested that "it's going to be really important that we reach parts of the community who are maybe not so easily reached. We have a pretty large immigrant community here, so we'll try to find a way to do some targeted outreach. We can go to some of the folks who might not be able to come to us." (City Official #5, 2019). These consultation strategies were adopted with the purpose of gaining a broader perspective on sustainability-related goals to ensure that everyone "has the opportunity to have a say in it." (City Official #5, 2019).

## Communication Strategies and Motivations

Along with painting a picture of the wide variety of mechanisms that are utilized to elicit citizen involvement, another core theme that emerged from this research and has not been explored in sufficient depth in existing scholarship centers on the structure and tone of communication within participatory venues. Despite recent trends in the academic literature to call for more multidirectional, discursive participation characterized by meaningful dialogue between diverse groups of citizens and their representatives in government, some scholars have suggested that one-way communication is most prevalent in practice (Stark and Taylor 2014, 311). Others have argued that garnering buy-in and engineering public support for controversial policies represent the primary purposes for seeking citizen input and facilitating avenues for participation (Hall et al. 2016). However, these claims lack empirical verification.

The findings from this project provide tentative support for the assumption in the literature that local-level participation tends to be based on one-way communication, as evidenced in the table and discussion below. Within the five cases analyzed in this research, unidirectional communication flowing from citizens to policymakers (such as through advisory boards in which citizens recommend policy actions to city councilmembers or public meetings in which community input on a proposed policy is sought) is particularly common. Four out of the five cities in this project predominantly practice types of participation that elicit one-way communication in which government officials establish opportunities for participation to either garner citizen feedback or to educate the public on sustainability-related issues.

**Table 4.3: Communication Strategy and Goals**

| | Communication Strategy | Motivation and Goals |
|---|---|---|
| City #1 | Primarily unidirectional (from | Allow city councilmembers to learn about |

| | | |
|---|---|---|
| | citizens to policymakers) | sustainability from citizen-experts |
| **City #2** | Multidirectional, deliberative, and iterative | Allow citizens to cocreate the sustainability framework and develop strategies to achieve sustainability goals<br><br>Enhance buy-in |
| **City #3** | Primarily unidirectional (from citizens to policymakers) | Seek innovative ideas from citizen-experts |
| **City #4** | Unidirectional (either from citizens to policymakers in the case of the advisory committee or from city administrators to citizens in the case of educational events) | Garner buy-in<br><br>Ensure that citizens understand the need for sustainability programs |
| **City #5** | Primarily unidirectional (from citizens to policymakers) | Make wiser, more thoughtful policy decisions by including citizens with different types of expertise |

For instance, the city official responsible for managing the sustainability planning process in a mid-sized Southern city detailed the creation of a citizen-staffed advisory board that provides annual recommendations for sustainability programs that the city might consider pursuing (City Official #3, 2019). Communication in this case is unidirectional, flowing from the advisory board to government officials in the form of written policy recommendations. Apart from the advisory board, the interview respondent suggested that the city government did not see the need to implement an extensive participation process beyond the usual mechanisms of open city council meetings, online comment sections for proposed planning documents, and other

traditional opportunities for eliciting public input that most local governments throughout the United States have adopted (City Official #3, 2019).

This case also illustrates how the structure of communication ties into government officials' key motivations for facilitating citizen participation. In the face of recent challenges impacting the city, including economic stressors, minor natural hazards, and a dramatic influx in tourists that are putting pressure on local infrastructure, the city has turned to public input in the hope of seeking innovative ideas for its sustainability planning process. The city's environmental and economic situation "has forced some decision-making, has forced some outreach to citizenry. We thought, 'hey, we need some ideas about this.'" (City Official #3, 2019). In this sense, unidirectional communication from citizens to policymakers (either through the advisory board or through public meetings and online comments on planning documents) has been sought with the purpose of sparking innovative policy ideas capable of solving pressing problems that are straining the city's infrastructure capacity and knowledge base.

Three other cities in this research also rely on unidirectional communication. In the city in which a Sustainability Commission represents the primary avenue for citizen participation, the city official remarked that "communication can only go one way" and explained that the main purpose for creating the commission and opening up avenues for citizen participation was to facilitate learning opportunities for local policymakers (City Official #1, 2019). The interviewee described several instances in which city councilmembers who were not previously well-versed in sustainability gained a stronger understanding of environmental issues and the ways in which a sustainability planning framework could achieve local-level goals by listening to citizen-experts on the commission (City Official #1, 2019). An interviewee in another city further explained the impacts of one-way communication from citizens to policymakers, suggesting that

eliciting citizen input can give government officials "some perspective and improve the policy by getting a lot of input before it comes forward for a vote" (City Official #5, 2019). Unidirectional communication can also flow in the opposite direction—from administrators to citizens—as was the case in one city in which various educational events were held and participatory venues were used as a tool to increase the public's knowledge of environmental concerns and catalyze support for sustainability programs (City Official #4, 2019).

Only one city in this analysis facilitated types of participation in which communication can be classified as multidirectional and deliberative. Deliberative participation is defined as a "talk-based approach to political conflict and problem-solving" (Mansbridge et al. 2012, 4-5) that involves the "thoughtful and reasoned consideration of information…among a group of individuals" (Nabatchi et al. 2012, 6). The aim of deliberative participation centers on examining the nuances of a pressing problem and producing a well-reasoned, agreed-upon solution through extensive discussion (Nabatchi et al. 2012, 7) and through the power of the stronger argument. Issues that are debated in a deliberative system must be "matters of common concern" and participatory efforts should be directed towards the practical goal of reaching broad agreement about concrete policy actions (Mansbridge et al. 2012, 9).

In the city in which deliberative exercises were facilitated in the form of sustainability summits, multidirectional communication was prioritized. The motivation behind these summits centered on encouraging dialogue between citizens, city administrators, and various experts, such as engineers, climate scientists, academics, housing developers, business owners, nonprofit leaders, and over 100 other "movers and shakers in the room" (City Official #2, 2019). As part of these deliberative exercises, participants broke into groups and debated how best to define sustainability in accordance with community needs. The result was that participants identified

concrete focus areas for inclusion in the city's sustainability and climate framework, which at the time of the summits had not yet been drafted (City Official #2, 2019).

Importantly, the deliberative summits occurred multiple times (first to define sustainability, second to establish key focus areas under the sustainability umbrella, and later to narrow down a list of actionable items and preferred policy options). The city's decision to design a relatively long-term, iterative deliberative process in which the decisions made by citizens in the first summit served as a building block for future participatory events allowed participants to meaningfully influence the conceptualization of sustainability and shape the broader sustainability governance process. Iterative events in which participants can collectively reason through communitywide problems and discuss diverse policy solutions, as opposed to one-time participatory forums in which citizen input is solicited on a single issue at a specific point in time, tend to produce policy outcomes that align with community needs (Gastil et al. 2012, 211-212). They can also create a civic culture in which public insight is valued by government officials and citizens develop a strong sense of efficacy.

In addition, deliberative democracy scholars have argued that "influential conclusions and/or actions" (Gastil et al. 2012, 209) represent a foundational criterion for deliberative participation. In other words, citizen input must tangibly influence government action, such as when cities adopt policy recommendations provided by citizen boards or when stakeholders and government officials work together to cocreate planning frameworks. These iterative forums remain rare, as most local officials perceive citizen participation as a "one-off experiment", rather than a sustained practice (Nabatchi and Amsler 2014, 74S).

In the case of the deliberative summits implemented by this city, the core definition of sustainability, policy priorities related to environmental protection and social equity, and a plan

for concrete policy actions were all cocreated by government officials and citizen-participants. Through these summits, citizens determined the focus areas that should fit under the city's unique conceptualization of sustainability and worked together on "developing strategies under each of those focus areas" (City Official #2, 2019). The result of the deliberative exercises facilitated during the summits was that government officials and citizen-participants "moved those [sustainability and climate] plans forward together intentionally" (City Official #2, 2019). The interviewee even noted that some of the focus areas identified by citizens broadened city officials' view of sustainability. Infrastructure resiliency and social equity issues, such as mental health disparities among underprivileged members of the community, were discussed by citizens and were ultimately included in the city's sustainability framework, despite the fact that government officials had not intended to place these topics under the sustainability umbrella (City Official #2, 2019).

This case reflects the prescription in the deliberative democracy literature that if citizens' policy recommendations are well-reasoned, government leaders should respond by adopting these policies (or, at the very least, should justify their reasons for not doing so) (Trettel 2015, 89-90). This city's experience also aligns with the argument in the literature that two-way communication between administrators and citizens, as well as deliberative processes in which members of the public have constructive dialogue about how to balance the competing interests of diverse stakeholders, can strengthen citizens' trust in their government, foster citizenship values, break through gridlock between competing interests, and strengthen accountability and transparency within local governments (Constantinescu et al. 2019, 3; Mansbridge et al. 2012, 4-5; Yang and Pandey 2011, 885-886). The interviewee suggested that both transparency and responsiveness were enhanced, as local government officials broadened their definition of

sustainability in light of citizen participation and created clear sustainability benchmarks that they could be held accountable for meeting. Moreover, the government-citizen relationship improved and trust increased following the participatory summits. The interviewee reflected on how the deliberative summits fueled respect between city administrators and citizen-participants. Citizens involved in the deliberative process expressed greater trust in their local government, while city officials realized that "we gain strength by having those people [citizens] involved because we can't do it all internally" (City Official #2, 2019). In this sense, this case illustrates how having participatory processes in place—particularly more deliberative ones that allow for guided dialogue—can simultaneously create better citizens and foster responsive governments.

While the small sample size in this research prevents broad generalizations, the fact that only one of the five interviewees mentioned more deliberative forms of participation corroborates the notion in both the democratic theory literature and the field of public administration suggesting that the broad shift away from unidirectional communication towards deliberative participation centered on multidirectional dialogue and reasoned arguments represents more of a theoretical ideal than an empirical reality among local governments in the United States (Pidgeon et al. 2014). The prevalence of one-way communication—primarily from citizens to policymakers in the form of policy recommendations, but also from administrators to the public through educational events—is a notable finding of this project. Previous research has suggested that unidirectional communication tends to have less impact when it comes to administrators' ability to understand public needs and values in a specific policy domain, compared to more deliberative forums (Nabatchi 2012, 702). The prevalence of one-way participatory venues and the relative lack of deliberative processes in the cities in this analysis speaks to the possibility that existing modes of citizen participation in sustainable cities fall short

of the goal of constructing a "democratic participation process in association with improved governance" (UNCED 1992, 14) that represents a core principle of the sustainability movement.

When it comes to the key purpose of implementing avenues for citizen participation, interviewees in the cities that predominantly practice unidirectional communication highlighted the benefits of choosing participants to serve on boards, committees, or commissions based on their professional expertise. According to the interviewees, stocking local sustainability advisory bodies with citizen-experts can be beneficial due to the highly technical nature of sustainability planning (City Official #1, 2019), can spark innovative ideas that government officials might not have otherwise considered (City Official #3, 2019), can open up learning opportunities for city councilmembers who lack knowledge of sustainability-related issues (City Official #1, 2019), and can increase the likelihood of passing wise policies that have a high chance of effectiveness (City Official #5, 2019). While scholars have suggested that the optimal form of citizen participation occurs when relevant expertise, public concerns, and diverse community values all serve as vital inputs into the policy process (Stark and Taylor 2014, 303-304), expertise is given high currency among the cities in this analysis.

Somewhat surprisingly when it comes to the motivation behind facilitating citizen participation, only two city officials alluded to the idea of buy-in. Discussing the difficulty of encouraging the behavior changes (such as less energy consumption) necessary to achieve the city's sustainability goals, one interview respondent highlighted the importance of making citizens feel invested in the sustainability framework through informational events. When asked about the key motivation behind taking a more educative approach, the city official reflected on the importance of buy-in by stating that:

> "People don't like government telling them what to do, but I think there's a growing number of people who want to do the right thing. And as we continue to nurture that, and encourage that, and continue to educate, and present these things to people around the importance of sustainable

> practice, and energy conservation, and reducing greenhouse gases, and things like that, I think people will be more and more inclined to want to do it, as opposed to being told to do it." (City Official #4, 2019).

The interviewee in the city that practices a more deliberative form of citizen participation mentioned buy-in as one of several interlocking goals, suggesting that, while public involvement has inherent value and tends to foster more productive, trusting government-citizen relationships, it can also be strategic. This city administrator stated that when citizens are meaningfully included in the process of defining sustainability and cocreating a policy decision, "we are improving our chances of it being adopted and having buy-in, starting with the public all the way up to the city council when it's time to vote." (City Official #2, 2019).

However, in the other three cities in this research, there was no indication that garnering buy-in from citizens motivated city administrators to facilitate public participation. This finding calls into question the prominent position that the notion of buy-in has gained in the public administration and deliberative democracy literature. Critiques of local governments for implementing citizen participation simply to achieve buy-in from community members and to soften citizens up to certain policy changes are widespread. Numerous scholars have argued that various forms of participation are often created simply to generate citizen support for policy changes that have already been decided on by policymakers (Hall et al. 2016). In this vein, Papadopoulos (2012, 132) argues that, in many instances, participatory opportunities are not initiated for the purpose of reasoned deliberation or inclusive policymaking, but rather to generate public support for new policy ideas and "enhance governability". In this sense, a common argument in the literature stems from the idea that the decision to seek citizen input derives from a pragmatic, strategic calculation on the part of administrators in an effort to eliminate potential points of conflict and garner buy-in from groups of citizens that could obstruct the implementation process (Summerville and Adkins 2007, 430-431; Yang and Pandey

2011, 880-881). However, the fact that only two interviewees in this research mentioned buy-in—with one respondent discussing buy-in as one of several motivations for facilitating public involvement—highlights the need for additional empirical research to determine whether or not existing critiques in the literature reflect the true motivation of city administrators when facilitating opportunities for participation.

**Key Challenges**

Another central theme that emerged from the interview data pertains to the challenges that city administrators face in their attempts to implement meaningful participatory processes. Existing literature suggests that, although cities are facing increasing pressure to provide opportunities for citizen participation, support among government officials for greater public involvement is not always present. Citizen participation in the sustainability policy domain leads to a particularly profound set of challenges, since issues related to energy, transportation, solid waste, carbon emissions, and other aspects of sustainability can be highly technical and require an educative component to empower citizens to participate meaningfully. The increased workload for city administrators can cause hesitancy to implement participatory practices (Hall et al. 2016, 726). Government officials have also raised concerns that public involvement might enhance, rather than resolve, conflict between diverse groups of citizens, thus inhibiting good governance and timely policymaking (Yang and Pandey 2011, 808). For these reasons, existing research argues that government officials advocating for sustainability are inclined to focus on gaining support within the city itself (such as among members of the city council) rather than engaging with citizens to build support for sustainability programs from the ground up (Wang et al. 2012, 850).

Findings from this project speak to the hesitancy among city administrators to implement extensive citizen participation and highlight the obstacles that government officials experience. The following table summarizes the main challenges highlighted by respondents that can stymie meaningful citizen engagement. Each of the challenges is discussed in more detail below and insight from the interviewees is included to illustrate how these challenges have played out in sustainable cities.

**Table 4.4: Key Challenges Related to Citizen Participation**

| | Key Challenges Identified by City Officials |
|---|---|
| **City #1** | Opportunities for participation were created after the city's sustainability plan had already been adopted; little input when choosing policy priorities<br>Purpose, scope, and priorities of the Sustainability Commission were never well-defined<br>Participants on the Sustainable Commission had few achievements and experienced a low sense of efficacy; did not understand their role<br>Amplification of conflict |
| **City #2** | City officials have struggled to find the time and resources to be responsive to a politically active, highly vocal citizenry<br>Challenges involved in balancing competing policy demands by citizens, local nonprofits, advocacy groups, etc.<br>Difficulty recruiting diverse participants |
| **City #3** | Interviewee did not discuss any major challenges/concerns |
| **City #4** | Difficulty keeping up with public pressure for sustainability programs<br>Frustration by citizens on the advisory body due to a perceived lack of responsiveness from the city; citizens push for more rigorous sustainability policies than the city council is willing to consider or city departments are capable of implementing<br>Amplification of conflict |
| **City #5** | Difficulty in ensuring that diverse voices are heard; unable to include all people impacted by sustainability-related issues in public meetings and other forms of participation<br>Language and economic barriers; limited success with targeted outreach |

*Key Challenge: Meaningful Participation*

One key challenge derived from the interview data centers on the difficulty of facilitating high-quality, meaningful participation and empowering citizens both with sufficient knowledge of specific policy issues and information about the purpose of participation. For example, the

interviewee representing one of the more heavily populated cities in the sample lamented the fact that a citizen participation process—most notably, the creation of a Sustainability Commission—was implemented by administrators after the city's sustainability plan had already been formulated and adopted (City Official #1, 2019).

Discussing this decision as a missed opportunity to integrate citizen input into the process of conceptualizing sustainability and deciding on relevant policy priorities, the city official explained that the citizen volunteers who serve on the local Sustainability Commission feel hamstrung by the complexities and rules of city government and are frustrated by the limited avenues to engage with local-level political officials. "They [volunteers on the commission] come to these meetings and they don't know how to behave, or what they're supposed to do, or what kind of process to make recommendations" (City Official #1, 2019). The scope, purpose, and authority of the Sustainability Commission was never well-defined by city administrators, leaving citizen volunteers confused and frustrated, despite their substantial expertise in sustainability-related fields (such as recycling and urban planning). "I just feel so bad that we have kind of let this talent wither without ever watering it" (City Official #1, 2019). The interviewee added that instituting training for citizen-participants to clearly delineate their role within the broader structure of city government could ameliorate the ambiguity surrounding the participatory process. However, these types of trainings are perceived as being overly work- and time-intensive for government officials to carry out routinely, particularly since membership on the Sustainability Commission changes at regular intervals (City Official #1, 2019).

As part of the challenge of facilitating meaningful participation, one city official highlighted the difficulty of recruiting participants and ensuring the inclusion of all impacted stakeholders in the sustainability planning process. In this coastal city that is home to a growing

number of international refugees and is characterized by high levels of homelessness, meeting the needs of the most vulnerable city residents is an ongoing struggle (City Official #5, 2019). When it comes to seeking public input on sustainability policies and key concerns facing city residents, engaging a diverse demographic of people often does not occur. The interviewee discussed a high level of concern among city administrators over the limited number of people that participate in traditional forms of citizen involvement, such as public meetings and citizen surveys. In light of these concerns, the city actively works to connect with diverse participants by creating "web-based tools where people can fill out questionnaires and offer comments online" if they are physically unable to attend city council meetings and by engaging in targeted outreach to seek policy input from homeless individuals, members of the refugee community, and non-English speakers (City Official #5, 2019).

Despite these efforts though, inclusivity in the participation process remains on ongoing challenge. The interviewee provided an example of the city's efforts to meet its social sustainability goals by improving the condition and availability of affordable housing. Public meetings and other efforts at gaining citizen input garnered valuable advice from developers, the real estate community, and other experts in the field. Absent from policy discussions were impoverished residents who would be the most directly impacted by changes in affordable housing policies (City Official #5, 2019). The interviewee expressed their hope that the representativeness of citizen input can be enhanced in the future, considering that when it comes to sustainability policies, "every sector of the community is going to be impacted in some way, so it's going to be really important that people feel like they're included" (City Official #5, 2019). However, the time and resource-intensity of an inclusive public engagement process was highlighted as a major barrier.

Another local official similarly described the challenges involved in broader public inclusion when the city sought citizen input to decide on key sustainability policy priorities. Not all affected citizens were able to attend traditional public meetings and targeted outreach proved to be resource-intensive and infeasible, despite the city's efforts to implement inclusive participatory strategies (such as offering childcare for low-income families who attended community listening sessions related to the city's development of a sustainability framework). In light of this lack of success at broadly engaging relevant stakeholders, when the sustainability task force was constructed, the city opted instead for a more expert-driven, less inclusive approach in which the mayor hand-selected citizens to serve on the advisory body (City Official #2, 2019). Invitations were sent to "people who were subject matter experts in our community", including faculty from the local university, business owners, and industry leaders with knowledge of environmental concerns (City Official #2, 2019). In this case, the initial lack of success with reaching a broad demographic of citizens for input on the sustainability planning process shaped future participatory efforts, as the city shifted to a narrower approach that prioritized participant expertise over representation on the task force.

The challenges of orchestrating a participatory process that capitalizes on the expertise of community members, includes all relevant stakeholders, and elicits meaningful dialogue and sound policy recommendations that some of the interviewees highlighted correspond with several critical points in the existing literature. Scholars have posited that governments struggle to implement opportunities for participation due to the time and resource-intensity of educating citizens and providing them with necessary background information or technical knowledge to contribute meaningfully (Holden 2011, 317). This challenge is particularly ostensible in

sustainability policy due to the complexity of the concept and the numerous environmental, economic, and social concerns that are often included within this domain.

In addition, while there is broad agreement in the literature—both within public administration and democratic theory—that the opportunity to participate should be extended to all affected stakeholders and that diverse members of the public should be actively recruited (Mansbridge et al. 2012, 12), concerns about inclusivity are pervasive among scholars and city administrators. Competence/expertise and broader representation often cannot be achieved simultaneously in participatory venues. When these goals conflict, local officials typically prioritize the recruitment of individuals with expert knowledge and policy competence, as opposed to members of the public with a general interest or stake in the issue at hand (Yang and Pandey 2011, 884). As noted above, several of the interview respondents discussed the challenge of striking a balance between expertise and inclusivity by recruiting participants to boards and commissions that have the technical knowledge to meaningfully contribute to the sustainability planning process, while also including a broader group of citizens that will be impacted by policy decisions.

In all the cities in this analysis, members of the local sustainability board, commission, or task force are selected based on their expert knowledge and sustainability advisory bodies primarily include business owners, former government officials, developers, academics, climate scientists, energy industry representatives, and other citizen-experts with direct knowledge of sustainability. In this sense, these cities speak to a broader observation in the literature that existing efforts to draw citizens into the governance process are typically not particularly democratic and predominantly facilitate input from elite/expert community members (Papadopoulos 2012, 129).

Only the city that implemented deliberative participation through sustainability summits navigated these challenges to some degree by opening multiple avenues for participation—an advisory body stacked with hand-picked local experts and a series of deliberative forums designed to maximize inclusivity and incorporate diverse ideas into the planning process. The deliberative events sparked synchronous dialogue in which interested citizens, experts, and administrators cocreated the city's definition of sustainability and relevant policy priorities. (City Official #2, 2019). These types of deliberative events can open the possibility for competence to be improved through the interaction of experts and affected stakeholders (Yang and Pandey 2011, 887-888). This city also comes closest to the best-case scenario outlined in the citizen participation literature in which expertise and community concerns come together in a deliberative forum to inform policy decisions (Stark and Taylor 2014, 303).

*Key Challenge: Citizens' Expectations of the Participatory Process*

Along with the difficulty of ensuring that citizen participation is meaningful, well-informed, and inclusive, the second key challenge articulated by some of the interview respondents centers on the difficulty of meeting citizens' expectations for government responsiveness. Several city officials suggested that when the local government opened avenues for greater public participation, citizens' demands on their city government amplified. If administrators proved unable to keep pace with the policy recommendations of the public or their push for new programs (such as better recycling programs, improvements in transportation infrastructure, and the adoption of cleaner energy sources, among others), the citizen-government relationship became antagonistic and trust declined.

The interviewee from a city in a Western state reflected on this challenge most poignantly. This city official described recent attempts to implement multiple new programs in

order to fulfill the city's sustainability commitments. These programs included efforts to incorporate cleaner energy sources into the city's energy mix, improvements to municipal recycling services, and various policy changes to reduce carbon emissions from city fleet vehicles and within the broader transportation network. These policies were a direct result of public pressure (City Official #4, 2019). However, existing local infrastructure could not keep pace with service improvements and policy changes, which ultimately "clogged the entire recycling network…for about a week" and led to numerous other inefficiencies (City Official #4, 2019). These inefficiencies were perceived by citizens—who had pushed strongly for robust sustainability policies—as a failure of the government to respond to public demands. The city official recounted a rise in frustration and distrust once it became clear that the city did not have the capacity or resources to implement the sustainability-related programs that citizens supported (City Official #4, 2019).

In a different city, the interviewee discussed how opening up opportunities for citizen participation can ensure that government officials are adequately serving citizens but can also pose challenges when the public's expectations exceed the city's capacity to implement new sustainability policies or improve existing services. This city official described a citizenry that is, on average, highly supportive of sustainability and operates as a key driver of local-level environmental policy innovation (City Official #2, 2019). Several years ago, when the city decided to implement sustainability programs that focused predominantly on greening municipal operations, a citizen-led task force voiced its disappointment with what citizens perceived as a weak commitment to sustainability on the part of the city government. "One interesting thing that happened there was that a few in the leadership of the task force said, 'We think this is great. We understand why you want to start with municipal operations, but obviously that's not going

to be enough.'" (City Official #2, 2019). This push from involved citizens eventually resulted in a more robust sustainability plan, but some administrators voiced concerns that citizens' expectations did not align with the city's limited capacity and resources (City Official #2, 2019).

When citizen expectations of the participatory process do not align with their city's capacity to implement recommended policies quickly and efficiently, distrust, frustration, and a weakening of political efficacy can ensue. In this vein, one interviewee described how citizen-members of the local Sustainability Commission experienced frustration with their role as participants and with the city council's limited responsiveness to their recommendations (City Official #1, 2019). Participation took the form of one-way communication (from members of the commission to government officials in the form of policy recommendations) and there was little dialogue to explain to citizens why certain policies were adopted while others were infeasible. In addition, the purpose and role of the citizen-led Sustainability Commission was not communicated upfront to the participants. Reflecting on the shortcomings of the Sustainability Commission, the city official recounted how "their scope was so undefined and their annual priorities and calendars were just never well focused. Because the scope and the operation of that commission was so loose-knit and unclear, they've achieved very little and achieved even less satisfaction" (City Official #1, 2019). Disappointment and distrust ensued when the members of the commission found that they did not possess the level of authority or influence over policies that they anticipated (City Official #1, 2019).

*Key Challenge: Conflict*

Local governments are experiencing increasing pressure to implement avenues for participation to elicit public feedback, consider the perspectives of affected stakeholders, and allow diverse voices and needs to shape policy and planning decisions. Ideally, meaningful

participation—particularly deliberative forms—can also reduce conflict by recognizing the "value plurality inherent in complex policy issues" (Nabatchi 2010, 377) and providing participants with the tools to reconcile competing values. Well-designed participatory processes can resolve policy stalemates by encouraging participants to move beyond the dynamic of competing interests and to recommend policies geared towards the needs of the entire community (Berner et al. 2011, 151- 152). However, several city officials in this research suggested that, in some cases, greater opportunities for participation can result in more severe conflict between groups of citizens that differ in terms of the value they place on sustainability.

For instance, one city official suggested that, while residents had demonstrated a high level of support for a robust sustainability plan, participation through public meetings and on the local advisory board made certain sustainability-related policies and programs appear more controversial and less well-supported than they actually were due to a vocal minority opposing the sustainability framework. When speaking about the citizen-led advisory board, the interviewee suggested that "we get some people from business groups who just want to say no to everything" and join the board to stymie policymaking (City Official #1, 2019). In this sense, participatory opportunities can build conflict into the system and can make it difficult for city officials to receive a clear picture of citizens' wishes, thus hindering government responsiveness. Another interviewee highlighted a similar challenge, suggesting that public meetings are occasionally used as spaces to inject conflict and obstruct policymaking despite majority-support for certain programs or policy changes. In this city, plastic bag bans, Styrofoam bans, and other policy changes that were proposed under the city's sustainability plan generated strong pushback from a small, but highly mobilized group of citizens (City Official #5, 2019). This pushback

made it difficult for the city council to know with confidence what the public mandate consisted of and which policies should be implemented in an effort to respond to citizens' preferences.

The possibility of fueling conflict rather than reducing it represents a common critique of traditional, non-deliberative forms of participation. When communication flows in one direction and citizens do not have the opportunity to collaboratively reconcile diverse public values, explain the reasoning behind their policy preferences, and work together to construct a vision for their community, participation can take the shape of a competition between divergent preferences (Collingwood and Reedy 2012, 246-247). If participatory avenues are not thoughtfully implemented and citizens perceive these opportunities simply as a form of placation or manipulation (in the language of Arnstein), participatory processes can backfire and "may delay decisions, increase conflict, disappoint participants, and lead to more distrust" (Yang and Pandey 2011, 880). The risk of breeding conflict and distrust is particularly high in the sustainability policy domain, considering that the sustainability concept inherently engenders many competing public values (energy conservation vs. unfettered development, for instance) (Geczi 2007, 380).

**Policy Outcomes**

While the qualitative nature of this study and the small sample size limits its explanatory power, findings from this research draw attention to a possible link between citizen participation and the ways in which the sustainability concept is defined and practiced by city governments. The interview data from this project highlights how participatory processes might shape the definition, formulation, and implementation of local-level sustainability policies—specifically by aiding city officials in translating their broad, ambiguous sustainability commitment into a concrete policy mandate and actionable goals that align with the community's needs.

Several cities in this project experienced the value of citizen participation in translating the ambiguous concept of sustainability into concrete policy objectives. For instance, the city official from the coastal community highlighted how, prior to the establishment of a citizen-led steering committee, local-level sustainability efforts were fairly piecemeal and the city lacked a clear sense of direction when it came to the tangible objectives of the sustainability framework (City Official #5, 2019). Even though government officials in this city had long been amenable to the idea of sustainability and had taken active steps to integrate sustainability-related goals into their planning process, the interviewee explained how citizen participation—particularly through the steering committee—helped organize these efforts around a core set of actionable goals. "I'd say that we have made a lot of progress [on sustainability] kind of without having a formal goal. But I think now that we've really established an aggressive greenhouse gas reduction target [which was initiated by the citizen-led steering committee], it's going to help us focus our efforts (City Official #5, 2019).

The interviewee in the city practicing deliberative forms of participation through sustainability summits made a similar observation. Through the iterative summits, citizens were active in translating the broad sustainability concept into concrete policy objectives that city officials could be held accountable for achieving, such as changing the city's energy mix to favor renewables and various steps related to infrastructure resiliency (City Official #2, 2019). The formulation of a zero-waste initiative, along with clear and rigorous benchmarks for decreasing the city's reliance on nonrenewable energy sources, were several "super tangible things" (City Official #2, 2019) that emerged from the deliberative summits in which citizens laid out core policy goals that would come to constitute the city's sustainability framework.

Even the city that is characterized by an inactive citizenry and relatively anemic public participation still experienced several moments in which citizen involvement in the policy process assisted in the translation of an ambiguous sustainability paradigm into clear policy mandates. For instance, the citizen-staffed Sustainability Commission successfully pushed for a reduction in the use of pesticides in public spaces and argued that incorporating wetland revitalization into public parks should be a core part of the city's sustainability framework (City Official #1, 2019). Other interviewees noted that citizen advisory boards were vital in holding city officials accountable for their commitment to sustainability by recommending concrete policy goals, such as expanding recycling services (City Official #3, 2019) and promoting community agriculture (City Official #4, 2019). In this vein, one official noted that the citizen-led advisory committee holds a great deal of influence over deciding the strategic areas that fit under the sustainability umbrella by giving recommendations about the formulation of "strategic results [and] smart goals that are measurable" (City Official #4, 2019).

**Key Contributions**

Scholars of public administration, environmental policy, democratic theory, and several other fields are increasingly analyzing the merits and challenges of citizen participation. The focus on incorporating the public in local-level policy decisions stems from both practical and normative rationales. On the practical side, city administrators face growing responsibility for addressing wicked problems that legislative gridlock and partisan disagreements prevent higher levels of government from tackling. The pragmatic, problem-solving nature of local governments means that city officials must constantly innovate and seek ways to improve service delivery in order to ensure that public needs are being met. These tasks are made easier through an effective communication system in which city administrators are made aware of public values and through

a strong sense of citizen buy-in to local-level policy changes (Leighninger 2012, 27). Public engagement, when designed thoughtfully, can enhance citizens' policy competence and their understanding of city officials' rationale for adopting certain policies, can reduce conflict, and can lead to more responsive government. On the more normative side is the argument that citizen participation holds inherent value as an end in itself and not solely as a means to improve service delivery or elicit public support for policy decisions. Through this lens, participation in the policy process is a core element of good citizenship (Nabatchi and Amsler 2014, 63S-64S).

Despite recent prescriptions for meaningful participatory opportunities at the local scale, current scholarship has not yet systematically analyzed the mechanics of participation. Due to this gap in existing research, both academics and administrators do not have a clear picture of the modes of participation U.S. cities are implementing, the structure of administrator-citizen communication, the authority that citizens are granted in the municipal policy process, and the key obstacles that city officials must navigate when engaging the public. In other words, existing research on citizen participation has not thoroughly explored "where, when, why, how, and to what effect local government uses [participation]" (Nabatchi and Amsler 2014, 66S). While scholarly work in both public administration and democratic theory has criticized existing methods of citizen engagement and has called for more collaborative, deliberative forms of participation (Nabatchi 2010), there is scant empirical work describing and systematically mapping out the various types of participation currently used by city governments. Much of the literature also advocates for the value of participatory processes without empirically analyzing the connection between public involvement and policy outcomes.

Lack of knowledge of citizen participation is especially problematic when it comes to scholars' and practitioners' understanding of sustainability. Existing research has not deeply

explored the participatory techniques utilized specifically by sustainable cities and the outcomes of these strategies, despite the prescription in the academic literature and in relevant policy documents (such as Agenda 21) calling for a well-defined "participatory role for the public in the development and implementation of sustainability efforts" (Zeemering 2009, 253) and for the cocreation of sustainability policies by citizens and government officials. In light of these gaps, this project represents an initial step towards painting a clearer picture of the nature of citizen participation in sustainable cities, the structure of citizen-administrator communication, the ways in which participants are recruited, and the various challenges preventing public participation from becoming a meaningful input into the sustainability policy process. The findings from this analysis have value for scholars and administrators.

Based on the notion in the literature that the ideal vision of citizen participation put forth in existing scholarship might not be playing out in real-world policymaking (Berner et al. 2011, 158), this research helps clarify how citizen participation impacts the conceptualization and practice of sustainability and elucidates the types of participatory processes that are being implemented in sustainable communities. For instance, despite the deliberative turn in both the democratic theory and public administration literatures that has taken place in recent decades, one-way communication is most prevalent in this study. All five cities in this research rely on some form of unidirectional communication with the most prevalent structure being the one-way transmission of information and ideas from citizens to policymakers. The sustainability advisory bodies in each of the cities were designed as a channel for information and policy advice to flow from citizen-experts to city administrators. Despite this common pattern though, the cities in this research differ greatly in terms of the degree of both formal authority and informal power that advisory bodies hold. For instance, one city's sustainability board has relatively weak authority

and provides recommendations only on an annual basis (City Official #3, 2019), while the significant degree of informal power that the advisory body in another city possesses means that their policy recommendations are nearly always passed by the city council (City Official #4, 2019). In this sense, even in cities in which unidirectional communication represents the main form of participation, the influence of the public varies.

In addition, several lessons can be drawn from the city that held deliberative sustainability summits. The iterative participatory process facilitated by this city speaks to the notion that deliberative communication often requires multiple forums and entails redundant, dynamic participation in which citizens' values and policy preferences are not only communicated to policymakers, but are cocreated, reasoned through, and even altered through interactive participation (Bowman 2012, 73; Mansbridge et al. 2012, 4-5). The fact that the summits were iterative gave participants greater influence over the conceptualization and practice of sustainability. This case also illustrates the value of creating opportunities for citizen-government collaboration at multiple stages of the policy process. The interviewee suggested that since citizens deliberatively discussed the core meaning of sustainability early in the planning process and continued to participate in the formulation stage, the city's sustainability plan truly reflects community values, along with the most pressing environmental and societal needs (City Official #2, 2019).

The findings from this research have valuable implications for administrators, as analyzing how cities *are* practicing citizen participation can shed light on how they *should* be practicing it by drawing attention to the pitfalls that city officials have fallen into. Some of the challenges discussed in this research could be at least partially mitigated through thoughtful design choices when it comes to facilitating participatory opportunities. A key design

characteristic that came to the forefront through the interview data centers on the need to construct participatory venues in a way that citizens have a clear understanding of the purpose of their participation, the authority that they hold, and to what degree their advice will (or will not) be incorporated into the policy and planning process. The findings from this project highlight the challenges that emerge when citizen-participants either do not understand their role in local government or expect a stronger degree of decision-making authority than administrators intend to provide, leading to public dissatisfaction, conflict, and distrust in local political institutions.

For instance, as discussed above, one city official remarked on the lack of public satisfaction with available modes of participation, considering that citizen input was sought after the creation of the city's first sustainability plan (City Official #1, 2019). This design decision led to distrust among the public and the belief that participatory efforts were simply cheap talk due to the lack of mechanisms in place to link citizens' recommendations to policy decisions. Several cities in the analysis have also struggled to design participatory processes in which citizens have a firm understanding of the procedure for making recommendations to government officials and the weight their recommendations will carry in planning decisions (City Official #1, 2019; City Official #3, 2019). As these cases show, unclear expectations can result in confusion among citizen-participants about "what they're supposed to do or what kind of recommendations [to make]" (City Official #1, 2019). These cities' experiences show that both the effectiveness and perceived legitimacy of participatory opportunities depend on clear communication with citizens to ensure that they understand the purpose of their participation, their role in the broader planning process, and the power they hold to shape policy outcomes. In this sense, these challenges shed light on the need for thoughtful design decisions.

Another key question that has been understudied in existing research and that this project contributes to centers on local government leaders' motivation for eliciting citizen participation (Leighninger 2012, 26). There is a broad assumption in the literature that garnering buy-in for pre-determined policy decisions or reducing the likelihood of citizen backlash against controversial but necessary choices (such as budget cuts) is the primary motivator for engaging citizens (Leighninger 2012, 25-26). While some scholars have critiqued the citizen participation process as simply engineering public support, the interview data in this project provide mixed evidence of this claim. Only two of the respondents identified buy-in as a goal of participation (City #2 and City #4). The other three interviewees instead suggested that the core motivation for implementing participatory opportunities stemmed from the desire for city administrators to learn from the public, primarily by drawing from the specialized knowledge of various citizen-experts. Thus, the findings from this research point to the possibility that the need to seek innovative ideas and specialized knowledge in order to make more thoughtful policy choices might be a stronger motivator than the desire to facilitate buy-in and ease implementation.

One possible explanation for the fact that garnering buy-in appears to be a fairly weak motivation for implementing participatory processes stems from the emergence of federal and international support for sustainable cities. Organizations, such as ICMA, are increasingly providing technical guidance to city administrators seeking to implement sustainability programs. In addition, various federal initiatives and grant programs (such as HUD's Sustainable Communities Initiative Regional Planning Grants and various grants given to city governments by the USDA to make local food systems more sustainable) have been created in recent years to aid cities in their pursuit of sustainability (Mattiuzzi 2017). Federal financial support coupled with a growing knowledge network of sustainable practices on an international scale might be

incentivizing city administrators to pursue sustainability with or without the support of the public, thus reducing the need for extensive citizen buy-in. In this vein, one interview respondent in this project suggested that participating in the Energy Efficiency and Conservation Block Grant Program helped catalyze city officials' desire for a robust sustainability agenda, despite a passive, apathetic response from citizens (City Official #3, 2019). Overall, the lack of emphasis on buy-in in the cases in this analysis would benefit from additional research to better understand the factors shaping administrators' motivation for facilitating citizen participation.

In terms of the value placed on participation, despite the numerous challenges identified by city officials, all of the interview respondents spoke highly of the merits of participatory processes as a whole. Forms of participation falling into the "consult" and "involve" categories on the IAP2's typology were discussed particularly positively, as all of the interviewees highlighted the benefits of seeking public input and, in some cases, giving citizens the ability to recommend policies. The interviewees expressed the sentiment that the complexity and resource-intensity of the sustainability framework necessitates citizen involvement. In this vein, one city official suggested that sustainability "is going to be a significant undertaking, so it's going to be really important that everyone in the community knows what we are trying to accomplish, knows what the scope is, understands the significance of what we are trying to achieve, and has the opportunity to have a say in it." (City Official #5, 2019). Another city official suggested that utilizing the knowledge of academics, industry experts, and other members of the community when formulating sustainability policies can enhance the likelihood of success (City Official #2, 2019). In this sense, while existing literature suggests that administrators tend to favor aggregative forms of participation (such as voting) and view this type of political involvement as

sufficient (Berner et al. 2011), this project speaks to the value that administrators in sustainable cities place on more active, direct forms of participation.

**Concluding Thoughts and Unanswered Questions**

Despite the contributions of this research to the broader understanding of the mechanics of participation in sustainable cities, the findings from the project are limited and numerous questions with both scholarly and practical value remain unanswered. In the first place, this qualitative analysis suffers from the shortcomings typical of a small-N case study approach. While the selection method prioritizes variance between cities based on both geography and political culture in an effort to maximize the representativeness of the sample, the findings from the five cases in this analysis might not speak to the experience of a larger number of sustainable cities. Considering that sustainability is increasingly being practiced by a more diverse set of cities, including several "unlikely innovators" (Cohen et al. 2015, 157), municipalities differ greatly in terms of their motivation for pursuing sustainability and the characteristics of their communities. In this sense, studies that follow up on the initial findings of this project by conducting surveys with government officials in a larger number of sustainable cities would allow for the clearer identification of patterns in participatory practices across the United States.

In addition, the choice to perform elite interviews with government officials inherently leads to one-sided insight. These interviews elicited rich details about city administrators' motivations for inviting citizen input into the sustainability planning process and the key challenges that they faced when attempting to integrate public needs and values into the sustainability framework. Missing from this analysis, though, is the perspective of citizen-participants. Future work would benefit greatly from engaging with community members. Since existing research points to the fact that citizens and administrators hold different viewpoints on

the value of public participation, the degree to which citizens should be empowered with decision-making authority, and how much the public's perspectives should be incorporated in policy decisions (Berner et al. 2011), the fields of public administration and democratic theory would benefit from information about citizens' perspective on the value and impacts of various participatory venues. This line of research would also provide beneficial information to city administrators who hold responsibility for orchestrating opportunities for citizen participation and determining how best to translate public preferences into concrete policy decisions.

Another intriguing finding from this project that opens up a plethora of questions for future research centers on the balance between drawing from the expertise of the public by selecting local experts to serve on advisory bodies, on the one hand, and ensuring that all affected stakeholders have a voice in the policy process, on the other hand. The balance between expertise and representativeness is particularly critical in sustainable cities, considering that the sustainability concept—when practiced in its full three-pillar form—includes elements (such as reducing environmental inequities and ensuring access to basic needs) that directly relate to underserved members of a community who tend to have lower rates of participation in public meetings and other venues (Ryfe and Stalsburg 2012). In this vein, future research could endeavor to answer the following questions: What factors (such as political culture, the structure of city government, the size of the population, a city's resources and organizational capacity, etc.) correlate with a city's decision to prioritize expertise over representativeness in their participatory process? Do cities that recruit citizen-participants based on their expertise and subject matter competence experience different policy outcomes (such as differences in the types of policies that are included in a sustainability framework) compared to those that prioritize representativeness and engage in broader outreach in order to maximize participation?

Relatedly, most cities in this analysis utilize forms of participation that occupy the less impactful categories on the IAP2's spectrum, creating no guarantee that the public's preferences or the policy recommendations provided by advisory bodies will be thoughtfully considered by policymakers and integrated into sustainability planning decisions. The only promise made to citizens through these forms of participation based on one-way communication is that they will either be provided with information or that their ideas will be listened to (Gaber 2019, 196), but not that their feedback will serve as an impactful input into the policy process. In this sense, future research that quantitatively measures the number of recommendations made by citizen advisory boards that are translated into concrete policy action could provide valuable insight for scholars and administrators.

# CHAPTER FIVE:
# CONCLUSION

Sustainability represents a highly amorphous concept and, yet, it forms the foundation of the current epoch of American environmentalism and is often discussed as a best practice in municipal planning (Portney and Hannibal 2022; Zeemering 2018, 138). Cities operate at the center of the sustainability paradigm, largely due to chronic national-level inaction in the environmental domain coupled with the fact that local governments' authority over transportation planning, air and water quality, land use decisions, and numerous other relevant policy areas makes cities a natural fit to engage in sustainability governance (Svara, et al. 2013, 10-11). Over the last several decades, numerous cities throughout the United States have undertaken extensive policy experimentation by formulating innovative approaches to address interlocking environmental, economic, and social concerns impacting local communities.

As this dissertation project illustrates, not only do cities function as sites of innovation, they also constitute sites of contestation over the meaning of the sustainability concept and the optimal policy and planning decisions to achieve sustainability-related goals. City governments throughout the United States have taken up the task of translating the broad precepts of the sustainability paradigm into actionable strategies for reorienting local development trajectories. In this sense, much of the important governance work within the sustainability domain comes at the earliest stages of the municipal policy process when the concept is first defined. Existing literature in the field of environmental policy broadly recognizes the challenges that local governments face when it comes to conceptualizing sustainability and formulating relevant policies due to the vagueness of the term. However, despite broad awareness that the meaning of sustainability is constructed situationally and, therefore, that sustainable practices will likely

differ city-by-city (Portney 2013, 9), little research has focused on the variance in how sustainability is conceptualized and the process by which local-level administrators settle on a concrete meaning. In particular, knowledge of why the meaning of sustainability varies so widely remains underdeveloped. This dissertation project partially fills this gap by shedding light on how city officials define sustainability situationally and prioritize certain dimensions of the concept while deemphasizing others. Guided by the overarching question of why U.S. cities vary in their conceptualization of sustainability, the dissertation provides insight into the immutable factors (such as a city's demographic composition and its vulnerability to natural disasters), as well as various mutable characteristics (how sustainability governance is organized in municipal departments, city officials' decisions to open up avenues for citizen participation, etc.), that shape the process by which cities define sustainability and structure their planning trajectories accordingly.

**Key Contributions of the Dissertation**

The foundational contribution of this project stems from its unique approach to analyzing sustainability by focusing on the earliest stages of the municipal policy process in which the meaning of sustainability is constructed and city officials determine which aspects of the concept best align with local conditions. Current research has built a solid foundation for understanding why some cities seek to become sustainable while others do not (Opp and Saunders 2013; Portney 2013; Svara et al. 2013), how the structure of municipal government can impact sustainability policy implementation (Krause and Hawkins 2021), and the types of policies that cities adopt in their pursuit to become more sustainable (Cohen et al. 2015; Cohen 2018; Keeley and Benton-Short 2015). However, little attention has been devoted to the question of how cities navigate the ambiguity of the sustainability concept and the various factors that cause local

officials to adhere to specific conceptualizations of the sustainability paradigm. Thus, this dissertation responds to suggestions by numerous scholars to develop a "clearer understanding of what sustainability means to the officials in local governments who have day-to-day responsibility for growth and economic development" (Zeemering 2009, 248) and to parse out distinctions in individual municipalities' approaches to sustainability in terms of both practice and intent (Svara et al. 2013, 10).

Most studies of sustainability do not analyze a diverse set of U.S. municipalities and instead only include cities with well-developed sustainability initiatives that have consistently ranked high on sustainability indicators (Saha 2009; Portney 2013; Krause and Hawkins 2021). By drawing from a random sample of cities, this dissertation project sheds light on a more diverse array of cases, leading to greater generalizability compared to research that focuses solely on cities that are classified as leaders in the sustainability domain. Due to the broad scope of this project, its findings explain how cities—both those that operate as policy leaders and cities outside the most highly ranked sustainable communities—engage in the process of defining sustainability and deciding on relevant policy priorities.

The following discussion highlights the main findings of each substantive chapter and explains how these findings contribute to existing academic work, specifically how they lend empirical support for certain theories and assumptions about sustainability governance while calling others into question. The relevance of the project's key findings for city officials, policy entrepreneurs, and other practitioners is also explored. The chapter concludes by examining the broad implications of the dissertation project as a whole and discussing fruitful avenues for future research.

*Defining Sustainability: Lessons from Chapter Two*

The quantitative analysis in Chapter Two sheds light on the nature of the current sustainability movement and the extent of the transition away from a traditional command-and-control regulatory approach to addressing pollution, natural resource depletion, and other pressing concerns. Despite the broad shift towards localized environmental protection efforts grounded in the principles of sustainability discussed in the environmental policy literature, the fact that 40% of cases in the sample of 200 cities do not articulate a commitment to sustainability suggests that the entrance into a new epoch of environmental governance is still nascent. Moreover, the tendency of some cities to prioritize only one or two pillars of sustainability in their conceptualization of the term illustrates that the transition of environmental policymaking into an era of sustainability is more fragmented and contested than current research typically recognizes.

This chapter empirically demonstrates the significant variance in how U.S. cities conceptualize sustainability, as the content analysis highlights the presence of competing narratives and minimal definitional consensus. This part of the dissertation has significant implications for how sustainable cities are studied, since it shows that operationalizing sustainability in the language of the three-pillar metaphor lacks empirical accuracy and misses critical nuance when it comes to how cities articulate the concept. By drawing attention to competing narratives and analyzing the process by which sustainability is defined, this chapter lays a crucial foundation for other researchers to systematically examine numerous aspects of sustainable cities, including policy formulation, the implementation of relevant programs, and the tangible outcomes of a city's sustainability efforts.

More specifically, cognizance of the variance across U.S. cities in the meaning assigned to the sustainability paradigm can enrich future studies of local-level sustainability efforts by encouraging researchers to recognize that one city's version of sustainability will likely not correspond to another locality's definition of the term. This recognition is particularly crucial when conducting small-N research or single case studies that might only focus on cities with a specific conceptualization of sustainability, thus leading to conclusions that may not apply to localities that operationalize the framework differently. In this sense, this project fills a critical gap in existing research by mapping sustainability discourse. Without knowledge of how cities are conceptualizing sustainability, studies of policy formulation, implementation, and the development of sustainability indicators could lack important nuance that does not take into account administrators' diverse perceptions of what sustainability means and which pillars tend to carry the most weight in municipal planning.

Along with the broad contributions to existing research that stem from mapping the terrain of sustainability discourse, there are several narrow contributions of the quantitative analysis that simultaneously inform research and sustainable practice. Most notably, this project provides critical insight into the well-documented equity deficit among sustainable cities. Current studies critique the lack of priority given to social equity objectives (such as sufficient affordable housing and equitable access to public transit) in municipal sustainability programs (Hess and McKane 2021; Long 2016) coupled with the lack of consensus over the meaning and operationalization of the social equity dimension in existing scholarly work (Opp 2017, 287). The question that current research has not yet answered is why a pervasive equity deficit exists, even in communities commonly designated as "sustainable". While not the primary goal of this dissertation project, the quantitative analysis of sustainable cities sheds light on this understudied

pillar. To begin with, the fact that fewer than half of the cities in this project that practice sustainability place a strong emphasis on the social equity pillar, 20% place a weak emphasis on this pillar, and nearly one-third do not mention social equity as a component of sustainability in any capacity corroborates concerns about the equity deficit.

More importantly, findings from this chapter demonstrate that the equity deficit occurs during the early stages of the municipal policy process, rather than solely during the formulation and implementation of sustainability programs, since the social equity pillar is often missing from a city's initial definition of sustainability. In this sense, limited attention to social equity might not stem purely from a lack of municipal resources, citizen pushback, or other factors that prevent the successful implementation of affordable housing developments and other equity-related objectives. Instead, this chapter shows that the equity deficit is, in many cases, built into the very foundation of cities' conceptualization of sustainability. This finding leads to concerns for local-level administrators seeking to practice a robust three-pillar approach. City officials striving for a stronger prioritization of the equity dimension after a locality's commitment to sustainability has already been established likely face an uphill battle if the initial definition of sustainability either deemphasizes or completely ignores this pillar up front. Given this chapter's finding that the equity pillar is often excluded from cities' conceptualization of sustainability, efforts by local officials or other policy entrepreneurs to achieve equity-related goals might be best directed towards meaningfully integrating this pillar into a city's operational definition of sustainability in order to guide future policy choices and planning trajectories.

Another observation from this chapter that further contributes to existing knowledge of sustainable cities and also provides a roadmap for administrators seeking to build planning frameworks based on the principles of sustainability is that the organization of municipal

government matters. While the direction of the correlation cannot be known within the scope of this research, the positive relationship found in Chapter Two between having a separate office dedicated to sustainability and the relatively equal prioritization of all three pillars speaks to the possibility that cities might be able to strategically organize their sustainability programs to achieve certain outcomes. Locating responsibility over sustainability in an existing office or department (such as a department of public works) with a narrow scope of expertise and limited policy authority could cause the sustainability planning process to become administratively siloed (Krause and Hawkins 2021). As a result, sustainability will likely be narrowly defined based on the mission, objectives, and resources of the specific municipal department responsible for carrying out sustainability-related program development. The creation of a separate sustainability office could reduce this siloed effect, increase opportunities for integrating the principles of sustainability more broadly into a city's comprehensive planning process, and allow for the pursuit of a three-pillar approach that is not constrained by the specific expertise and narrowly defined mission of a single city department. More research is needed to determine the direction of causality between having a dedicated office and defining sustainability in the language of the three-pillar metaphor, but this finding still provides valuable information to city administrators when making decisions about how to organize authority over sustainability.

*Natural Disasters, Focusing Events, and Policy Learning: Lessons from Chapter Three*

Chapter Three of this project sheds light on the complexity of policy learning in sustainable cities and the focal power of natural disasters to catalyze changes in policy discourse. In particular, it illustrates the sensitivity of cities' conceptualizations of sustainability to the disruptive impacts of natural disasters—a topic that has been severely understudied. The chapter contributes to existing knowledge of sustainable cities by providing insight into how the meaning

of sustainability is constructed in disaster-vulnerable localities. The qualitative analysis in particular identifies the ways in which natural disasters can reorient local development trajectories and expand cities' definition of sustainability, as several interviewees cited natural disasters as catalysts for integrating a stronger focus on equity, resilience, and strengthening vulnerable neighborhoods into existing sustainability frameworks.

Both the quantitative analysis of FEMA data and the qualitative examination of cities' experience with natural hazards contribute valuable knowledge to existing research on the disruptive power of focusing events, the interplay between sustainability and resilience, and policy learning. The findings from this chapter confirm some existing theories, but contradict others and call into question the ways in which scholars study the focal power of natural disasters and other events that disrupt normal policymaking. In this vein, one of the most important (and surprising) findings from this analysis that calls into question existing knowledge of focusing events and policy learning is the lack of a relationship between a city's experience with natural disasters and its prioritization of certain pillars of sustainability highlighted in the quantitative component of the chapter. The quantitative analysis found no significant correlation between a city's two-year, five-year, and ten-year experience with natural disasters and its tendency to emphasize specific aspects of sustainability in its planning documents.

While this lack of a correlation initially seems surprising due to the maxim in public policy studies that natural disasters disrupt normal policymaking and lead to major policy changes or paradigm shifts in planning trajectories, the finding is explained by the qualitative component of the chapter, which suggests that the lack of correlation could be due to how the focusing events variables are operationalized. Specifically, while the quantitative analysis examines natural disasters within close proximity to each city (as is typical in focusing events

research), the local officials interviewed for this project suggested that policy learning occurs from a more diverse array of natural hazards. When discussing the power of severe disasters to catalyze a rethinking of sustainability-related goals, the interview respondents discussed a combination of geographically proximate disasters, those occurring in broader communities of interest, minor weather events that caused little damage but managed to linger in a community's collective memory, and high-salience disasters that gained national-level attention. Within the four cities analyzed in the qualitative component of Chapter Three, each of these disaster types functioned as catalysts for altering sustainability-related priorities. These findings show that the focal power of disasters is not constrained by geographic proximity, thus shedding light on a debate that has remained unsettled in existing theories of focusing events.

Also evident in the qualitative component of this chapter is a "learn from your neighbor" effect in which government officials and citizens in one city perceive natural disasters in other areas as a warning to either become more sustainable or to integrate resilience into existing sustainability paradigms. In addition, the chapter speaks to a broader learning process in which highly visible disasters that gain national-level attention among the public and news media (the historic 2017 floods in Houston TX, for instance) generate changes in sustainability policy discourse within a broader community of interest (i.e., other flood-prone localities). These findings illustrate the complexities of disaster-motivated policy learning and highlight the need for changes in how focusing events are studied, considering that simply examining the response to severe events that occur within a city's jurisdiction will likely be insufficient and could lead to the false conclusion that local governments' planning frameworks, policy priorities, and conceptualizations of sustainability are not sensitive to the focal power of natural disasters.

Another key finding from this chapter that contributes to the focusing events literature and highlights the need for changes in how this topic is studied centers on the idea that the severity of a disaster might not be the main determining factor in whether or not policy learning takes place and if normal policymaking is disrupted. While existing research on focusing events predominantly revolves around the most severe disasters (such as major hurricanes) that cause extensive infrastructure damage, loss of human life, or other catastrophic consequences (Birkland 2006; Bishop 2014), some of the interviewees in this analysis highlighted low-consequence, minor, localized weather events as catalysts for generating citizen demand for stronger sustainability policies and for re-orienting the meaning of sustainability. Taken as a whole, the findings outlined above suggest that the scope of existing research on focusing events and policy learning is too narrow and might not fully capture the wide variety of events that possess focal power and fuel disruptive changes in the policy process. Most existing studies either focus on major disasters with effects that reverberate on a national scale or they evaluate the focal power of disasters that occur within a specific jurisdiction[32]. What this project illustrates, though, is that cities learn in unanticipated and varied ways. Minor disasters within a city's borders, severe weather events in neighboring localities, and high-salience disasters across the country were all found to cause shifts in sustainability-related priorities. These findings speak to the need for a more comprehensive, systematic way of studying the catalyzing effects of focusing events.

Relatedly, while the quantitative component of this chapter did not find a significant correlation between the prevalence of natural disasters in close proximity to a city and the tendency to define sustainability in particular ways, the qualitative analysis demonstrates that

[32] See, for instance, Bishop's (2014) analysis of the catalytic quality of the Deepwater Horizon oil spill.

cities learn both from recent disasters and from highly salient events occurring in the past. By analyzing interview data, the chapter found evidence of policy learning from disasters taking place over a broad time frame, as the interview respondents discussed major changes made in sustainability policies within as little as a few months after a disaster to several decades post-event. In this sense, these findings identify the need for more nuance in future research on focusing events. The chapter calls into question the conventional wisdom in the public policy literature that focusing events open up a relatively short window of opportunity for policy learning (Fleming et al. 2016, 1147) and that the impetus for learning tends to "decay over time" as new policy priorities or major events crowd out the memory of a natural disaster (Birkland 2006, 20). In this project, particularly catastrophic events were found to have focal power multiple years (and—in one case—even several decades) after their occurrence in terms of shaping cities' approach to sustainability.

Along with the academic contributions highlighted above, this research also includes several findings that are relevant to local policymakers. In particular, the negative correlation between the prevalence of severe natural disasters in a one-year time frame and the tendency to emphasize the environmental pillar of sustainability highlighted in the quantitative component of the chapter provides valuable knowledge for city administrators and policy entrepreneurs. This finding speaks to the possibility that, immediately following a natural disaster, cities might focus more attention on immediate recovery than on long-term environmental planning. In this sense, there is room for greater mobilization for sustainability efforts. If the policy rhetoric were to shift and natural hazards were viewed as a problem that could be prepared for through better planning decisions, local-level administrators could strategically utilize the policy window opened up by a

recent focusing event in order to generate stronger support for robust sustainability programs and more effective environmental management.

Relatedly, long periods of normal policymaking without perturbations caused by natural disasters correlates with a dominant focus on the economic pillar of sustainability, as evidenced by the positive relationship in the regression analysis between the amount of time since a disaster has occurred and a city's tendency to prioritize the economic dimension of sustainability. This finding further speaks to the notion that, while normal, routine policymaking lends itself to a focus on economic prosperity over other sustainability principles, city administrators and policy entrepreneurs have a window of opportunity when a natural disaster strikes to rethink the meaning of sustainability and integrate a stronger emphasis on other pillars.

*The Role of Citizens in Sustainable Cities: Lessons from Chapter Four*

Chapter Four draws attention to the ways in which citizens are incorporated into the process of constructing the meaning of sustainability and building actionable policy priorities under this umbrella. The sustainable cities literature posits participatory governance as a foundation of the sustainability paradigm (Gardner 2016, 62-63) and argues that a robust, enduring commitment to sustainability efforts can only be pursued from the ground up with "a strong foundation of popular support for these policies and practices" (Cohen 2018, 12). However, a paucity of research has analyzed the shape that citizen participation takes in sustainable communities and how participatory efforts impact a city's unique approach to sustainability. Chapter Four of this dissertation provides valuable insight into the mechanics of citizen participation by mapping out the various participatory avenues being facilitated within sustainable cities and the ways in which citizen involvement informs the sustainability planning process. Given the limited research detailing the outcomes of citizen participation and the

challenges that administrators face when integrating citizen input into local decisions, this chapter responds to the suggestion in the literature that more research is needed to analyze "where, when, why, how, and to what effect local government uses [citizen participation]" (Nabatchi and Amsler 2014, 66S).

Importantly, the findings from this chapter illustrate common patterns in the types of participation that city officials are implementing. Aside from one city in the analysis that facilitated a series of deliberative forums in which citizen-participants were granted the authority to cocreate the meaning of sustainability, this chapter found types of participation falling onto the lower rungs of Arnstein's (1969) ladder to be the most common. Consultation (using the language of the IAP2's typology) proved to be especially prevalent, as the sustainable cities in this research predominantly utilized citizen-led advisory boards or commissions, along with public meetings, in an effort to facilitate citizen input and generate policy advice.

The prevalence of one-way communication (most commonly flowing from citizens to administrators) in the cities analyzed in this chapter identifies a disconnect between scholarly prescriptions for how participation should be carried out and the reality of participatory efforts among cities. Despite recent discussions by scholars of public administration and democratic theory illustrating the value of deliberative forms of participation in which citizens engage in meaningful discussion about the reasoning behind their positions, clearly articulate their interests, and collectively cocreate policy decisions (Bohman, 2012; Mansbridge et al. 2012), this dissertation shows that more traditional forms of participation eliciting unidirectional communication remain far more prevalent.

For instance, all of the cities examined in this chapter relied on a citizen-led advisory body to facilitate the transmission of policy advice from citizen-experts to policymakers. The

common practice of one-way communication in which information flows from citizens to administrators falls short of the precepts of robust, meaningful participation highlighted in the public administration and democratic theory literatures, especially when it comes to the value of reason-giving. Collective reason-giving is increasingly identified as a critical feature of meaningful participatory practices in which citizen-participants "compare values and experiences" (Leighninger 2012, 20) to justify their positions through deliberative dialogue and government officials are expected to explain their rationale for making certain policy decisions. Establishing participatory systems that enable multidirectional communication and require government officials to explain their reasons for taking specific actions can allow citizens to "regard the exercise of political power as legitimate because it is justified to them in a way that is accessible from their own viewpoints, thus respecting their equal standing" (Ebeling and Wolkenstein 2018, 637). In this sense, the prevalence of one-way communication from citizens to administrators identified in this chapter suggests that local officials are typically not in a position in which they are required to reason-give and provide an explanation for making certain policy choices (such as decisions to prioritize specific aspects of sustainability, while deemphasizing others). This lack of reason-giving is also evident in the chapter's discussion of the key challenges that city officials face when facilitating various avenues for participation, as several of the interviewees highlighted citizen distrust in government and disappointment in the shallowness of participatory efforts stemming from a lack of two-way communication.

Another important contribution of this chapter relates to city officials' motivation for facilitating citizen participation. In this vein, the findings from this chapter call into question the assumption in existing studies that enhancing buy-in represents a core objective of participatory practices. Numerous scholars suggest that administrators garner citizen input specifically to

enhance public buy-in, ease implementation efforts, and increase the perceived legitimacy of policy decisions (Leighninger 2012, 25-26; Wang et al. 2012; Yang and Pandey 2011). The qualitative analysis in this chapter, however, tells a different story. Buy-in was only mentioned by two of the five cases in this analysis and, even in these cities, it was not discussed as a main motivation for pursuing meaningful participation in sustainability-related planning efforts. While the generalizability of these findings is limited by the small number of cases, the chapter highlights the need for caution and further empirical work when it comes to understanding local-level administrators' motivation for implementing participatory practices. It should not be assumed that cities open up avenues for participation simply for the sake of political expediency.

One of the more intriguing aspects of this chapter that possesses both academic and practical value centers on the discussion of the key challenges that city officials face in their efforts to meaningfully integrate citizen input into the sustainability planning process. Few studies to date have empirically analyzed the challenges of facilitating citizen participation. When designed thoughtfully and implemented effectively, participatory opportunities can create both better citizens and better policies. Direct participation in the process of delineating a city's development trajectory and deciding on relevant goals can improve citizens' policy competence, reduce conflict between groups with diverging interests, enhance government responsiveness, and lead to policy outcomes and planning decisions that are deeply connected to public values and community needs. However, this chapter's findings regarding the challenges that local officials face in carrying out participatory processes illustrates how existing varieties of participation often fall short due to ineffective design decisions.

For instance, several cities in this analysis experienced an increase in conflict, growing distrust in local government, and strong disappointment among citizens—all stemming from

divergent expectations between citizen-participants and city officials regarding the overall purpose of public participation and the degree of authority that citizens should hold. As evidenced by the interview data, these challenges predominantly emerged due to a lack of clear communication about citizens' degree of influence, local officials' motivation for creating advisory bodies or other participatory venues, and the extent to which citizens' policy advice would be incorporated into municipal decisions. These cities' experiences demonstrate that the effectiveness and perceived legitimacy of participatory opportunities depend on clear communication with citizens regarding the purpose of their participation, their role in the broader planning process, and the extent of authority that they hold to shape policy outcomes. These findings provide valuable lessons to government officials when it comes to best practices for designing and facilitating citizen participation in order to avoid pitfalls that could cause participatory efforts to breed distrust and disappointment among citizens.

**Broad Implications of the Dissertation**

This project highlights the fact that practicing sustainability is, in many ways, an act of translation and contestation, as city officials must navigate the definitional ambiguity of the concept and translate the precepts of sustainability into tangible policies and planning decisions. This dissertation research illustrates that, in the process of giving meaning to the vague sustainability paradigm, city officials often determine either that not all three pillars are relevant to their city's unique needs or that adopting a robust three-pillar approach is not possible given financial constraints, limited municipal resources, or other challenges. The finding that numerous cities do not articulate a strong, balanced approach to sustainability in which all three dimensions are equally prioritized calls into question the feasibility of studying sustainability as a unified concept or operationalizing the term using the classic three-pillar metaphor. Future empirical

work will need to wrestle with this substantial variance in the meaning of sustainability when determining how best to study sustainable cities, as well as to determine which localities even count as "sustainable" in the first place.

Each chapter of this dissertation identifies how the unique conceptualization of sustainability present in cities is shaped by a variety of factors, such as the structure of city government, the demographic composition of a locality, the presence of external shocks in the form of severe natural disasters, and the various strategies for integrating citizen-participants into the process of constructing the meaning of sustainability. While some of the factors (such as a city's disaster vulnerability) remain relatively immutable and cannot be controlled by city officials, this project's findings pertaining to the more mutable aspects of sustainable cities (whether or not a separate sustainability office exists, the types of citizen participation that are facilitated, etc.) can provide practical lessons to local administrators regarding how to navigate the ambiguity of the sustainability concept and optimize their planning process, as highlighted in the discussion of each chapter above.

Not only do the main findings from this project expand empirical knowledge of sustainable cities and provide insight to practitioners, this research also productively contributes to future theory building. In this vein, each chapter adds information to ongoing debates about the rationale behind cities' pursuit of sustainability as a guiding policy and planning framework. There are two main lines of reasoning in existing literature—a resource-based explanation and a needs-based explanation. According to the resource-based explanation, sustainability efforts are limited by the amount of fiscal slack a city enjoys and the level of competition for other policy priorities to be funded (Wang et al. 2012, 844). In contrast, the needs-based explanation alludes to the pragmatism and problem-solving nature of local governments, suggesting that cities

suffering from severe problems (such as high levels of pollution) will be more likely to embrace the principles of sustainability and will construct their sustainability frameworks in alignment with the community's most pressing concerns (Cohen 2018, 46-48; Portney 2013, 305-309). Some models of sustainability combine both of these explanations, such as Opp and Saunders (2013, 692-693) discussion of how cities with large populations "will generally have both greater needs and greater resources for the pursuit of sustainability policies and initiatives than less populated communities".

Key findings from this dissertation project provide some degree of empirical support for both the resource-based and needs-based explanations, suggesting that these theories are just as relevant to the process of defining sustainability as they are to the policy adoption stage to which they are typically applied. For instance, Chapter Two's finding of the relationship between population size and a city's tendency to equally prioritize all three pillars in its conceptualization of sustainability aligns with the resource-based explanation. Heavily populated cities, in most cases, benefit from economies of scale, have a high capacity to solve complex problems, can draw from a large tax base, and tend to be able to skillfully attract and retain businesses. In this sense, it is logical that populous cities would have the capacity to pursue a more multifaceted approach when delineating the meaning of sustainability. At the same time though, large cities have high metabolisms and are typically resource-intensive, thus lending tentative support to the assumption throughout the sustainable cities literature that high-need communities are more likely to embrace the three pillars of sustainability. The positive correlation between the poverty rate and the tendency to prioritize the economic pillar highlighted in Chapter Two also speaks to the potential veracity of the needs-based explanation, as impoverished communities might experience a stronger need to focus on cultivating stable economic development.

However, while both the resource-based explanation and the needs-based explanation appear to be plausible and empirically supported when it comes to cities that define sustainability in the language of the three-pillar metaphor, as well as those that focus on the economic dimension, the needs-based theory breaks down when examining determinants of the social equity pillar independently. The somewhat surprising lack of a correlation found in this dissertation between poverty levels, racial diversity, and the proclivity for cities to prioritize the social equity pillar suggests that community need represents an incomplete explanation as to why cities define sustainability in specific ways and prioritize certain aspects of the paradigm. Other intervening factors—such as low political efficacy or other possible variables highlighted in Chapter Two—might intervene with the ability of city officials to respond directly to the local community's most pressing needs through their conceptualization of sustainability and the emphasis placed on relevant pillars.

The contribution of this dissertation to theory building related to sustainable cities becomes increasingly complicated when examining the role of natural disaster vulnerability in the process of constructing the meaning of sustainability. The findings from Chapter Three draw attention to the oversimplicity of the needs-based explanation. While a city's vulnerability to natural disasters would seem to constitute a strong need for a robust sustainability framework, Chapter Three shows that the relationship between natural disasters, community needs, and the meaning of sustainability is messy and imprecise. The disaster-vulnerable cities analyzed in the qualitative component of the chapter not only conceptualized sustainability based on their own needs for greater resilience in the aftermath of a localized disaster, but also on the experiences of other communities, such as neighboring localities and cities in geographically distant areas of the country with a shared vulnerability to a specific disaster type.

Chapter Four similarly adds critical nuance to the discussion of community needs by examining the process by which these needs are communicated to city officials through various forms of public participation. An important nuance that is often missed in studies analyzing why cities pursue sustainability stems from the idea that in order for cities to construct sustainability paradigms around the most pressing community needs, these needs must be understood by relevant local officials. Given the numerous challenges involved in facilitating meaningful opportunities for citizen-participants to cocreate sustainability-related priorities that were highlighted in Chapter Four, coupled with the tendency for cities to rely on unidirectional, nondeliberative communication, policymakers' awareness of the full scope of community needs when creating sustainability plans might be limited.

**Limitations of the Project and Avenues for Future Research**

Despite the value of this project in understanding the variance in the definition of sustainability among U.S. cities and shedding light on the process by which local-level officials construct the meaning of the concept, this research has several distinct limitations that open up avenues for additional scholarly work. Some of these limitations stem from methodological choices and data availability, while others derive from new questions and curiosities that arose from the unanticipated findings of the project. While several of the key findings of this dissertation align with the stated hypotheses or are relatively intuitive given the conclusions of other research, some of the more unexpected findings from each chapter point to fruitful avenues for ongoing research into the nuances of sustainable cities.

To begin with, by focusing solely on cities with populations above 60,000, this study is inherently limited in its scope and its generalizability might be constrained to larger, more urbanized communities. The project's key findings may not be applicable to smaller localities

that often face challenges in providing services for widely dispersed populations in rural areas; in having the administrative, technical, and financial capacity to support the adoption of sustainability policies; and in enjoying the economies of scale that larger cities experience. While systematically studying small municipalities presents numerous challenges—largely due to the fact that data is more readily available for highly populous urban areas[33]—scholarship on municipal sustainability would benefit greatly from exploring 1) how sustainability is defined and practiced in less populated communities, 2) how these conceptualizations and practices differ compared to the highly populous cities that are typically studied, 3) the unique challenges that small municipalities face when it comes to effectively implementing sustainability policies, and 4) the possible advantages that small communities might have, such as the ability to meaningfully engage the public since direct democracy is easier to facilitate in close-knit communities. While it is often suggested that sparsely populated rural municipalities (particularly those in politically conservative areas) resist implementation of sustainability principles, little empirical research has been done on small cities that do embrace sustainability in order to understand their rationale for doing so and the ways in which they define the concept.

Another methodological decision in this dissertation that opens up avenues for future research is the fact that this project relies on a random sample of cities and, therefore, includes cities with a wide range of sustainability practices—ranging from those that only prioritize one pillar to those that adhere to all three dimensions of sustainability and have deeply integrated a commitment to sustainability into the city's planning process. While this selection strategy is a main strength of this project, as it maximizes generalizability and paints a clear picture of how

[33] This data collection challenge is particularly evident when performing content analysis on city documents, as the websites for larger urban cities are typically more well-developed and more frequently updated compared to less populous localities with fewer resources.

sustainability is being defined and prioritized by diverse municipalities, it also overlooks key nuances by not distinguishing between sustainability leaders and laggards. In particular, much could be learned about municipal sustainability policies by analyzing differences between early adopters, late adopters, and non-adopters. For instance, several of the interviewees in Chapter Three and Chapter Four stated that their city had relatively recently jumped on the sustainability bandwagon and were trying to build thriving sustainable communities. The public policy and sustainable cities literatures would benefit from analyzing what factors caused these late adopters to initially lag behind, as well as what catalyzed their eventual decision to embrace the principles of sustainability. Analyzing how the meaning of sustainability differs between early and late adopters, as well as the role of community dynamics (such as citizen buy-in, the degree of political support from the state government, technical challenges, fiscal constraints, etc.) that might have hindered a strong commitment to the three pillars of sustainability in laggard cities would be a fruitful direction for future scholarly work.

When it comes to the content analysis that forms the foundation of this project, the measurement is somewhat limited. While the concepts included in the content analysis are intended to capture the core ideas behind sustainability (such as reducing greenhouse gas emissions and attracting green industries), the parameters drawn around the key terms of the content analysis ignore sustainability-related policies that are unique to individual cities based on their geography (i.e., certain coastal management practices or a focus on drought prevention that are only practiced by a handful of sustainable cities). In this sense, the project cannot possibly account for all of the diverse policies and planning decisions that cities place under different pillars of the sustainability umbrella and may, therefore, overlook important sustainable practices. In addition, the decision to rely on elite interviews with relevant local government

officials in Chapter Three and Chapter Four leads to several limitations inherent in qualitative research. While information from city officials directly involved in sustainability planning is valuable in understanding their experience with managing their city's efforts to become more sustainable, their motivation for facilitating citizen participation, etc., this information reflects the unique perspective and interpretation of a small number of individuals working in specific municipal departments. Future work on citizen participation would strongly benefit from drawing in the perspectives of individual citizens to compliment the insights gained from the knowledge of city officials and to shed brighter light on the challenges of implementing meaningful participatory practices.

Lastly, while some of the cases analyzed in this dissertation share characteristics commonly associated with sustainable cities in the literature (such as a large population size, liberal-leaning politics, high levels of wealth and resources, etc.), others do not. During the interviews for both Chapter Three and Chapter Four, several local officials described situations in which their cities struggled to pursue sustainability efforts due either to an unsympathetic state government that clamped down on the locality's authority, conflicts within the city government itself over the value of pursuing sustainability, or resistance from citizens regarding the need to address environmental concerns. It is beyond the scope of this project to explore these particular cities in depth and to analyze why some city officials chose to pursue sustainability despite persistent backlash and institutional challenges, as well as whether or not the meaning assigned to the sustainability concept differs compared to more typical sustainable cities. However, this opens up a beneficial avenue for future research. A handful of studies have already alluded to the possibility that sustainability is occasionally being implemented in "hard-to-reach places" (Holman 2014) and among "unlikely innovators", such as small rural communities that

experience resource constraints or significant pushback and are still "able to implement sustainable initiatives against the odds" (Cohen et al. 2015, 157). In this sense, further analysis into how cities that typically would not be expected to take sustainability seriously are both defining this concept and putting into practice would be a valuable pathway for future research that could build on the findings of this dissertation project.

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APPENDIX A

## Dependent Variable Coding Categories

*Economic Pillar*

Goals:
-Long-term economic prosperity
-Short-term economic benefits through increases in efficiency
-Urban renewal to attract investment
-Increased efficiency among local industry and businesses
-Green/sustainable jobs
-Investment by industry, government, and environmental organizations
-Smart growth policies that encourage long-term economic development
-Reduction in costs of city government services

Policy and Planning Mechanisms:
-Voluntary compliance of industry or businesses to green standards
-Long-range city financial planning
-Green buildings as a method of cost reduction for businesses
-Retrofitting for cost reduction
-Waste reduction among local industries/corporations/governments for cost saving purposes
-Efficient production of goods and services
-Life cycle assessment of products to increase economic efficiency (by reducing waste in input and output)
-Sustainable purchasing efforts
-Energy efficiency rebates
-Innovative potential of businesses/industries to implement sustainable practices
-Tax incentives and other policies to encourage green industry/business investment
-Creating opportunities for more green jobs
-Brownfield redevelopment with the goal of putting land to economically beneficial use
-Greening of city fleet vehicles to reduce fuel costs
-Smart growth as a model for sustained economic development

*Social Equity Pillar*

Goals:
-Improve quality of life for city residents
-Improve “livability” of the city
-Preserve natural resources specifically for the prosperity of future generations
-Equity in resource distribution and access
-Equity in exposure to environmental harms
-Community development
-Sustainability as a tool for poverty amelioration

-Deal with public health concerns (such as air and water quality)
-Increase the aesthetic value of a community
-Resilience of neighborhoods and cities

Policy and Planning Mechanisms:
-Affordable housing
-Air and water quality standards (specifically for the purpose of improving public health and/or ameliorating environmental injustices)
-Just distribution of natural resources
-Just distribution of environmental harms (decisions over the placement of landfills or natural gas wells, for example)
-Equitable access to parks and green spaces
-Equitable access to sustainable agriculture/food sources
-Public transportation options
-Reduction of city sprawl for aesthetic/quality of life reasons
-Plant trees or protect greenbelts to improve city aesthetics and to ensure access to green spaces
-Transit-oriented development with the purpose of ensuring equitable access to transit options
-Active efforts to involve diverse citizens in advising policymakers on the unique needs of different neighborhoods/communities related to sustainability policy

*Environmental Pillar*

Goals:
-Conservation of finite natural resources
-Recognize intrinsic value of the natural environment
-Combat environmental effects and causes of climate change
-Sustain or enhance the vitality of natural systems
-Limit environmental harms such as pollution and contamination
-Ecosystem resilience
-Environmental stewardship
-Increase quality of air and water (specifically for their ecological value)
-Energy efficiency in order to reduce a city's ecological footprint/impact

Policy and Planning Mechanisms:
-Reduce greenhouse gas emissions
-Wildlife protection and habitat preservation
-Protect wilderness areas and natural spaces (primarily for ecological value, as opposed to recreational use)
-Encourage conservation efforts among residents
-Ameliorate overconsumption of natural resources
-Pollution prevention
-Restoration of polluted/contaminated areas
-Recycling, composting, and other waste diversion programs
-Encourage "green living" among residents
-Broadly reduce the city's impact on the environment
-Education and outreach to promote environmentally friendly practices among residents

-Brownfield redevelopment with the goal of ecological revitalization
-Green procurement and purchasing

APPENDIX B

**Description of Independent Variables for Chapter Two**

| Variable Name | Description of Variable |
|---|---|
| **BA** | Percentage of a city's population (age 25 or older) holding at least a Bachelor's degree |
| **Population Size** | Number of people living in a city |
| **%white** | Percentage of residents identifying as white |
| **%Hispanic** | Percentage of residents identifying as non-white Hispanic/Latino |
| **Poverty** | Percentage of individuals between the ages of 18 and 64 living at or below the poverty level |
| **University** | 1 = City is home to at least one 4-year university<br>0 = City is not home to a 4-year university |
| **Department** | 1 = Authority over sustainability policies/programs is housed under a separate municipal department or office<br>0 = Authority over sustainability policies/programs is not housed under a separate municipal department or office |

APPENDIX C

## Description of Independent Variables: Chapter Three

| Variable Name | Description of Variable | Rationale for Inclusion |
|---|---|---|
| ***natdisaster1yr*** | Number of natural disasters occurring within a one-year time frame (May 2017 - May 2018) at the county level | Public policy scholars argue that the focal power of sudden events rapidly diminishes. Therefore, it is necessary to examine a short time frame to look for the possibility that policy discourse changes quickly following a disaster. |
| ***natdisaster2yr*** | Number of natural disasters occurring within a two-year time frame (May 2016 - May 2018) at the county level | Several studies of focusing events and/or natural disasters use a two-year time frame to determine whether or not an event triggers policy change. |
| ***natdisaster5yr*** | Number of natural disasters occurring within a five-year time frame (May 2013 - May 2018) at the county level | Despite short issue attention cycles, it can take significant time for new policy priorities to be reflected on city websites or in planning documents. |
| ***natdisaster10yr*** | Number of natural disasters occurring within a ten-year time frame (May 2008- May 2018) at the county level | Interview data in this project indicates that city officials' priorities were shaped by disasters that took place more than five years in the past. In addition, cities' policy priorities can change slowly, especially since comprehensive plans are updated every ten years. |
| ***timesince*** | Amount of time (measured in years) that has passed since a county has experienced a major natural disaster | Other research (see Fleming et al. 2016) has identified the amount of time that has passed since a prior focusing event as an important method for assessing the latency period between an event and its impact on the policy process. |
| ***funding*** | Decile rank of how much funding a county has received for natural disaster cleanup and recovery from the federal government | Federal funding is included as a proxy for disaster severity. Funding is measured over a two-year period (May 2016 - May 2018) and includes federal money granted to county governments. |

APPENDIX D

## Chapter Three Interview Questions

Can you describe your city's approach to sustainability? What types of policies/programs has your city implemented in order to achieve sustainability?

Is your city vulnerable to natural disasters? Can you describe the types of natural disasters (if any) that have impacted your community in recent years? What have been some of the effects of these disasters?

How did your city respond to recent natural disasters? What types of programs, policies, or planning decisions (if any) were changed in response to the occurrence of (or vulnerability to) natural disasters?

In your estimation, have natural disasters in close proximity to the city (or the threat of being susceptible to natural disasters) had any effect on your city's approach to sustainability?

In your opinion, have recent natural disasters (or the threat of being susceptible to disasters) influenced citizens' opinions on sustainability?

APPENDIX E

## Chapter Four Interview Questions

Can you describe your city's approach to sustainability? What types of policies/programs has your city implemented in order to achieve sustainability?

Does your city have a process in place for citizens to participate in policy changes or planning decisions related to sustainability? What types of participation are available to citizens?

Why was a citizen participation process implemented in your city? What is the main purpose of these participatory mechanisms?

What is the process by which citizens are recruited and/or selected to participate in decisions regarding sustainability-related policies and programs?

Who tends to participate?

In your estimation, has citizen participation shaped the city's approach to sustainability? In what ways?