The Connection of Power, People, and Place: Evaluating Environmental Equity Content in the *100 Resilient Cities* Strategies of Latin America

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ABSTRACT

This study explores the frequency and depth of equity content within nine *100 Resilient Cities* (100 RC) Latin American resilience plans. The research contributes to previous academic discussions by showing how often and how substantively proposal phase resilience plans from Latin America communicate equity and justice, topics of human identity, and the pursuit of citizen inclusion through resilience proposals. Environmental Justice Theory (EJT) posits people cannot experience a positive relationship with the environment if procedural, geographic, or social inequities prevent them from participating in the environmental decisionmaking process. To conduct the study, I embedded the framework of EJT into an original analysis instrument to search for and quantify the equity terms within each plan from the sample. Alongside a second plan coder, I reviewed each occurrence of equity vocabulary and thematically coded each substantive instance as exemplative of equity and justice, topics of citizen identity, or inclusion. This combination of quantitative and qualitative coding facilitated analysis of equity patterns across 100 RC's sample of Latin American strategies and verification of 100 RC's alignment on strategy content with the organization's mission statement. The analysis results present a wide variation of content breadth and depth across all plans, apart from the plans' immense consistent content focused on topics of citizen identity. The implications of the analysis include advocating for increased pairing of substantive equity passages with actionable language and the pursuit of increased consistency of inclusion content within resilience plans.

ACKNOWLEDGMENTS

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

The Montoya family waded through the rocky mud enveloping the shredded remains of their self-built sheet metal home, hoping to salvage the few family photos and prized possessions they treasured within the former 8' by 8' dwelling. For weeks, heavy rains pounding the family's scrap metal roof had deafened their ears, weakened their home's structure, and washed out the only bridge connecting the Montoyas and their neighbors to the rest of the city. The Montoyas and their neighbors knew their mountainside slope settlement would only withstand a few more rainy seasons, because every year the rains became more intense and the season of torrential downpours lasted longer. The city government called this anomaly "the consequences of climate change," and had ordered the community members to vacate their battered metal shacks and move into homes within the city limits and far from the risk of landslides. Now sifting through the rubble of his humble home, Francisco Montoya remembered these warnings, but he also remembered he lacked the money to afford a home within city limits. The city officials neglected to offer the Montoyas affordable housing suggestions, or even a chance to express their desperation to relocate. In their former home on the mountain slopes, the Montoyas were procedurally, geographically, and socially neglected in the city's process to plan for the impacts of climate change. Unfortunately, the Montoya family's story of institutional ostracism and adverse experience with the effects of climate change is not unique. Though the Montoya's story is merely an amalgamation of the author's personal interactions with marginalized community inhabitants in Latin America and news coverage of climate change impacts on informal settlements, it is representative of the harsh common truth millions of Latin Americans face in the wake of climate change. The Montoya's story will become globally common if municipal officials and urban planners do not formulate resilience strategies with a core focus on equity.

Background

      A concise, comprehensive plan of action is a key element to solving a problem or achieving a goal. In the context of a city environment, problem-solving and goal setting for the improvement of the city rests in the hands of urban planners. Rafael Fischler, in *Fifty Theses on Urban Planning and Urban Planners* (2012), describes how the definition of urban planning is dynamic and evolving with the challenges of history, but at the core, urban planning spatially organizes society, optimizes peoples' symbiotic relationship with the environment, and ensures proper allocation of land for human purposes. Urban planners often provide municipal government officials with strategic proposals to confront local issues, like reducing greenhouse carbon emissions, safety considerations for construction on steep slopes, or the necessary relocation of inhabitants from an area of geographic instability (Fischler, 2012). The advice planners provide to government decision-makers have the power to complicate or improve the lives of thousands of urban inhabitants. The influence of planners provides a platform to deliver guidance and solutions to global issues like the internal displacement of peoples, lack of citizen mobility, or climate change impacts.

      The endurance of sustainable urban environments relies on the commitment of urban planners and municipal officials to prioritize mitigation of climate change-induced natural hazards, while also pursuing strategies to reduce greenhouse gas emissions. Dense global populations paired with mankind's sluggish shift towards renewable energy use propels climate change impacts to the forefront of urban planning agendas. With nearly 55% of the global population residing in cities, urban inhabitants are, indisputably, the greatest contributors to the greenhouse gas emissions and unsustainable energy uses causing perpetual increases in global temperatures (Hunt & Watkiss, 2011, p. 14; United Nations, 2018). Conversely, the density of

urban populations positions inhabitants as disproportionately vulnerable to climate change

impacts. Due solely to high population density per square mile, any natural disaster amplifies the

economic losses and risk of fatality in a city, in comparison to a rural village (Hunt & Watkiss,

2011, p. 15; Intergovernmental Panel on Climate Change, 2014). To ensure the endurance of

over half the world's population, urban planners must first address local climate change

contributors and vulnerabilities to the resulting natural hazards. Through local assessment of

each city's geographic instabilities, susceptibility to natural hazards, and analysis of how

historical trends may change due to climate change, urban planners can address vulnerabilities

contributing to a growing, globally chaotic environment.

One major urban vulnerability, illuminated by the issue of climate change, is the presence

of social, geographic, and procedural inequities within city environments. Regionally, equity

imbalances vary, but prevalent global examples of inequities consistently illustrate a

marginalized population's inability to access public resources or make decisions about their

environments due to race, ethnicity, or gender. In the Global North, historically low-income and

racial minority communities have fewer economic resources to endure natural hazard impacts or

to prepare for the effects of climate change (Mohai, Pellow, & Roberts, 2009; Schrock, Bassett,

& Green, 2015, p. 284). In cities of the Global South, and especially in Latin America, minority

populations also experience economic resource scarcity, resulting in an inability to afford

housing within city limits. As a result, Latin American marginalized groups often construct

informal settlements on metropolitan perimeters, placing the groups further from municipal

resources and at greater risk of fatality from natural hazards and disasters than a middle-class

citizen from the same city (Anguelovski et al., 2016; Griffin, Khalil, Allen, & Johnson, 2017;

Leichenko, 2008). Despite contributing the least amount of carbon emissions to the atmosphere

and using the least amount of energy, vulnerable minority populations will face the most adverse impacts of climate change. Consequently, cities must address historic equity disparities to fully address and plan for future impacts of climate change.

Urban planners and municipal officials have gradually steered methods to limit urban climate change impacts through two main approaches: adaptation planning and resilience planning. Both approaches offer scientifically-sound methodologies to mitigate climate change impacts, but the level of focus on inclusion of marginal voices between the two approaches is distinctly different. In *Comparing Conceptualizations of Urban Climate Resilience in Theory and Practice*, Meerow & Stults (2016) communicates that, prior to the 1990's, the urban planning community utilized adaptation planning, emphasizing the development of tactics and goals to limit the negative consequences of climate change on urban populations. To formulate an adaptation plan, urban planners assessed historic natural hazards, regional geographic vulnerabilities, and the potential for climate change impacts to shift the city's historic environmental trends (Meerow & Stults, 2016). Most adaptation strategies focused on strengthening metropolitan infrastructure, educating community members on impending hazard impacts, and improving emergency hazard plans so economic losses and fatalities remained low (Preston, Westaway, & Yuen, 2011). While preventative and forward-thinking in nature, adaptation plans focused on positioning cities to survive impending hazards, rather than using the preparation as an opportunity to ensure all populations potentially affected by the hazard would experience equal protection. However, in the last ten years, the urban planning community has shifted the field's focus from climate change impacts mitigation to the people experiencing climate change impacts, and from adaptation to resilience.

Motivation

Urban planners are increasingly adopting resilience strategies as a core practice to mitigate the impacts of climate change and urban inequity in tandem. The multi-functional approach of resilience planning aims to address climate change causes, while also recognizing climate change impacts are more difficult to endure and recover from in communities excluded from environmental decision-making processes. The concept of resilience originates from the disciplines of engineering and ecology and refers to a system's ability to bounce back from a chronic stressor or a system's ability to maintain key functions amidst a disruption (Davoudi et al., 2012; Holling, 1973). While the definition of resilience within the field of urban planning is still evolving, generally, resilience planning centers on the belief that interdependencies exist between chronic stressors and urban issues like poverty, aging, and climate change (Woodruff, Meerow, Stults, & Wilkins, 2018, p. 2). Because climate change-induced natural hazards exacerbate local city problems, resilience plans provide a means to address multiple local social, economic, and procedural imbalances while also addressing climate change impacts. A single resilience plan can alleviate local issues, but the globalization of society often transplants once-local issues to multiple regions across the globe.

Research Question

This study explores the centrality of equity within the Latin American resilience plan publications borne out of the Rockefeller Foundation's *100 Resilient Cities* (100 RC) urban planning initiative. The study employs quantitative and qualitative plan evaluation methodology to identify patterns of equity content frequency and substantive equity themes within current resilience planning publications of Latin America. 100 RC's nine Latin American resilience strategies, written in English, serve as the primary data for the study's equity evaluation.

Utilizing a new analysis instrument, built to evaluate equity content through the core tenants of Environmental Justice Theory (EJT), this study reveals the frequency and substantive strength of equity content within 100 RC's Latin American resilience plans. Capturing the patterns of frequency and depth of equity content across resilience plans provides a measurement on whether Latin America's contributing 100 RC planners accept or reject the recommendations of Global North planning scholars on the importance of centralizing environmental equity within resilience planning. This study's measurements of equity content occurrences and depth of language surrounding equity vocabulary provide a measurement of probability urban citizens of the Latin American region will experience resilience amidst future climate change effects and disaster events. The study provides an answer to the question: What is the breadth and depth of equity content across the *100 Resilient Cities* strategies of Latin America?

Chapter Outline

This paper presents key arguments positing each 100 RC Latin American partner city resilience strategy communicates a unique tale of embedding equity within its planning process, and as a result, few patterns of equity vocabulary frequency or substantive themes exist across the data sample. The Literature Review details the study's addition to previous research by applying Global North understandings on the necessity of equity and citizen involvement within resilience planning to urban environments of the Global South and by utilizing plan evaluation methodology to gauge core tenants of EJT within Global South resilience plans. In the Research Design and Methods chapter, I describe the creation of an original analysis instrument to quantitatively and qualitatively measure the resilience plans' equity content and the implantation of double-coding plan evaluation procedures to ensure reliability of findings. Alongside highlighting a trend of substantive content on citizen identity across 75% of the sample plans, the

Findings chapter reveals the patterns and differences in the type of equity content each city

employed within resilience initiatives, despite an affiliation with 100 RC. The Discussion chapter

identifies the geographic, methodological, and planning practice contributions this study adds to

previous literature and advises policy considerations for future resilience planning pursuits in

Latin America and the Global South.

CHAPTER 2: LITERATURE REVIEW

The literature review describes the contributions this study offers to three overlapping disciplines of scholarly work focused on people, place, and the environment. In synthesizing previous research from urban planning, social justice, and environmental studies scholars, the literature review situates this study within a conceptual knowledge framework. Alongside an explanation of the study's Environmental Justice Theory (EJT) structure, the **Environmental Justice and Latin America** section recounts Global North findings on the primary causes of environmental injustices and findings from the Global South that participatory planning is a predictive indicator of successful climate adaptation plan (CAP) implementation. The **Resilience Planning and Equity** section integrates urban planning research comparing CAPs and resilience plans on the measure of successful climate change impact mitigation, as well as a debate on the definition of resilience within the field of urban planning. A review of previous research employing plan evaluation methodology within CAPs and hazard mitigation plans comprises the **Plan Evaluation** section. The literature review concludes with a conceptual framework illustrating the placement of my study as a contributor to the current bodies of literature surrounding the topic of resilience planning in Latin America.

Environmental Justice and Latin America

To illuminate the optimal fusion of equitable citizen involvement and expert-driven decisions into a resilience plan, this study examines urban resilience strategy data through the tenants of Environmental Justice Theory (EJT). As a branch of critical theory, EJT specifically critiques the existing institutions with authority to make decisions about the natural environment and underscores the impacts institutional power may place on citizen stakeholders. EJT proposes the necessity for all people, regardless of race, background or income, to participate equally in the development, implementation, and execution of laws and policies associated with the natural

environment (Griffin et al., 2017, p. 2; Mohai et al., 2009). EJT recognizes that the impacts of environmental hazards and climate change are disproportionately concentrated within historically-marginalized communities and calls for the communities typically excluded from sociopolitical activities to become the central focus in future environmental policies (Mohai et al., 2009). Applying EJT to Latin American resilience strategies facilitates an exploration of if and how municipal officials and urban planners are focusing on historically-marginalized citizens within resilience strategies of one region of the Global South. The core EJT components of procedural, geographic, and social justice provide key guidelines to assess the breadth and depth of equitable citizen inclusion within resilience strategies of Latin America.

Stemming from systematic segregation and the construction of unsustainable energy use facilities, previous environmental justice (EJ) literature communicates the existence of environmental injustices within socially and racially marginalized urban communities. Over the past four decades, EJ studies consistently proclaim how a few municipal leaders' decisions on waste management processing and energy facility construction zoning can negatively affect low-income community members' interdependent relationship with the environment. Since the inception of the EJ movement in the 1970's, Global North EJ publications consistently agree racially and socially disadvantaged populations often reside in areas with a high concentration of hazardous pollutants, toxins, and noxious environmental facilities, resulting in higher concentrations of environmentally-induced illnesses among community members (Anguelovski, Chu, & Carmin, 2014; Bullard, 2012; Pellow & Nyseth Brehm, 2013; Schlosberg, 2013). Parallel EJ publications reveal the same marginalized populations frequently lack the ability to fight against the consequences of climate change and long-term environmental issues, due to exclusion from the policy-making bodies that influence environmental decisions (Caniglia,

Frank, Delano, & Kerner, 2014; Mohai et al., 2009). EJ authors argue the key understandings of systematic and man-made environmental injustices are globally applicable but few studies from the Global South exist to corroborate the findings. This study will contribute to previous EJ research by examining core EJ tenants through content analysis of Latin American resilience planning documents.

Unlike the regionally-focused urban planning structure of nations in the Global North, most Global South governments implement urban planning and equity initiatives at the federal government level. Consequently, EJ findings from the Global North focused on urban planning initiatives and political organization involvement do not necessarily serve the political environments of Latin America and the Global South. *Environmental Justice and Urban Resilience in the Global South* (2017) offers the most comprehensive set of research studies on EJ in the political contexts of the Global South and focuses specifically on how politics influence the relationship between EJ and urban resilience. The three-part collection of Global South case studies explores urban citizens' attempts to pursue EJ through top-down, expert-propelled governance, bottom-down grassroots citizen movements, or collaboration between the formal government and the citizens facing injustice. After examining all forms of environmental injustice resolutions, the collection's contributing scholars agree collaborative efforts on part of government institutions and marginalized citizens to reach a just resolution delivers long-lasting and mutually reinforcing outcomes. While the scholars acknowledge truly collaborative efforts are a long-term commitment requiring many iterations to perfect, collaborative governance provides the promise of an influential voice to populations with a history of systematic environment injustice (Allen, Johnson, Khalil, & Griffin, 2017). The edited volume informs EJ scholars on the key role federal governments play in irradiating environmental injustices within

Global South contexts. However, the case studies do not place exclusive focus on Latin America and only evaluate EJ initiatives post-implementation, after the strategy initiatives may have negatively impacted marginalized populations. This study on the *100 Resilient Cities'* strategies, specifically from Latin America, will add to the findings of Griffin et al., by assessing EJ at the pre-implementation phase.

Resilience Planning and Equity

While research conclusions on equity content within the resilience plans of Latin America are limited, several studies communicate the necessity for municipal decision-makers to focus on equity within Climate Adaptation Plans (CAPs), the planning documents most frequently utilized to combat climate change impacts alongside the widespread adoption of resilience planning. Though the core objective of CAPs was to implement technically-informed measures to reduce climate change impacts on society, the literature demonstrates an early understanding that equity considerations were a necessary component to ensure the endurance of CAP implementation measures. Research on CAPs of the Global South include assessments of whether equity claims within the planning documents are authentic and whether marginalized populations are involved in the climate change assessment process (Anguelovski et al., 2014, 2016; Chu, Anguelovski, & Roberts, 2017). Collectively, researchers agreed CAPs must include procedural integration of all urban stakeholders to effectively eliminate climate change-induced inequity, while simultaneously mitigating physical climate change hazards (Anguelovski et al., 2014, 2016; Chu et al., 2017). Researchers have critically assessed the participatory planning opportunities of all urban citizens within the CAPs of Latin America, but few studies evaluate resilience plans on participatory planning opportunities, and no studies evaluate participatory planning or procedural integration commitment at the proposal phase. A study evaluating the

presence of procedural equity content within Latin American resilience strategy proposals would provide evidence as to whether marginalized stakeholders throughout the region would experience EJ through the implementation of proposed measures.

Within the last twenty years, urban resilience strategies have replaced many CAPs as the guiding planning document to combat the impacts of climate change on cities. However, since resilience strategies tackle a broader range of urban issues alongside the mitigation of climate change impacts, urban planning scholars have questioned the exact definition of resilience in the field of planning. After assessing how the term, resilience appears within the context of current resilience strategies, several scholars agree the resilience approach provides a paradigm shift in planning methodology to challenge the current institutions making urban planning decisions and to provide increased opportunities for marginalized citizens to influence environmental policy (Chu et al., 2017; Davoudi et al., 2012; Lu & Stead, 2013). Yet, a similar assessment study reveals discord between urban planning scholars and practitioners on the definition of resilience, with scholars and practicing planners only agreeing resilience strategies must address equity, integration, and environmental concerns (Meerow & Stults, 2016, p. 8). The scholarly recognition of equity as a key element of resilience strategy implementation facilitates the necessity for new research to explore whether equity and EJ content is included within current resilience strategies. Furthermore, no current research explores the inclusion of equity content within resilience strategies of Latin America or the Global South. This equity content study on Latin American resilience strategies will illuminate probable content trends across strategies of the Global South.

Plan Evaluation

An accurate tool to evaluate a resilience strategy's combination of diverse initiatives is important to predictively guarantee a city's ability to survive and thrive through natural disasters, economic depressions, civil unrest, and any additional stressor that may threaten a city's equilibrium. Plan evaluation, a branch of content analysis, is a standard methodology used to assess the degree to which content within an urban planning document achieves desired outcomes set forth by the authors. Urban planning scholars have already developed reliable plan evaluation criteria, or quality measurement standards, for hazard mitigation plans (Berke, Lyles, & Smith, 2014) and climate change adaptation plans (Lyles, Berke, & Overstreet, 2017; Woodruff & Stults, 2016). However, only one study, has applied plan evaluation methodology to assess resilience strategy content, and the study compared CAP content to the content of resilience strategies (Woodruff et al., 2018). With the trend of resilience strategies replacing CAPs as the central climate change planning document for cities, new research must assess the strengths and weaknesses of resilience strategies at the proposal phase. Since EJ and urban planning scholars cite equity as a core component of successful resilience strategies, plan evaluation methodology should assess EJ and equity content within resilience strategies at the proposal phase. By evaluating strategies at the proposal phase, this study will objectively identify any equity disparities within resilience initiatives with the potential to exclude or perpetuate injustice on historically marginalized urban populations.

The resilience strategies published by the Rockefeller Foundation's *100 Resilient Cities* (100 RC) initiative are the largest set of standardized resilience strategies published in collaboration with a single partner organization. The 100 RC strategies provide a dataset of planning literature aligned around a standard set of goals, spanning all global regions. Thus far,

only two published studies have analyzed the 100 RC resilience strategies (Rankin et al., 2017; Woodruff et al., 2018), and only one study applied plan evaluation methodology to assess ten 100 RC strategies for cities in the United States (Woodruff et al., 2018). In comparing the 100 RC strategies' content with current U.S. CAP content, Woodruff et al. (2018) concluded the 100 RC strategies scored higher than the CAPs in facilitating citizen inclusion and public participation in planning processes, but lower in categories like basing resilience initiatives on scientific assessments of the city environment (p. 5). The single plan evaluation study on 100 RC plans from the United States provides insight into the strategy content strengths of 100 RC. By utilizing similar plan evaluation methodology on a 100 RC dataset from Latin America, my study will either corroborate equity content trends across 100 RC publications or confirm specific outlier strategies lacking equity and inclusion content, in Latin America.

This study will contribute to previous EJ and urban planning literature by exploring the frequency and depth of equity content across a proposal phase resilience strategy dataset from Latin America. Since the use of resilience strategies is still emerging as the central urban planning document to mitigate climate change impacts, the few completed studies on resilience strategies have largely focused on assessing strategy content from the Global North. EJ scholars consistently conclude small groups of municipal decision-makers have historically perpetrated environmental injustices upon minority urban populations, who possess a limited ability to fight back, but few studies examine this understanding within Global South contexts. Urban planning scholars and practicing urban planners fill the literature with the petition for cities to approach the formulation of resilience strategies with equity at the forefront of all initiative proposals, but studies assessing equity content at the strategy proposal phase do not currently appear in the literature. Reliable measurement criteria to evaluate the initiatives within urban planning

documents exist, but scholars have not applied plan evaluation methodology to measure the likelihood resilience strategy initiatives will guarantee municipal endurance against chronic stressors threatening city survival. By evaluating proposal phase resilience strategies, based on the aforementioned conclusions of EJ and urban planning researchers, this study will prevent the possible continuance of environmental injustices caused by planning initiatives. Most importantly, this study will assess equity content to prevent environmental injustices within the context of Latin America, a region of the Global South with limited literature on ensuring equity considerations for vulnerable populations facing the impacts of climate change.

Conceptual Framework

Equity in Climate Adaptation Plans & Resilience Plans

Environmental Justice in Latin America

Plan Evaluation to Measure Planning Document Goals

What is the breadth and depth of equity content within resilience plans of Latin America?
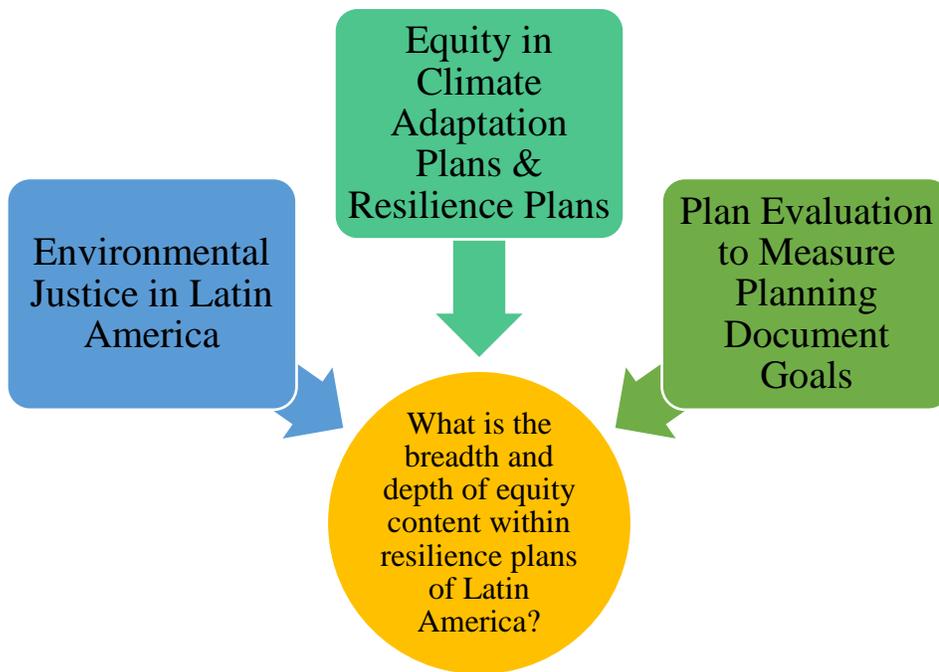
Figure 1: Placement of Study within Current Literature

CHAPTER 3: RESEARCH DESIGN AND METHODS

The Research Design and Methods chapter provides rationale behind the decision to use 100 RC primary data for the study and details the data collection, plan evaluation coding, and analysis procedures employed to measure breadth and depth of equity within the resilience plans of the data sample. The first section of the chapter, *Why 100 Resilient Cities*, explains the choice to utilize a data set of resilience plan publications created under the standardized mission framework and formatting style of 100 RC. The *Research Design: Focus on Latin America* section communicates the desire to analyze data from Latin America, due to the region's diverse topography, complex history of colonization and subsequent independence, and similarities to other Global South regions, in terms of urban resilience stressors. The following section, *Data Collection: Analysis Instrument Development,* describes the process in developing the study's original analysis instrument to assess breadth and depth of resilience plan equity content. Following details on the creation of the analysis instrument, the *Data Collection: Coding Procedures* section describes the study's use of the analysis instrument to facilitate double-coding procedures to determine the frequency and depth of equity content within each resilience plan. Through the *Data Analysis* section, the chapter concludes with an explanation of the study's data analysis, through quantitative and qualitative comparative descriptive statistics.

Why 100 Resilient Cities

In response to the spread of urban resilience stressors across world regions, several non-governmental organizations and planning networks partnered to strengthen cities against common climate change and social and economic stressors. By creating a global collection of resilience strategies, the Rockefeller Foundation's *100 Resilient Cities* (100 RC) introduced the first initiative to provide urban planners with the networking capabilities to implement equitable resilience solutions across urban areas with similar resilience issues. The "About Us" (2019)

section of 100 Resilient Cities' website describes the Rockefeller Foundation's initiative to tackle global resilience issues at a city governance level through the practice of resilience planning. 100 RC aligns the initiative's definition of resilience with urban planning and environmental justice (EJ) literature, focusing urban resilience measures on resolving issues like economic disparity and racial inequity; such issues connect to climate change impacts and amplify fatalities and adverse effects in communities with resource disparity and inequity across identities ("About Us," 2019). With each partner city, 100 RC formulates a unique plan targeting four aspects of resilience: the health and wellbeing of individuals, infrastructure and environment, economy and society, and leadership and strategy (Spaans & Waterhout, 2017, p. 3). The 100 RC partnership network is the first major implementation of worldwide resilience planning. Contemporary climate change mitigation requires planning collaboration across the planet, so the measure of success of 100 RC's global network of resilience plans, post-implementation, will influence whether future planners pursuing urban resilience will consider adopting the EJT-centered resilience planning framework of 100 RC.

Research Design: Focus on Latin America

To measure the frequency and depth of environmental justice (EJ) content, I utilized a sample of nine resilience strategies from Latin America, all developed in partnership with *100 Resilient Cities* (100 RC). Each strategy describes initiatives the nine Latin American city governments will employ to ensure citizen and infrastructural resilience against future natural hazards, economic challenges, and potential civil insecurities. To obtain the data set, I downloaded PDF files of all Latin American resilience strategies, written in English, available through the 100 RC City Strategies webpage: https://100resilientcities.org/strategies/. The data set included resilience strategies from Latin American cities in Central America, South America,

and the Caribbean, representing a diverse range of geographical topographies, citizen demographics, and variance in urban vulnerabilities to resilience (see Table 1). The nine cities' common partnership with 100 RC ensured regularities in formatting, content, and organizational influence across all strategy documents, providing dependability for comparative assessment and analysis of EJ content. Moreover, the data set of nine analogous strategies provided an opportunity to pursue a quantitative and qualitative document analysis to explore the research question.

Due to the region's historical and functional connections with both the Global North and the Global South, I intentionally explored the research question through resilience plan data from Latin America. Cities across Latin America share geographic proximity, comparable weather patterns, and trends of population urbanization with the Global North. Though distant in location, Latin America emulates the post-colonial legacy and economic consequences also present within Global South nations in Southeast and South Asia, the Middle East, and North Africa (Griffin et al., 2017). The strong connections with two distinct regions of the world position Latin America as a testing region to inform future resilience policy suggestions across a wide expanse of geographies. Though this study specifically assesses breadth and depth of equity content within Latin American resilience plans, the functional similarities the region holds with the Global North, and the historic and economic similarities connecting Latin America to the Global South nations position the results as informative and applicable to all world regions.

Table 1		
100 Resilient Cities Latin American Partner Cities		
Central American Cities	**South American Cities**	**Caribbean Cities**
• Mexico City, Mexico • Panama City, Panama	• Santa Fe, Argentina • Rio de Janeiro, Brazil • Santiago de Chile, Chile • Calí, Colombia • Medellín, Colombia • Quito, Ecuador	• Santiago de los Caballeros, Dominican Republic

Table 1

Data Collection: Analysis Instrument Development

To prepare for quantitative analysis, I read through the nine resilience strategies in the sample to identify a common set of section titles, or chapter dividers, utilized across a majority of the publications. Identifying consistent section titles within the publications provided a uniform system to analyze EJ content in targeted sections, as well as an opportunity to underscore publication segments with dense EJ content concentrations. After identifying seven prevalent section titles (see Table 2), I designed an analysis instrument (AI) in Microsoft Excel to record the frequency of EJ content across the nine strategies. I created one Excel AI workbook file for each resilience strategy and divided each workbook into seven worksheet tabs, each tab corresponding to one of the seven prevalent section titles. The exact titles of the sections between the strategy publication and the AI pre-titled tab occasionally varied, so I began each quantitative analysis by determining which pre-titled AI tab most closely corresponded to the section title within the resilience strategy publication. To ensure clear section division, I also noted the publication section page range, including title pages, within the appropriate AI tab. I compared all section categorizations and page ranges with a fellow Master's in Urban Planning student, who served as a second tester for all quantitative data recording. Using a standardized AI ensured

we recorded data in a replicable manner and recording data in small sections resulted in concise data comparison and consolidation. Noting and corroborating the specific strategy publication section titles and page ranges provided explicit guidelines to proceed with the identification of EJ content within the resilience strategies.

Table 2	
100 Resilient Cities Resilience Strategy Section Titles	
1. Letters from Officials 2. Executive Summary 3. Current Context 4. Vision	5. Development of Strategy 6. Strategy 7. Next Steps

Table 2

Data Collection: Coding Procedures

To locate and quantify EJ content within the resilience strategies, I developed seven groups of vocabulary terms assembled from recurring language I encountered within EJ, social equity, and resilience planning literature. I embedded the fixed list of terms for each of the seven vocabulary groups into each AI section tab, and I used Excel's data validation feature to pre-populate data collection dropdown menus for each term group with a specific EJ vocabulary list (see Table 3). My testing partner and I then used the "Ctrl + F" keyboard function to locate each term within each city's resilience strategy, and we recorded each specific occurrence using the "Term" row dropdown menus. Below the "Term" row for each vocabulary group, we also noted the strategy publication page number for each term occurrence. Each time we selected a term from the dropdown menu and noted the page number, the AI formula counted the term in a summary table tracking the total frequency of EJ terms for the entire strategy document. My testing partner and I met after each round of testing to compare and consolidate the terms and page numbers we recorded. If we encountered any discrepancies in term count, we reviewed the publication and made a collective decision on whether to count or omit the term. A standardized

AI and consensus on EJ term frequency secured a reliable dataset of term quantity across the nine Latin American resilience strategies. The count and defined location of each EJ term provided the foundation to proceed with a second examination of each resilience plan, to assess the depth and context surrounding each EJ term.

Table 3 *Environmental Justice Vocabulary Groups & Terms*	
Vocabulary Group	**Group Search Terms**
Equity	Equity, Inequity, Equal, Equality, Inequality
Justice	Justice, Just, Injustice, Unjust (when referring to fairness)
Minority Groups	Minority, Vulnerable (if referring to people), Indigenous, Native, Afro, Black (if referring to people)
Gender Groups	Gender, Men, Male, Women, Female, Trans, Transgender
Informal Communities	Informal community, slum, informal settlement, urban perimeter, squatter settlement
Economy	Poverty, Poor (when referring to economic status), Low-Socioeconomic
Inclusion	Include, Inclusion, Inclusive, Inclusivity, Inclusiveness, Involvement

Table 3

While quantitative analysis assessed the frequency of EJ content within 100 RC's Latin American resilience strategies, I implemented qualitative plan evaluation to quantify the depth and soundness of EJ content, according to EJT scholar Robert D. Bullard. In the 1994 article, *Overcoming Racism in Environmental Decision-Making*, Bullard proposed a city cannot achieve EJ without a government's pursuit of procedural, geographic, and social equity (see Table 4). Using Bullard's framework, I conducted content analysis on each EJ passage, coding the passage as substantively exemplifying or not exemplifying EJ through one of the three key pillars of EJT. To identify the passages to analyze, I referred to the quantitative AI and used the page number of each EJ occurrence to review the content surrounding the instance of EJ vocabulary. If the passage surrounding the term was significant (i.e. not a standalone title or chart description) I

copied and pasted the passage into a qualitative Excel file for each city, also noting the page

number, section location, and vocabulary group associated with the passage. My testing partner

followed the same protocol, and we met after each round of testing to consolidate and agree upon

all passages we deemed substantive. Coding each 100 RC strategy occurrence of substantive EJ

content using Bullard's EJ pillars provided a concise EJT framework to identify and record and

compare each plan's raw occurrences of EJ vocabulary with the occurrence of significant

passages within the plan. Bullard's three EJ categories offered a framework to objectively

identify all passages of EJ depth across the nine cities, condensing each city's raw EJ occurrence

totals down to the qualitative datasets necessary to identify patterns in the language and tones

through which 100 RC resilience strategies present and pursue EJ across an entire regional

context.

Table 4	
Environmental Justice Categories & Definitions	
EJ Category	**Definition**
Procedural	Fairness, to the extent that governing rules, regulations, evaluation criteria, and enforcement are applied in a nondiscriminatory way
Geographic	Location and spatial configuration of communities and their proximity to environmental hazards and locally unwanted land uses – ensuring that all communities are located a safe distance from any hazards or unwanted land uses
Social	The role of factors like race, ethnicity, class, lifestyles, and political power in environmental decision-making. Regardless of a person's social construction, they should have an equal stake in the environmental decision-making process.

Table 4

Data Analysis

After recording all substantive EJ passages within a qualitative analysis instrument file

for each of the nine Latin American cities, I utilized qualitative plan evaluation a second time to

group the passages into three summary analysis groups to identify content patterns. Bullard's

three categories of EJ informed the reduction of the seven EJ vocabulary groups down to three

summary analysis groups to code each substantive EJ passage across the data sample (see Table

5). To begin the pattern identification process, I imported the substantive passage data from each

city's individual qualitative AI file into a master qualitative AI file with nine tabs corresponding

to each of the cities in the sample. I then used Excel's data validation feature to label each

substantive EJ passage with one of the three summary analysis groups. After coding each

passage with a summary analysis grouping, I used data filters within each city's master

qualitative AI tab to identify the most prevalent type of EJ content plan section with the greatest

occurrence of substantive passages for the corresponding Latin American city. Consolidating the

nine cities' substantive passage data sets into one master file facilitated ease of data pattern

comparison between the nine cities. Grouping the passage data into three summary analysis

groups streamlined the pattern identification process, while maintaining the three-pillar EJT

framework of procedural, social, and geographic justice.

Table 5		
Environmental Justice Summary Analysis Vocabulary Groups & Terms		
Summary Analysis Group	**Vocabulary Group**	**Group Search Terms**
Equity and Justice	Equity	Equity, Inequity, Equal, Equality, Inequality
	Justice	Justice, Just, Injustice, Unjust (when referring to fairness)
Identity	Minority Groups	Minority, Vulnerable (if referring to people), Indigenous, Native, Afro, Black (if referring to people)
	Gender Groups	Gender, Men, Male, Women, Female, Trans, Transgender
	Informal Communities	Informal community, slum, informal settlement, urban perimeter, squatter settlement
	Economy	Poverty, Poor (when referring to economic status), Low-Socioeconomic
Inclusion	Inclusion	Include, Inclusion, Inclusive, Inclusivity, Inclusiveness, Involvement

Table 5

Limitations

This study only evaluates a city's level of equity within the context of resilience planning through content analysis of published resilience proposals and plans. The study does not employ surveys or interviews to capture the perceptions of diverse citizen populations or contributing authors of the 100 RC plans on the level of equity built into a 100 RC city's resilience plan. Evaluating the breadth and depth of equity vocabulary embedded in resilience plan chapters informs the influence knowledge of equity and EJT exercised over the contributing authors' proposal language selection. However, interviewing or surveying people inside and outside the 100 RC contributing author circle would inform whether differing populations believe they will experience procedural, geographic, and social environmental equity because of the proposals written in their city's resilience plan. The study could offer more comprehensive results through a pairing of equity vocabulary content analysis of each city's resilience plan publication and a collection of human perspectives on equitability of plan content. Combining this study's plan evaluation findings with recommendations from citizen stakeholders would allow resilience planning authors to both encompass a stronger citizen voice and communicate a stronger equitable vision of resilience through adjustments in plan vocabulary and content.

Additionally, this study does not evaluate equity levels at the implementation phase of the Latin American resilience strategies. The study does not examine the application phase of Latin American resilience plan initiatives and the initiatives' positive or negative effects on the lives of urban citizens. Though the current study's analysis can predict the level of equity citizens will experience at the proposal implementation phase of resilience planning, the prediction is solely based on a pre-implementation assessment of a city's resilience plan vocabulary selection and language. Without examining citizens' reality of equity after the implementation of a resilience

plan initiative, the current study's prediction of the initiative outcome is simply an educated conjecture, based on previous research. Combining the current study with a survey of citizen perceptions of equity during and after the implementation of resilience plan initiatives would confirm the reliability of this study's analysis instrument as a reliable predictive indicator of the equitable or inequitable impacts resilience proposals may have on the lives of urban citizens. The core aim of resilience planning is to enhance positive human experiences with the environment amidst chaos in the natural world; a study assessing equity during and after the implementation of resilience initiatives would inform the success of the central aim.

CHAPTER 4: FINDINGS

This chapter describes the similarities and differences of inclusion of equity content in *100 Resilient Cities'* Latin American plans. It presents comparative analysis findings on breadth, chapter placement, and depth of equity content within each resilience plan. The chapter opens with a presentation on the metrics of each resilience plan in the sample, highlighting similarities and variances in each plan's page length, publication date, and contributing authors. The discussion on the context surrounding the data sample leads into **Breadth of EJ Content**, the study's first set of findings based on the quantities of EJ vocabulary within each plan and across the Latin American plan sample. The section presents the patterns of breadth through the raw totals of each EJ vocabulary group (*Breadth by Total Count*) and percentage representation of each EJ vocabulary group in the plans (*Breadth by Percentages*). Following the findings on breadth, **Vocabulary Distribution Across Chapters** offers a brief presentation on the prevalent EJ vocabulary placement across the seven standard plan chapters. The **Depth of EJ Content** section details the overarching themes of EJ (*Substantive by Theme*) and chapter location (*Substantive by Chapter*) of substantive EJ vocabulary occurrences, or EJ vocabulary surrounded by language detailing the meaning or application within the plan of the EJ term. Taking the substantive passages one step further, the **Depth through Passage Quotes** section ascertains the plans in the sample with the most and least abundant *Quotes Related to Equity & Justice*, *Quotes Related to Identity*, and *Quotes Related to Inclusion*. Through the four sections of findings, the study offers a comprehensive illustration of the trends of equity breadth and depth resulting from each Latin American city's affiliation with 100 RC.

Resilience Plans Overview

Assessing recently published Latin American resilience strategies (also referred to as resilience plans) for quantity (breadth) and significance (depth) of EJ content informs urban planners of equity disparities within proposals intended to enhance the resilience of all urban citizens. Since resilience strategies are still emerging as a standard planning document to mitigate climate change impacts, few strategy samples exist from cities in the Global South. However, 100 RC's global collection of 51 resilience strategies offered a solution to obtaining contemporary, cost-free resilience strategies from Latin American cities. Since 2016, 100 RC has partnered with twelve Latin American cities to formulate resilience strategies and has published all the strategies with open access to the public on the 100 RC website; nine of the strategies, available in English, were utilized for this study (see Table 1). The online accessibility of 100 RC strategy publications offers partner cities a database to explore other cities' innovative resilience proposals and the information to contact 100 RC affiliates to collaborate on resilience projects. Furthermore, the global network's online platform for publication offers a transparent means for researchers to evaluate the missional alignment of the partnership network, based on plan content.

All 100 RC resilience strategies follow a standard format for authorship procedures,

Table 6 *Contributing Plan Authors (Outside 100 RC Staff) Listed in Plan Acknowledgments*			
CITY	**City Government**	**Private Companies/ Consultants**	**Private Citizens**
Cali	✓	✓	
Medellin	✓	✓	
Mexico City	✓	✓	
Panama City	✓	✓	✓
Quito	✓	✓	
Rio de Janeiro	✓	✓	
Santa Fe	✓	✓	
Santiago	✓	✓	✓
SDLC	✓	✓	

Table 6

strategy chapter titles, and commitment to align strategy content with 100 RC's mission

statement. Table 6 illustrates all 100 RC resilience strategies typically involve city government

officials (e.g. a mayor), an urban resilience officer (an urban planner selected by 100 RC),

private urban planning consultants, and citizen stakeholders from the community to lead and

author the city's resilience strategy. The greatest variation in authorship consistency appears in

the number of cities who explicitly list private citizens as authors in the Acknowledgements

section of the publication (see Table 6). Although all 100 RC Latin American plans were

published between 2016 and 2018, Table 7 shows the uniformity of the region in resilience plan

publication dates does not impose a pattern on the length of the Latin American plans. At 67

pages, Medellín's resilience plan is 147 pages shorter than Santiago de Chile's resilience plan.

In spite of the Latin American resilience plans' wide range in page length, Tables 6 and 7 show

the region's alignment in authorship and release of publication. Despite the diverse urban

environments and issues within each partner city, standard formatting of the resilience strategies

framed the analysis to identify content trends resulting from a city's affiliation with 100 RC.

Table 7 *100 RC Resilience Plan Metrics*		
CITY	**Page Length**	**Publication Year**
Cali	172	2018
Medellin	67	2016
Mexico City	183	2016
Panama City	183	2018
Quito	146	2017
Rio de Janeiro	95	2016
Santa Fe	137	2017
Santiago	209	2017
SDLC	161	2018
Average	150	2017

Table 7

Breadth of EJ Content

When an idea, concept, or belief is important, people tend to communicate the message frequently. By assessing the frequency, or breadth of equity content within 100 RC's Latin American resilience plans, this study reveals whether equity is the central message the 100 RC contributing authors wanted to communicate through resilience proposals for Latin America. This study begins with an assessment of equity breadth, because breadth reveals 100 RC's organizational priorities within planning proposals. Through analysis of breadth, the findings communicate equity is a part of every Latin American resilience plan, but a closer examination of each plan's total EJ vocabulary count and content percentages of EJ vocabulary groups demonstrate a stark variation of equity content prioritization across cities. As a region, Latin America involves concepts of equity within the resilience planning process, but each city pursues equity with a unique approach.

Breadth by Total Count

The distribution of EJ vocabulary occurrences, or breadth of EJ content, demonstrated a wide variation across the 100 RC strategy sample, through both the total count of each city's EJ content occurrences and through the most prevalent EJ vocabulary category for each city. The EJ vocabulary occurrence totals in Table 8 show the nine cities' common partnership with 100 RC does not standardize EJ vocabulary occurrences or regiment the most prevalent EJ vocabulary category across the Latin American 100 RC sample. Though the plans vary in page length, an examination of the density of EJ occurrences (total EJ vocabulary count/plan page length) confirms a wide variation in the average appearances of EJ vocabulary per page and imitates the variance pattern of the EJ vocabulary raw total count (see Table 8). The total occurrences of Equity vocabulary across all strategies evidence another variance in EJ content focus across 100

RC plans, with a difference of 41 in the number of Equity vocabulary occurrences between the

strategies of Mexico City and Calí (see Table 8). Analysis of EJ vocabulary breadth within the

100 RC strategies validates all Latin American cities in the sample include EJ content in their

respective resilience strategies, but in varying amounts for each city. While the vocabulary totals

indicate an affiliation with 100 RC standardizes inclusion of EJ content in all 100 RC Latin

American resilience strategies, the numbers also suggest a unique focus on the type of EJ content

most important to each city.

Table 8
Quantities of Environmental Justice Vocabulary for each 100 RC Latin American Strategy

City	*Equity*	*Justice*	*Minorities*	*Gender*	*Inf. Settlements*	*Poverty*	*Inclusion*	*Total*	*Total EJ Occurrences /Pages*
Cali	2	2	16	7	19	1	22	69	0.401
Medellin	23	8	6	19	0	8	6	70	1.045
Mexico City	43	1	19	4	5	14	19	105	0.568
Panama City	16	3	24	20	12	13	5	93	0.508
Quito	4	0	31	4	4	1	56	100	0.685
Rio de Janeiro	9	7	5	2	0	0	20	43	0.453
Santa Fe	8	2	17	17	10	6	19	79	0.577
Santiago	20	2	11	3	2	5	6	49	0.234
SDLC	13	0	30	36	4	3	16	102	0.634

Table 8

Breadth by Percentages

Examining the percentage breakdown of the seven EJ vocabulary groups within each plan

evidences the extensive variation of the specific categories of EJ content within each city's

strategy. Quantitatively analyzing the EJ content totals across all vocabulary groups for the

resilience strategy sample provides quantifiable validation of the EJ concerns each city

prioritized through the pursuit of resilience planning (see Table 9). Quito's 56% range between the most occurring and least occurring vocabulary group in the city's resilience plan demonstrate the city's inconsistent focus on all EJ categories but highlight an intense focus and discussion on Quito's minority populations (31%) and pursuit of inclusion (56%). On the other hand, within their respective resilience plans, Panama City (8.14%) and Santa Fe (8.19%) demonstrate a holistic focus to consistently include EJ vocabulary prevalent throughout EJ literature. The results statistically quantify the variation of EJ issues connected to the urban resilience of each city and indicate the priorities of resilience planning among urban leaders. While all cities within the 100 RC sample include some form of EJ content within their respective strategies, each city prioritizes one EJ vocabulary area over the other six.

The calculation of standard deviation for each vocabulary group also displays a wide gap between data points for each vocabulary group's average EJ word count. The statistics within Table 9 underscore the variability of the seven EJ vocabulary groups across the 100 RC strategy sample. The only vocabulary group demonstrating consistency across resilience strategies for all the cities in the sample is the Minority Groups category, with a standard deviation of 7.51%. Conversely, the Justice and Informal Settlement vocabulary groups possess standard deviations greater than the average for their respective vocabulary groups. The standard deviation calculations for each vocabulary group within the sample indicate cities within the 100 RC partnership will have similar occurrences of Minority vocabulary content, regardless of the city. However, despite a common partnership with 100 RC, all other EJ vocabulary groups within the sample do not follow a predictive pattern. While the cities' affiliation with 100 RC statistically predicts a similar number of Minority vocabulary occurrences across the Latin American sample, the affiliation does not present a statistical trend for other EJ vocabulary groups within the

dataset. Conversely, the statistical pattern of Minority vocabulary occurrences does evidence a commitment from the 100 RC organization to consistently discuss minority populations within each city's proposals to pursue enhanced resilience.

Table 9
Vocabulary Group Percentages and Statistics across 100 RC Latin American Strategies

City	Equity	Justice	Minorities	Gender	Inf. S	Poverty	Inclusion	Sum
				Vocabulary Group				
Cali	2.90%	2.90%	23.19%	10.14%	27.54%	1.45%	31.88%	100.00%
Medellin	32.86%	11.43%	8.57%	27.14%	0.00%	11.43%	8.57%	100.00%
Mexico City	40.95%	0.95%	18.10%	3.81%	4.76%	13.33%	18.10%	100.00%
Panama City	17.20%	3.23%	25.81%	21.51%	12.90%	13.98%	5.38%	100.00%
Quito	4.00%	0.00%	31.00%	4.00%	4.00%	1.00%	56.00%	100.00%
Rio de Janeiro	20.93%	16.28%	11.63%	4.65%	0.00%	0.00%	46.51%	100.00%
Santa Fe	10.13%	2.53%	21.52%	21.52%	12.66%	7.59%	24.05%	100.00%
Santiago	40.82%	4.08%	22.45%	6.12%	4.08%	10.20%	12.24%	100.00%
SDLC	12.75%	0.00%	29.41%	35.29%	3.92%	2.94%	15.69%	100.00%
Mean	20.28%	4.60%	21.30%	14.91%	7.76%	6.88%	24.27%	
Std Dev	14.77%	5.57%	7.51%	11.72%	8.76%	5.60%	17.39%	

🟨	Equity and Justice
🟩	Identity
🟧	Inclusion

Table 9

Vocabulary Distribution Across Chapters

In assessing the chapter location of EJ vocabulary across the 100 RC Latin American sample, all nine resilience strategies exhibit a uniform distribution of EJ vocabulary occurrences across each of the seven standard chapters of the 100 RC strategies (see Table 2). Among the seven chapters dividing each 100 RC resilience strategy publication, in every resilience plan

from the sample, the greatest quantity of EJ vocabulary appears within the Strategy chapter. On average, 64% of all EJ content resided within the Strategy chapter of each resilience plan (see Table 10). The average is consistent across the entire sample, with only two cities possessing more than 70%, and only one city having less than 60% of the plan's total EJ content within the Strategy chapter. Based on page length, the Strategy chapter is also the longest chapter in every resilience plan, and the section in which municipal officials describe the specific goals and initiatives the city will pursue towards resilience. The correlation between the Strategy chapter and high frequency of EJ vocabulary occurrence suggests EJ is a core content component within each city's discussion on resilience proposals and initiatives. The inclusion of EJ vocabulary within this particular chapter suggests municipal officials are considering how resilience initiatives will affect varied groups of urban citizens at the implementation phase.

Table 10
EJ Vocabulary Distribution Across Resilience Strategy Chapters

City	Letters	Summary	Current Context	Dev. of Strategy	Vision	Strategy	Next Steps	Sum
Cali	2.90%	0.00%	21.74%	11.59%	0.00%	63.77%	0.00%	100.00%
Medellin	5.71%	4.29%	15.71%	7.14%	0.00%	67.14%	0.00%	100.00%
Mexico City	2.86%	10.48%	23.81%	6.67%	4.76%	48.57%	2.86%	100.00%
Panama City	3.23%	4.30%	33.33%	6.45%	0.00%	52.69%	0.00%	100.00%
Quito	3.00%	5.00%	6.00%	2.00%	2.00%	81.00%	1.00%	100.00%
Rio de Janeiro	4.65%	6.98%	9.30%	2.33%	4.65%	72.09%	0.00%	100.00%
Santa Fe	10.13%	1.27%	22.78%	0.00%	0.00%	64.56%	1.27%	100.00%
Santiago	4.08%	8.16%	28.57%	0.00%	0.00%	57.14%	2.04%	100.00%
SDLC	7.84%	1.96%	11.76%	10.78%	0.98%	65.69%	0.98%	100.00%
Mean	4.93%	4.71%	19.22%	5.22%	1.38%	63.63%	0.90%	
Std Dev	2.55%	3.40%	9.14%	4.36%	2.01%	9.87%	1.03%	

Table 10

Depth of EJ Content

When an idea, concept, or belief is important, people also tend to communicate the message with strong effort and detail. Frequency and detail, or breadth and depth, are a well-matched pairing to assess the prioritization of messaging and effectiveness of message communication in writing. Consequently, to determine the equity topics most important to each city and most common across the Latin American region, this study employed an evaluation of equity depth within the 100 RC resilience plan sample. Aligning with the findings on breadth, the study's findings on depth reveal variation in the prioritized equity topics for each city. However, the topic of citizen identity as a resilience planning consideration emerges as a top priority in two-thirds of all resilience plans in the sample. The finding highlights a unifying focus for the resilience planning of Latin America amidst variation in content to tackle the unique needs of each city.

The substantive EJ passages, rather than the total occurrences per page of EJ vocabulary, offer descriptive examples of each city's unique approach and commitment to equity within the 100 RC strategy portfolio. Because many occurrences of EJ vocabulary in the resilience strategies are simply chapter titles, graph captions, or labels, counting the number of descriptive, substantive passages in which EJ vocabulary occurs provides a measurement of EJ content focus and depth for each city. A comparison of the results in Tables 8 and 11 reveal the cities with the highest and lowest frequencies of EJ vocabulary per page, do not also represent the highest and lowest performing cities, in terms of substantive content occurrence. For example, the Mexico City strategy includes 105 occurrences of EJ vocabulary, but only 58 (55%) of the occurrences are substantive, communicating details linking the EJ vocabulary to the city's overall resilience strategy (see Tables 8 & 11). In comparison, 67% of the 79 EJ vocabulary occurrences in Santa

Fe's resilience strategy demonstrate substantive content depth, limiting the inclusion of EJ vocabulary at random or solely in a chapter title (see Tables 8 & 11). On average, 52% of the EJ vocabulary occurrences within the 100 RC strategies contributed to substantive, descriptive EJ content within the resilience strategies. Overall, the cities with the greatest raw totals of EJ vocabulary are not the cities possessing the strongest commitment to equity through resilience based on the descriptive content and specificity of the words surrounding each EJ vocabulary entry. Comprehensively, 100 RC strategies tend to exhibit an equal division of breadth and depth of EJ content across the resilience strategies of Latin America.

Table 11 EJ Vocabulary, Raw Totals vs. Substantive Passage Totals			
City	Raw EJ Occurrence Total	Substantive EJ Passage Total	Substantive EJ Passage, Total % of EJ Content
Cali	69	29	42%
Medellin	70	39	56%
Mexico City	105	58	55%
Panama City	93	47	51%
Quito	100	62	62%
Rio de Janeiro	43	19	44%
Santa Fe	79	53	67%
Santiago	49	32	65%
SDLC	102	28	27%
Mean	79	41	52%
Median	79	39	55%

Table 11

Substantive by Theme

While the collection of substantive EJ passages highlights varied resilience concerns across the 100 RC Latin American sample, two-thirds of the plans concentrate the greatest number of substantive passages on identity, or the characteristics which distinguish specific groups of people within a city's population. All cities' resilience strategies include a combination of substantive passages on equity and justice, identity, and inclusion, but identity passages

represent the highest value of detailed content for the nine plans in the sample. On average, each city's resilience strategy dedicates 55% of its substantive EJ passages towards detailing the consideration of unique identities of the urban population within strategy proposals. For cities like Calí and Santiago de los Caballeros, identity content comprises triple the amount of substantive passages in comparison to equity and justice or inclusion passages. The consistent dominance of substantive identity passages across the nine strategies indicate 100 RC contributing planners identify an important connection between a person's identity and a person's level of resilience against natural disasters and environmental instabilities. The abundant, descriptive content on Latin American urban identities within each city's resilience proposals evidences an organizational intention to pursue resilience for the benefit all urban identities.

Unlike the substantive EJ passages focused on identity, substantive passages describing inclusion of all urban citizens in the environmental decision-making process present high rates of variation across the nine strategies. Some cities focus the majority of resilience strategy proposal content on the inclusion of urban citizens, while other cities provide only a handful of mentions on the same topic. Although all strategies in the sample devote an average of 19% of all substantive EJ passages to topics of citizen inclusion, the standard deviation calculation of the same data (15.19%) demonstrates the average calculation does not indicate the exact amount each city discusses inclusion (see Figure 2). Possessing inclusion passage rates of 48% and 3%, respectively, the cities of Quito and Santiago de Chile distort the reliability of the sample average and represent extreme ends of the spectrum within the sample when it comes to the implementation of inclusion content in their respective resilience strategies. The 100 RC Latin American resilience strategies exhibit a nonconforming pattern in the percentage of substantive

passages on citizen participation and inclusion each city embeds in its resilience plan. Likewise, consistent recognition of each city's diverse populations does not consistently lead to a discussion of how the city can intentionally involve all citizen voices in the process of making decisions to increase resilience.

While some cities include similar amounts of equity and justice, identity, and inclusion passages in their respective resilience strategies, overall, a pattern of prioritizing one EJ content group over the rest emerges through the analysis results. The EJ summary group analysis results in Figure 2 depict each city's unique distribution of EJ topics across the 100 RC Latin American resilience strategy sample. An exception to the pattern, Rio de Janeiro, represents the one city in the sample with equal focus on all three EJ summary categories, having 37% of passages focused on equity and justice, 26% of passages centered on issues of identity, and 37% of passages highlighting citizen inclusion in the resilience planning process. Outside of the example of Rio de Janeiro, the cities in the sample possess differentiation in percentages of EJ topics within substantive strategy passages. Even two cities within the same country, Calí and Medellín, do not hold a similar distribution of EJ content; Calí's content on identity is triple the amount of equity and inclusion, and Medellín almost equally prioritizes substantive passages on equity and identity. Once again, the varied distribution of EJ topics within each resilience strategy suggests a commitment from all cities concerning EJ within planning but a unique focus on the specific issues of EJ each city feels it must prioritize. Overall, while topics of identity maintain the highest percentage of EJ content across the sample, the specific percentage of identity content within each city's strategy varies.

Figure 2
EJ Category Break-Down Within All Substantive Passages

	Cali	Medellin	Mexico City	Panama City	Quito	Rio de Janeiro	Santa Fe	Santiago	SDLC
■ Equity and Justice	14%	46%	34%	26%	5%	37%	10%	41%	14%
■ Identity	72%	44%	47%	66%	47%	26%	65%	56%	79%
■ Inclusion	14%	10%	19%	9%	48%	37%	25%	3%	7%
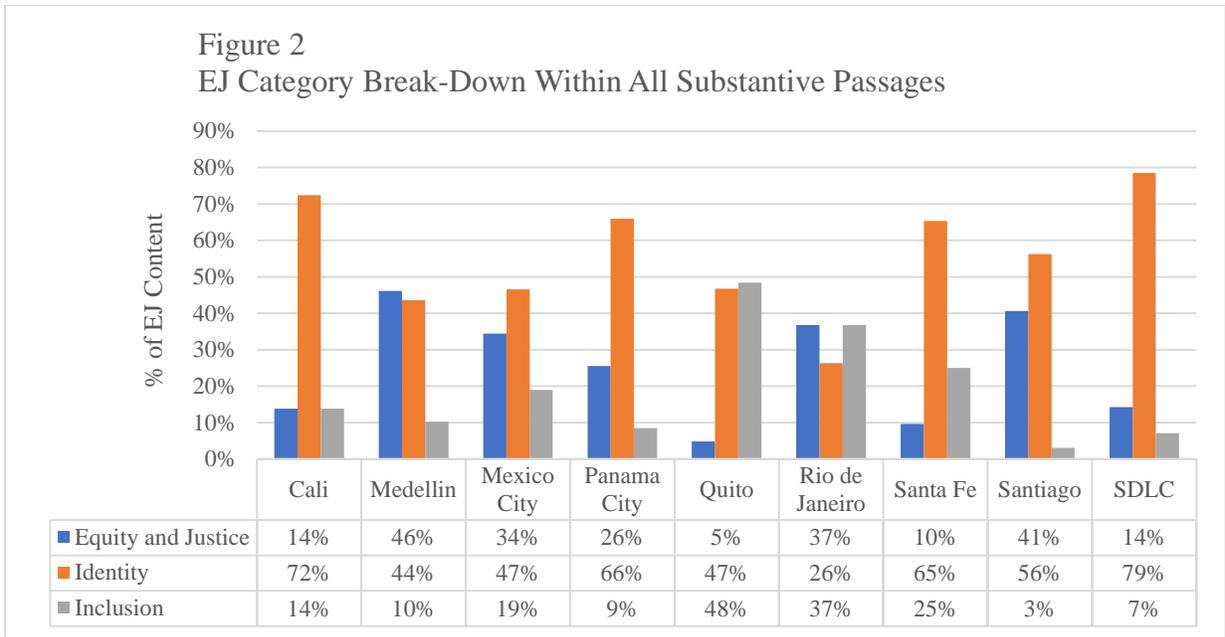
Figure 2

Figure 3: Top Performing Cities by Substantive Vocabulary Summary Group

| Equity & Justice	Identity	Inclusion
• Medellin: 46% • Santiago de Chile: 41% • Rio de Janeiro: 37%	• SDLC: 79% • Cali: 72% • Panama City: 66%	• Quito: 48% • Rio de Janeiro: 37% • Sante Fe: 25%
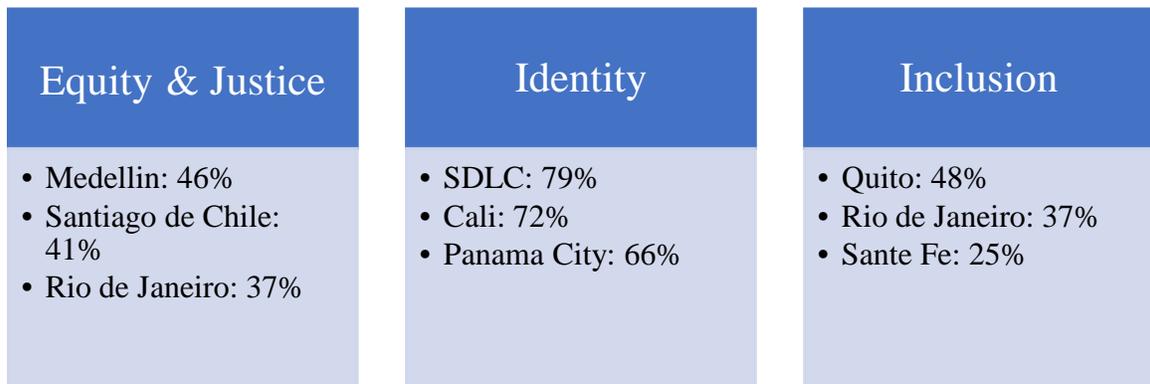
Figure 3

Substantive by Chapter

Across the seven 100 RC standard chapters, the Strategy chapter of all nine Latin American resilience strategies contains the most abundant rates of substantive EJ passages. While the frequency of substantive EJ passages is lower than each resilience plan's total occurrence of EJ vocabulary, the pattern of EJ content dominance within the Strategy chapter

remains consistent. On average, 59% of each city's substantive EJ passages reside within the Strategy chapter. Additionally, none of the cities contain a Strategy chapter with less than 40% of the entire publication's substantive EJ passages. The consistent dominance of EJ vocabulary within substantive passages of the Strategy chapters confirms 100 RC partner cities include robust examples of EJ within the chapter with the most thorough descriptions of each city's future resilience initiatives. The location of EJ content among the most detailed proposals of each resilience plan increases the probability all urban citizens will experience greater environmental justice upon the resilience proposals' implementation.

Depth through Passage Quotes

Medellín, Colombia's resilience strategy contains the greatest percentage of substantive passages devoted to equity and justice (see Figure 2) as well as the most detailed and descriptive equity and justice examples of all nine Latin American resilience strategies in the sample. In the case of Medellín, the abundant frequency of equity and justice passages correlate to an equally high occurrence of in-depth passages, explicitly describing the city's understanding of what equity and justice mean and how the concepts specifically apply to Medellín's urban context. In the Strategy chapter of the resilience plan, Medellín's 100 RC urban planning team describe how their understanding of the term "inequality" influences the team's approach to resilience planning:

> Exclusive societies, meaning those that do not promote or permit the participation of their whole population in political circles (full participation in citizens' rights), economic life (production, access to and enjoyment of the available wealth) and social circles (access to services that make good quality of life possible: education, health, housing, recreation, and art), are unequal societies in which the shortages and inequalities not only have material consequences, but also, and perhaps most importantly, psychological consequences (insecurity, pessimism and fear) and moral problems (distrust, despair and humiliation) (City of Medellin, 2016, p. 33).

Within a collection of similar content, this particular passage describes Medellín's understanding and commitment to addressing and mitigating all three forms of environmental injustices (see Table 4) previous EJ studies identified as essential to resolve to ensure lasting urban resilience (Bullard, 1994). Medellín's substantive passages on equity and justice present a qualitative narrative in alignment with core tenants of EJT. Medellín's plentiful passages describing examples of how true justice enhances urban citizens' quality of life represents a correlation between frequent occurrences of EJ content and content indicating a commitment to EJ.

The resilience strategies of Quito, Ecuador and Santa Fe, Argentina contain low occurrences of substantive equity and justice passages, of which few specifically apply EJ principles to address each city's current barriers to achieving procedural, geographic, and social equity for all citizens (see Table 4 for definitions). Quito's three substantive passages on equity and justice and Santa Fe's five passages tend to focus on recognizing an existence of inequity within each respective city instead of describing how the city could tangibly enhance resilience. The only substantive equity and justice passage in Quito's resilience plan conveys a commitment to equity but does not provide information as to how or why the city wishes to pursue equity, stating: "The plan seeks the inclusion of population groups to support basic values related to equity and the environment" (Metropolitan District of Quito, 2017, p. 74). Similarly, Santa Fe's only descriptive passage on equity and justice acknowledges inequities within specific citizen populations but does not explain how to mitigate the issue: "…inequity becomes more evident in those neighborhoods with higher rates of unemployment or unregistered employment, more problems with housing or basic public services, and greater risk of flooding" (City of Santa Fe, 2017, p. 67). The officials of Quito and Santa Fe adequately recognize systematic inequality can lead to widespread issues like human settlement on geologically unstable land and high

40

unemployment in urban areas far from city public services. However, the same planners do not take the next step to apply EJT understandings to the identification of inequity issues, nor do they describe how to mitigate the injustices in specific urban settings.

Unlike the breadth and depth content patterns of substantive equity and justice passages, the two resilience strategies with the highest percentages of substantive passages on issues related to identity do not demonstrate the strongest commitment to EJT core tenants. Through substantive identity passages, the urban planners of Calí and Santiago de los Caballeros (SDLC) express concern for how the presence of informal settlements affects water quality and vulnerability to natural disasters, but the planners from both cities do not communicate concerns about the inhabitants of the informal settlements. In Calí's resilience strategy, urban planners detail the elimination of informal settlements as an accomplishment, writing: "…34,340 square meters have been cleared of informal settlements" (City of Santiago de Cali, 2018, p. 61). Similarly, SDLC describes the city's difficulties resulting from the existence of informal settlements by stating, "Illegal settlements in the most vulnerable areas of the city, along the gullies, rivers, and streams have impaired the quality of these water bodies and the general population's quality of life" (Municipality of Santiago, 2018, p. 130). The resilience plans from Calí and SDLC contain abundant occurrences of substantive identity content, but the passages lack the depth to describe how the cities will consider minority urban populations within new resilience proposals. While the urban planning officials of Calí and SDLC do identify the geographic injustices present within their vulnerable urban populations, neither city details proposals to enhance vulnerable populations' involvement in improving each city's level of resilience.

Despite possessing the lowest frequency of substantive passages on citizen identity in the nine-city sample, Rio de Janeiro's passages on identity exemplify deeper sensitivity to procedural, geographic, and social equity than cities with the highest percentages of substantive identity passages. Not every substantive passage on identity in Rio de Janeiro's resilience strategy includes both environmental injustice recognition and corresponding mitigation practices grounded in EJT, but as a collection, the passages centrally focus on the city's strategic partnership with citizen leaders of vulnerable populations to improve resilience. All five of Rio de Janeiro's substantive identity passages include one of the three core components of EJT, and none of the substantive identity passages portray minority, vulnerable populations as a negative element or barrier to Rio de Janeiro's pursuit of resilience. Within both the Current Context and Strategy chapters, Rio de Janeiro's urban planners acknowledge the social and geographic vulnerabilities and environmental injustices minority populations often experience during natural disasters, but neither passage harbors resentment towards the citizens facing the injustices (City of Rio de Janeiro, 2016, pp. 35; 86). Highlighting an example of the pursuit of procedural equity within vulnerable population groups, another substantive passage from Rio de Janeiro's strategy informs, "…leaders of 17 vulnerable communities signed a certificate declaring their commitment to resilience. It is an opportunity to spread basic notions of civil defense and increase awareness about the recurrent risks within those communities" (City of Rio de Janeiro, 2016, p. 52). Rio de Janeiro's resilience strategy serves as evidence that low frequency of substantive passages on identity does not correlate to a city's inability to identify procedural, geographic, and social injustices or propose resilience improvement initiatives with a focus on vulnerable populations. Through a small collection of substantive identity passages, Rio de Janeiro's resilience plan simultaneously identifies the environmental injustices within

historically marginalized populations dwelling in the city's informal communities and describes how the city will partner with the most vulnerable citizens to reduce adversity amidst climate change effects and natural disasters.

Exhibiting a similar pattern to Medellín with substantive equity and justice passages, the resilience strategy of Quito, Ecuador holds the greatest breadth and depth of substantive passages devoted to citizen inclusion in the environmental decision-making process. Quito simultaneously communicates the importance inclusion holds in the city's pursuit of resilience through frequent mentions of inclusion vocabulary and specification of how the city's resilience strategy will address the environmental injustices uniquely affecting the city's indigenous and minority populations. One passage from the Strategy chapter details how Quito intends to foster inclusive and equitable ownership of environmental concerns proclaiming, "The goal of promoting citizen representation in local administration contributes to form an environment that facilitates co-responsibility between citizens and the Municipality by democratizing decision making for inclusive development" (Metropolitan District of Quito, 2017, p. 44). Later in the Strategy chapter, urban planners communicate the importance of utilizing the construction of Quito's first Metro transportation system as an collaboration opportunity to engage feedback from vulnerable community members on how to optimally mitigate the geographic and social inequities in the city (Metropolitan District of Quito, 2017, p. 76). The substantive passages on inclusion within Quito's resilience strategy exemplify a correlation between frequent inclusion vocabulary occurrence and passages specifying how EJT understandings apply to Quito's urban context and strategy proposals. Through Quito's substantive passages on inclusion, Quito's urban planners communicate a recognition of geographic injustices within informal mountainside settlements,

43

an observation of social injustices among Quito's indigenous citizens, and mitigation proposals that align with and strategize to improve Quito's injustices and resilience.

Though Santiago de Chile's resilience strategy only contains one substantive passage with inclusion vocabulary (the lowest quantity of inclusion passages of the nine cities), the city's urban planners convey a strong commitment to citizen inclusion through alternate vocabulary. In combination with the strategy's passages on equity and justice, Santiago de Chile's one passage on inclusion presents a recognition of economic and procedural disparities within the city's marginal mountainside communities and proposes action steps to address environmental injustices within the same communities. The sole inclusion passage communicates, "By developing this strategy, progress has been made for Santiago to become a fairer, more humane and inclusive city, providing all of its inhabitants with the opportunity to live and enjoy the city's benefits under the same conditions" (City of Santiago de Chile, 2017, p. 6). In examining the same passage alongside Santiago de Chile's excerpts about equity and justice, a deeper commitment to inclusion emerges: "The first challenge is to address urban segregation, which translates into socio-spatial fragmentation and territorial inequality. The disparities faced by the city can be noted in unequal housing, tools, infrastructure and conditions of services scattered across the land" (City of Santiago de Chile, 2017, p. 40). Examining Santiago de Chile's one passage with inclusion vocabulary alongside all substantive passages from the resilience strategy exhibits the city's unique selection of EJ vocabulary to address procedural, geographic, and social injustices, in comparison to other 100 RC Latin American strategies. Santiago de Chile's selection of vocabulary to communicate inclusive initiatives represents the city's content alignment with EJT through phrasing atypical to the common 100 RC inclusion vocabulary.

Summary of Findings

  Content analysis of the 100 RC Latin American resilience plans reveal more differentiation than consistent patterns in equity content across the nine plans. In assessing equity breadth, the results demonstrate wide variation in both the instances of equity vocabulary and the most prevalent equity vocabulary group in each city's plan. However, the assessment of equity breadth does reveal the greatest quantities of equity vocabulary occur in the Strategy chapter for most of the sample plans. On average, only 52% of the equity vocabulary occurrences in the resilience plans are substantive passages, communicating a city's specific approach, understanding, or commitment to equity through resilience plan content. The study's findings on the depth of content surrounding equity vocabulary occurrences reveal the plans' trend to include a high proportion of passages centered on issues of identity, but an extreme inconsistency in the plans' content devoted to citizen inclusion. While two-thirds of the plans devote an average of 55% of their substantive equity passages to topics of identity, a 45% range exists between the plans with the lowest and highest proportions of passages on citizen inclusion. These findings lead to the Discussion chapter, which describes the knowledge the study adds to existing literature through its focus on the Latin American region, use of a new analysis instrument, and identification of resilience planning best practices. Additionally, the Discussion chapter introduces future resilience planning recommendations with the intention to improve the consistency of inclusion content across all Latin American resilience plans.

CHAPTER 5: DISCUSSION

This chapter introduces future resilience planning policy recommendations and specifies the contributions the evaluation of equity within *100 Resilient Cities'* (100 RC's) Latin American resilience plans adds to current literature. The study's findings on equity content breadth reveal the frequency and the topic of equity greatly varies across the region's resilience plans. Findings on the plans' equity passages of depth highlight an inconsistent focus on citizen inclusion in the context of resilience planning, but a prevalent focus on topics of citizen identity within 75% of the plans in the study sample. The first Discussion chapter section, ***Geographic Contribution***, describes how the study findings on patterns of equity content depth offer new knowledge on the strengths and weaknesses of resilience plans from the Global South. The subsequent ***Methodological Contribution*** and ***Urban Planning Best Practices*** sections detail how the use of the study's original analysis instrument confirms environmental justice understandings from the Global North while quantitatively and qualitatively measuring levels of equity within Latin American resilience plans. The following two sections, ***Pair Problem Statements with Actionable Language*** and ***Enhance Emphasis on Participatory Planning***, utilize the study's findings to offer specific policy suggestions for urban planners to implement within future resilience planning ventures. In ***Future of 100 Resilient Cities***, the chapter concludes with news of the dissolution of 100 RC and what the transition implies for the findings of the study.

Contributions to Current Literature

Geographic Contribution

This study strengthens existing environmental justice (EJ) and resilience planning literature by contributing new findings on the breadth and depth of equity content within Latin American resilience plans. While previous studies specifically evaluated the level of equity within outcomes of climate adaptation planning in Latin America, current literature only

evaluates equity content of Global North resilience plans at the pre-implementation phase. In the most comprehensive study on 100 RC's proposal phase plan content, Woodruff et al. (2018) compares the North American resilience plans of the partnership to North American CAPs in the ability to successfully confront climate change impacts. The study concluded 100 RC's North American resilience strategies exhibited more equitable and inclusive proposals than CAPs from the same region (Woodruff et al., 2018). In terms of the raw occurrence of equity vocabulary (breadth) within resilience plans, my study extends the findings of Woodruff et al. (2018) to Latin America; all Latin American resilience plans in the data sample include equity vocabulary. Though Woodruff et. al (2018) also concluded 100 RC resilience plans demonstrate strength in content on inclusion, my study results conclude the amount of substantive content on inclusion exhibits extreme variation across 100 RC's Latin American plans and rejects applicability of the Woodruff et al. (2018) findings to the 100 RC resilience plans of Latin America. While equity and inclusion content may demonstrate consistent strength within the 100 RC resilience plans of North America, content dedicated to inclusion is inconsistent across the resilience plans of Latin America.

Methodological Contribution

This study contributes a refined analysis instrument to specifically evaluate the strength of environmental equity content within resilience planning publications. Building on the methodological reliability of plan outcome evaluation, the original analysis instrument quantitatively and qualitatively measures a resilience plan's level of equity by conducting a targeted search of vocabulary indicative of EJ. Existing urban planning literature details the coding and analysis procedures to objectively evaluate CAPs and hazard mitigation plans on the intended outcomes of each plan type (Berke et al., 2014; Lyles et al., 2017; Woodruff & Stults,

2016). The work of Global North and Global South EJ scholars provides key terminology to describe who is most affected by environmental injustices and the actions necessary to end such injustices (Bullard, 1994, 2012; Griffin et al., 2017; Pellow & Nyseth Brehm, 2013; Schlosberg, 2013). This study's original analysis instrument assesses the language indicative of equitable urban planning through the sound coding and analysis procedures borne out of hazard mitigation and CAP evaluation. As a result, the analysis instrument offers a refined tool to evaluate a resilience plan on the intention to enhance urban resilience through equitable processes.

Urban Planning Best Practices

The findings of this study point to the relevance of Global North urban planning best practices in the Latin American region of the Global South. In particular, the study supports best practices centered on designing resilience strategies with a focus on the diverse human populations the strategies may affect. While the most vulnerable populations of Latin America exhibit some identity differences from vulnerable populations of the Global North, the dataset's substantive identity passages align with the Global North scholars' findings on the connection between marginalized populations and environmental injustices. Consistent with scholarly findings from the Global North, the nine plans' substantive identity passages deliberately reveal vulnerable Latin American populations typically belong to racial minority groups, possess incomes near or below the poverty line, and live in peripheral locations near city limits (Anguelovski et al., 2014; Bullard, 2012; Pellow & Nyseth Brehm, 2013; Schlosberg, 2013). In addition to the dataset's descriptive passages on the relationship between Latin American identity and environmental injustice, 75% of the plans in the dataset focus the greatest percentage of substantive passages on citizen identity, exhibiting a strong focus on identity content, in terms of breadth. The breadth and depth of substantive identity content across the

48

nine resilience strategies suggests the planners affiliated with 100 RC understand they must

identify the populations most susceptible to environmental injustices before an enhancement of

resilience for the entire city can occur. The findings of this study demonstrate key

understandings on the centrality of equity in resilience planning apply as a best practice for cities

across all regions.

Policy Implications

Pair Problem Statements with Actionable Language

The contributing authors of current and future resilience plans should combine a greater

percentage of EJ vocabulary occurrences with contextual descriptions of resilience

vulnerabilities and actionable language to propose equitable vulnerability resolutions. For

instance, accompanying 75% of all EJ vocabulary occurrences would simultaneously standardize

the inclusion of contextual language and descriptive detail surrounding EJ terms while

recognizing it is not possible to substantively support all EJ vocabulary instances (like chapter

titles). By limiting the number of EJ vocabulary occurrences without corresponding substantive

content, 100 RC could communicate a stronger vision of its pursuit of equitable resilience

planning. 100 RC communicates a mission to mitigate urban resilience threats through

simultaneously addressing climate change impacts and equity because the organization

understands resilience issues amplify fatalities and endemic poverty within historically-

marginalized communities ("About Us," 2019). However, this study's evaluation of equity

content within the resilience plans of Latin America reveals only 52% (on average) of EJ

vocabulary occurrences correspond to substantive passages explaining the context behind a

specific resilience threat or how the city intends to equitable confront the resilience issue. Yet,

the study's findings also reveal outlier cities like Quito already understand the importance of

clearly communicating the pursuit of equity within resilience proposals through a substantive

passage percentage of over 60%. Building in a resilience plan formulation standard to pair a

greater percentage of EJ vocabulary occurrences with actionable, problem-solving language

would ensure a higher probability for more 100 RC to realize its key mission to enhance equity

amidst enhancing each city's level of resilience. Though 100 RC's contributing planners may

hold a deep commitment to equitable resilience planning practices, intentionally communicating

this commitment within each city's resilience plan publication would allow each city's

population to hold 100 RC planning officials accountable to the implementation of the

organization's core values.

Enhance Emphasis on Participatory Planning

The nine plans' limited attention to content on citizen inclusion imply planners should

intentionally emphasize content on participatory planning in future resilience planning

publications. All nine plans mention intentions to involve all urban citizens in the resilience

planning process, but the varied quantity of inclusion passages and wide-ranging detail about

how participatory planning will occur does not align with recommendations from urban planning

scholars and practitioners on the subject. Research on effective climate adaptation plans

(precursor to resilience plans) in Latin America and early research on the core components of

resilience plans agree detailed passages about how the government will involve citizens in the

environmental decisionmaking process is paramount to ensuring citizens will adopt the plan's

initiatives and the initiatives will endure over time (Anguelovski et al., 2014, 2016; Chu et al.,

2017; Meerow & Stults, 2016, p. 8). The breadth results from the 100 RC Latin American dataset

exhibit a 24.27% standard deviation for inclusion vocabulary occurrence (Table 7) and a

difference of 45% between the resilience plans with the greatest and lowest percentages of

substantive inclusion passages (Table 10). The results demonstrate that while all 100 RC Latin

American affiliate cities reference citizen involvement as part of the resilience planning process,

there is no consistent pattern across the nine cities concerning the amount of detail each city will

include about how to involve citizens in the planning process. While some cities from the dataset

take the recommendations of scholars and embed a detailed timeline, descriptive strategy, and

guided assessment for participatory planning into their resilience strategies the full 100 RC Latin

American dataset does not implement a consistent level of inclusion content into the resilience

strategies.

The Future of 100 Resilient Cities

Despite the Rockefeller Foundation's sudden announcement to dissolve the *100 Resilient*

Cities organization by July 2019, the findings of this study still serve to inform best practices for

future resilience efforts in Latin America. The April 1st press release from the Rockefeller

Foundation and subsequent news coverage on the organization's disbandment do not detail the

motivations behind the decision, but do assure the urban planning community the end of 100 RC

is not connected to any failures in 100 RC's resilience framework or implementation of planning

initiatives (Anzilotti, 2019; Berkowitz, 2019). In fact, a December 2018 assessment of the five-

year legacy of 100 RC's institutional goals revealed the fifty partner cities with completed

resilience plans experienced positive results and consistent progress towards increased resilience.

(Martin & McTarnaghan, 2018). Despite an overall summary of positive reviews on 100 RC's

execution of strong resilience planning initiatives, the mid-term report did note, "the expedited

time frame for community engagement as a detriment to full and inclusive engagement" (Martin

& McTarnaghan, 2018, p. 28). While 100 RC's disbandment leaves partner cities with doubts on

how to realize the full potential of their resilience plans, my study can support any resilience

planning efforts these cities pursue within their own governments. While 100 RC initiated the

resilience planning process of each city with a strong theoretical framework, the findings of my

study offer an opportunity to enhance future resilience efforts in an area 100 RC struggled to

support: citizen participation.

Future Research

Future research evaluating the relationship between equity and resilience planning should

capture citizen perceptions of and experiences with resilience plan proposals. A future study

could survey citizens from diverse social backgrounds on their perceptions of equity across the

span of a resilience planning project. Beginning at the proposal phase, researchers could employ

a survey or conduct interviews to record whether citizens believe the proposals in a city's

resilience plan are procedurally, socially, and geographically equitable, based on the plan's

written content. After the resilience proposals' implementation, ideally, the same citizen

participants would complete a second survey or interview, conveying whether their actual

experience with the resilience initiatives aligned with their predictions on equity. The assessment

of citizens' perceptions of equity within resilience planning efforts would inform urban planners

on how to better communicate equity through written plan content and how to most equitably

pursue implementation of resilience initiatives. Such a future study would reassess findings on

equity within resilience planning content and pursue a stronger involvement of citizen voices

within the resilience planning process.

Discussion Summary

The Discussion chapter describes the knowledge contributions and resilience planning

policy recommendations manifested from the study's findings. The **Contributions to Current**

Literature section of the chapter presents the study's new findings on resilience planning in the

Global South, introduces a new methodological tool to assess equity within planning publications, and confirms Global North best practices on participatory planning extend to the Global South regional context. The **Policy Implications** section calls for urban planners to pursue future resilience projects with intentional pairing of equity vocabulary alongside actionable language and a stronger effort to involve all populations of urban citizens in the formulation of resilience plans. The **Policy Implications** section concludes with the Rockefeller Foundation's announcement to dissolve the 100 RC initiative despite evidence the organization's resilience planning efforts were progressing successfully in all partner cities. The study's limits in including citizen perceptions of equity within resilience planning and the urban planning community's future without 100 RC as a uniting network lead to the recommendations for future research of the relationship between equity and resilience plans. The study's findings on inconsistent citizen involvement in the formulation of 100 RC plans and the uncertain future of resilience planning provide a strong foundation to inform future resilience planning efforts and future research employing the study's findings.

CONCLUSION

The findings of the study underscore a strong variance of equity vocabulary breadth alongside a harmonious substantive content focus on urban citizen identity across the 100 RC resilience plans of Latin America. Though each city introduces equity terms in differing frequencies, the common affiliation with 100 RC results in two-thirds of the nine Latin American resilience plans dedicating the highest percentage of substantive equity content to discussing the relationship between an urban citizen's identity and the citizen's corresponding level of vulnerability to climate change impacts and environmental stressors. Conversely, findings reveal the 100 RC Latin American affiliate cities do not devote similar levels of substantive equity passages to describe how citizens with historically-marginalized identities will experience inclusion in the formulation of the resilience plan. As a result, the 100 RC Latin American resilience plans strongly identify citizen groups experiencing barriers to participate in the environmental decision-making process but do not consistently discuss a pursuit of intentional inclusion of these populations in the formulation of the resilience plans. This study's identification of a disconnect between 100 RC's recognition of marginalized populations and describing how to intentionally include these groups in environmental decisionmaking informs future policy suggestions for urban planners to equally detail these two elements of EJ (inclusion and identity) within future resilience plans. In the wake of increased natural disasters and intense weather patterns amidst climate change, this study informs how urban planners can focus on ensuring all citizen groups will possess an equal level of resilience, or ability to thrive amidst adverse circumstances.

REFERENCES

About Us. (2019). Retrieved February 6, 2019, from 100 Resilient Cities website:
 https://100resilientcities.org/about-us/

Allen, A., Johnson, C., Khalil, D., & Griffin, L. (2017). Urban Resilience and Justice: Exploring
 the Tensions, Building Upon the Connections. In *Environmental Justice and Urban
 Resilience in the Global South* (pp. 277–289). New York: Springer.

Anguelovski, I., Chu, E., & Carmin, J. (2014). Variations in approaches to urban climate
 adaptation: Experiences and experimentation from the global South. *Global
 Environmental Change*, *27*, 156–167. https://doi.org/10.1016/j.gloenvcha.2014.05.010

Anguelovski, I., Shi, L., Chu, E., Gallagher, D., Goh, K., Lamb, Z., … Teicher, H. (2016).
 Equity impacts of urban land use planning for climate adaptation: Critical perspectives
 from the global north and south. *Journal of Planning Education and Research*, *36*(3),
 333–348.

Anzilotti, E. (2019, April 2). Why did the Rockefeller Foundation just unceremoniously end its
 successful resilience program? *Fast Company*. Retrieved from
 https://www.fastcompany.com/90328267/the-rockefeller-foundation-is-unceremoniously-
 ending-its-successful-resilience-program

Berke, P. R., Lyles, W., & Smith, G. (2014). Impacts of Federal and State Hazard Mitigation
 Policies on Local Land Use Policy. *Journal of Planning Education and Research*, *34*(1),
 60–76. https://doi.org/10.1177/0739456X13517004

Berkowitz, M. (2019, April 1). An Update from 100 Resilient Cities. Retrieved April 21, 2019,
 from 100 Resilient Cities website: https://www.100resilientcities.org/update-from-100rc/

Bullard, R. D. (1994). Overcoming racism in environmental decisionmaking. *Environment*,
 36(4), 10. https://doi.org/10.1080/00139157.1994.9929997

Bullard, R. D. (2012). *The wrong complexion for protection: how the government response to
 disaster endangers African American communities*. New York: New York University
 Press.

Caniglia, B. S., Frank, B., Delano, D., & Kerner, B. (2014). Enhaving Environmental Justice
 Research and Praxis: The Inclusion of Human Security, Resilience & Vulnerabilities
 Literature. *International Journal of Innovation and Sustainable Development*, *8*(4), 409–
 426.

Chu, E., Anguelovski, I., & Roberts, D. (2017). Climate adaptation as strategic urbanism:
 assessing opportunities and uncertainties for equity and inclusive development in cities.
 Cities, *60*, 378–387. https://doi.org/10.1016/j.cities.2016.10.016

City of Medellin. (2016). *Resilient Medellin: A Strategy for Our Future*. Retrieved from
 https://www.100resilientcities.org/strategies/medellin/

City of Rio de Janeiro. (2016). *Rio Resiliente: Resilience Strategy of the City of Rio de Janeiro*. Retrieved from https://www.100resilientcities.org/strategies/rio-de-janeiro/

City of Santa Fe. (2017). *Santa Fe Resilience Strategy*. Retrieved from https://www.100resilientcities.org/strategies/santa-fe/

City of Santiago de Cali. (2018). *Resilient Cali: A City of Opportunities for Progress*. Retrieved from https://www.100resilientcities.org/strategies/cali/

City of Santiago de Chile. (2017). *Human & Resilient Santiago*. Retrieved from https://www.100resilientcities.org/strategies/santiago-de-chile/

Davoudi, S., Shaw, K., Haider, L. J., Quinlan, A. E., Peterson, G. D., Wilkinson, C., … Davoudi, S. (2012). Resilience: A Bridging Concept or a Dead End? *Planning Theory & Practice*, *13*(2), 299–333. https://doi.org/10.1080/14649357.2012.677124

Fischler, R. (2012). Fifty Theses on Urban Planning and Urban Planners. *Journal of Planning Education and Research*, *32*(1), 107–114. https://doi.org/10.1177/0739456X11420441

Griffin, L., Khalil, D., Allen, A., & Johnson, C. (2017). Environmental Justice and Resilience in the Urban Global South: An Emerging Agenda. In *Environmental Justice and Urban Resilience in the Global South* (pp. 1–11). New York: Springer.

Holling, C. S. (1973). Resilience and Stability of Ecological Systems. *Annual Review of Ecology and Systematics*, *4*, 1–23.

Hunt, A., & Watkiss, P. (2011). Climate change impacts and adaptation in cities: a review of the literature. *Climatic Change*, *104*(1), 13–49. https://doi.org/10.1007/s10584-010-9975-6

Intergovernmental Panel on Climate Change. (2014). *AR5 Climate Change 2014: Impacts, Adaptation, and Vulnerability — IPCC*. Retrieved from https://www.ipcc.ch/report/ar5/wg2/

Leichenko, R. M. (2008). *Environmental change and globalization: double exposures*. New York: Oxford University Press.

Lu, P., & Stead, D. (2013). Understanding the notion of resilience in spatial planning: A case study of Rotterdam, The Netherlands. *Cities*, *35*, 200–212. https://doi.org/10.1016/j.cities.2013.06.001

Lyles, W., Berke, P., & Overstreet, K. H. (2017). Where to begin municipal climate adaptation planning? Evaluating two local choices. *Journal of Environmental Planning and Management*, *61*(11), 1–20.

Martin, C., & McTarnaghan, S. (2018). *Institutionalizing Urban Resilience: A Midterm Monitoring and Evaluation Reportof 100 Resilient Cities*. Retrieved from Urban Institute website: https://100rc.app.box.com/s/n7nxl0yeztrcan30d3ow37hxfq46rrqh

Meerow, S., & Stults, M. (2016). Comparing Conceptualizations of Urban Climate Resilience in Theory and Practice. *Sustainability*, *8*(701), 1–16. https://doi.org/10.3390/su8070701

Metropolitan District of Quito. (2017). *Resilient Quito: Resilience Strategy*. Retrieved from https://www.100resilientcities.org/strategies/quito/

Mohai, P., Pellow, D., & Roberts, J. T. (2009). Environmental justice. *Annual Review of Environment and Resources*, *34*, 405–430.

Municipality of Santiago. (2018). *Resilient Santiago de los Caballeros*. Retrieved from https://www.100resilientcities.org/strategies/santiago-de-los-caballeros/

Pellow, D. N., & Nyseth Brehm, H. (2013). An Environmental Sociology for the Twenty-First Century. *Annual Review of Sociology*, *39*(1), 229–250. https://doi.org/10.1146/annurev-soc-071312-145558

Preston, B. L., Westaway, R. M., & Yuen, E. J. (2011). Climate adaptation planning in practice: an evaluation of adaptation plans from three developed nations. *Mitigation and Adaptation Strategies for Global Change*, *16*(4), 407–438. https://doi.org/10.1007/s11027-010-9270-x

Rankin, A., Lindner, R., Sainz, M., Rosenqvist, S., Bång, M., & Eriksson, H. (2017). *City Resilience: Analysis of Strategies World-Wide*. Presented at the Resilience Engineering Association Symposium, Liege, Belgium.

Schlosberg, D. (2013). Theorising environmental justice: the expanding sphere of a discourse. *Environmental Politics*, *22*(1), 37–55. https://doi.org/10.1080/09644016.2013.755387

Schrock, G., Bassett, E. M., & Green, J. (2015). Pursuing Equity and Justice in a Changing Climate: Assessing Equity in Local Climate and Sustainability Plans in U.S. Cities. *Journal of Planning Education and Research*, *35*(3), 282–295. https://doi.org/10.1177/0739456X15580022

Spaans, M., & Waterhout, B. (2017). Building up resilience in cities worldwide – Rotterdam as participant in the 100 Resilient Cities Programme. *Cities*, *61*, 109–116. https://doi.org/10.1016/j.cities.2016.05.011

United Nations. (2018). *World Urbanization Prospects: The 2018 Revision*. Retrieved from https://population.un.org/wup/Publications/Files/WUP2018-KeyFacts.pdf

Woodruff, S. C., Meerow, S., Stults, M., & Wilkins, C. (2018). Adaptation to Resilience Planning: Alternative Pathways to Prepare for Climate Change. *Journal of Planning Education and Research*, 1–12. https://doi.org/10.1177/0739456X18801057

Woodruff, S. C., & Stults, M. (2016). Numerous strategies but limited implementation guidance in US local adaptation plans. *Nature Climate Change*, *6*(8), 796–802. https://doi.org/10.1038/nclimate3012