A Gendered Analysis of Climate Action Plans in Boston and Seattle

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Abstract

This thesis discusses how Climate Action Plans contribute to inequalities. I examine Seattle's and Boston's Climate Action Plans through a feminist lens to gain an alternative perspective to mainstream climate policy. The research helps resolve what Michael et al. (2020, 800) describe as a "glaring gap in research on understanding the relationship between mitigation and gender justice." Drawing on feminist and political ecology literature, a discursive analysis of Climate Action Plans and peripheral documents, and interviews with people involved in producing Climate Action Plans, this thesis shows the following: first, the jurisdictional boundaries of the city limit the current climate action plans' effectiveness; second, the cities' goal of carbon neutrality relies on green growth and innovation that does not address the root causes of climate change; third, a critical mass of women does provide alternative climate action solutions; and lastly, the community engagement process seems to be more about education on proposed policies rather generating new climate action strategies. This thesis concludes with recommendations for how policy makers might more effectively integrate gender equity into future Climate Action Plans.

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Chapter 1: Introduction

This thesis discusses how Climate Action Plans contribute to inequalities. I examine Seattle's and Boston's Climate Action Plans through a gendered lens to gain an alternative perspective to mainstream climate policy. The research will help resolve what Michael et al. (2020, 800) describe as a "glaring gap in research on understanding the relationship between mitigation and gender justice." The guiding research questions are:

1. How are climate action plans produced?

2. To what extent do Seattle's and Boston's plans reinforce existing social systems and to what extent are they facilitating more dramatic social change?

3. How are women's care work issues recognized and addressed in the creation of the plans, proposed policies, and implementation of such policies?

4. How does women's participation in the construction of climate action plans inform the substance of climate policies?

Background

It is well established that climate change will bring more frequent extreme weather, further exposing social and economic vulnerabilities as well as health inequities both nationally and internationally. Scholars have written extensively about the racial and socioeconomic disparities that increase vulnerabilities to climate disaster. Most literature about gender and climate change focuses predominantly on how gendered vulnerabilities will increase due to global warming (Michael et al., 2020). However, the dominant gendered vulnerability discourse

that "women always tend to suffer most from the impact of disasters" does not acknowledge the history or structures that created the vulnerabilities.

Scholars agree that gender inequalities are not sufficiently mainstreamed in many areas of policy development and practice, especially in climate policy and planning (Nelson 2002; Markkanen & Anger-Kraavi 2019). Pearse (2017) argues there is a resounding silence on gender in the documents outlined by government climate and energy policy agencies. Unfortunately, climate action costs could be unevenly distributed between the sexes (Björnberg & Hansson, 2013). Adaptation measures that do not consider gender may contribute to a preponderance of gender inequalities, therefore reinforcing women's vulnerability to climate change (Björnberg & Hansson, 2013).

Relevance

Currently, political understanding of climate risk and action on mitigation are technoscientific, thus resulting in strategies based on technofix solutions. Feminist scholars and activists believe that these technofixes do not address the root causes of the climate crisis. The Women's Environmental and Development Organization asserts that the foundations of climate change are

> **interlocking systems of capitalism, resource extraction, labor exploitation, the commodification of nature, settler colonialism, imperialism, and militarism. It [climate change] has roots in the exploitation of enslaved people, whose labor created wealth in the Global North, and of the continuing systemic racism that deepens and institutionalizes global inequity** (Women's Environmental and Development Organization, 2019).

Furthermore, scholars argue mainstream techno-science and climate governance operate in ways that marginalize women and the LBGTQ community (Pearse, 2017).

Technoscientific or not, solutions that do not address colonialism, white supremacy, and patriarchy cannot adequately confront or solve the climate crisis. For this reason, it is critical to use a feminist lens to analyze climate action plans.

This thesis will accomplish three goals: first, it will explore how a Climate Action Plan (CAP) is created; second it will explain how plans move from ideation to policy and the gender equity of this process, specifically evaluating the potential for Seattle's and Boston's CAPs to have gendered impacts; and third, it will add to the emergent body of literature on climate action plans and gender.

Why have a Climate Action Plan?

Climate change is an existential threat requiring a reorientation of ethics. Calls to action have been made internationally and locally. And yet, despite known gendered vulnerabilities, international strategies such as the Kyoto Protocol, the Paris Agreement, Agenda 21, and the Beijing Conference have failed to incorporate gender perspectives (Kinnvall, 2019). Studies on the risks of climate change contribute to the development of policies designed to protect all populations, however, they not been particularly gender-sensitive thus far (Kinnvall, 2019).

In the United States, until the recent 2021 federal leadership on climate policy, local actors were the ones taking measures to plan for climate change. Many US cities wrote and adopted a climate policy through a Climate Action Plan (CAP). CAPs are proposals for future policy to protect people and the built environment from climate-related hazards such as sea-level rise, drought, floods, and wildfires, and to prevent climate-related hazards from becoming disasters. Typically CAPs have two components, mitigation and adaptation. In the climate policy arena, the term "mitigation" and "adaptation" are often used interchangeably. However,

mitigation seeks to minimize the human impacts on climate by reducing current and future greenhouse gas emissions; examples include reductions in energy use, switching to renewable energy sources, geoengineering, and carbon sinks. Adaptation responds to existing hazardous conditions. It aims to reduce the negatively occurring impacts of climate change and those projected to occur in the future. Adaptation actions include flood protection, reducing the impact of sea-level rise, investments in resilient infrastructure, and emergency response planning.

Importantly, variation exists among the climate policies governance units adopt. There are always priority sectors and economic and social impacts (Dolšak & Prakash, 2018; Björnberg & Hansson, 2013) of climate agendas that cities have to take into consideration. Goals on climate actions are operationalized based on acceptable risk levels, cost achievability, timescale, political will (Björnberg & Hansson, 2013), and symbolic capital (Cornea, N. L et al., 2017).

On a fiscal level, American cities chose to adopt CAPs to secure federal funding to plan for and respond to a hazard. The Federal Emergency Management Agency, FEMA, offers funding to support hazard mitigation infrastructure upgrades that include built infrastructure, like dikes, or ecosystem services, such as wetland restoration in floodplains. Additionally, FEMA funds smart growth activities, defined by the Environmental Protection Agency, EPA, as,

> strategies like creating flexible land-use policies, targeting public investment to catalyze private investment, and engaging the entire community in making decisions about the future that can help communities recover from a disaster, rebuild according to a shared community vision, and be better prepared for the next natural disaster (US EPA, 2013).

On a practical level, cities are ideal places to test climate action strategies (Victor & Muro, 2020). Each city that chooses to create a plan is a laboratory of political, social, and environmental opportunities; and since most of the world's population lives in cities, city-level planning seems to be an obvious center of climate action. Between 2013-2019, the Rockefeller Foundation sponsored the 100 Resilient Cities Project, a collaboration of 100 global cities that worked together and shared best practices in an effort to solve the climate crisis: Boston and Seattle were two of these cities.

Case Studies of Climate Action Plans

The climate threats facing Seattle and Boston are similar. Both cities need to prepare for extreme temperatures, flooding, and sea-level rise. Boston is at sea-level, and the city is already experiencing flooding during hightides and storms. Further, extreme heat is impacting Boston's residents. Seattle's most pressing climate issue is drought and air quality due to wildfire smoke. Despite these concrete and critical issues, the climate action plans for Seattle and Boston do not directly speak to the hazards each city faces. Instead, the CAPs in these cities focus almost exclusively on mitigating carbon and greenhouse gas, GHG, within their jurisdictional boundaries and do not include adaption measures.

As documents, the CAPs follow a formulaic pattern that contains an introduction, a letter from the mayor, a background that discusses the history of climate directives in the city, a summary of GHG inventories and solutions/action items for cities to reduce pollution, a conclusion, and an acknowledgement section. CAPs incorporate and speak to an array of many other city reports and agendas including transportation plans, economic and population growth projections, waste management, and housing to name a few. The plans are created by the city's

environment department, engineering firms, consultants, advisory groups, green ribbon commissions, and community stakeholders, and they are funded by city, state, and federal dollars, as well as private philanthropy. During the implementation of CAPs, cities use web-based dashboards to show constituents progress on their stated goals.

I chose to analyze Boston's and Seattle's plans because the cities are of comparable population size, facing similar threats, and both make pledges to equity. Seattle and Boston are leading cities in the creation and adoption of climate action planning, 2010 and 2007 respectively. Their CAPs seek to address three main sectors in carbon reduction strategies: buildings, transportation, and energy supply. Lastly, both cities are hubs of innovation, technology, academia, and wealth.

Methodology

This thesis' methods contribute to understanding how gender is or is not considered in climate action planning in two major cities in the United States, and it adds to the scant literature on the intersection of climate action plans and gender justice. Discourse analysis and semi-structured interviews were ideal research methods for exploring how climate governance situates gender within mitigation, adaptation, and ultimately, resilience.

I began with a literature review. I started in Web of Science, Annual Reviews, and Science Direct databases using the search terms "gender and climate action plans," "gender and sustainability," "gender and climate change," "gender and adaptation," "gender and mitigation," and "gender and innovation," where I collected journal articles, chapters, and books. During the research process, I followed relevant media on the topics of climate change, disaster, green-growth, gentrification, housing, migration, mitigation and adaptation, and

technological innovation in climate strategies. The emergent themes from the scholarly conversations were vulnerability, epistemology, procedure, and the feminist perspective on climate causes, as well as proposed solutions.

I decided to use a feminist framework to analyze Seattle's and Boston's Climate Action Plans for gender differentials, with a particular regard to gendered care work. The gendered disparities I found in the CAPs include transportation access, invisible labor, economic opportunities, and the prioritization of masculine-coded technofix mitigation instead of the feminine-coded community-centric adaptation.

This research is reflective of my positionality as a white, cis-woman, who is also a mother and a student. I define women in this thesis not only by sex organs and physical traits, but also by the gendered labor of care work. I acknowledge that gender is diverse, and women are not homogenous, and I concede that by defining women in part by gendered care work I am seemingly essentializing women's role as care givers. However, my definition is not meant to posit what women are *supposed* to do, it is meant to highlight what they *are* doing: care work is a duty thrust upon them because our culture is yet to divide it equally.

Though deploying a binary gendered lens is problematic in a number of ways, as a heuristic device, it provided an alternative lens through which to view the current mainstream capitalist, extractivist approach to climate planning. The lens provided a framework to critique the types of infrastructure that cities chose to prioritize: the masculine of hardened, nature-domination versus the soft feminine of community and care. I believe the gendered lens is of value because it acknowledges that the same structures that created climate change also perpetuate gender inequalities.

After the literature review, I conducted a full discourse analysis of text and images from Seattle's and Boston's CAPs. While reading the CAPs, it became essential to also include five other periphery documents to obtain a fuller understanding of climate action planning in Seattle and Boston. The documents that I conducted discourse analysis on are:

- City of Seattle's 2018 Climate Action Plan Update (Office of Sustainability and the Environment, 2018)

- City of Boston's 2019 Update Climate Action Update (Boston Environment Department, 2019)

- Seattle's Green Ribbon Commission Report Executive Summary (Green Ribbon Commission, 2013)

- Carbon Free Boston Summary (Green Ribbon Commission, 2019)

- Climate Ready Boston Executive Summary (City of Boston et al, 2016)

- Resilient City Road Map, Seattle (OSE, 2019)

- Records Request from the City of Seattle, stakeholder meeting notes, public information notices, flyers, and handouts (City of Seattle, 2021)

While conducting the discourse analysis of the above documents, I followed Bowen's *Document Analysis as a Qualitative Research Method* (2009). Bowen (2009) reminds researchers that documents are not precise, accurate, and complete recordings of events. He suggests paying particular attention to subtle clues and what is not said is just as important as what is said (Bowen, 2009). I analyzed word choice, sentence structure, framing, highlights, descriptions, the order of presentation, and images. After reviewing the documents, an overall

picture of thematic analysis emerged that then supported my approach to the semi-structured interview.

For this research, interviews complemented document analysis. Before interviews began, I received approval to conduct my research via the Tufts' SBER IRB. I followed Hesse-Biber's (2007) feminist, reflexive interview methodology. I chose this method for its commitment to obtaining subjugated knowledge that is often obscured in mainstream discussions. I recruited interview participants from climate action plans' listed collaborators and from professional networks within the Tufts Department of Urban and Environmental Policy and Planning.

I conducted six interviews with city employees, a consultant, a climate planner, and a non-profit leader. Though the sample size of interlocuters is small, in part because of COVID-19 disruptions, I believe these people are representative of the larger climate action planning discourse.

I began interviews by asking participants how they came to work on the climate action plan and about their role in the process. I then asked how the priority sectors of buildings, transportation, and energy supply came to be. I followed by asking participants how contributors of the plan were chosen and if they noticed if any people were more active in the process than others. In question four I asked interlocuters if they could talk about the equity considerations of the plans. Finally, I asked, "did anyone raise concerns or considerations that might be specific to women?" (Full interview questions are in appendix 1.)

I obtained oral consent via a script (see appendix 2), which helped me build rapport, especially when the interview time was limited. I used reflexivity, questioning one's own taken-

for-granted assumptions, and memoing techniques, recording reflective notes and making connections, during the interview phase. I conducted all but one interview over Zoom, which allowed me to record and watch them multiple times. Qualitative methodology is iterative, and data collection informed analysis and vice versa (Hesse-Biber, 2007).

Interviews illuminated the entanglements of climate and gender justice in the two cities. The emergent themes became procedure, pragmatism and how CAPs reinforce hegemonic systems. I analyzed data with my background in cultural anthropology and a newly formed feminist lens. Throughout the process I questioned: Who was involved in the creation of the documents and how? How were they chosen? Why? What everyday interactions may shape gender equity in climate resilience strategies? What dualisms are explicit or implicit? What are the hegemonic assumptions of the prescribed infrastructure? What are the possible alternatives? The results of my analysis were developed into three chapters, *Circumscription*, *Solutions*, and *Procedural Justice.*

Chapter Overview

I begin with an overview of the literature related to climate action plans, gender, climate governance, and theoretical concepts that informs my thesis. In Chapter 3, *Circumscription,* I describe the overall framing of the CAPs and how the focus of the city as a spatially bound entity limits their capacity for "systems thinking." Next, I describe how the particular ways the scope of CAPs is defined reproduce systems of inequality through techno-science rather than addressing the root causes of climate change. In Chapter 4 *Solutions,* I examine the strategies outlined in Seattle's and Boston's CAPs. The strategies in these CAPs are primarily technical, green growth-oriented, and focused on mitigation by reducing greenhouse

gas emissions from transportation, buildings, and energy supply. I argue the CAPs have differential gendered impacts, perpetuating systematic barriers to women's economic empowerment while also relying on invisible labor. In my Chapter 5, *Procedural Justice,* I go on to analyze the inclusion of women in the climate policy-making decision processes in Boston and Seattle and how their presence affects agendas. My analysis found that relegating people to fulfill certain minority quotas does not actually broaden inclusion. Moreover, much of women's tokenistic inclusion requires that they adhere to epistemological hierarchies that champion technoscientific solutions. And finally, the community engagement process ends up implying a sort of education to get people on board with the City's plans, putting the community solely on the receiving end of information, rather than making them equal members in the discussion and actualization of change. I conclude the thesis with a summary of my findings and a discussion of policy recommendations for feminist alternatives to current climate action planning.

Chapter 2: Literature Review

This literature review will discuss climate action plans and gender. The review will focus on gendered vulnerability, the gendering of sustainability, epistemological hierarchies, procedural justice and leadership, and how climate action plans may exacerbate existing inequities in women's political, economic, and social lives. The review will close with a scholarly discussion of potential frameworks to use when examining climate action plans.

Vulnerability

Many scholars agree that climate change will hit women disproportionality hard; lack of power, fewer economic resources, and gender-bound patterns in labor division inside and outside the home are driven by cultural practices (Chant, 1997; Björnberg & Hansson, 2013). An understanding of gendered vulnerabilities must be within a socioeconomic and cultural context. In the United States, more women live in low-income households. Women are 20% less likely to be paid for work and more work part-time (Björnberg & Hansson, 2013). Furthermore, women lacking savings are more vulnerable to economic fluctuations (Björnberg & Hansson, 2013).

Additionally, women are more dependent on public transportation; therefore, they are more susceptible to public transport failures due to extreme weather events (Björnberg & Hansson, 2013). Women spend more time traveling, making more frequent trips, closer to home, at off-peak hours to pick-up children from school and do household business (Björnberg & Hansson, 2013; Terry, 2009). Without a doubt, older women are particularly vulnerable to climate risks. Not only do women have a longer life expectancy than men, but their gendered household labor needs to be done regardless of extreme temperatures (Allison, 2017). Additionally, Women may be less able to tolerate heat (Allison, 2017). In a 2003 study in Paris,

64% of those who died as a result of heat-related complications were elderly women (Fouilet et al, 2003). Women in care work are doubly affected.

It is well known that women carry the disproportionate responsibilities of caring for the elderly, children, and the sick in public and private spheres (Allison, 2017; Björnberg & Hansson, 2013). Therefore, women may be twice as affected as their male counterparts in the aftermath of extreme weather event due to their professional and private care giving obligations. Care giving facilities for the elderly may close down due to flooding (Björnberg & Hansson, 2013) or wildfire. As we experienced during the COVID-19 pandemic, elder care facilities provided the conduit for the deadly virus's rapid spread. Care work, which includes professional childcare, is one of the hardest-hit industries as a result of the coronavirus. Absolutely, care work is essential work. Within our current economic and social system, caring for the vulnerable increases gendered vulnerability.

The normative effects of focusing on female gendered vulnerabilities are lamentable in the discussion of climate action. Some feminist thinkers in material and ecological feminism embrace women's agency as 'heroic' and 'virtuous' in the climate action space (Krosnell, 2018). Some feminists believe that women's mothering and other caring experiences can show alternative ways of governance. Others promote women as being able to save the world by 'reweaving' it (Diamond & Orenstein, 1990 cited in Krosnell, 2018) and by 'healing the wounds' (Plant 1989 citied Krosnell, 2018). A few feminist scholars argue that the emphasis on vulnerability and being closer to nature reinforces a gender dualism that undermines gender and sexual diversity (Chant, 1997; Alaimo, 2010, from Pearse, 2017). Chant and Alaimo contend that the persistent 'naturalness of women's childbearing role' has undoubtedly created one of

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the 'biggest constraints to women's equal status with men in such spheres as the labor market, law, and politics' (Chant, 1997; Alaimo from Pearse, 2017). Pearse (2017) further argues that "women's 'vulnerability' and 'virtuousness' reinforce static ideas about homogenous, fixed gender roles or, worse, reinforce the perception that women are intrinsically defenseless and closer to nature" (Pearse, 2017 p10). She goes on to critique the discourse of gendered harms. The discourse of gendered harms draws attention to the supposed weakness or limitations of those in harm's way but say little about which injustices or harms have put them in such precarious positions (Pearse, 2017). Thus, the discourses of fragility, being closer to nature, and the role of reproduction obscure women's agency and resilience.

Gender and Sustainability

The same norms that created gender inequality have broader implications for greenhouse emission and climate change responsibility (Björnberg & Hansson, 2013). Allison (2017) explains how Western inheritances of gendered behaviors and their moral and ethical reasonings are deeply entangled with patriarchal and Eurocentric norms. She goes on to assert that the Eurocentric masculine traits of independence, autonomy, hierarchy, domination, and transcendence are the very norms that led to climate change (Allison, 2017). In contrast, the feminine is interdependent, short term, sharing, community, care, and emotion (Jagger cited in Allison, 2017). Kronsell (2018) argues that women's behavior could be considered more climate-friendly than men's. In fact, women collectively contribute to less carbon emission than men as a group (Kronsell, 2018). Allison (2017, 154) highlights feminist ethics center on caring, relationships, and "interconnectedness of the private sphere and the public" . When disaster

strikes, women are often the key to household survival (Nelson et al., 2002) through social capital, which enables community resilience.

Community level actions can create climate resilience. So too, the most direct observations of changing environmental conditions and the effects of climate change and climate adaptations are made at the local or household level (Allison, 2017). Energy-saving policies that focus on changes in household practices can increase household work because it can lead to dramatic reductions in the use of electrical appliances and the reintroduction of traditional forms of household work (Thorye 2020). For example, Thorye (2020) studied the gendered household labor of a mundane task, transitioning from incandescent to CFL lightbulbs. She found that instead of being a one-time consumptive act, using CFLs involves six or more phases of intricate additional work than using incandescent bulbs (Thorye, 2020). For example, these phases included finding the proper retailer that carries different styles and sizes of bulbs and identifying sites for the disposal of CFLs. Because this work typically falls to women, the findings suggest that women could experience an expansion in their housework associated with household level energy reduction mandates. Furthermore, the additional work may be devalued because, for example, switching to CFLs is widely considered one of the most uncomplicated climate actions. Thorye (2020) argues it is likely that a transition to home climate practices beyond CFLs may add up to significant additional labor and economic impacts for women.

Economically, we know little about how households deal with the introduction of carbon costs. The largest share of GHGs is from energy and transportation; reductions have global impacts but rely on local "greening" mechanisms. Pearse (2017) argues that at the

household level, energy targets often hinge on regressive (uniformly applied to all with larger

impacts on low-income people), carbon taxes (taxes that aim to reduce the consumption and

carbon-intensive goods and services). Carbon taxes may be designed to reduce regressivity

through income tax cuts (Pearse, 2017). However, tax incentives only benefit households that

have high enough earnings to warrant itemized deductions. More often, tax cuts benefit men

(Pearse, 2017) and dual-earning households with higher incomes. Since transport, heating, and

electricity are essential to all households taxing these areas could result in a cost burden felt by

female-headed households. Similarly, tax incentives may not benefit these same households.

Scholars are concerned about the labor and economics of sustainable practices and

implications of future policy. Women who provide care work are overburdened with housework

and are time-poor. Geraldine Terry discusses,

> [I]t is interesting that, in the UK, the so-called 'school run,' where mothers drive
> their children to school, has received a huge amount of attention in the media,
> because of its contribution to traffic congestion and carbon emissions. It is
> certainly true that the school-run phenomenon both reflects and causes social,
> health, and environmental problems, including the time-poverty of many
> working mothers. But the fact that it is women, as mothers, who have been
> scapegoated in this way, rather than other car-drivers, **suggests how easy it
> would be for future government mitigation policies to penalize women's
> gendered energy use disproportionately, compared with men's** (emphasis
> mine) (Terry, 2009, p10).

Terry goes on to argue that this scapegoating may seem to only apply to radical mitigation

strategies being championed by green lobby groups. Although this type of gendered-

scapegoating may seem extreme now, "radical mitigation" strategies may well become official

policy in the coming years especially with climate change becoming increasingly an energy-

security issue (Terry, 2009).

Epistemological Hierarchies

There are significant barriers to climate action, and planning institutions and professionals are at the forefront of confronting these obstacles. Dolšak & Prakash (2018) call these barriers "adaptation-as-politics because adaptation speaks to the issues of power, conflicting policy preferences, resource allocation, and administrative tensions." Scientific knowledge mobilizes political action (Dolšak & Prakash (2018). However, environmental governance relies on evidence-based decision-making, even when the translation of knowledge is imperfect (O'Reilly et al., 2020).

Kronsell (2018) asserts that climate mitigation goals invoke the current neoliberal masculine order that prioritizes production, growth, and expansion. Currently, political understanding of climate risk and action on mitigation are technoscientific, which are coded masculine (Pearse, 2017 and Alaimo, 2010), while adaptation is community-oriented which is coded feminine. The epistemological hierarchy within Western Science that privileges "hard" physical, mathematical, interventionist sciences over "soft" sciences based in observation or more relational ways of knowing, is likewise evident in how politicians favor visible "hard" (masculine) infrastructure over "soft" (feminine) infrastructure.

Issues of environmentalism, once soft, became hardened by climate-related threats to global social order (Nelson et al., 2002). Now hardened, men dominate the issue at all levels. Climate change is most commonly understood as a technoscientific problem best addressed by technological innovation and increasingly as a security issue (Pearse, 2017).

Scholars argue that innovation, a seemingly gender-neutral word describes practices which are heavily gendered without needing to be explicit. (Pecis, 2016). Furthermore, Agnete

et al (2013) assert that innovation is "claimed to be something masculine and perceived to be connected to something new, physical and technical, with the ability to compete in a globalized reality" (Amble, 2010, cited in Agnete et al, 2013).

Not surprisingly, the innovation discourse that is used in climate mitigation strategies stems from the Western model of development that reinforces gender inequality by privileging technology and market-oriented governance over sufficiency (O'Reilly et al. 2020 & Jerneck, 2018). O'Reilly et al. (2020) critique the dominant mitigation logic and its links to technological optimism and progress by arguing that carbon capture and storage technology projects build upon the relentless growth that characterized industrial production in the 20th century.

Holly Buck (cited in O'Reilly, 2020) proposed a feminist critique of geoengineering. Geoengineering is an intentional human intervention made to the atmosphere to counteract climate change: ocean fertilization, carbon capturing through geologic boring (mechanically pulling carbon out of the air, then forcing it back into the earth) and bio sequestration (planting vegetation to create carbon sinks, like farms and forests). These techniques are not aimed at avoiding greenhouse gas, instead managing levels after the fact (cited in O'Reilly, 2020). Geoengineering reflects a socially constructed, masculine form of knowledge that seeks to objectify nature (Buck in O'Reilly 2020) because nature is viewed as an object rather than a living organism. She positions geoengineering within the masculine histories of Western science and Cartesian philosophy (Buck in O'Reilly 2020). These technologies are bound to the same notion of the infinite fossil-fuel-based economy. (Gunel, 2019 in O'Reilly, 2020).

O'Reilly et al. (2020) cite the *Ecomodernist Manifesto* belief that technological improvement above all else will save us from climate collapse. Ecomodernism explicitly

embraces substituting all ecological systems with energy, technology, and synthetic solutions to reduce environmental impact. Ecomodernists call for genetically modified foods, intensifying agriculture and increasing the use of pesticides and herbicides, waste recycling, urbanization, and replacing low-tech power generation, like wood burning, with nuclear power plants and advanced renewables (Ecomodernist Manifesto, 2013). Scholars critique these solutions, arguing emission reduction in one locality at the expense of another, increases total global emissions, unfortunately shifting the ecological burden to developing countries without political or economic power to resist (O'Reilly et al. 2020).

Knowledge is power, and even climate knowledge and its application are gendered. Pearse (2017) mentions an American study that showed women are more likely to report concerns about climate change. Nevertheless, perplexingly, women are more likely to underestimate their scientific interpretation (Pearse, 2017). There is also a gender difference in the application of climate knowledge. Pearse (2017) found that there is a tendency for older, whiter, conservative men in Western countries to report that they worry less about climate change even with high levels of understanding of the science. Furthermore, these conservative men in Western countries know the science and still oppose environmental regulations (Pearse, 2017). Litfin (cited in Pearse, 2017) criticizes the assumption that scientific knowledge is neutral and a source of rational policy, citing the "planetary gaze" of satellite technology as a reflection of masculine ideas of rationality and objectivity toward nature. Litkin provides an example; in the 1990s, the federal government made massive investments in atmospheric monitoring technologies after a marked increase in global climate change recognition. In spite

of this monitoring capability, the federal government did not set forth policy to reduce GHGs

(Litkin in Pearse, 2017).

Ecofeminist theory combines different lines of feminisms to reveal how gendered power

in climate change epistemologies and politics operate to reproduce domination of non-human

species (Sundberg, 2017). Mainstream techno-science and climate governance operate in ways

that marginalize women and LBGTQ people (Pearse, 2017). Feminist ethics assert that we start

with the solutions found when living well is defined by balance with the Earth (Allison, 2017).

Indigenous peoples' Transitional Ecological Knowledge (TEK) is an example of living in balance

with the Earth. Berkes (1999) defines TEK as caring for a place to ensure continued fertility,

abundance, and giving thanks to prey for the continued bounty of the system. TEK helps us

understand the reciprocity of actions – values, mores, and taboos that bind people and place.

Procedural Justice

Recognition of gender inequalities is rare in climate policy and planning. The act of

planning is conventionally perceived as gender-neutral (Markkanen & Anger-Kraavi, 2019;

Björnberg & Hansson, 2013). Nelson (2002) argues that gender is not sufficiently mainstreamed

in many areas of policy development and practice. For example, a text analysis of climate policy

documents and interviews with policymakers found that known gender differences in material

conditions and attitudes toward climate issues were invisible and excluded from policy text

(Kronsell, 2018). Both male and female policymakers were mostly unaware of the relevance of

gender differences and how to consider them in climate policymaking, despite the gender

balance of the institutions where climate policy was developed (Kronsell, 2018). In the

European Union, however, the Treaty of Amsterdam (1999) strategizes policy and legislative

work to respond more effectively to all citizens' needs regardless of gender, through gender

mainstreaming (European Institute for Gender Equity, 2021). The goal of gender mainstreaming

is to reduce gender inequalities and make public interventions more effective. Before the

International Panel on Climate Change adopted the Gender Policy and Implementation Plan in

February 2020, women's voices were notably missing from the IPCC. In the private

technoscientific mitigation sector, women are absent from leadership (Björnberg & Hansson,

2013), relegated to advisory groups, and environmental impact assessments (Kronsell, 2018).

Nevertheless, there are examples of local-level female leadership in energy. Allen et al.

studied women-started and led renewable energy non-profit organizations (2019). The

grassroots energy democracy movement resists large multi-national fossil fuel companies'

power that exacerbates energy inequities and energy disparities (Allen et al., 2019). Further,

these energy democracy organizations are reclaiming the energy sector for communities and

the public by redistributing benefits and risks (Allen et al., 2019). Also, this movement is

restructuring the energy sector to prioritize equity and justice through distributed governance

(Allen et al., 2019). These organizations increase community engagement, strengthen

participation, and redistribute power to transition to a more equitable energy system (Allen et

al., 2019).

Among scholars, there is an underlying assumption that women's engagement will lead

to different political outcomes and that their participation in climate policy fosters low carbon

emission states (Kronsell, 2018). However, as mentioned above, there is evidence that gender

issues are often overlooked in climate policy making. Pearse (2017) argues that women's

participation at the community engagement level in all forms of planning is limited. Brink and

Wamsler (2019) explain that the engagement process is gendered: mediated by personal values, worldviews, and place—aspects rarely considered in public adaptation. Furthermore, there is evidence that women and care givers are not represented in many opportunities.

Markkanen & Anger-Kraavi (2019) found evidence that agencies and advocacy organizations responsible for gender and families are not included in government climate change policy creation (Markkanen & Anger-Kraavi, 2019). These exclusions could result in muffling of women's interests. According to Chant (1997, 265) female-headed households' interests are usually not expressed directly by women themselves but are "edited, translated, and/ or paraphrased by others". To resolve this, Pearse (2017, 16) argues that "gender mainstreaming" at all levels of planning, including leadership works to reduce "institutional barriers to gender equity in climate governance"). Institutions and decision-making processes need remodeling to guarantee that gender issues are adequately targeted within adaptation (Björnberg & Hansson, 2013). Van den Berg and Keenan define this process as "procedural justice, understanding who is truly vulnerable over variations in time and space and subsequently enabling meaningful participation of relevant stakeholders in climate adaptation planning" (van den Berg & Keenan, 2019, 90).

Climate Action Plans and processes need recrafting too. CAPs often outline which infrastructure needs upgrades or full replacement to become more climate resilient. Kronsell (2018) contends that infrastructure and transportation planning experience is coded masculine. The fact is that spatial planning critically affects women's safety and security (Björnberg & Hansson, 2013). Women are often more fearful of crime or sexual violence than men when visiting public places (Björnberg & Hansson, 2013). Women differ from men in how they

perceive the risk and safety of environments for children (Murray cited in Bjornberg, 2013).

During the planning and construction process of new infrastructure, care needs to be taken to relocate bus stops or when adding green space to make sure areas are well lit and avoid blind alleys or corners (Björnberg & Hansson, 2013). Blue and green spaces are attractive, functional, and provide ecosystem services, but if not properly arranged may hamper women's movements in urban space (Björnberg & Hansson, 2013). Forests, parks, recreation areas, and footpaths are among the places women fear the most (Björnberg & Hansson, 2013). Kronsell (2018) warns that normative adaptation measures and climate policies that lack a gender perspective may reproduce the current gender order. Climate policies need to be explicit in gender considerations, carefully designed and implemented with care taken to include women's mobility access, safety, security, and professional workload; if not, adaptations are likely to increase some groups' vulnerability.

Spatial and mitigation/ adaptation planning must recognize that preexisting vulnerabilities, community structures, and social and cultural capital all shape disaster responses to cultivate long-term resilience (O'Reilly et al., 2020). Policymakers need to be aware of the indirect and often complex social and unequal impacts that policies may have to maximize the benefits and minimize the adverse effects of climate change mitigation policies (Markkanen & Anger-Kraavi, 2019). If not, adaptative responses may contribute to gender-differentiated distributions of power, solidify stereotypical gender roles, and reinforce women's vulnerability.

Alternative Frameworks

Environmental Anthropology and Feminisms have an extensive body of literature on

gender relations and the social challenges influencing climate action (Nelson et al., 2002).

Jessica O'Reilly et al. (2020) argue that "we [need] to collectively confront the urgency of

climate change and the failure of narrow technocratic, human-centric ecomodernist solutions

that have dominated climate mitigation efforts to date". She cites Haraway (2003) who

encourages us to think through and against the nature-culture dichotomies that have enabled

climate violence in the name of human exceptionalism (Haraway cited in O'Reilly, 2020). Non-

human actants shape humans. Material entities respond to, make visible, adapt to, and resist

environmental change" (O'Reilly et al., 2020 p15).

The Feminist theories of New Materialism and Post-Structuralism are valuable

mechanisms to actively connect with the more-than-human world through practices that

extend ethical concerns past human life (Sundberg, 2017). The theories call us to engage nature

in ways beyond dualistic thinking outside nature; focusing on local practices and regional

sustainability that emphasizes a hybrid human/non-human agency that can disrupt gendered

social power (Pearse, 2017). Stacy Alaimo's (2010) trans-corporeality aims to identify how the

human is always intermeshed with the more-than-human. Although, she argues the "concept is

not intended to become a new theory, rather a framework that travels well across intellectual,

political, and popular domains" (Alaimo, 2010, 3), it describes interlocking biological, social, and

political instruments. She asserts that the substance of the human is ultimately inseparable

from the environment and that too often, inert or empty space is a resource for human use

(Alaimo, 2010). Trans-corporeality seeks to deconstruct dualisms to "transform gendered

domains; nature/culture, body/mind, object /subject, resource/agency- all that have been

cultivated to denigrate and silence certain groups of human as well as non-human life" (Alaimo, 2010 p5). Finally, "trans-corporeality denies the human subject as sovereign. Instead, its ethic calls us to somehow find ways of navigating through the simultaneously material, economic, and cultural systems that are so harmful to the living world and yet so difficult to contest and transform" (Alaimo, 2010,18).

Anthropology has a similar theory, a "discussion of a world of many worlds," or a "pluriverse," in which assemblages can interact and coexist, sometimes in conflict, particularly as the problems and solutions of climate change are both borne, in large part, in marginalized bodies, communities, environments, and regions" (O'Reilly et al., 2020). Arturo Escobar's *Designs for the Pluriverse* argues that the pluriverse is a tool for reimagining and reconstructing local worlds away from the present, which involves intensive resource use and vast material destruction (Escobar, 2017). The ubiquity of design is experienced in every literal sense; from the largest structures to the humblest aspects, modern lives are designed (Escobar, 2017). *Pluriverse* calls for the redefinition of design to one that is ontological. Like Alaimo, Escobar, too, critiques dualisms "mind/body, self/ other, object/ nature, nature/ culture, matter/ spirit," calling on the emergence of different intellectual and activist domains. He hopes to use design to "open fresh paths for moving intellectually, socially, and politically beyond dualisms [and perhaps decolonizing Western thought"] (Escobar, 2017, 20). Escobar aims to rethink ontological design to contribute to the "transition from the hegemony of modernity's one-world ontology to pluriverse of socio-natural configurations" (Escobar, 2017 3). The use of design to design an alternate world.

Together, trans-corporeality and pluriverse critique dualisms, create new domains, call for interdependence, and discuss human and non-human collectives' materiality. Both theories examine the tension of a sustainable – just transition and the devaluing of the future that guides our current economic and cultural systems.

Trans-corporeality and pluriverse speak to the multiple identities we all carry. Social science names our various identities, ways of being, and epistemologies as "plurality." Humans do not have just one identity in this world; we are mothers, sisters, friends, co-workers, scholars, consumers, and environmentalists. These identities can often be at odds with one another. Further, the body is not sovereign; it influences and is influenced by our designed world. The frameworks of trans-corporeality and pluriverse aim to rethink the social-natural design away from the singular to plural configurations. Together these scholars underscore the political dimension of the interaction of worlds that are created in everyday practices.

Another framework, Urban Political Ecology (UPE), examines how power dynamics are reproduced in the everyday practices of government. It observes how actors and groups try to problematize relations, places, or tasks (Cornea, et al., 2017). UPE is interested in how subtle power relations create uneven spaces in nature and the built environment, specifically at the micro-level. Everyday government in UPE literature demonstrates how "governance actors negotiate, adapt, hybridize, or create norms and rules and regulation which are not externally imposed on them" (Cornea, et al., 2017, 4). Here, governance is defined as an analytical concept which examines how interdependent state and non-state actors, including CBOs, NGOs, and activists, negotiate policy goals, ways to reach them, and attempts to steer society (Cornea et al., 2017). Governance reproduces a plurality of norms, or normative registers, to

apply in a given situation. Importantly, practices of power by state actors and the informality that occurs within formal structures must be recognized – often disparity between the official model and the actual behavior on the ground (Cornea et al., 2017).

In planning, UPE literature sees governance as the new "regime" of public-private partnerships or as entrepreneurial "strategies" (Cornea et al., 2017, p3). Prescriptions for climate action reveal what Cornea et al. (2017, 3) call a "tension between neoliberalism, capitalist production, and composition on the one hand and the stated ideals of community empowerment, such as urban forests on the other". The same dualisms of capitalism verse sharing echo the traits of masculine verse feminine.

Conclusion

Upon reviewing the relevant literature, mitigation strategies themselves can produce new chains of gendered vulnerabilities unless constructed with an explicit feminist framework (Pearse, 2017). Given that global climate change is experienced at the local level and that women are largely responsible for cultural replication, women will ultimately carry out daily tasks, and habit shifts of prescribed climate action plan strategies (Björnberg & Hansson, 2013). Nelson affirms that "public policymaking has to be borne in terms of the kinds of adaptations that will be legitimized in relation to climate change and in turn how these will affect gender relations" (Nelson, 2002, 57). Policy makers should bear in mind when developing innovation-related policies that discourses and practices of "innovation" carry an implicit gender bias (Pecis, 2016). Climate action plan policies must not rely upon coping strategies dependent upon women's underpaid, unpaid, and invisible labor (Nelson, 2002). Scholars argue that climate

planning must involve women and a feminist perspective (Björnberg & Hansson, 2013). If not,

CAPs could be mechanisms of replication of the same hegemonic systems.

Chapter 3: Circumscription

Climate Action Plans (CAPs) are the result of global climate initiatives and local-level activism. Understanding how climate action plans are circumscribed, that is, how the scopes of these plans is delimited, is essential for understanding the gendered dimensions of climate action strategies. An exploration into the circumscription of Seattle and Boston's CAPs through a feminist lens reveals that discourses of capitalist technological innovation shape climate planning. Further, the focus on the city as a spatially bounded entity limits their capacity for "systems thinking" they purport to deploy.

The IPCC

Most Climate Action Plans draw on reports from the International Panel on Climate Change, IPCC, to establish a general framework for what climate action should consist of. The IPCC is the international authority on climate science and mitigation strategies. The IPCC, established in 1988, is a United Nations body that evaluates climate science by measuring the current impacts and estimating the future risks of a changing climate using systems thinking and analysis (Union of Concerned Scientists, 2018). They analyze options to mitigate the anthropogenic damage to the climate and adapt to a changing planet. IPCC findings are grounded in Western science's rigor and process that requires time and long periods of observation and modeling, taking between four and eight years to complete a report (Union of Concerned Scientists, 2018). The result is an assessment that is ultimately a consensus of hundreds of international scientists and reviewers to inform international policy and negotiations on climate-related issues. A scientific consensus on any issue, particularly at a global level, births a conservative international document both in tone and findings because of

diverse national interests. It is also important to note that individual governments nominate

IPCC scientists to serve on the panel, and representatives may not fully disclose opinions

without the shadow of their government's position on climate change as well as their countries'

economic or socio-political situation. Sovereign governments have vastly different economic,

social, and geopolitical priorities that may affect their position on climate change and proposed

actions.

As of 2018, the IPCC reports that to avoid the worst effects of global warming, we must

transition our energy systems away from fossil fuels and reach carbon neutrality by 2050. The

IPCC (2018) defines carbon neutrality also called net-zero as a state of balance between the

CO_2 emitted into the atmosphere and the CO_2 removed from the atmosphere. Carbon

neutrality is achieved by calculating a carbon footprint and reducing it to zero through a

combination of efficiency measures and supporting external emission reduction projects, like

planting trees. Emission reductions are one part of a two-pronged process. The second part is

capturing and storing hundreds of billions of tons of carbon dioxide.

The IPCC recognizes that the two-pronged approach is essential to limiting global

warming. In the most recent report, they acknowledged the energy systems transition is

underway, while also acknowledging some of the constraints of a systems transition.

> "The political, economic, social and technical feasibility of solar energy, wind
> energy and electricity storage technologies has improved dramatically over the
> past few years, while that of nuclear energy and carbon dioxide capture and
> storage (CCS) in the electricity sector have not shown similar improvements…
> electrification, hydrogen, bio-based feedstocks and substitutions and several
> cases carbon dioxide capture, utilization and storage (CCUS) would lead to deep
> emissions reductions required in energy-intensive industries to limit warming to
> 1.5°C. However, those options are limited by institutional, economic, and
> technical constraints (IPCC, 2018)".

The IPCC further notes that while the recommended actions result from scientific consensus, feasibility is limited at an international level for all nation-states. They also indicate that the two-pronged approach of reducing carbon and extracting carbon is yet to be achieved, most notably, the technology required to make carbon dioxide capture or carbon dioxide capture utilization and storage successful. The foundation of the IPCC recommendations relies on both prongs. The capability to pull hundreds of billions of tons of CO_2 from the atmosphere does not exist, which the IPCC acknowledges in the above text. Importantly, carbon is not the only element in climate-altering greenhouse gasses, but IPCC strategies do not prioritize these other elements.

Moreover, for all the good of the IPCC, the solutions of technological innovation outlined in their assessments enshrine the values of the current capitalist economic system, which requires constant growth, domination, and resource extraction. Feminist scholar Donna Haraway (2003) critiques these technoscientific solutions as "patriarchal", arguing that they "deepen nature-culture dichotomies" and "practices of human-exceptionalism" that perpetuate "climate violence" (cited in O'Reilly et al, 2020, 15).

The Creation and Scope of Local Level Climate Action Plans

At the local level, climate action plans translate the IPCC's recommendation for systems transitions into the three basic tenets of mainstream climate mitigation strategy. The first is efficiency defined as the ratio of output energy verse input energy. Second, electrification, is a total shift away from fossil fuels with the help of smart grid technology, and third, is the procurement of clean energy. These three actions comprise the core components of "carbon

neutrality," which is typically the primary goal of the cities adopting CAPs. There is an

assumption among adopters that electrification and clean energy innovation will save us.

Capitalist ideals underpin the goal of carbon neutrality as written in CAPs, which presume that

technoscientific solutions will resolve the climate crisis with innovation while fostering "green

growth."

The discourse of innovation and green growth is evident in both Boston's and Seattle's

CAPs. The introductory letter from Boston's Mayor, Marty Walsh, reads,

> The 2019 Climate Action Plan Update details the specific actions we will take over the next five years to significantly cut emissions across all sectors of city life, in order to reach **our ultimate goal of carbon neutrality**[1] (Boston Environment Department, 2019, p5)

Then in the background section,

> Reaching **carbon neutrality** aligns with our goals to enhance our community's resilience to the impacts of climate change...Making our buildings more **energy-efficient and fossil fuel free** ... Investing in local clean power, energy storage and energy infrastructure will make our City more resilient to extreme weather. Investing in our building stock will **create jobs and new business and research opportunities** (BED, 2019, p12).

The above text exemplifies the goal of carbon neutrality from IPCC directives coupled with the

need for green growth to accomplish a system transition.

And in Seattle's background section, the CAP affirms the doctrine of the IPCC's system

transition protocol and the conclusion that warming can be limited to 1.5 degrees if the city

takes the prescribed action.

> … Seattle's commitment …to limit warming to **1.5 degrees Celsius**. The resulting actions, developed under the leadership of Mayor Durkan, reflect a tipping point in the **transition to Seattle's zero-emissions future**. They are designed to move beyond incremental change and fundamentally **reshape our building and**

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[1] Bold indicates that the emphasis is mine.

transportation systems for a fossil-fuel-free future" (Office of Sustainability and the Environment, 2018, p4).

And in the following section,

> **Efficiency** remains an important strategy to reduce waste and free up **clean and carbon-neutral electricity** to provide the heat and power needed for our growing city; however, we **must rapidly transition away from fossil fuels to zero-emissions energy** in our cars, trucks, buses, and buildings (OSE, 2018, p6).

The selected excerpts are examples of how Boston's and Seattle's climate action strategies are rooted in innovation and efficiency, particularly in energy and other major infrastructure. The CAPs as written buy into the IPCC's discourse that we can limit warming to an increase of 1.5 degrees if we reach carbon neutrality. Interestingly, the plans do not mention the need to also pull carbon from the atmosphere, the essential second prong. The plans insinuate that global climate change is a problem of efficiency, not consumption. Further, they assume that eliminating carbon emissions within their jurisdictional boundary would achieve net benefit carbon neutrality.

Boston and Seattle take the tenets of carbon neutrality as doctrine and apply them as the best means of action. Interviews revealed an institutionality of climate planning. Kat Eshel, Boston's lead environmental staff on the 2019 CAP Update said in an interview,

> it's not too difficult to foresee that the big actions [in the climate action plan] are going to [align with] the three components of carbon neutrality: one, efficiency, two, electrification, or least the elimination of fossil fuels [to the extent possible] and, three, once you've done that work to clean up your fuel sources, buy clean energy (K. Eshel, Personal Communication, April 8, 2021).

The comment is significant in how actors may unknowingly perpetuate hegemonic assumptions that we can solve the climate crisis without addressing the root causes of climate change: systems of exploitation, consumption, commodification, racism, settler-

colonialism, imperialism, militarism, and capitalism (WEDO, 2015) . Efficiency,

electrification, and the elimination of fossil fuels are palliative to the core issue of

needing to reduce overall consumption.

To understand the processes by which hegemonic ideals enshrined in the IPCC are

reproduced in city-level climate action plans, we first need to understand the role of advisory

groups and commissions in creating a path to carbon neutrality. The goal for Seattle and Boston

is to be carbon neutral by 2050. City-level climate action planning begins with elected officials

who assemble a technical advisory group, TAG. TAGs consist of scientists and experts in the

fields of energy and engineering. They use climate projections, estimate greenhouse gas

emissions, carbon consumption, and energy use from transportation and buildings to create an

inventory report. The inventory report is given to the City, which passes it on to a Green Ribbon

Commission, GRC. The GRC is "a consortium of business and non-profit leaders working with

the city to mitigate and prepare for the impacts of climate change" (Green Ribbon Commission,

2019 p2). GRCs incorporate previously published city reports on population and economic

growth projections into their reports. As a significant contributor to Boston's GRC, Boston

University created:

> "a sophisticated analytical platform to assess the impact of broad range
> strategies. The result, "Carbon Free Boston," January 2019, an initiative modeled
> the **four main carbon-emitting sectors of the economy — buildings,**
> **transportation, waste, and electricity** — and analyzed the policy and **technology**
> **pathways** to a **post-carbon future** (Green Ribbon Commission, 2019, 4).

The stated goal of the report from GRCs is to help city policymakers and other large

landowners within the City's boundaries prepare for the risks associated with the extreme

weather events of climate change and provide an outline of where to make investments to

reduce GHGs and increase efficiency. Reports and recommendations go back to the City, where a request for proposals (RFP) goes out to consultants to plan, engage, write, and publish a climate action plan.

The choice of experts assembled to develop climate action plans carry assumptions about how to solve the climate crisis and who can contribute to these solutions. Green Ribbon Commission participants in Seattle and Boston have representatives from the city, state, philanthropy, academia, the energy sector, real estate development, finance, and Big Tech (Microsoft, Facebook, Amazon, and Google). Representatives in TAGs, GRCs, and consulting firms may have overlapping actors at various stages of the process. There are some assumptions that could be made as to why these actors have influence:

- The private sector is best suited to undertake and finance mitigation, as success in capitalism will bring success in climate action.

- Philanthropy's potential for funding streams, their vital importance in social services, and socio-political position.

- Big Tech's presence facilitates technological innovation to improve efficiency through smart grid technology.

- Climate change and extreme weather pose risks to economically powerful corporations and large private landowners; thus, future investments in mitigation will benefit these corporations and landholders.

- Impactful climate action will need industry regulation, and corporations tend to tolerate shifts in regulations if they help develop them.

- Experts of the physical sciences from academia are the pinnacle of an epistemological hierarchy of the Western Sciences.

- Scientific knowledge mobilizes political action (Dolšak & Prakash, 2018) and helps to prioritize climate planning.

Between the assumptions behind the IPCC solutions and the panel of experts that constitute the GRC, it is perhaps not surprising that technological innovation and green economic growth are central components of both Seattle's and Boston's CAPs. The following quotes provide examples of how the cities describe themselves as inspiring innovators, bold leaders, and open collaborators who value economic prosperity. Seattle's introductory message from Mayor Durkan reads,

> Here in Seattle, **we don't wait for others to tell us what our future** is going to look like - we create it. We have led the world in aerospace technology, are home to the fastest computers and the cloud, and are pioneering developments to help cure for cancer. And when faced with the challenge of climate change, Seattle is again **ready to stand up and lead**. (OSE, 2018, 3)

The transportation section of the plan the continues,

> …future of transportation in Seattle aligns with our city's goals and values and will position Seattle to **encourage and guide innovation** in transportation **technology**, reorganizing our streets to grow healthy communities and vibrant public spaces (OSE, 2018, 9).

Similarly, Boston's opening letter from the mayor posits,

> Implementing this plan is a major undertaking, and it's one of the most important challenges we'll face as a city. It will require **courageous solutions** and **creative teamwork**. We must make our buildings and our transportation systems much more energy efficient. We **must invest in clean energy and job training** (BED, 2019, 5).

Later in the CAP,

The City of Boston needs partners to **collaborate** on new programs and policies, and **to innovate** and take action within their own communities and **industries** (BED, 2019, 29).

The above text are examples of how the cities brand themselves and that creativity and past success in aerospace or tech equips these municipalities to handle the challenges of climate change. Further, Seattle's and Boston's climate action documents clearly state the centrality of "green growth" in climate mitigation strategy. For instance, Boston's 2019 climate action plan update indicates that climate action is "inextricably tied to the city's wider social, environmental, and economic goals" and among these specifically highlights goals of "economic competitiveness" (BED, 2019, 57), developing a "clean energy economy" (BED, 2019, 59), and encouraging "land use and economic development policies that support neighborhood retail and Boston-based startups" (BED, 2019, 78).

Similarly, Seattle hopes green initiatives will strengthen the City's economy:

…we must lead with bold solutions that reduce pollution while strengthening our economy and ensuring that the **benefits of a clean energy economy** (OSE, 2018, 3) and …actions that will significantly reduce emissions while also providing numerous other economic, social, and environmental benefits" (Green Ribbon Commission Report, 2013, 4) …multiple co-benefits that make Seattle a more environmentally sustainable, **economically prosperous**, and socially just place (GGLO, 2013 p5) and finally,… increase access to economic opportunity…(OSE, 2019, 7).

Feminist Critique of Green Growth and Innovation

Feminist scholars and ecology experts point out that relying on "green growth" and "innovation" to address climate change is problematic. The technology-focused future visions require wildly unrealistic increases in energy generation. Growth requires more mineral extraction, which in turn requires more energy. This is a problem because we have used up

most of the easy-to-access sources, and the quality of our energy resources is declining (the

difference of grade-A to now grade-D) (Boehnert and Mair, 2019; Joy 2021). Joy (2021) argues

that the fundamental problem we face in replacing fossil fuel energy with renewable energy is

that our renewable technologies are dramatically less energy-dense than fossil fuels, which

means larger land areas are required to produce the same amount of energy. A recent study

out of the European Union found that renewable electricity generation overtook coal and gas in

2020 (Joy, 2021). But previous research argued that replacing the total energy, not just

electricity, use in the UK with the best available mix of wind, solar, and hydroelectricity would

require the country's entire landmass (Joy, 2021). To do it for Singapore would require an area

of sixty Singapores (Joy, 2021). While the energy cost of renewables is falling, continued

increases in consumption only make the transition to renewables harder and put a substantial

additional burden on our already vulnerable energy systems (Boehnert and Mair, 2019).

As countries explore decarbonizing their economies, the mantra of "green growth" also

risks increasing reliance on technologies that may fail or are not "green" after all (Brand, 2012).

For example, electric vehicles, EVs, like anything manufactured, require raw materials for

production, and some of these materials carry extreme environmental impacts. Lithium is

required to manufacture batteries for both EVs and green energy storage. The extraction

process uses over 500,000 gallons for each ton of lithium produced (McFadden, 2021). Such

enormous consumption of water impacts the surrounding ecosystems. The heavy investment

by the mining industry and countries where lithium is found is concerning when it is unknown

when we will reach peak (Greim et al, 2020). The peak occurs when the maximum extraction is

reached, after which there is a terminal decline resulting in greater environmental impacts.

Mining companies eventually leave these countries after the peak is reached, which are primarily in the Global South, with ecosystem destruction. Some experts believe lithium-ion extraction will peak by the mid 2020s (McFadden, 2021). As accessible extraction continues and eventually peaks, mining companies are looking for alternatives that may be similar to the invasive and highly destructive extraction of oil in tar sands and natural gas via fracking. Furthermore, the manufacturing of solar panels, which primarily takes place in China, requires caustic chemicals such as sodium hydroxide and hydrofluoric acid (Nunez, 2014). Furthermore, the process uses water and electricity, emitting greenhouse gasses and creating waste (Nunez, 2014). The problems with solar and lithium-ion extraction raise questions about the ability of these technologies to fight climate change and reduce environmental toxins.

The technofix futures that rely on innovation are arguably not far from the type of thinking that created the climate and ecological crisis in the first place (Boehlert and Mair, 2019; O'Reilly et al. 2020;). The "type of innovation that is called upon is engineered, masculine, and perceived to be connected to something new, physical and technical, with the ability to compete in a globalized reality" (Amble, 2010 cited in Nählinder et al, 2015). The technologies, as mentioned earlier, are bound to the same false notion that the economy can grow infinitely—whether it is based on fossil-fuel or renewables. The values of growth, creation, and conquest cannot get us out of the problems that they created in the first place.

Feminists critique these ecomodernist ideas of technology and innovation as a silver bullet that will alter our climate trajectory. The *Ecomodernist Manifesto's* (Asafu- Adjaye, et al 2013) goal of technological improvements permits us to address climate and ecological

breakdown while also increasing production and consumption. Ecomodernist solutions allows

believers to downplay the burdens and emphasize the benefits. Technological progress in the

Global North without dramatic consumption reduction leads to emission leakage in the Global

South, increasing total global emissions, thus shifting the ecological burden to developing

countries without the economic or political power to resist (Boehnert and Mair, 2019; O'Reilly

et al. 2020).

Jurisdiction

There is a tension between the jurisdictional capabilities of city government and the

global economic networks in which these cities are enmeshed. International trade, the

Interstate Commerce Clause, and federal and state preemption mean that cities' largest

polluters are not accounted for in greenhouse gas inventories. Seattle and Boston do not

include emissions from airports, seaports, freight trains, or air freight, which has the highest

carbon output (Abel, 2015). Unfortunately, despite their best intentions CAPs cannot fully

succeed if significant parts of the climate problem are outside of their jurisdiction.

Boston Logan International Airport calls itself the world's most environmentally friendly

airport; however, Logan officials also acknowledge that their carbon emissions increased since

2012. In 2013, the airport emitted more than 1.3 billion pounds of carbon dioxide — 66 million

pounds, or 5.3 percent, more than in 2012 (Abel, 2015).

Because the shipping distances are often vast, emissions from sea shipment are globally

substantial and account for far more annual tonnage than any other trade mode (International

Maritime Organization, 2019). The Port of Seattle is one of the nation's ten busiest seaports,

with imports and exports totaling over $43 billion in 2011 (Port of Seattle, 2021). The Port of

Seattle operates Sea-Tac Airport as well as cruise ship terminals[2]. Seattle's seaport is fourth among U.S. ports in total dollar value of foreign trade in 2011 and twelfth in total foreign and domestic vessel trade. Importantly, while the shipping industry has made gains in efficiency, the annual increases in the overall amount of shipping overwhelm these gains. According to the International Maritime Organization, IMO, the growth in ton-kilometers of sea shipment has averaged four percent yearly since the 1990s. It has grown by a factor of five since the 1970s (International Maritime Organization, 2019). There are now over 100,000 transport ships at sea, of which about 6,000 are large container ships. The IMO estimates the carbon dioxide emission from shipping will increase 50-250 percent by 2050 if no action is taken (International Maritime Organization, 2019). The fact that shipping enjoys substantial tax privileges contributes to growing emissions (Strand, 2013). The cities' lack of accounting for ports and global trade in GHG inventories as well as reduction strategies limits their capacity to successfully accomplish a "systems thinking" approach to climate action.

By bounding GHG emissions inventories and reduction strategies to the city level, which is where emissions are measured, the city can ignore the downstream effects of their CAPs, which will nonetheless impact the global climate. In addition, as mentioned previously, technological innovation to reduce GHGs at the local level requires resources from somewhere else. Indeed, part of the problem is jurisdiction, but cities do have control over other elements of carbon reducing tactics, like material sourcing and waste disposal. Again, lithium-ion extraction in Bolivia's salt flats is very water-dependent, draining aquifers and causing

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[2] https://www.forbes.com/sites/jamesellsmoor/2019/04/26/cruise-ship-pollution-is-causing-serious-health-and-environmental-problems/?sh=1e6e57e137db

desertification (McFadden, 2021). On the other end of the product's life cycle is toxic e-waste illegally shipped to developing counties, like India, where women sort minerals in their kitchens, releasing toxic metals and particles into the air (Lamer, 2018). Transportation emissions are involved at all product life-cycle stages and need to be accounted for in the CAPs.

Conclusion

The mission of the IPCC is to educate international policymakers on the science of climate change and provide strategies to mitigate the harm and adapt to warming planet. As a part of their plan to address climate issues, the IPCC has a two-pronged approach: carbon emissions reduction and carbon capture. However, their two-pronged approach, as discussed in the introductory chapter, is impaired by the floundering of current carbon capture technology, which has led to an almost exclusive focus on emissions reduction.

CAPs must contend with is the spatially bound entity of the city which inhibits systems thinking and approaches to solving a global issue. The circumscription of climate action plans affects cities' capabilities to both produce and realize climate resiliency. While the actors involved in creating local level CAPs have good intentions, they are products of the same system that created the climate crisis: the epistemological hierarchy of Western science and the capitalist global economy that prioritizes technology, growth, resource extraction, and consumption. Fortunately, a feminist lens shows us the flaws of green growth and innovation and offers alternative solutions which I develop in a later chapter. The next chapter will examine the climate mitigation strategies in Boston and Seattle.

Chapter 4: Solutions

While they have their merits, the solutions proposed in Seattle's and Boston's CAPs reflect the patriarchal hegemonic assumptions described in the previous chapter. The agendas are primarily technical, green growth-oriented, and focused on mitigation by reducing greenhouse gas emissions from transportation, buildings, and energy supply. Specifically, the transportation sector solutions are innovation and electrification, building retrofits to increase efficiency and reduce energy consumption, and local renewable energy production via wind, solar, or hydro. Masculine solutions of innovation and green growth dominate action items. The minimal soft infrastructure, the feminine of social capital building that the plans promote, is focused on technical, some might say masculinist, solutions. While the CAPs perfunctorily integrate equity into the solutions, a conscientious review of the literature related to the outlined solutions, together with interviews with Climate Justice Advocates, suggests that the gendered impacts of climate action are not being given careful consideration.

"The Big Three"

Transportation emissions are the largest piece of the pie in greenhouse gas emissions inventories. Two-thirds of Seattle's GHGs are from road transportation. Therefore, Seattle's "overall strategy is to increase active and shared transportation (including biking and transit), accelerate car, bus, and truck electrification, and improve the efficiency of the roadway system to reduce idling and unnecessary driving" (Office of Sustainability and the Environment, 2018, 14). They plan to do this by placing "Electric Vehicle Charging in the Right of Way: Visible, ready access to charging infrastructure is essential to expanding vehicle electrification" with priority

placement in environmental justice communities (OSE, 2018, 7). The City plans to shift the

entire municipal fleet of vehicles to electric, support and grow tax incentives for buying EV cars,

and enact code requirements to require EV stations in new buildings. Lastly, the City projects

that congestion pricing will reduce the number of personal vehicles traveling into and around

the City. The City of Seattle has planned transportation around smart growth since 1994; they

explain smart growth as:

> [an] urban village strategy (OSE, 2019, p8)…The 2017 New Mobility Playbook sets out a course for how Seattle will ensure that the future of transportation in Seattle aligns with our City's goals and values and will position Seattle to **encourage and guide innovation in transportation technology**, reorganizing our streets to grow healthy communities and vibrant public spaces (OSE, 2019, p9)…Smart growth is the foundation for effective transportation policy… **The future of transportation is smart, shared, electric, and ultimately autonomous**… these policies align with our goals to improve connectivity, health and safety (OSE, 2019, p7).

The strategies of smart growth and transportation technology are evident in Seattle's

Climate Action Plan. The City's focus is on transportation technology, mainly EVs. Seattle is

investing in the necessary EV infrastructure, shifting the municipal fleet to EVs and installing

charging stations in the public right of way. The city's decision to prioritize infrastructure

investment in personally owned vehicles as opposed to shared public transportation fulfills

some short-term goals of carbon reduction but misses opportunities to improve*, connectivity,*

health, and *safety* for the entire city.

The transportation solutions proposed in Boston are similar. Boston's CAP reads, "we

need people who drive alone to take transit, carpool, bike or walk to work instead… Any

remaining vehicles **must be electric or zero emissions**" (Boston Environment Department,

2019, p56). Like Seattle, Boston's CAP purposefully speaks to the priorities of the current long-

term transportation plan, Go Boston 2030. Kat Eshel from Boston's Environment Department said city departments often work in silos but can use plans to speak to one another (K. Eshel, Personal Communication, April 8, 2021). The CAP re-iterated Boston's current transportation agenda. *Go Boston 2030* calls for expanding access to connected transit options, improving traffic-related safety on Boston's streets, and ensuring service reliability (BED, 2019, 54). Boston seeks to improve the transportation infrastructure to make it "safer". It highlights the *Women Bike Program*, which offers free, learn-to-ride classes led by women for Boston residents who identify as female or gender-nonconforming (BED, 2019, 56). And finally, the plan prioritizes the deployment of EV infrastructure in municipal lots and publicly owned locations in environmental justice communities (BED, 2019, 65). Their metric for success is having 100% of residents within a 10-minute walk of a public EV charger or EV car-share facility (BED, 2019, 65).

While many aspects of these plans are laudable, they are missing an opportunity to shift the public's approach to mobility within the city. When interviewed about Boston's transportation strategies, Stacy Thompson from Livable Streets questioned, "Who are these plans for?" (S. Thompson, Personal communication, March 24, 2021). Thompson's rhetorical question alludes to how these plans may not benefit the communities that need them most. Boston's and Seattle's narrow technological focus limits social change and may impede the social innovation and creativity needed to change behaviors and social norms (Stephens, 2020). The techno-focus also exacerbates inequities. For instance, autonomous vehicles are likely to increase emissions and traffic in low-income neighborhoods (Stephens, 2020). However, the best example of the plans' techno-focus is their infatuation with EVs. Stephens (2020) argues that the Tesla Model 3 appeals primarily to wealthy white men, making it a rich person's toy.

The robust promotion of EVs as the solution to climate change reinforces the cultural

impression that it is too expensive to make eco-friendly choices – and so environmentalism is

seen as an activity for the rich (Stephens, 2020). A climate justice advocate illustrates the

detachment of city priorities from community needs, "EV charging stations are great, but **who

drives those [EVs]? not my community**. Over and over again I hear people want affordable,

safe, reliable, redundant public transit" (Anonymous, Personal Communication, April 12, 2021).

Placing charging stations in the right of way and prioritizing installation in environmental justice

communities demonstrates a disconnect between climate policy, transportation, and social

justice in both Seattle and Boston.

In addition, since women use public transportation for over 13% of their commutes,

whereas men use it for fewer than 3% of their trips (Sanchez and Gonzalez, 2016), public transit

becomes a gendered issue. The continued focus on technological innovation in individual

transportation means significant public investments in EV charging stations, instead of

redundant, reliable, safe public transit that benefits the greater population, specifically women.

The lack of investment in making public transit a viable option for everyone is also

troubling in light of congestion pricing initiatives. Though Seattle is looking at offsets and

vouchers for low-income populations, gender and care work influence travel. Kockelman and

Kalmanje (2005) argue that those without children, younger respondents, and those with fewer

vehicles appear more willing to support congestion pricing and more likely to modify their

travel behaviors. They also infer that men and older persons more frequently modify trip

choices to avoid congestion (Kockelman and Kalmanje, 2005). The ability to shift travel

diminishes with additional children due to greater childcare responsibilities (Kockelman and

Kalmanje, 2005). If congestion pricing passes, EJ advocates in Seattle are actively lobbying for

the funds to go into low-income communities for anti-displacement programs.

Buildings

Boston is an old city compared to Seattle. An infographic in Boston's CAP reads that the

city needs to retrofit more than 86,000 buildings, with the goal of 80% retrofitted and

electrified by 2050 (BED, 2019, 34). Boston plans to enact a Zero Net Carbon (ZNC) building

code for all new construction, including city-funded affordable housing (BED, 2019, 34). ZNC is

achieved when the amount of carbon dioxide emissions released annually is zero or negative. A

ZNC building is highly energy-efficient and is fully powered from on-site and/or off-site

renewable energy sources and offsets.

Boston also wants to invest in energy efficiency and renewable energy generation in

municipal buildings, develop a carbon emissions performance standard to decarbonize existing

large buildings, expand workforce development programs for building decarbonization, and

advocate for state building policies that align with carbon neutrality by 2050 (BED, 2019, 36).

The City explains their rationale for these changes by saying,

> Making our buildings more **energy efficient and fossil fuel free** will make homes
> healthier and more comfortable and workplaces more productive. **Investing in
> local clean power**, energy storage and energy infrastructure will make our City
> more resilient to extreme weather. **Investing in our building stock will create
> jobs, new business, and research opportunities** (BED, 2019, 12)

Similarly, in Seattle's CAP, the City wants to build green. The plan is to increase energy

efficiency and electrify homes, create tiered energy codes, provide incentives to increase

energy efficiency in multifamily and commercial buildings, and support converting oil heat

pumps to electricity. There is no mention in the CAP about the prioritization of affordable

housing energy efficiency upgrades like in Boston's. As such, Seattle's EJ community and Climate Justice Advocates are wary of green building for fear of "Green Gentrification." a climate justice advocate (CJA) explains, "the city needs **robust anti-displacement strategies**… when homes are built green, they cost more, developers can charge a premium" (Anonymous, Personal Communication, April 12, 2021).

Green Gentrification or green lining is a process by which energy-efficient, low carbon, middle/ mixed-income development replaces squats or old, dilapidated housing in poor neighborhoods or urban centers, resulting in gentrification. When asked about efficiency and building green in Seattle, the CJA agreed that the mayor's executive order to run on renewable energy to transition away from fossil fuels is positive but doesn't acknowledge the potential for displacement because of rising property taxes. She relates that people whom this order will affect convey their concern:

> "what are the **anti-displacement strategies** that you all are employing because, like our neighborhoods we deserve to breathe clean air, we deserve to live in healthy homes and have clean water and when we see those investments made. That also **tells us we're about to be displaced and gentrified**… Absolutely, continuing to address you know the pollution piece, and the greenhouse gas emissions, but now we're in the space where we're demanding of ourselves to think of what does it look like to **pair those things with deep investments and anti-displacement strategies**."(Anonymous, Personal Communication, April 12, 2021)

Anti-displacement efforts have been front and center for low-income communities of color in Seattle for the past twenty years (Got Green Annual Report, 2019). The rise of Big Tech, the power of for-profit real estate, and now the build green movement are making the affordable housing and displacement situation worse (Buhayer & Bass, 2108; Bick, 2109). Bo Zhang, with Seattle's Planning Department, speaking for herself, not the City, said in a recent

podcast that the City's planning department's focus on anti-displacement is made moot by for-profit real estate focus on high-end homes and not affordable three-bedroom family units (Martinez, 2019).

Landownership, capitalist commodification of housing, and climate change are converging to increase vulnerabilities. Affordable housing and the threat of displacement are gendered issues affecting women and caregivers. Quets (2016) found that most households in subsidized housing are female-headed; 83% of households participating in the Section 8 Housing Choice Voucher Program are led by women (Quets, 2016). In addition, more than one-third of households in public housing have children under the age of 18 (Quets, 2016). Moreover, not only do some of the most vulnerable members of the population rely on public housing, but a new study found that a startling 89% of Boston's subsidized housing is at risk for flooding (Buchanan, et al 2020), putting these people, primarily women and children, at even greater risk.

Local Renewable Energy

Seattle is one of the few American cities to achieve zero net carbon (Seattle City Light, 2021). Seattle Public Utilities, the publicly owned, not-for-profit energy provider, sources 90% of its power from renewables, hydroelectric, and wind (Seattle City Light, 2021). The other 10% of energy is made carbon neutral with offsets. Offsets are an accounting mechanism that calculates greenhouse gas emissions then subtracts carbon-absorbing efforts, like planting trees.

While not zero net carbon yet, Boston focuses on their Community Choice Electricity, CCE, as the primary tool for reducing emissions from their energy supply. They are working to

increase the amount of renewable energy on the regional grid. The CCE program purchases

renewable electricity for its customers to support *new* (emphasis theirs) renewable energy

projects that prioritizes local sources and suppliers. The program first buys from Boston, then

Massachusetts, followed by New England, then elsewhere when needed (BED, 2021). Local

energy procurement powering Boston's homes avoids relying on destructive extractive fossil

fuels for power.

As discussed in the previous chapter, renewable energy comes with its challenges.

Renewables cannot support continued, increasing consumption, and ecologically they may have

a more significant impact than what is widely understood. Seattle's reliance on hydroelectricity

provides a primary example. Hydroelectricity offers the means for Seattle to call itself zero net

carbon. While it is a notable accomplishment, in the Pacific Northwest, hydroelectric dams have

decimated entire ecosystems by blocking salmon runs[3]. Salmon are a keystone species [4] and of

major cultural significance and sustenance to Indigenous peoples. For decades Indigenous

peoples, ecologists, biologists, and many other stakeholders have been working to remove

dams from rivers in the Pacific Northwest in order to undo some of the damage. Fortunately, if

Biden's infrastructure bill passes, $30 million is earmarked for hydroelectric dam removal along

the Snake River through Idaho (Steinbauer, 2021). If hydroelectric dams are removed along the

Snake, Columbia, and other rivers in the Pacific Northwest, Seattle Public Utilities' energy

profile would no longer be zero net carbon, requiring Seattle to find alternative ways to meet

ZNC goals.

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[3] https://www.sierraclub.org/sierra/will-snake-river-s-dams-be-next-come-down
[4] A keystone species is an organism that defines an ecosystem, and without its keystone species, the ecosystem would be dramatically different or cease to exist altogether (nationalgeographic.org)

In addition to the ecological damage of damming, climate change subverts hydroelectricity's viability as a long-term, green solution. The ongoing drought is having a troubling impact on hydroelectric dams. States across the West are at risk of electricity shortages in the summer of 2021 as a crippling drought reduces the amount of water available to generate hydroelectric power (Blunt & Carlton, 2021).

Hydroelectric dams are a supreme example of the hard masculine infrastructure controlling the feminine nature: hard infrastructure that humans came to rely upon to deliver a use. Consequently, hydroelectric dams illustrate the feminist Donna Haraway's nature-culture dichotomy of climate violence in the name of human-exceptionalism. Dams stop colossal amounts of water, holding the water for a specific purpose, disregarding the needs of the surrounding ecosystems.

And Then There is Waste

Another critical component of climate action in cities is waste: household, commercial, municipal, solid, compost, and recycling. Neither of the case study cities include waste as part of the "Big Three"," but the CAPs still highlight that waste is an important emission reduction consideration in climate action.

In 2007, the Seattle City Council passed a resolution to make the city "Zero Waste" (Seattle Public Utilities, 2021). According to the Seattle Public Utilities, the success of the zero waste efforts by the City resulted in a 14% reduction of emissions overall, and per person emissions declined 23%, primarily as a result of reductions in the annual amount of waste landfilled (through compost and recycling). The success of zero waste in Seattle is the result of education, outreach, and fines for not sorting waste into proper receptacles: food scraps/ yard

waste into compost, recyclables to be made into something else, or garbage headed to a landfill. Today, emissions from waste management remain a relatively small component of Seattle's GHG emissions (OSE, 2018, 5).

Zero Waste Boston, referenced in the CAP, lays out strategies to divert 90% of Boston's waste and includes a strong focus on how source reduction can reduce waste emissions by 40% by 2050 (BED, 2019, 78). As an example, the CAP includes a photo of an outdoor used book sale captioned, "Buying used is one of many ways to reduce our personal carbon impact" (BED, 2019, 78). Boston further articulates the desire to reduce waste in Action Item #16 of the CAP:

> Decarbonize the consumption of Boston Residents and Businesses… our **economic decisions as a consumers, business and institutions** can also result in **significant carbon emissions** and support industries that contribute to global climate change (BED, 2019, 77).

According to the EPA, the average American produces 4.9 pounds of municipal waste per day (US EPA, 2017). The garbage portion of municipal waste is sent to landfills or combusted.

Our recyclables, particularly plastics, are sold back into the global market, which uses them to produce new materials. The United States has had agreements with multiple countries, primarily China, but China is no longer allowing the United States to export its garbage there. In response to this change CJA from Seattle states, "the **conversation I think has shifted and needs to shift a bit more on public discourse around waste reduction**, less packaging..." (Anonymous, Personal Communication April 12, 2021).

One of places where a shift in public discourse on waste reduction is taking place is on social media. Murphy (2019) used virtual ethnography to examine the zero-waste community on Instagram, and she found that the zero-waste movement skewed feminine

(Murphy, 2019). Murphy (2019) hypothesizes the gender dominance of the movement is due to its focus on reducing household waste, a domain over which women still reign. Ultimately, she concluded that the zero-waste community on Instagram was ineffective at reducing plastic waste (Murphy, 2019). However, there is still a strong belief that women can control waste through consumption. As CJA explains, "**Women yield so much power in terms of purchasing power**; we're the ones making decisions on what we're **consuming in our households**" (Anonymous, Personal Communication April 12, 2021).

There is truth to CJA's statement: women do buy most of the food, household goods, and clothing. However, it is problematic to individualize consumption patterns, especially at the gendered household level because women do not exclusively buy for themselves. Not only is looking at individualized consumption problematic, it is also paradoxical: the zero-waste movement is centered on consuming less, but it calls upon consumers to shift their consumption to signal to industry to evolve (Conway, 2019).

Critics of zero waste argue that "zero-waste is time-consuming and expensive. Living a zero-waste lifestyle involves very inconvenient things like making your own toothpaste and never ordering takeout" (Conway, 2019). From personal experience, as a working mother who occasionally participates in the circular economy and aims for zero waste, this participation creates costs, mainly in time and carbon emissions from driving. For example, it is difficult to nearly impossible to find used pants for five-year-old boys; a person can drive from thrift shops to consignment only to come out empty handed, when a simple click online gets it done, saving time and carbon emissions from driving around.

Zero waste initiatives are admirable at the surface level; after all, capitalist consumption patterns got us into climate peril. However, the fixation on waste reduction relies on gendered labor, and women could become scapegoats for impotent waste redirection and reduction strategies. Zero waste initiatives misdirect our attention away from systematic causes of waste.

Masculinist Solutions in Resilience and Soft Infrastructure

To begin this section, I am not arguing that cities should not make investments in hard infrastructures like stormwater retention, blue and green infrastructure, and elevated buildings; they are necessary to protect people and property from extreme weather events. Rather, I am emphasizing that the skewed investments thus far prioritize and favor hard infrastructure that reflects the masculine, visible, built, nature-controlling solutions over the feminine, social capital, community development, and education.

Feminist scholars believe community resilience relies on social capital and soft infrastructure. In this section, I explore the minimal soft infrastructure, the feminine of social capital building that the plans promote, is focused on technical, some might say masculinist, solutions.

The CAPs' green job training initiatives for a green economy echo the Green New Deal's equity-based job training. The idea is that these new green jobs are well paying, fostering the transition of our energy infrastructure to green renewables to grow local energy production, increasing local resiliency for a global impact. A green transition needs a trained workforce in construction, retrofitting, and energy infrastructure. The green jobs of the future outlined in the dominant climate action discourse narrowly focus on engineering and construction-type

work, which are masculine-dominated and for market-driven production. I argue Boston's quota of 12% women in green job training for building retrofits does not equal economic inclusion. Furthermore, while there is a place for such work, the short-sightedness of green growth's market-driven workforce training maintains the extractive, patriarchal economic model, inhibiting creative feminine solutions that could save us from the climate crisis.

For instance, a pillar of climate justice is affordable housing, and both Seattle and Boston have affordable housing shortages that they are attempting to address. Scholars and Climate Justice Advocates agree that affordable housing is a crucial element of climate resiliency, and for this, we need a workforce trained in green construction. In fact, a facet of the proposed Green New Deal is training a workforce to retrofit, rebuild, and build more affordable housing. Boston's housing plan, *Boston's Housing 2030* (mentioned in the CAP), commits to "affordability" and "displacement prevention" (Boston Environment Department, 2019, 16). Further, according to the CAP, *Boston's Housing 2030* seeks to develop 16,000 income-restricted housing units, bringing the total to around 70,000 homes (BED, 2019, 16). Under the plan, 64% of housing production to date is located in areas that are within a five-minute walk of public transportation (BED, 2019, 65). Since, more women than men rely on public transit and affordable housing, this is an illustration of how women, and climate justice on a broader scale, rely upon two hard infrastructures: the physical of homes and transportation accessibility; however, their effectiveness is based on a trained workforce (i.e., education) which is a social, soft infrastructure.

So far, Boston prioritizes hard infrastructure climate solutions to hold back or drain water from the City. Mayor Walsh promised to spend $30 million a year, equal to 10% of

Boston's five-year capital budget, on projects pertaining to water inundation and sea-level rise (Mufson, 2020). As part of *Climate Ready Boston*, water retention and diversion projects in Charlestown and East Boston are in secondary planning phases, with more neighborhoods to come. Another option the City is considering to hold back water is a sea wall. UMass Boston and the Woods Hole Group estimate that a ten-foot sea wall would cost $11.8 billion, not including the cost of dredging, shipping disruptions, and ecological damage (Mufson, 2020).

And herein lies the seeming catch-22 of such situations: hard infrastructure gives elected officials physical proof of taxpayer investments, but it also may result in a false reliance on engineered solutions that might fail. Infamously, the Army Corp of Engineers built the levees in New Orleans to withstand a direct hit from a category three hurricane. In 2007, when Hurricane Katrina hit New Orleans, it was category five; consequently, the levees failed (Newkirk, 2020). These levees gave people a false sense of confidence. It is difficult to argue that investments made in water retention and diversion projects are not sound. Nevertheless, it means that other areas are given less attention or left out altogether. Water diversion, sea walls, levees, housing, and transportation are all forms of hard infrastructure that have varying degrees of impact on women's and care- givers' daily lives and protection from climate hazards. Climate change calls upon us to shift our priorities to focus more housing justice and soft infrastructure.

Alternatives

There are alternative solutions to the current dominant climate action discourse. Feminist climate strategies focus on building community resilience with soft infrastructure prioritizing community-centric approaches. The Asian Pacific Environmental Network provides

an alternative to mainstream climate resilience strategies. The action items are: fund mutual aid networks and resilience hubs where people gather; access services that are equipped to support hazard response and recovery at a local and regional scale; invest in the care workforce because home health care workers have the relationships and skills needed to support disaster preparedness; rebuild the public sector workforce of public health, social services, schools, and sustainability workers to achieve climate goals; improve emergency response to protect the most vulnerable, with an inclusive, comprehensive strategy including evacuation plans for communities disproportionately impacted by systemic racism, historic economic disinvestment, and the medically vulnerable (Asian Pacific Network, 2020). The demands by the Asian Pacific Environmental Network dovetail the ten principles of a Feminist Green New Deal that will be discussed in the following chapter.

Conclusion

The Big Three actions to reduce carbon in Seattle and Boston are in the sectors of transportation, building efficiency, and renewable energy procurement. However, these solutions rely on technical innovation and green growth and, as I have shown, have differential gendered impacts. I explored some of the potential gendered impacts of zero waste resolutions and how they rely on unseen gendered labor and the responsibilization of individual consumption. In this chapter I discussed the importance of housing in creating climate resiliency. I argued that housing justice may mediate some of the gendered risks associated with climate change. In the next chapter, I shall examine the impacts of procedural justice on climate action strategies in Boston and Seattle.

Chapter 5: Procedural Justice

One of the goals of this thesis is to examine the inclusion of women in the climate policy-making decision processes and how their participation affects agendas. Specifically, the research question asks, how does women's participation affect the substance of Boston's and Seattle's Climate Action Plans? This section will answer the question by engaging with the theories of procedural justice, critical mass, and feminism. I conclude that women's participation in the CAP process does not seem to result in a new variety or more gender-equitable climate action plans. My research and analysis suggest that, first, efforts to increase representation may inadvertently tokenize; second, there is an indication that women's participation requires buy-in to solutions of technological innovation rooted in Western Science; third, the community engagement process seems to be more about educating on proposed strategies, not gathering alternative ideas. I close this chapter with a discussion of some hopeful pathways forward.

Procedural Justice and Critical Mass

Research suggests that participation in the climate action planning process matters, particularly for those most impacted by the shifting climate and the proposed mitigation strategies. Van den Berg and Keenan (2019) define the need for representation in institutions and decision-making processes in climate policy as procedural justice. Procedural justice calls upon policymakers "to include those who are truly the most vulnerable over variations in time and space and subsequently enabling meaningful participation of relevant stakeholders in climate adaptation planning" (van den Berg & Keenan, 2019, 90). As established in the previous chapters, women are highly impacted by climate mitigation strategies. Procedural justice is a

critical stepping stone to achieving effective, equitable climate policy, and women's representation needs to be substantive throughout the entire process.

Among scholars, there is an underlying assumption that women's inclusion in policy making will lead to different kinds of politics (Magnusdottir & Kronsell, 2015). They argue that a "critical mass of women" in leadership and representation ratios in climate policy creates alternative climate agendas (Magnusdottir & Kronsell, 2015; Buckingham, 2010). Climate action becomes coded more feminine with strategies that focus on consumption reduction and social (soft) infrastructures of community, education, and sharing (Krosnell, 2018; Buckingham, 2010).

There are many women doing work in the environmental and climate sphere in both Seattle and Boston. In an interview CJA, said she consistently sees more women's involvement in city convened formal environmental committees. During the 2018 update of Seattle's CAP, women held the majority of positions within the Office of Sustainability and the Environment, the department in charge of climate policy, at the lower and up to the executive level. In fact, women have held the role of Director of the Office of Sustainability and the Environment since 2004. In addition, Jenny Durkin, Seattle's first Lesbian mayor, was the mayor before, during, and after the most recent CAP. According to a consultant who worked on Boston's CAP update, "the majority of the core team members for this project were women" (K. Lundgren, personal communication April 2, 2021).

Furthermore, during the creation of the updates for both cities, there was supposedly significant participation from key stakeholders and underrepresented groups. Kim Lundgren, the community engagement consultant, said, "equity was put front and center" of the process (K. Lundgren, personal communication April 2, 2021). Similarly, Kat Eshel, the lead for the City

of Boston's 2019 update, said, "We really tried to bake in equity from the start, you can always tell when it was added in at the last moment" (K. Eshel, Personal communication, April 8, 2021). Participation and engagement in Seattle and Boston were conducted via stakeholder groups and community outreach. Boston had a very large number of stakeholders in their Working Groups, "a very large, very enthusiastic group" (K. Lundgren, Personal communication, April 2, 2021). According to the Acknowledgement Section of the CAP, the Working Groups consisted of 104 people representing 68 organizations (Environment Department, 2019, 81-82) who worked together for three to five days (S. Thompson, Personal communication, March 24, 2021). On the other hand, Seattle conducted a series of smaller group stakeholder meetings over three months. While they took different formats, both cities worked with a wide range of groups and people.

Representation, Inclusion, and Participation

Nevertheless, the scale of participation from so many stakeholder groups does not seem to result in a new type or approach in climate planning. My research and analysis suggest three reasons for this: (1) A politics of categorical representation is not the same as broadening inclusion; (2) A condition of women's inclusion is an acceptance of particular epistemological hierarchies and technoscientific solutions; and (3) A broader participation of "the community" ends up being about educating individuals to get community buy-in, rather than about inviting novel input.

First, *categorical representation does not equal broader inclusion*. For example, perhaps representatives from affordable housing and anti-displacement organizations are supposed to speak to the needs of and represent a category of people, in this case, "low-income" or those

experiencing "language isolation". The rationale for choosing specific organizations could be to try to include potentially vulnerable populations. Boston's CAP defines vulnerable populations as "communities of color, low-income neighborhoods, youth, older adults, women, people with impairments, persons facing homelessness, and people with limited English proficiency" (BED, 5). Representatives from organizations who serve people labeled as vulnerable are meant to support equitable engagement and processes. However, this representation can become tokenizing and problematic. Women, youth, older adults, and those with diverse abilities are not homogenous. Categorical representation could cause what Chant (1997) argues to be muffling, editing, translating, and/ or paraphrasing by others in the public sphere, not an expression directly by individuals themselves.

Another example of *categorical representation* are quotas designed for inclusivity. Boston has a city resolution to award 10% of city contracts to women and minority-owned businesses (Leung, 2021). The Boston Climate Plan calls to increase economic opportunities for low-income communities and women via green job training programs for energy production and construction upgrades. The metric for success is 12% women in the program. The quota creates accountability; however, it categorizes women into a minority that then is supposed to indicate broader economic inclusion. True economic inclusion would consider and invest in other forms of green jobs, like care work, not exclusively construction/retrofit.

Second, *women must accept certain epistemological hierarchies in order to be included*. In climate mitigation planning, Western science, technology, innovation, and green growth are tenets in understanding the problems and creating actionable solutions. The mainstream "Big Three," buildings, transportation, and local green energy, is an illustration of the value of and

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belief in technoscientific solutions in climate action strategies. In an interview, Kim Lundgren described her understanding of how the city chose the climate action priorities: "the city had an in-depth study done called Carbon-Free Boston and the results of that report essentially, were focused on what are the biggest opportunities for the city to reach their [sic] GHG reduction goals" (K. Lundgren, Personal communication, April 2, 2021). The comment is an example of the certainty that an "in-depth study" done by the Green Ribbon Commission would result in the best path forward in climate action. Moreover, the parameters of a consultant's role are narrow and specified in a city contract. RFP contracts have set deliverables, hard and fast timelines, and thus constrain the potential for creative solutions. Hegemonic systems require that, as with any other significant institution, in the process of updating a CAP, actors must adhere to their assigned role.

For example, technological innovation in transportation is a key strategy in masculine climate action. Stacy Thompson, a member of a Working Group for Boston, said her group was tasked with where to install EV charging stations. When asked about her experience, she said, "I was that person being like why this is a waste of my time… we were brought in… there was like a good effort to facilitate, but in some ways, the priorities were set based on previous plans" (S. Thompson, personal communication, March 24, 2021). Thompson, an active transportation advocate, was not asked to help the city imagine a better, more equitable active transport strategy, she was tasked with where to install electric car charging stations. The epistemological hierarchy of technofix solutions circumscribed her participation.

As discussed in previous chapters, technology, and green growth are essential to Seattle's and Boston's CAPs. Climate action strategies in these cities require a workforce trained

in renewable energy and building retrofits, which inherently values masculine coded labor in construction and engineering. City quotas for the participation of women in future green job training programs indicate *epistemological hierarchies* of what is considered valuable green work.

Indeed, by involving women in infrastructure planning via quotas, women are being included in climate action. Nevertheless, there is not yet a feminist lens applied to the type of infrastructure women are involved in, nor the type of infrastructure women want or need (Williams, 2020). On multiple occasions during this research, I found that infrastructure priorities for women included reliable, redundant, safe public transportation, healthy affordable housing, childcare, healthcare, and food security. The issues of women's inclusion in climate policymaking raised in the analysis above becomes an example of the first wave feminism[5] dilemma: Women taking masculine notions of climate action as the only way, and acceptance of these notions are the preconditions of their participation.

Third, *broader participation of "the community" ends up being about educating individuals to get community buy-in, rather than gathering novel input.* In the case study cities, community engagement focused on education. For example, in Seattle, community engagement was done via public meetings and public comments on recommendations. These events were held after the Green Ribbon Commission prescribed the necessary mitigation strategies. In Seattle, the public meetings were titled: *Making Building Energy Use Visible, Connecting Transportation & Land Use,* and an *Open House* (Office of Sustainability and the

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[5] For more information on the evolution of feminist thought:
http://gdelaurier.pbworks.com/w/file/fetch/134554611/Four%20Waves%20of%20Feminism%20_%20Pacific%20University.pdf

Environment, 2018). The events had displayed graphs and diagrams of GHG inventories and

other visuals related to the proposed policy actions used as tools to educate the community.

There was not a solicitation of ideas from the community by the city. The strategies were set by

the GRC and the city before the public meetings; the engagement process was about education

for buy-in.

In Boston, the engagement consultant focused on building community capacity through

compensated ambassadors by "delivering an in-depth training on how to talk about climate

change to various audiences, a climate 101, and communication and engagement tactics " (K.

Lundgren, personal communication, April 2, 2021). The goal of the engagement was to inform

specific communities within the city of the Climate Action Plan (K. Lundgren Personal

communication, April 2, 2021). An organizer of the community engagement process articulated

how the constraints in the CAP process limit democratic community engagement:

> **We want to hear what the community is thinking**, **but** to some extent…**as a
> company, we know like what the high-impact actions are**. So it's rare, I think
> that… community member is going to like come up with a new action idea that
> isn't already in our repertoire, so I think part of it is just like **engaging them in
> the dialogue and part of that is educational as well**…**buy-in** is a piece of that as
> well… knowing that there is a Climate Action Plan coming what that means for
> them. (Anonymous 2, Personal Communication, June 23, 2021)

Stacy Thompson's experience, mentioned above, as a Working Group member for Boston

provides a demonstration of the organizer's comments. When Thompson shared her solicited

thoughts, she stated that since the city had already decided the core premise of the project, not

leaving any space for her input, she felt it wasted her time.

The above comments also illustrate an epistemological hierarchy of professional

solutions versus community ideas. There is a dilemma here – when is education empowering,

and when is it indoctrination and a reproduction of hegemonic knowledge structures? This is

perhaps an important area for future research to explore how to balance these issues.

Hope

Some of the people involved in climate plans are thinking with ecofeminist frames. Even

if they find themselves unable to make a change now, engagement with these ideas is an

important start to incorporating gender into equitable policy creation. The Climate Justice

Advocate tries to center her work on climate in her own identities and around ecofeminism.

She experiences the parallels of the treatment of women and the treatment of the

environment in our culture: "many of us…can't ignore the way that we treat women in society

and the way that we treat the Earth is so incredibly parallel and maddening at the same time"

(Anonymous, Personal Communication, April 8, 2021). Here, she is referring to the ecofeminist

critique of power structures that dominate feminine/nature and nonhuman. She is describing

the foundation of ecofeminism's position in environmental politics; women are best positioned

to speak for nature because they are closer to it and experience similar violence. Some feminist

scholars are cautious of the claim that women are closer to nature because it could

inadvertently maintain discourses of fragility, being closer to nature, and the role of

reproduction obscure women's agency and resilience, thus perpetuating the domination of the

feminine by the masculine. Thankfully, ecofeminists like Vandana Shiva continue to connect

humans to the environment without creating a discursive binary.

Similarly, this researcher's interlocutors are thinking through the challenge of adjusting

the feminist lens, so it does not exclude BIPOC and diverse gender perspectives. CJA believes

feminism and racial justice need to go hand in hand. Just changing the gender makeup within a

space does not mean equitable change will occur. She has seen how white women uphold and

replicate the same oppressive systems. She calls for an intersectional approach to climate policy. Intersectionality examines the many overlapping oppressive systems that a single person may experience to understand discrimination and disadvantages. Furthermore, since gender is a section, Thompson of Boston, wants the city to set a baseline norm of sharing pronouns when introducing oneself in a city-sanctioned meeting. Gender pronouns allow a contextual understanding of the many identities we all have and bring to the table.

Many women are doing fantastic work at the intersection of gender and climate justice. With a coalition of international human rights organizations, the Women's Environment and Development Organization, WEDO, (2019) developed a feminist response to the New Green Deal policy movement: *The 10 Principles for a Feminist Green New Deal*. The principles provide a foundation for the Green New Deal's opportunity to advance equity and climate justice. The goal for the feminist principles is to "truly address the root causes, as well as the scope and scale of the climate crisis" (WEDO, 2019). WEDO (2019) argues that the climate crisis emerged from enmeshed systems of capitalism, resource extraction, labor exploitation, the commodification of nature, settler colonialism, imperialism, and militarism. They believe that to confront the climate crisis, there must be unity across all policy sectors and that we must commit to democratic rule to "secure a just transition to post-exploitive economies" (WEDO, 2019). The 10 Principles for a Feminist Green New Deal are:

1. Require intersectional gender analysis across all actions,
2. Recognize that there is no such thing as domestic climate policy,
3. Confront institutional patriarchy and racism,
4. Center Indigenous Peoples' rights and leadership,
5. Systemically confront exploitative and unsustainable production patterns,
6. Advance reproductive justice,

7. Ensure democratically controlled, community-led solutions,
8. Reject false and harmful responses to climate change that fail to address root causes,
9. Create regenerative economies that center systemic, feminist alternatives,
10. Respect the leadership of young people as they fight for future generations.

The ten feminist principles provide an excellent framework to reorder our climate action priorities. For effective, and just climate policy, we need to: apply intersectional gendered analysis; create global climate policy; confront patriarchy and racism; realize and dismantle unsustainable and exploitive production patterns; advance regenerative, care-based economies; and respect the leadership of Indigenous people and youth. Importantly, the inclusion of Indigenous people and youth mitigates some of the erasures created by the feminist lens by shifting into an intersectional approach. Cities can begin to reform climate priorities by genuinely listening to the needs of the community.

Chapter 6: Conclusion and Policy Recommendations

This thesis sought to analyze the Climate Action Plans of the cities of Seattle and Boston through a gendered lens, looking specifically at how plans are circumscribed, the proposed solutions, and the procedural equity of the process. The research will add to the literature in the emergent field of climate mitigation and gender justice.

I used qualitative research methodology with a gender lens. I chose to analyze these CAPs through a gendered lens because feminist theory aims to understand the nature of gender inequity; it analyzes power structures, allowing me to view mainstream policies through a different perspective. However, there are drawbacks to using a feminist lens besides that fact that gender is diverse. Rine (2013), describes a branding problem with "feminism", "it rarely opens doors to deeper dialogue. Instead, it often acts as a barrier to the very ideas that word represents". Furthermore, there is a valid concern among some scholars and my interlockers that exclusively using gender as a lens could leave out other identifiers, such as race. Thus, an intersectional lens may provide a more holistic understanding of climate policy impacts. I recommend this to be an area of future research.

My analysis of Boston's and Seattle's Climate Action Plans revealed that the major strategies deployed by these cities rely on technological innovation. However, these technofix solutions do not address the root causes of climate change; the linked systems of capitalism, resource extraction, commodification of nature, labor exploitation, settler colonialism, imperialism, and militarism, with a foundation in the enslavement of people whose labor created wealth in the Global North, and of the continuing systemic racism that deepens and

institutionalizes global inequity (Women's Environmental and Development Organization, 2019)

Instead, technofix perpetuates these root causes.

Climate Action Plans are the result of global climate initiatives and local-level activism. Unfortunately, the spatial boundaries of the city limits to their capacity to deploy a "systems thinking" approach. The CAPs in the case study cities are exclusively focused on mitigation through technology rather than community-based adaptation. The discourse of capitalist innovation permeates the entire process. For this, I recommend two solutions: first, cities must thoughtfully consider the material life cycle of products that are needed to become carbon-free by including not only the GHG emissions but the global environmental/social impacts of such materials before proposing strategies; and second, co-produce reports with Indigenous people and youth throughout the entire CAP process, especially in early phases like the Green Ribbon Commission.

"The Big Three", transportation, buildings, local renewable energy are the primary climate action strategies proposed in Boston's and Seattle's CAPs. These solutions reflect the masculine epistemological hierarchy of techno-science, green growth, and the belief that nature can be controlled. The CAPs focus on hard infrastructure that relies on extraction and consumption and job training for innovation. I explained some of the differential gendered impacts of climate action plans and how zero waste is an example of a reliance on invisible gendered labor.

Conversely, the City of Providence, Rhode Island provides an example of climate planning that reorients priorities away from the techno-fix. Yes, *Providence's Climate Justice Plan* calls for GHG reductions and carbon neutrality by 2050, but they do so by intentionally

centering front-line communities in its strategies, and recognizing that climate change is the result of systematic inequities, not inefficiencies. The contrast is stark in their approach and discourse. "The Big Three" are in the plan, however they are reframed, and the proposed strategies focus on equity. Transportation strategies call for modification of traffic patterns to reduce pollution in front-line communities and investment in clean, reliable public transit. Providence's plan focuses on retrofitting and increasing energy efficiency in affordable housing. Most interestingly, two of the primary strategies are *Collaborative Governance and Accountability* and *Community Health* (City of Providence, 2019), which promise procedural justice and transforming care work, like in-home healthcare into a public health infrastructure.

Climate action requires a reorientation of ethics; therefore, I recommend policymakers review feminist, care-work focused strategies. In Chapter 3, I mention the Asian Pacific Network, and in Chapter 4, The 10 Principles of the Feminist Green New Deal as examples of alternative pathways. I also recommend using Hawaii's Department of Human Services Feminist Economic Recovery Plan for COVID 19 as model. Hawai'i's plan unpacks the intersectional economic impacts of COVID 19 which may be an indicator of the future climate-related economic impacts on BIPOC, women, and non-binary people. It has specific recommendations to policymakers; suggestions on how to diversify the economy; how to build the state's social infrastructure through childcare, education, and healthcare; address financial gender inequities, and support recovery from gender-based violence (Department of Human Services State of Hawai'i, 2020).

A few scholars argue that a "critical mass of women" creates a new variety of climate policy. However, my research did not affirm that argument. An inclusion quota for people of a

certain identity does not equal procedural justice. My analysis found: a politics of categorical

representation is not the same as broadening inclusion; second, a condition of women's

inclusion is an acceptance of particular epistemological hierarchies and technoscientific

solutions; third, broader participation of "the community" ends up being about educating

individuals to get community buy in, it's not really about inviting novel input. I recommend

future research on how to educate communities on climate science and actions without

replicating the same hegemony. Further, cities hoping to model a Green New Deal should adopt

the 10 Feminist Principles when developing policies and action items.

Though much if this thesis is critical of current climate action policies, I am hopeful that

equitable, root-cause solutions addressing the climate crisis are near. After all, as Bridget Burns,

Director of the Women's Environmental and Development Organization reminds us, "there is

no time for small work".

Appendix 1

Interview Questions:

1. I'd like to start by asking you how you came to work on this Climate Action Plan and what your role was in the process.

2. As I read the plan, it seemed to me that the major priorities/action items/components were transportation, buildings and energy supply. Would you agree with this reading?

   a. If so, could you tell me how this priority list came to be?

   b. Were any action items considered that didn't make it into the final plan?

3. A number of offices and individuals are listed on the CAP as contributors to the plan. I'm curious how these participants were chosen and how participation of all these contributors was managed. Did any office or individual spearhead the process? Were some people more active than others?

4. A lot of governments and institutions are thinking about equity. (I know that Seattle/Boston is a leader in this regard). Could you talk about the ways equity considerations were integrated into the CAP?

5. In constructing the plan, did anyone ever raise concerns or considerations that might be specific to women?

Appendix 2

Oral Consent Script

Tufts IRB Study #1339, Climate Action Plans and Gender

Student PI: Meghan Tenhoff

Tufts University: Research Participant Oral Informed Consent

"I am conducting research about climate action plans and gender equity and I am interested in your experiences as a policymaker/ contributor/ _____. The purpose of the research is to understand how gender is or isn't considered in climate mitigation and adaptation policy and participation is voluntary. Your participation will involve one informal interview that will last between thirty minutes and an hour. I may send a follow up email. This research has minimal foreseeable risks to you. However, you may feel some discomfort by discussing gender equity. There are no legal harms associated with participating. The social, personal, economic risks are low. This research will benefit the academic community because it helps us to understand the relationship between climate mitigation and gender justice. Please know that I will do everything I can to protect your privacy. Your identity or personal information will not be disclosed in any publication that may result from the study. Notes that are taken during the interview will be stored in a secure location. Would it be all right if I video/audio record our zoom interview? If you need to contact me after our conversation, my contact information is in our email communication."

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