

**BEYOND CARBON TOWARD LIBERATION: AN URBAN BIOETHICAL CASE  
FOR A SOCIALLY AND ENVIRONMENTALLY JUST  
UNIVERSITY HEALTH SYSTEM**

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by  
Caroline Presley Burkholder  
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Thesis Approvals:

Dr. Brian Tuohy, Thesis Advisor, Center for Urban Bioethics

## ABSTRACT

Awareness of critical public health issues stemming from historical and contemporary environmental injustice has been growing, yet institutions are still working to identify how to respond. How do we transform University Health System infrastructure, in the built environment and affiliated community assets and human capital, to center equity and the lived experience of climate injustice in urban communities?

Through the application of urban bioethical principles and examination of a public state-related university and its health system in a major U.S. city, I argue that the higher education institutional climate action planning process for medical schools and their attendant university health systems, in concert with public sector actors, can be a vehicle and accelerator for achieving health equity in urban communities and suggest what exactly that could or should look like. This thesis will look at the role of university health systems in addressing climate change and mitigating its impacts. More specifically, it looks to provide context for the influence of “meds and eds” in urban communities: how their status as anchor institutions and sites of economic development implicates their responsibility to anticipate the differentiated material experience of climate change. As sites of care delivery, medical education and training, and major employers these institutions have a duty to ameliorate the associated inequitable health outcomes of climate change. I provide a model for action by all urban university health system stakeholders with recommendations to sustain equitable resilience in the face of environmental crisis.

Dedicated to North Philadelphia: the people, the land, the history,  
and everyone protecting its right to heal and thrive.

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# CHAPTER ONE

## INTRODUCTION

It is undeniable that climate change poses major threats to human health. The scale of the devastation wrought by a warming planet is often understood and discussed through its impact on the human body: strokes caused by extreme heat, respiratory failure caused by wildfires, and drownings and infectious disease in the aftermath of storms and floods (IPCC, 2021; WHO, 2018). Across the world, populations' relative vulnerability to environmental disaster and chronic exposure to environmental hazards betray deep chasms of social inequity, again made manifest through health difference and discrepancies in life expectancy (EPA, 2021). Though planetary in scale, climate change is felt in the body. Despite this well-documented understanding of and embodied experience with climate change, the work of climate action and mitigation is often delegated to the built environment to the neglect of the very real and immediate health impacts of a changing environment on the human body.

This is changing. Once considered slow to engage, medical professionals, healthcare workers, and medical students, tasked with the care and healing of bodies, are responding with calls to act on climate change (Wellbery, C., Sheffield, P., Timmireddy, K., Sarfaty, M., Teherani, A., & Fallar, R., 2018). In municipal environmental policy discourse, the Climate Action Plan is widely considered the structuring document and dominant methodology used to measure progress on climate (Angelo & Wachsmuth, 2020). In future chapters, this thesis will evaluate the merits of Climate Action Plans for its regulatory function and situate the method within broader institutional policy and

social movements for climate justice. This will be followed by an exploration of how to integrate urban bioethics principles into medical education pedagogy and academic medical center operations to determine feasibility of institutional policy interventions.

A potentially novel consideration of this thesis is the role of university health systems in fulfilling municipal climate action mandates. Any policy dictums vary greatly across cities and take different forms respective to the state and federal environmental policy that governs the localities and the degree to which local leadership embrace, and fund, more progressive and aggressive climate initiatives (Angelo & Wachsmuth, 2020). The typical Climate Action Plan document is often siloed by professions and lacks the local engagement necessary to confront critical issues of environmental justice (Angelo, MacFarlane, Sirigotis, & Millard-Ball, 2022). Overall, the health sector's plan, if it even exists as a coordinated set of policy and practices, does not rightfully or fully address the differentiated experience of climate change and associated inequitable health outcomes or local need, especially in urban communities. More specifically, most campaigns to redress the carbon emissions in hospital operations do not also account for the impact of health systems on neighboring communities, nor do they recognize medical education institutions' role as a centerpiece of the modern urban economy.

Philadelphia, Pennsylvania was chosen as a case study for this thesis' inquiry into the role of university health systems in municipal climate action because of urban medical and higher education institutions ("meds and eds")' dominant representation in the city's labor force and the presence of significant and persistent issues of socioenvironmental inequities within the metropolis. One out of every six US doctors is trained in Philadelphia (PBS, 2016). In 2022, nine of the 15 largest employers in

Philadelphia were in education and health services. Amongst those nine employers are the following academic medical centers: Thomas Jefferson University Hospital (6), Temple University Hospital (10), and Einstein Medical Center (15). The University of Pennsylvania, including its health system, is the city's largest employer, outpacing the U.S. government and the City of Philadelphia (Pennsylvania Department of Labor and Industry, Center for Workforce Information and Analysis, 2022). It should come as no surprise then that "education and health services" (combined in its statistics) is by far the largest employment sector in the region (US Bureau of Labor Statistics, 2022).

Philadelphia's sociospatial arrangement and urban form makes it a textbook example for understanding urban heat island effects. The increase in temperature, largely amplified by carbon induced warming, is caused by elements of the urban built environment, particularly the abundance of heat-absorbing surfaces like asphalt, and taller buildings that block airflow. In Philadelphia, daily summer temperatures from 2004 to 2013 were an average of 3.8 degrees Fahrenheit higher than in nearby rural areas. (Natural Resources Defense Council, 2019).

Philadelphia is also one of the poorest major US cities with 23% of residents living below the poverty line (\$25,750 for a household of four) and the tens of thousands more living just above it (Pew Charitable Trusts, 2023). Nearly 49% of the city's households were spending at least 30% of their income on rent, making them "cost burdened" according to the standard set by the U.S. Census Bureau. Thusly, Philadelphia has a large proportion of residents with limited financial capacity to cope with rising temperatures. Particular neighborhoods, especially parts of West and North Philadelphia with highest share of cost-burdened renters (Pew Charitable Trusts, 2023), have rapidly

aging housing stock not built to withstand extreme heat (Hammer, J., Ruggieri, D.G., Thomas, C. et al., 2020).

The impact and experience of heat exposure in the urban environment of Philadelphia varies greatly across disparate populations, as income inequality plays out spatially across neighborhoods via planning decisions and distribution of specific health vulnerabilities associated with socioeconomic status. Philadelphia's social and spatial conditions give insight into differentiated experience of climate in the construction of the built environment across neighborhoods, but also in individuals' access to structural adaptations and amenities, such as air conditioning.

Climate change has already taken the lives of many Americans, often depicted as a spectacle of health disaster through media coverage of emergency events like raging wildfires and rising flood waters. The public is less inclined then to think of more common climate fatalities occurring in urban communities like Philadelphia, wherein chronic, socially-determined health issues are exacerbated by poor environmental conditions and climate-induced extreme heat. In the summer of 2022 in Philadelphia, three accidental deaths were caused by environmental hyperthermia as a primary cause and hypertensive cardiovascular disease, and arteriosclerotic cardiovascular disease as a secondary cause (Sharber, 2022). The latter example of extreme heat exposure and death exhibits what the scholar Rob Nixon calls slow violence, "a violence that is neither spectacular nor instantaneous, but rather incremental and accretive, its calamitous repercussions playing out across a range of temporal scale (Nixon, 2011)."

The environmental justice movement, in scholarship and practice, highlights and challenges the health inequalities that have resulted from racialized and otherwise

stratified experiences of slow violence, especially in urban environments (Dillon & Sze, 2018). In urban landscapes, the uneven and inequitable production of environmental conditions has resulted in “group-differentiated vulnerabilities to premature death. (Gilmore, 2007).” This framing of environmental health and environmental justice illustrates why the climate crisis is a problem for current and future physicians committed to addressing urban health inequities and presents it as a potential ethical consideration to be included within their training and practice, especially in academic medical centers serving indigent populations like communities in West and North Philadelphia.

If we are to understand the process of climate change’s impacts on the human body as a “mutual constitution of urban environments, social difference, and embodiment—including forms of violence and premature death (Sze et al., 2018),” sustainability efforts within healthcare and medical education must expand their narrow existing conceptions of climate health impacts. Following the cues of the environmental justice movement, medical institutions, through their mission-oriented governance and policy commitments, should broaden the idea of the “environment” to also include race, urban spaces, income inequality, and labor (Nixon, 2011). This process of reconceptualization could be facilitated through the application of urban bioethical principles. This will be further explored in the next chapter and evidence to support the efficacy of this exercise, specifically within the context of the governance of urban meds and eds, will be provided throughout the thesis.

To apply an urban bioethical framework to a university hospital system climate action plan, the authors and executors would have to acknowledge the unique conditions and responsibility of urban medical and higher education institutions. This would mean

developing institutional sustainability policy and practice that recognizes university hospitals and medical schools' obligation as nonprofits to operate for the benefit of the public at large. For a university hospital system to produce an action plan and durable policy for sustainable and equitable growth, they must center their broader mission and duty to provide care to indigent community members and to promote the health of communities beyond the basic fee-for-service relationship that any business maintains with the customer. In the context of medical ethics and within an urban bioethics framework, the process of climate action is to make actionable the duty of an urban university hospital system to deliver economic, environmental and social justice and to work in solidarity with those most affected by environmental harms at every level and within every dimension of care delivery.

Equitable environmental policy and practice operates at multiple scales and within different contexts: an urban bioethic should be extended from the smallest, micro-level patient-physician interactions to curricular and instructional reform in medical education and from the realm of hospital operations and administrative policy to the convening, facilitation and planning of cities and the development of major healthcare infrastructure. The actions of university health systems have the power to shape the urban form and are systematically linked to socio-environmental outcomes and the climate future of the dense, diverse, disparate city.

This thesis will present a literature review and analysis of six fundamental elements of health equity, urban development, and environmental policy before proposing and discussing a model of climate action for university health systems: 1.) theories and politics of climate action plans, 2.) economic development strategies of

urban anchor institutions, 3.) university community engagement, 4.) higher education as political development, 5.) decarbonization of the health sector, and 6.) medical education's climate response. The second chapter will begin the process of establishing necessary context for the proposed model by articulating foundational disciplinary perspectives, including sociology, public policy, critical urban studies and urban planning, that informed the recommendations for action. It will review key terms concerning the particular politics of climate action planning and important theoretical orientations to be further explicated in later chapters.

Chapter Three explores the trends and implementation of climate action planning policy, examining the role of cities and their power in achieving climate neutrality, and evaluating the incorporation of equity into the policy model, considering themes of racial justice and socio-spatial difference. Chapter Four will highlight the need for more effective collaboration between governmental and institutional actors in economic development policy, emphasizing the importance of environmental and climate considerations in future planning strategies. Chapter Five delves into the implications of climate policy adoption by medical and educational institutions, examining the relationship between these institutions and their neighboring communities, and highlighting the potential health issues arising from economic pressures and conflicting interests. It raises questions about the dynamics between the institutions and the community and how they impact climate action efforts.

Chapter Six examines the emergence of local climate change policies in the absence of federal action, particularly in higher education institutions as well as the historical role of higher education in nation-building, social provision and capitalist

enterprise. Chapter Seven analyzes the healthcare sector's ability to incorporate sustainability and decarbonization into its operations and governance and imagines future directions for healthcare policies that prioritize environmental, racial, and social justice. Finally, Chapter Eight is focused on medical education institutions and trends in environmental health related curricular reform justifying the significant role of university health systems in climate action as sites of research and training, indoctrination of professional ethics, and student activism, and assesses medical schools' potential to instigate broader shifts toward more just policy in medical research, practice and education. The final three chapters present and discuss a model for action and deliver recommendations for future study and action.

## CHAPTER TWO

### A REVIEW OF URBAN CLIMATE POLICY AND HEALTH EQUITY

This chapter will outline key terms and definitions to provide context for major terminology and theoretical frameworks to be referenced and utilized throughout the thesis to articulate the specific role of stakeholders and situate this thesis within broader discourse surrounding higher education, urban development and climate policy and environmental justice. This chapter justifies the application of urban bioethical principles to develop strategies for the eventual proposed model for action. Major touchstones in this chapter include brief context for the Climate Action Plan as a policy tool and a comprehensive review of the scope of university planning authority, including a topical overview of university planning discourse and trends concerning economic development and the greening of campuses. All these elements are important for future claims about higher education climate planning and equitable urban development policy and the relationship between the two, which will be explored in the following chapters.

#### **Urban Bioethics Toolkit for Environmental Action**

The subfield of urban bioethics argues that the conditions of urbanity, being dense, disparate and diverse, mandate a new physician's code that centers agency, solidarity and social justice in patient physician interaction as well as in hospitals and the care sectors' relationship to community and response to health inequities. This approach to the field of bioethics was pioneered by Blustein and Fleischman and their 2004 article, "Urban Bioethics: Adapting Bioethics to the Urban Context," articulates a means to adapt

the field of bioethics to better address the health needs of urban populations. For the purposes of this thesis, urban bioethics will be especially helpful to formulate and deploy bioethical principles appropriate to the population-oriented practices of public health, like municipal responses to climate emergency, beyond the scale of problems encountered in the clinical context. In the context of climate policy discourse, calling attention to the urban context of health problems in the tradition of bioethics would push all decisionmakers to think beyond traditional ethical principles and to construct an ethical conception that fits the realities of urban life.

Interestingly, Blustein and Fleischman call out environmental ethics as a critical reference point, a corollary domain, in formulating a new unique focus on the ethical dilemmas in the pluralistic environment of cities, understanding the significant impact the environment has on human well-being. Specifically, an important consideration for urban bioethics is to examine the “disruption of natural ecosystems as a result of urban development (Blustein & Fleischman, 2014),” which implicates sociopolitical factors in the manipulation of the natural environment as directly relevant to ethical choices in healthcare delivery. Urban bioethics also maintains that the intersection of environmental and healthcare ethics is an especially productive and important line of inquiry because of the specific impact of environmental factors upon the health of people living in cities. The application of an urban bioethics to this investigation and analysis of climate action and higher ed means a greater focus on the ethical and sociopolitical implications of the links between health and the environment and the disparate effects of the environment on the health of various urban populations.

## **Climate Action Planning on Campus and Beyond**

Various iterations of the term “climate action” will be used generously throughout this thesis with varying levels of specificity. Often it will refer to a Climate Action Plan or CAP, which is functionally a method of identifying emissions targets and reduction strategies, most typically at the scale of a city (Angelo & Wachsmuth, 2020). Municipal CAPs gained influence and import within the climate planning landscape around the 90s, coinciding with stalled international treaty efforts and the continued absence of significant federal climate policy in the US. Carbon mitigation and energy efficiency policies in urban sustainability plans are quite varied and cover many different arenas of city government. Some examples include installation of on-site solar, constructing Leadership in Energy and Environmental Design (LEED)- certified buildings and other smart, green infrastructure, planting street trees, expanding green spaces and stormwater management landscaping practices, electrifying city-owned vehicle fleets, and increasing support for urban agriculture and community gardens (Angelo & Wachsmuth, 2020). In the next chapter, this thesis will review with greater specificity the emergent theories and politics of Climate Action Plans and situate city and institutional efforts within broader climate or sustainability planning movements and processes, but it is important to provide, on the outset, the above brief characterization of a municipal CAP as distinct from the scope of college and university campus sustainability planning, again to be expounded upon in future chapters.

In Dalton et al.’s 2018 publication “State of the Art in Planning for College and University Campuses: Site Planning and Beyond,” the authors explicate the current function and impact of the broad, long-term, physical planning perspective that exists

within the context of the broader mission of higher education in the United States. Specifically, they focus on how university planning involves human and institutional activity patterns with wide impact. University planning policies and practices occur at multiple scales and at every level and nearby communities experience the benefits and impacts of a college or university regardless of their geographic location, though this thesis will be limited to the study urban campuses. The three varieties of university planning – campus master planning, campus-community interface planning, and campus district planning – are all relevant to this thesis as together they assemble the cast of characters responsible for the implementation of prescribed decarbonization initiatives and policies to come.

Campus master planning focuses on site planning and the physical development of the visible campus, or campus park. A president or chancellor often initiates a master plan to prepare for a significant change such as an increase in enrollment. Master plan documents include background analysis, guiding principles, design framework, site plan, land use, transportation, infrastructure, utilities and other elements, and implementation and phasing (Dalton et al., 2018). The process typically culminates with the formal adoption of a heavily illustrated plan by the college or university's governing board of trustees or regents.

Campus–community interface planning addresses activity patterns that physically connect the college or university with the surrounding community, including infrastructure, circulation, housing, government services, cultural activities, athletic events, retail establishments, and other businesses. Either the university or a public agency may initiate the process, which involves negotiations over the responsibilities

each entity will assume. The results are documented by agreements or memoranda of understanding signed by all parties rather than by formal plans.

Finally, campus district planning covers the larger area surrounding a college or university. Cities typically initiate planning at this scale and designate these districts formally, often in response to contentious town–gown issues. Planning for a campus district, like planning for other districts or neighborhoods within a city, involves members of the community and college or university as well as the city’s planning staff. The city may develop land use plans, adopt development policies, enact regulations, and implement other programs in the plan.

It is important to incorporate more context for each of the above geographical planning scales to perform analysis for the potential of a university health system to integrate climate mitigation interventions and adopt environmental policies that prioritize health equity. Two topics in the broader trends in U.S. campus master planning are particularly relevant for the scope of this thesis – economic development and sustainability – and a brief review of these concepts will provide important foundations and shared definitions of these phenomena for the following chapters.

In the context of university planning at all scales, and within this thesis, economic development is defined holistically as any planning activity focused on the integration of the socioeconomic and built environment of the surrounding neighborhoods. This sometimes involves capital investment as well as other forms of fiscal investments for community development initiatives and improvements in nearby neighborhoods. Any land use decision, or manipulation or control of the natural environment should also be considered as the construction of public and private goods for consumption and economic

production. It is important to underscore the role of universities as landowners and developers with potential to engage in commercial real estate development and other urban amenities. Motivations for university-led economic development projects are both broad and diverse, often involving complex partnerships and the use of shared university facilities or employee home ownership programs wherein universities subsidize employees' home purchases if the property's is within a certain proximity to campus (Cummings, Rosentraub, Domahidy, & Coffin, 2005). Particularly relevant for the scope of this thesis, colleges and universities have expanded beyond traditional boundaries not only to invest in local economic development but also to reduce environmental impacts.

Sustainability, or the concept of a Green Campus, involves looking at the campus and its setting as an ecosystem. Green Campus Initiatives are generally focused on implementing sustainable infrastructure, reducing environmental impacts and economic costs, and raising student awareness of climate change and sustainable development practices (Ribeiro et al., 2021). Within the context of the university planning, changing travel behavior, reducing gas emissions, increasing natural resource conservation, and improving the visual quality of landscaping are common goals (Evans, Jones, Karvonen, Millard, & Wendler, 2015; Knuth, et al., 2007; Ng et al., 2010; Riggs, 2017). Defining a sustainable campus form is a multifaceted task. Thomashow (2014) identifies nine elements for a sustainability agenda: energy, food, and materials (aspects of infrastructure); governance, investment, and wellness (aspects of community); and curriculum, interpretation, and aesthetics (aspects of learning). Beringer and Adomßent (2008) describe multiple lenses campuses can use to promote sustainability, from facilities operations to teaching, research, and outreach. These perspectives involve more

organizational layers and political cultures than many cities. Leaders in higher education sustainability have called for more integrative approaches (Filho, Shiel, & Paço, 2015; Scott & Gough, 2007), the most explicit being linking pedagogy with practice on the campus and using the campus as a living lab (Evans et al., 2015; Savanick, Strong, & Manning, 2008). Yet the bulk of sustainability research at the campus level to date deals with reducing energy and consumption (Clayton & Nesnidol, 2017; Posey & Webster, 2013; Simpson, 2003). Campus circulation, parking, and transportation are also central aspects of sustainability within university planning efforts (Roemmich, Balantekin, & Beeler, 2015; Zhou, 2012).

## CHAPTER THREE

### THEORIES AND POLITICS OF CLIMATE ACTION PLANNING

This chapter will review theories and politics of climate action planning with particular focus on municipal governance methodologies and seeks to contextualize more recent trends toward coupling social equity strategies with broader urban sustainability and decarbonization policy. Although activists have been sounding the alarms about climate change since the early 1970s, pressure to incorporate equity into urban sustainability, resilience, and climate policy and for social equity to become the central focus of urban climate planning has intensified greatly in the last decade (Angelo, et al., 2022). The Climate Action Plan (CAP) has become the dominant form of sustainability policy and an increasingly important part of the planning landscape over the past two decades as international treaty efforts have stalled and municipal leadership on climate change has grown in reputation (Ninomiya & Burch, 2019).

The treatment of equity within these policies is an especially crucial consideration for the immediate future for two primary reasons. First, poor and racialized urban residents are disproportionately vulnerable to climate change-related weather events such as heat waves and storm surges. Second, mitigation and adaptation efforts have the potential to either entrench and deepen existing socio-spatial inequalities in cities, or help remedy them (Pearsall & Anguelovski, 2016). Equity language is being added to plans without substantively changing their content or addressing local needs (Angelo et al., 2022). These patterns suggest that planners working to improve CAPs' treatment of social equity should address equity through plan content and not just language. To

institute design policy interventions that are responsive to local inequities requires public and private authors to push beyond aesthetically green strategies such as trees and open space toward systemic, gray interventions in housing, transit, and employment that also have significant emissions reduction impacts (Angelo, et al., 2022). The longer-standing association of aesthetic “greenness” with “good” and sustainable outcomes may also contribute to the outsize presence of trees and open space in CAPs and the real or perceived popularity of such policies, while gray policies such as affordable housing or green jobs remain less obviously legible as related to environmental goals (Angelo, 2019; Wachsmuth & Angelo, 2018). Largely because of this more ideological, cultural conceptualization, climate planning is generally approached as a technical rather than a political problem—which is to say that the political tensions that animate decisions regarding climate planning are often left unstated. This may contribute to plans’ avoidance of legally enforceable policy recommendations, those that create permanent changes to the built environment, or those that redistribute resources to address local inequities (Angelo et al., 2022).

This is particularly true of the latent political dimensions of climate action planning in university hospital systems, specifically those that serve the indigent urban poor. If we ask ourselves, “what would it look like for environmental equity to be achieved through the health and care of a human body?” one could imagine a clinical space in an academic medical center and the previous example in the introductory chapter, a patient suffering from hyperthermia and hypertensive cardiovascular disease. This patient is living in an urban community, and through the mutual constitution of the urban environment, social difference and embodiment, made a victim of climate-induced

extreme heat. They represent the climate justice patient in the university health system. The urban body bears the mark of a lack of resources and embodies poverty to the extent that a lack of access to green urban amenities that mitigate negative climate impacts, such as street trees and shade, stormwater infrastructure, and air conditioning, causes health emergency that could then lead them to a local teaching hospital. And so, it could be argued, that academic medical centers are often the site of society's first encounter with the lived experience of climate injustice, and the success of their interventions have direct and immediate impact on the most urgent health consequences of climate injustice.

Yet still, redistribution of public resources to these nonprofit institutions to meet health needs in communities adjacent to academic medical centers is rarely presented as a climate justice solution. Equity in university hospital climate action planning could be interpreted not only as a technical problem remedied by the formal, compulsory greening of the hospital's physical plant but also as a more overtly political task, a rhetorical one best solved by applying an urban bioethical framing. To draw clear connections between the just policy and practice of physicians and climate action would require the articulation of an urban bioethic that is procedurally enforceable through medical education, curricula and training, in a way that might resemble the more technical regulation of changes in the built environment.

There is a large body of literature that articulates and justifies the supremacy of the city as the preferred scale or node for effective and lasting climate action planning (Angelo & Wachsmuth, 2020). There is quite good evidence for a case to consider the city the most critical site for environmental and economic transformation and the most fit for rapid decarbonization. Cities are global population and economic centers. They are

vulnerable to sea rise, drought, storms and other extreme weather events. The dynamic and dense urban form makes it easy to understand the role of the built environment in determining socio-environmental outcomes (Breheny, 1992; Burgess & Jenks, 2002; Jenks, Burton, & Williams, 1996).

Sustainability of urban density is the foundation for municipal and national climate action plans around the world. Urban sustainability policies promoting green amenities and the environmental value of density have become ubiquitous, and a vision of sustainability as dense, green urbanism is the norm (Wachsmuth & Angelo, 2018). Power differentials and conflicting interests have characterized existing problems in urban sustainability and this political dimension is central to any and all growth and equity questions when addressing environmental concerns. Dominant forms of urban sustainability planning and thinking are socially, economically, and racially narrow (Sze et al., 2018 ). Co-production of racial and spatial exclusion is “the overarching historical issue looming over the politics of urban green space in the USA” (Loughran, 2020), but even with substantive policy engagement, city governments have focused on liveability concerns of wealthy urban residents that exclude the poor (Wachsmuth, Cohen, & Angelo, 2016).

Despite this pronounced “urban turn” in climate action planning, municipal governments have not proven especially productive in delivering solutions to environmental and social problems (Wachsmuth et al., 2016). Municipal governments lack access to industrial policy, welfare systems and tax regimes. They have limited control over consumption patterns and large-scale infrastructure. Cities are bound by competitive pressures that pit them against each other in the pursuit of capital investment

and talented workers (Wachsmuth & Angelo, 2018). Municipalities thus tend to pursue sustainability policies that are also economic-development policies, and these disproportionately focus on affluent central business districts or residential areas designed to attract skilled professionals.

This trend of favoring economic development varieties of sustainability policies can certainly be applied to higher education and medical schools as there is incredible competition in recruiting tuition-paying students, the revenue-generators. The most advanced of these “placemaking” urban development strategies, led by the wealthiest institutions yield modern university, and even hospital campuses, chocked full of luxury environmental amenities, such as sophisticated, aesthetically pleasing green stormwater infrastructure and tree plantings, litter removal and composting, or organic, local food offerings, that dually function as spatial markers of a metropolitan lifestyle, cultural signifiers of distinction, and taste.

This chapter outlined major trends in climate action planning policy theory and implementation, situating the process and development of CAPs within the history of environmental policy at all levels of governance and spatially within the city, articulating the distinct power of the urban as a structuring force in evaluating progress towards climate neutrality. This chapter considers the “city” as a unit of measurement of environmental justice, an idea that will be further theorized in future chapters. The effectiveness of incorporating equity into the CAP policy model was evaluated in this chapter when it touched upon broader cultural and ideological conceptions of climate action planning and themes of racial justice and socio-spatial difference. This exercise was important to elucidate the impact of the specific political strategy of the “Climate

Action Plan,” as it exists materially and popular social imagination, and its power to further perpetuate pronounced social, environmental and economic inequities in the urban landscape. The next chapter will explicate the specific role of “meds and eds” as major engines of the contemporary American urban economic by diving deep into their unique role in economic development policy, particularly at the state and local levels. Basic relationships between governmental and institutional stakeholders and historical precedent for their interdependence will be established to inform later recommendations.

## CHAPTER FOUR

### MEDS AND EDS AS ECONOMIC DEVELOPMENT

Medical and higher education institutions provide employment, goods and services, and anchor neighborhoods with land investments. This fiscal patronage and influence on real estate development patterns and investments constitutes meds and eds' unique political power to shape regional economies in enduring and important ways. This chapter will use Philadelphia, Pennsylvania as case study to understand the nature of the relationship between university health systems and local and state government, relative to the particular context of a major US city and more general trends in health policy and public support of urban healthcare delivery. This discussion will elucidate opportunity to inject climate-ready resilience planning and sustainable, equitable development practice into existing higher ed economic development policy, especially at the city-level, where university health systems interact with municipal state actors.

Carolyn Adams examines in exhaustive detail the interdependence of meds and eds and state and local governments in Philadelphia, Pennsylvania in her 2003 article, "The Meds and Eds in Urban Economic Development." Specifically, Adams demonstrates a "fundamental disconnect between government economic development strategies and the needs of these major institutions (meds and eds) whose fortunes help determine a city's future." A line of inquiry in this thesis is to extend Adam's recommendations for policy alternatives to more effectively support and expand these urban institutions to also consider climate action and issues of environmental justice as relevant to broader economic development strategies.

The Delaware Valley region is home to 90 hospitals, 100 home health care agencies, over 15,000 physicians, 14 HMOs and more insurers (Adams, 2003). No other industrial category generates as many jobs. Not only do meds and eds employ large numbers of people, but they also have a large purchasing footprint of both goods and services within the local marketplace. Higher ed and academic medical centers' purchasing power and workforce jobs are fertile ground for decarbonization initiatives, and they are underrepresented in state and local policy investments and considerations.

According to the Economy League of Philadelphia and its Philadelphia Anchors for Growth and Equity (PAGE) initiative, 34 universities and hospitals located in Philadelphia together spend \$5.3 billion on goods and services every year, but nearly half of these dollars are currently spent outside of Philadelphia. Their analysis of the local business landscape suggests that at least \$530 million of anchor dollars currently being spent outside of the region align with local market supply. Capturing just 25% of this half-billion-dollar opportunity would translate into 1,250 new manufacturing jobs and 4,000 indirect jobs in Philadelphia. (Economy League of Philadelphia, 2023). For an institutional response at the scale of the climate crisis, how many of these potential new jobs could be green jobs and how many of those green jobs could or should be in healthcare?

### **Meds and Eds in State Politics**

The Commonwealth of Pennsylvania has done little to leverage the meds and eds in their economic development strategies. In the 1990s, this dramatically affected urban university hospitals as the rise of managed care coincided with the growing number of

uninsured persons nationally (Adams, 2003). The burden of providing care for the uninsured was felt by urban hospitals and specifically academic health centers, who served a disproportionately large number of uninsured patients because they are located in poor neighborhoods. At that time, four of the five university-based hospitals were ranked among the seven hospitals providing the most charity care (Adams, 2003).

Consequently, several state policies were instituted to cut health care costs, ultimately increasing competition and benefiting consumers. The accumulation of these political strategies – cutting adults from medical assistance rolls, cutting reimbursement rates to hospitals, and fostering competition between cities and suburbs – proved devastating to urban academic health centers, driving down their margin of earnings. With state support dramatically reduced, Philadelphia hospitals were expected to continue caring for the indigent population even when those patients no longer had the ability to pay. This is an especially important development to note, as it is an impetus for future austerity measures initiated by public fiscal leadership at the state level which has significant effects on city governance.

### **Meds and Eds in Local Politics**

Not dissimilar to their state counterparts, municipal leaders in Philadelphia largely ignored meds and eds' economic contributions in the 1990s at a most critical juncture, amidst the many crippling state and federal health policy interventions that negatively impacted the indigent urban poor. In tracing the history of public funding of higher ed institutions and social welfare programs, many of these trends have remained steady throughout the years. To this day, local governments have been preoccupied with

spillover effects in neighborhoods surrounding college campus and academic medical complexes. The intended dynamic is that universities' institutional investment and expansion will drive up neighboring land value which in turn increases property tax and city revenue. If relationships between the local community and higher education institutions become acrimonious, the city is often made responsible for mediation between the two parties. Easy to understand then why the city sees these institutional actors primarily as land developers enabling their authority to help assemble land parcels for university expansion.

Harder to understand is the City of Philadelphia's failure to capture this revenue lost to property tax-exempt non-profit institutions. About \$29.7 billion in assessed value in Philadelphia, 17% of the city's total assessed value, was exempt from the real estate tax for 2021 (Pew Charitable Trust, 2022). There are 23,320 total property tax exempt entities in Philadelphia, 48% of which are public property (Pew Charitable Trust, 2022). The remaining 52% consist of private institutions, including 645 institutions of learning and 197 medical and health facilities, representing \$7.2 billion and \$2.3 billion in assessed value respectively (Pew Charitable Trust, 2022).

Given that property tax accounted for 26.5% of all local tax revenue collected by the governmental entities serving Philadelphia (Pew Charitable Trust, 2022), these tax-exemptions have real consequences on city service provision and residents' quality of life. Fittingly, a critical and persistent debate in the policy relationship between universities and hospitals and the city, in Philadelphia and elsewhere, has been payment in lieu of taxes or PILOTS. Under PILOT policies, non-profit organizations are required

to make a portion of the total amount they would owe if they were not tax-exempt in the form of cash payments.

In the 1990s, when Philadelphia first experimented with PILOTs, city leaders chose to target meds and eds based on the state standard for “purely public charities.” How does the social good of generating climate solutions and addressing environmental health inequities measure up against this state standard of public charity? Much of the justification for PILOTs is rooted in the costly provision of city services like fire, police, snow removal and trash collection. Universities pushed back on this initially, citing their internal funding for private security forces, parking and grounds maintenance.

University-funded environmental services and amenities, such as parking lots and trash collection and snow removal, could be considered the domain of municipal level carbon reduction initiatives, as prescribed in a city’s climate action plan. This is a critical overlap for institutions and introduces an interesting push and pull for funding, especially in light of the justification for the public subsidy of meds and eds. As the city is forced to anticipate an increased need for such services during periods of extreme heat and weather disaster and other environmental catastrophe associated with climate change, might they look to the university to commit internal funds to strategically aligned implementation of these services? Is that not the logical expectation if they are not paying property taxes, especially if the dollars and economic impact are flowing through the institution vis-a-vis the university workforce and other university managed contracts? This also introduces a central tension of the town and gown divide and the power of boundary making wherein everything on this side of borderline is the university’s responsibility and everything on the other side is the city’s. The important structuring

capacity of these deeply political socio-spatial arrangements of college campuses and their surrounding neighborhoods will be further explored in the next chapter.

The policy discourse surrounding universities and cities and the payment of PILOTs is considered one of the critical fiscal battles of a generation and has significant implications for climate action planning mandates for both the cities and universities alike. If cities continue to view medcs and eds primarily as land developers, they will continue to prioritize government efforts on assisting the institutions with campus improvements. As Carolyn Adams perfectly summarizes in her 2003 article:

Planners tie their housing and infrastructure strategies to the medcs and eds, for example, by paying serious attention to the land uses that should be encouraged around the institution. Transit planners design routes and fare structures to cultivate college students and hospital and university staff as customers. Police departments coordinate their resources with the substantial security forces employed by these institutions. While helpful, these efforts fall short of the kind of policy innovation that is needed if cities are to take full advantage of the economic power represented in the medcs and eds.

From an emissions reduction perspective but perhaps more so for social policy for climate justice, broad investments in critical infrastructure and affordable housing are needed, and despite leveraging public dollars to facilitate continued economic growth from their students and staff, most higher education institutions have not even considered footing the bill for this variety of climate resiliency planning.

Another important dimension of university and nonprofit governance is the degree to which the institutions are spatially fixed, particularly relevant for their influence to shape metropolitan economies. Universities and nonprofits concentrate in cities, stay in cities, because they are not subjected to the same competitive tax rates as for profits. In climate action planning politics, the shift in viewing the city as an environmental, climate problem to seeing it as a solutions generator was in part facilitated by the presence and

contributions of non-profit foundations and the evolving land and real estate development of med and eds. This is a particularly important phenomenon to note when considering capitalistic land development's singular influence on the urban form and social arrangement of urban neighborhoods, a power relationship which has and will continue to be contested and highly contextual, especially when one accounts for instances of community resistance and protest against the often feudalistic, discriminatory domination of development capital.

This chapter illustrated the disconnect between governmental and institutional actors in the adoption of successful economic development policy and offered environmental and climate policy as a key consideration in future governance and planning strategies that might enable more just and robust collaborations amongst higher and ed and city stakeholders especially. It also laid out the outsized presence and influence of the healthcare sector within Philadelphia's regional economy and shed light on legal precedent for public subsidy of non-profits, especially in terms of land value and real estate development. An explanation of state, city and non-profit funding mechanisms also gave shape to potential sustainable urban planning activities and the potential economic stimulus resulting from the decarbonization of typical city services within the university health system, such as workforce development accompanying an increased focus on sustainable grounds maintenance and waste minimization, management and removal. In beginning to analyze the emergent relationship between cities and academic medical centers, specifically the critical role of PILOTs, this chapter gestured towards recommendations for future political action that will be expounded upon later in this thesis. Some evidence was provided for the impact of institutionally mandated

collaborative climate mitigation strategies might have on the delivery of healthcare services, but future chapters will review these implications in much greater detail.

## CHAPTER FIVE

### TOWNS, GOWNS, AND THE STRUGGLE FOR A JUST CITY

The previous chapter examined the power of the meds and eds from an economic-development perspective with less attention paid to their influence and role in community resistance, movements for justice, and social struggle. This chapter will attempt to interrogate the social force universities and their attendant medical centers exert on urban development. As illustrated in the previous chapter, municipal politicians and real estate developers compete to capture the potentially lucrative tax bases and consumer dollars offered by the modern university and this trend coalesced with college and universities' search for new revenue streams when state budgets tightened and squeezed higher ed out.

Meds and eds are participating in the market and exhibiting behavior akin to corporate actors, but unlike Microsoft or Google, these entities have claimed responsibility for public good. This begs the question, what exactly makes universities good for our cities? In Davarian Baldwin's book, "In the Shadow of the Ivory Tower: How Universities are Plundering our Cities," he questions this promise by asking whether a school's increased for-profit ambitions can undermine the interests of the public. He explicates meds and eds' particular power: their singular dominance in non-government employment, real estate holdings, policing power, and educational and healthcare provisions. Baldwin takes special care to highlight the importance of the post-industrial urban landscape and displacement of former industry that gave rise to academic capitalism.

In the broadest terms, lower-income neighborhoods and communities of color that stand in the immediate path of campus expansion, in deep need of new investments, are left the most vulnerable. These residents face increased housing costs or even displacement amid university land developments, work in the low-wage sectors of the higher education workforce as groundskeepers and food service staff, and endure violence and surveillance from campus police forces. All of these social forces – land, policing, and labor – work together to solidify the universities’ political authority and have practical implications for urban lives made manifest in their housing costs, police violence, and labor conditions and community wealth. Campus-expansion projects meet the increased demands for upscale housing, high-tech laboratories, and plentiful retail options that will attract world-class students, faculty, and researchers. These university developments also reorganize their host cities for new private investments in the bioscience and information-technology industries (Baldwin, 2021).

The interests of university and city leaders converged when the college campus was reimaged as the palatable and profitable version of a safe urban experience. Commercial amenities associated with “university life”—concerts, coffee shops, foot traffic congestion, fully wired networking, and high-tech research— are sold today as a desirable urban lifestyle. City schools are finding ways to generate new revenue in the for-profit realms of low-wage labor management, health care, applied science, and real estate (Baldwin, 2021).

While the idea of the university as a public good is nearly as old as the institutions themselves, the idea of the university and affiliated health systems as “anchors” gained steam when the Coalition of Urban and Metropolitan Universities prescribed the label to

mean meds and eds, by virtue of their rootedness and apparent permanency of place, makes them uniquely qualified to deliver economic stabilization to urban areas and possibly even rebuild successful communities. University presidents created Campus Compact to solidify an institutional commitment to civic education and community outreach. This duty and obligation of higher ed institutions, sometimes referred to as the “urban mission” was further reified when in 1994, the Department of Housing and Urban Development (HUD) created the Office of University Partnerships to provide grants and sponsored research that encouraged a better integration between schools and their cities.

However, the anchor institution language of shared interests and public good elides the contested nature of these integrations between “town and gown.” The work of anchoring is done in many different contexts by individual business units and executive academic leadership as well as students and faculty, who all have profoundly different motivations and incentives. An example might be that the Chief Financial Officer doesn’t consult an office of community-engaged research when they consider property and land acquisition though they both engage and “revitalize” the same community. And so, whose voices are loudest? What interests can or should dictate community partnerships? We must reconcile that these different approaches, methods, and competing priorities conflict and resultant divergence and tension continues to shape how university-driven development is done in our cities. What does this say about universities and their power to either replicate or eradicate urban socio-environmental inequities?

The ideas explored in this chapter have significant implications for meds and eds’ adoption and enforcement of climate policy. It characterized the relationship between neighbors and universities and painted a picture of what exactly is at stake for those

living “in the shadow of the ivory tower. (Baldwin, 2021)” The goal of this chapter is to begin to imagine what kind of critical health issues might result from such economic pressure and conflicting needs and wants for a community and its potentially malevolent benefactor. Extending this logic, what do these town and gown dynamics – with potential for reification of inequity and for liberation – mean for climate action?

To what extent can traditional climate action plans be extended or reimaged to address displacement, dispossession and racism at the hands of the university and more specifically, the resultant socially *and spatially* determined negative health impacts experienced by the neighboring communities? If the university in its function as an anchor institution is thought of as an adversary that induces harm, how might that come to bear on the patient-physician relationship at academic medical centers and what might that suggest about the need to rethink and reform the training of healthcare professionals within these med schools? The answers to these questions will reemerge in the form of prescriptions for alternative modes of university engagement with community not only in terms of fiscal policy and planning and operation of the physical plant, but also within the academic dimension of institutions of higher learning via the pedagogical and curricular design of medical schools. This full spectrum of university influence will continue to be explored in the next chapter, which is ostensibly a brief historical review of higher education’s role in American political development.

## CHAPTER SIX

### HIGHER ED AMERICAN POLITICAL DEVELOPMENT

This chapter reviews local climate change policies in public and private institutions with a particular focus on how the higher ed sector has instigated broader projects of nation building, fomenting large societal ideas about the role of universities, particularly their influence on the economy and shaping understanding of their mission and status as non-profit, public institutions. This chapter discusses how the lack of federal climate policies has led to the development of local climate change policies in public and private institutions, including higher education. Abbott and Kasprzyk's, "Hot Air: University Climate Action Plans and Disarticulated Federalism" argues a federal climate policy vacuum prompted local climate change policy within public and private institutions, such as states, municipalities, and higher education institutions. The most obvious non-governmental policy that affirms this development is Second Nature's American College and University Presidential Climate Commitment (ACUPCC). Second Nature is a non-governmental organization that has been working to "help make the principles of sustainability fundamental to every aspect of higher education" since 1993 (Second Nature, 2023). Their mission is to "to accelerate progress towards climate neutrality and sustainability by empowering the higher education sector to educate students, create solutions, and provide leadership-by-example for the rest of society" (ACUPCC, 2007). The ACUPCC, which includes a carbon commitment (reduction of greenhouse gases), a resilience commitment (climate adaptation and building community resiliency), and a climate commitment, which integrates both, was initiated by a small

collective of 12 university and college presidents who were motivated by their conviction that higher ed had the “capacity and responsibility” to lead on climate. The coalition grew steadily and by 2008, support was sufficient for Second Nature to characterize the signatories as a critical mass and make the claim that higher ed is the only sector in the U.S. with commitment to both the “scientifically necessary goal of climate neutrality and to preparing students to develop the solutions needed for a just, healthy, equitable, and sustainable society.”

It was this set of ACUPCC commitments that prompted the appointment of sustainability officers at many universities and colleges across the nation but progress and success in accomplishing the goal of carbon neutrality by 2050 differs dramatically across states. Abbot and Kasprzyk provide evidence that meaningful reduction in greenhouse gas emissions is nearly impossible for institutions without substantial leadership at a higher level of government and specifically state-level policies, which have the strongest influence on universities. The authors perform a case study of ACUPCC signatories and assign scores ranking both the sophistication of institutions and states’ policies for greenhouse gas reduction and uncover the influence of state climate and energy efficiency regulations. Policies that facilitate more aggressive action are enabled by public infrastructure and incentives for renewable energy development and purchasing and so without state support, sustainable technologies can be too expensive for institutions to adopt, even with internal pressure and advocacy efforts.

In their 2016 publication “Association, Service and Market: Higher Education in American Political Development,” Stevens and Gebre-Medhin present a strong case arguing for the central role of higher education in projects of nation building and social

provision throughout the course of American political development. They outline seminal federal policies that dictated the social, political and economic relevance and impact of higher education, many of which have significant implications for the political dimensions of climate action planning in higher education institutions. Beyond the analysis of the policy's impact, and a thorough explication of the theoretical basis of higher education's institutional configuration and the narrative trajectory of universities' political impact over time is framed through some key tools of historical sociology. Most relevant to the purposes of this thesis are coalescence and robust action, two social phenomena of American political development whose function will be revisited in the model for action, most notably, the GI Bill of 1944, National Defense Education Act of 1958, the Higher Education Act of 1965, and the Bayh-Dole Act of 1980. A brief review of each act will set the scene for more interpretive analysis of their relevance to climate action policy within university systems.

The GI Bill, formally known as the Servicemen's Readjustment Act of 1944, was a U.S. federal law that aimed to provide support for World War II veterans returning to civilian life. It offered a range of benefits, including educational assistance, low-cost mortgages, and unemployment compensation. The educational benefits of the GI Bill enabled millions of veterans to pursue higher education, which significantly contributed to the growth of the American middle class and had a transformative impact on the nation's economy and society.

The National Defense Education Act (NDEA) was a response to the Soviet Union's launch of the first artificial satellite, Sputnik, which raised concerns about America's scientific and technological capabilities. The NDEA aimed to enhance the

nation's education system, particularly in the areas of science, mathematics, and foreign languages. It provided federal funding to improve science and language education, offer scholarships, and establish fellowships and loans for students pursuing higher education in STEM fields. The NDEA played a significant role in strengthening the scientific workforce and advancing scientific research and innovation in the United States.

The Higher Education Act (HEA) of 1965 is a federal law that has been reauthorized several times since its inception. It was initially enacted to expand access to higher education by providing financial assistance to students and institutions. The HEA established various grant and loan programs, such as the Pell Grant and Stafford Loans, which aimed to make college education more affordable for students from low-income backgrounds. It also supported the development of educational resources, libraries, and academic programs. The HEA has undergone revisions to address issues such as student loan reform, affordability, and accountability in higher education.

Cumulatively, this collection of post-war policies gave universities and government agencies additional practice in mutually beneficial cooperation and gave way to the higher education sector's role as the predominant para-state in the twentieth century. "Situated between citizen and state, completely beholden to neither party but expected and committed to serve both (Stevens and Gebre-Medhin, p. 133)," higher education institutions are a vessel for coalescence. In sociological theory, coalescence refers to the process by which individuals or groups come together or merge to form a cohesive whole. This process involves the convergence of different actors, resources, and ideologies, resulting in the formation of a larger, more organized entity. It involves the transformation of individual grievances or concerns into shared collective action, often

driven by a sense of solidarity or shared interests. Higher education produces coalescence because it is the intersection of government, commerce and civil society making it prime real estate for the commingling of resources, personnel, and ideas from multiple domains. The strong influence of state through this bundle of post-war federal policies rendered higher education institutions a preferred site for extended and mediating projects of government. This thesis argues that climate action is the defining “extended and mediating project of the government” at this moment in contemporary society.

The hybrid structure of the US state, the commercial sector and higher education has significant potential to be a vehicle for holistic and equitable climate action if human and environmental health, rather than economic prosperity is prioritized in the authoring and implementation of CAP or comparable documents. Universities are capable of robust action, another theoretical tool of historical sociology, accomplished when intersections between multiple networks extend, withhold and manipulate alliances to strategic advantage. Universities have been sites of robust action not only because of their role as hubs connecting multiple institutional domains but also because of their entrepreneurial enterprise. This latter organizational configuration of higher education, capitalistic entrepreneurship, was largely facilitated by the passage of the Bayh-Dole Act of 1980.

The Bayh-Dole Act, officially known as the Patent and Trademark Law Amendments Act of 1980, was a U.S. federal law that aimed to promote the commercialization of inventions resulting from federally funded research. Prior to this act, the government retained ownership of inventions arising from federally funded research, which often hindered their commercial development. The Bayh-Dole Act allowed universities, nonprofit organizations, and small businesses to retain the rights to

patents and intellectual property resulting from federal funding. This policy change facilitated technology transfer, incentivized collaboration between academia and industry, and played a significant role in fostering innovation and economic growth in the United States. These regulatory structures were designed to narrow the gap between academic labs and markets. They stimulated normative changes throughout higher education by encouraging nationwide competition for federal grants and other opportunities for growing profit yielding enterprise. Higher ed transitioned from behaving like a civil service organization to acting as a self-interested corporation giving way to academic capitalism. Academic capitalism is characterized by the expansion of commercial activities within universities, including the commercialization of research, the growth of corporate partnerships and sponsorships, the rise of intellectual property rights management, and the increasing reliance on external funding sources. It also entails the adoption of business models and management practices in academic governance and decision-making processes, as well as the focus on market-driven metrics and performance indicators for evaluating academic success. Individual institutions acting in their own material interests greatly distract from more abstract shared national goals, such as social movements and political action to achieve climate justice.

This chapter discusses how the lack of federal climate policies has led to the development of local climate change policies in public and private institutions, including higher education. The American College and University Presidential Climate Commitment (ACUPCC) by Second Nature is highlighted as a non-governmental policy that reflects this trend. It also discusses the role of higher education in nation-building and social provision, citing federal policies such as the GI Bill, National Defense

Education Act, Higher Education Act, and Bayh-Dole Act as influential in shaping the political dimensions of climate action planning in higher education institutions. The Bayh-Dole Act is specifically mentioned as facilitating the commercialization of research and the transition of higher education towards academic capitalism. The potential for universities to contribute to holistic and equitable climate action is emphasized, provided that human health is prioritized over capitalist enterprise.

The next chapter will provide critical insight into the capacity of the healthcare sector to successfully integrate sustainability principles and decarbonization efforts into their operations and health system governance. The critical perspective throughout implies that existing progress within the industry has been slow and insufficient, mirroring other industry and municipal climate planning theories and implementation and concludes by suggesting that healthcare policies should consider the ethical imperative of environmental, racial and social justice, and prescribes more progressive and even radical next steps such as advocating for universal healthcare and an end to for-profit hospitals as part of comprehensive climate action within health systems.

## **CHAPTER SEVEN**

### **DECARBONIZING THE HEALTH SECTOR**

The health sector has been slow to rise to the challenge of the climate crisis, especially in the United States. The health sector is responsible for 8.5 percent of U.S. emissions of greenhouse gases including carbon dioxide, methane and ozone — an outsized impact compared to the rest of the world (Eckelman et al., 2020). Globally, health care systems contribute roughly 4.6 percent of total greenhouse gas emissions (Kenen, 2023). This movement towards climate action and integrating sustainable practices into hospital operations and care delivery has been championed by a diverse coalition of stakeholders, most notably individual physician advocates and organizations, such as Health Care Without Harm, select disciplinary organizations and medical education authorities as well as Washington policymakers.

In June of 2022, in accordance with an executive order of the White House, U.S. Department of Health and Human Services launched a pledge initiative to mobilize the health sector to reduce carbon emissions. 116 health organizations representing 872 hospitals as well as other health care sectors signed-on the first year of the pledge. Combined with the already-committed federal health systems, signatories account for about 15% of U.S. hospitals. The voluntary pledge asks signees to, at a minimum, 1.) commit to reducing their organization’s emissions by 50% by 2030, 2.) to net zero by 2050, and 3.) publicly report on their progress. They are also committed to completing an inventory of their scope 3 emissions (4) and developing climate resilience plans for their facilities and communities (5). It also asks them to designate an executive lead for this

work (6). Of the 116 hospital systems and health organizations, 29 are considered academic medical centers, or about 19% of the roughly 153 academic medical centers in the United States, and at least one of the organizations, Association of American Medical Colleges, is affiliated with an institution of higher learning. Other participating non-profit healthcare organizations and associations include the American Medical Women's Association, the Children's Hospital Association, National Academy of Medicine, Health Care Without Harm, and The Joint Commission.

The degree to which university climate action plans encompass the emissions of their affiliated academic health centers or university health systems varies greatly across the country. In some cases, such as at Temple University in Philadelphia, the GHG baseline inventory accounted for in the CAP includes the energy footprint of the Health Science Campus' educational buildings, such as School of Dentistry, the Student Faculty Center, and the Medical Educational Research Building, but it does not account for the emissions of Temple University Health facilities and the sites of care delivery such as the Ambulatory Care Center, the Outpatient Building, and the hospital pavilions.

Projecting the HHS pledge requirements onto an academic health center such as Temple University, who has not signed on, demonstrates the absence of a cohesive climate action strategy, shared between the university hospital and the medical school itself. The lack of clarity in ownership within the university climate action plan lets the Temple Health system off the hook for meaningful capital investments in decarbonization in line with the HHS pledge.

Temple University Office of Sustainability is the executor of the Temple University Climate Action Plan and reports the total carbon emissions of the Health

Science Campus and the medical education facilities. Though Temple University Hospital is a nonprofit healthcare organization affiliated with Temple University that operates for charitable or educational purposes, it is not bound to any university presidential climate commitment, as a higher education institution would be, but also has not committed to the HHS pledge which a for-profit healthcare institution could. Typically a non-profit exempt from paying federal and state property taxes would be required to reinvest any profits back into their mission rather than distributing them to shareholders or owners. However, there is no regulation, with teeth so to speak, that requires Temple Health and the hospital's reinvest profit into the particular university-wide mission of climate action and decarbonization or environmental justice initiatives as dictated by the Temple University Climate Action Plan or the HHS Climate Pledge.

Some of the non-profit and non-government health care organizations and associations who have signed onto the White House Pledge, have developed their own planning mechanisms for integrating sustainability practices into health system operations. One such example is the Climate Action Playbook for Hospitals from Health Care without Harm which seeks to “inspire and encourage hospitals to engage further in climate action while providing a path forward to achieving measurable progress and outcomes.” On the Climate Action Playbook website they state the health care industry is “on the front lines of climate change bearing the costs of increased illnesses, changes in disease prevalence and the health impacts of more frequent extreme weather events” and extends this proclamation of duty by introducing a central tension of the relationship of climate to health: health care operations contribute significantly to climate change and the very diseases they are trying to treat. The health sector is responsible for a whopping 10%

of all total U.S. greenhouse gas emissions, and one third of those emissions come directly from hospitals (Eckelman & Sherman, 2016).

Organized and supported by Health Without Harm, the Health Care Climate Council is a “leadership body of health systems” responsible for authoring this document and committed not only to “protecting patients and employees from the health impacts of climate change” but also to becoming *anchors* for resilient communities. Interesting to see the language of anchor institution invoked here, as it foregrounds the “community resilience” chapter of the playbook. The Climate Action Playbook follows a typical template for a climate action plan with goals and plans for action in nine categories: energy, food, leadership, operating room, purchasing, community resilience, infrastructure resilience, transportation, and waste.

The community resilience goal chapter has an explicit social justice framing stating that climate impacts are threat multipliers for the social determinants of health. It calls out the importance of safe and affordable housing, food and water security, and community safety. More specifically, it states that hospitals, as anchor institutions, can “leverage their purchasing power and social capital to protect health, advance equity and justice, and improve the long-term resilience of the communities they serve.”

While this is not specific in prescribing operationalizable social and/or environmental justice policy, it does pose challenges and responsibilities of the health care sector: hospitals and health systems are among the largest employers in the U.S., according to a "24/7 Wall Street" analysis; more than 40 million Americans are food insecure and food insecurity costs the health sector an additional \$53 billion a year; and communities of color and low-income neighborhoods will have the greatest exposure to

climate impacts and extreme weather events. It also offers examples of work being done at industry-leading health systems. Generally speaking, the nature of this document and its vague gestures towards equity policy presupposes the supremacy of city, system or institutional level climate action governance and closely resembles countless municipal climate action plans that claim to prioritize equity but do not successfully create a mechanism of accountability for addressing root causes of socio-environmental difference and disparity.

Applying a critical lens to the actions and commitments of hospital system policies elucidates a health system's climate mandate in two arenas previously discussed in this thesis: a non-profit's duty to provide public goods and the role of an urban bioethic. There is value to these ethical proclamations of commitments to climate justice, but perhaps they are just shy of calling out the fundamental social problem that has shaped our climate reality: extractive racial capitalism. In this sense, if the United States care industry is to take seriously the ethical imperative of racial and social justice, universal healthcare and an end to for-profit hospitals can and should be a central facet of climate action within health systems.

This chapter reviews efforts towards climate action in healthcare and provides context for major stakeholders in the campaign, including physician advocates, organizations like Health Care Without Harm, disciplinary organizations, medical education authorities, and policymakers. Specifically, it details the role and impact of the pledge administered by US Department of Health and Human Services and the Climate Action Playbook for Hospitals by Health Care Without Harm. This chapter should emphasize the healthcare sector's significant contribution to climate change and the need

for hospitals to address climate impacts, advance equity, and improve community resilience. However, it concludes that the movement for climate action in healthcare generally lacks mechanisms for addressing root causes of socio-environmental differences and disparities and begins to prescribe more all-encompassing solutions for climate justice. The next chapter will focus specifically on medical education and curricular reform and the unique capacity of university health systems especially because of the import professional ethics within medical training and scholarship and the activism of students and faculty. It will review opportunities to more effectively integrate climate change and health into broader policy frameworks in medical practice and education such as the American Medical Association's Principles of Medical Ethics which is presented an opportunity for political and social justice activism amongst current and future physicians.

## CHAPTER EIGHT

### MEDICAL EDUCATION'S CLIMATE RESPONSE

There have been many calls from prominent institutions and academic medical authorities for more swift and significant action on climate within medical education and healthcare practice. One standout leader has been Harvard Medical School, who announced early in 2023 their plans to embed climate change and its impact on health in the MD curriculum. In many cases it is students' calls for action that have instigated leadership to make changes. At Harvard, it was the Students for Environmental Awareness in Medicine group, who approached the school's curriculum leadership about including more about climate's effects on health in students' training. Roughly 14 faculty members across a range of specialties at HMS-affiliated hospitals, along with students, came together to form working groups to advise HMS course directors to integrate more climate and health topics into a variety of courses. The HMS Educational Policy and Curriculum Committee voted unanimously to add climate change and health as one of the priority societal themes of the HMS MD curriculum, so that it can be officially embedded into all four years of the curriculum and tracked with accountability.

There are five areas of focus within the committee's prescription, and each offers much insight into the different levers of influence and power existent within medical education:

- The first area would define the pathophysiological mechanisms by which climate change, air pollution, and ecological degradation affect human health.

- A second area would apply the knowledge of climate effects on human health to the clinical care of patients, including prevention, diagnosis, risk reduction, and counseling.
- A third area would involve analysis of the historical and structural causes of climate change, air pollution, and ecological degradation and describe the ways in which the climate crisis creates and exacerbates inequities.
- A fourth would illustrate how health care systems contribute to climate change and how health care delivery is vulnerable to climate-related events.
- A fifth would involve exploring how physicians and health institutions can be part of solutions.

How can and should these curricular evolutions be measured and understood in the context of university climate action plans? In the case of Harvard Medical School, perhaps their authority and reputation, combined with leadership’s interdisciplinary and holistic approach to sustainability, yielded a university Sustainability Action Plan that centers health equity. Specifically, it is “addressing climate change and the environment, equity and health in an integrated, interconnected way, rather than as separate issues. (Harvard University Sustainability Action Plan, 2023) ”

These key focus areas should be activated within broader policy dictums across institutions and federal and state licensing agencies and government authorities to increase their efficacy and legitimacy within medical practice and education. One such example could be the American Medical Association (AMA)’s Code of Medical Ethics (AMA, 2001). First adopted in June of 1957 and revised again in 1980 and 2001, at least two of the nine principles, or “standards of conduct that define the essentials of honorable

behavior for the physician” gesture towards social justice activism and medicine’s role in achieving broader public health goals that could serve climate change-related health and policy interventions, and specifically, the training and education of future medical doctors, were they to make these connections more explicit.

Principle III states that a physician shall “respect the law and also recognize a responsibility to seek changes in those requirements which are contrary to the best interests of the patient.” This standard invoking a responsibility to seek changes that do not serve the best interests of the patient represents an interesting opportunity to apply a sustainability ideology to the patient experience, perhaps best conceptualized through the idea of intergenerational justice. In Alistair Wardrope’s 2018 article, “Intergenerational and Social Justice: There Is More to Environmental Justice Than Accountability for Reasonableness,” they speak to the peculiar nature of environmental health risks in that the most affected parties are future persons subject to the long-term consequences of today’s unsustainable activities. Thusly, a respect for the law and a responsibility to seek change in the best interest of patients, could directly implicate laws of environmental protection if this principle were complemented by an intergenerational understanding of justice sensitive to the interests of future persons.

Principle VII states that a physician shall “recognize a responsibility to participate in activities contributing to the improvement of the community and the betterment of public health.” This logic could be extended to recognize not only the responsibility to participate in activities to improve public health but also to acknowledge the impact of medical activities on both the built and natural environment which also have direct impact on human health outcomes. A new principle, somewhat along these lines, could

call very specific attention to anthropogenic climate change to say physicians have a responsibility to address environmental justice issues at the scale of the community and in service of the betterment of public health. Again, in referencing the ethical framework as prescribed by Blustein and Fleischman's urban bioethics, considerations for what constitutes a duty to improve a community's public health outcomes should recognize disruption to the natural environment and its impacts on the "community" as directly relevant to ethical choices in healthcare delivery and thusly, belonging in the collection of the Principles of Medical Ethics.

This chapter discusses the efforts made within medical education institutions to integrate climate change and its impacts on health in curricula and detailed several areas of focus which touch on pathophysiology study and climate effects on human health as well as on care delivery. There is also movement toward a deeper analysis and understanding of the historical and structural causes of climate change and its inequitable impact and how health care systems contribute to climate change and are vulnerable to climate-related events. The chapter interrogates the role of physicians and health institutions in finding solutions and acting on climate change through the implementation of an integrated and holistic institution wide climate action plan wherein academic medical centers and affiliated medical training and professional development are held accountable for participation and progress. Finally, this chapter suggests how key elements of the critical relationship between the environment and health could be incorporated into broader policies for the governance of medical institutions, including more specific recommendations for expansion of the Principles of Medical Ethics of the American Medical Association. The next chapter is the introduction of a model for

equitable climate action for not only these medical institutions but all relevant stakeholders including municipal, state and federal government actors and higher education leadership.

## CHAPTER NINE

### **FIVE PRINCIPLES TO BUILD, GROW, AND SUSTAIN AN ENVIRONMENTALLY, SOCIALLY, AND ECONOMICALLY JUST UNIVERSITY HEALTH SYSTEM**

This chapter presents a model for potential action steps for all relevant stakeholders to build, grow and sustain an environmentally, socially, and economically just urban university health system. Its five principles operationalize the literature review and analysis in the previous chapters by directing considerations for institutional program implementation and policy reform and will be followed by further discussion and prescriptions for next steps.

In their 2008 piece, “Higher education as a change agent for sustainability in different cultures and contexts,” Stephens et al present a methodology for evaluating universities’ capacity to be effective sustainability change agents within a highly variable institutional environment and social landscape. The position, structure and arrangement of higher education institutions within their respective societies, combined with the location-specific sustainability challenges and opportunities facing a given community or region, yield an increasingly heterogeneous collection of sustainability challenges and societal expectations for how a university should behave. This is further complicated by the heterogeneous social and cultural values about what a university response to socio-environmental challenges should look like. The authors describe five specific questions that raise five different sets of issues that are uniformly critical for considering challenges and opportunities for institutional climate action in any context of higher ed governance.

Each of these focus areas, or principles, have potential relevance to strategic high-level concerns and decisions, to mid-level tactical decisions, and to more detailed

operational-level planning. The questions relate to university systems' 1.) specific dominant sustainability challenges, 2.) financing structure, 3.) institutional organization, 4.) extent of democratic processes, and 5.) communication and information dissemination situation. A thorough analysis and evaluation of each of these conditions for a given university in the model prescribed allows strategic planning decisionmakers to empirically identify location-specific characteristics that facilitate the design and implementation of new initiatives and approaches to maximize the potential for a higher education systems' acceleration toward sustainable, socioenvironmental change and a positive impact on global and local health outcomes.

This methodological structure gives shape to the litany of questions and ideas explored in the literature review portion of this thesis and the forthcoming five-part model will utilize this structure to orient the future recommendations, assembling prescriptive action steps within this thematic arrangement. However, this model is not exhaustive nor was it intended to address the unique dimensions of university health system governance or the important and distinct conditions of urbanity which are the focus of this thesis. Therefore, this new model will extend the old one by applying urban bioethical principles with emphasis on the themes explicated in Chapters 3-8: theories and politics of climate action plans, economic development strategies of urban anchor institutions, a criticism of contemporary university community relations, higher education's role in nation building, decarbonization efforts in the health sector, and medical education's institutional climate response. The process of supplementing the existing literature with the novel contributions of this thesis will develop a roadmap for

future action. Additional suggestions for future research and specific steps for future action will be prescribed and discussed in the following chapters.

### **Principle I. Hyperlocal Sustainability Challenges**

This principle establishes how hyperlocal sustainability challenges are shaped by the status and rate of change of the socio-economic, technical and environmental conditions of the region. To acknowledge the ways inequality exacerbates environmental degradation and the differentiated experience of climate impacts, one must also consider several other critical dimensions such as wealth distribution, economic and social structure, and the degree of social stratification. University leadership considering these variables in context of an institution's particular conditions would yield more culturally and structurally competent strategic climate and health interventions.

### **Principle II. Financing Structures**

Continuing the exploration of university strategies for economic development, this principle of the model recognizes the general trend toward market-based funding mechanisms in university health systems and key barriers for a changed mandate or structure of funding, especially for publicly financed higher education institutions. Increased presence of public-private partnerships has a record of introducing problematic conflicts of interests, such that corporate and for-profit entities can influence research projects aims and redirect public research dollars toward more capitalistic enterprises.

Higher education institutions who are entirely or primarily reliant on public funds face pronounced challenges in transforming large and entrenched bureaucratic systems.

Often these shifts require broader social awareness and efforts to distribute funds for climate mitigation or resiliency projects of all kinds require an acceptance of the sustainability challenges a particular community or region is facing and especially the role the university could have in ameliorating those problems. External funds and thoughtful university strategic programs can provide a means to generate awareness of sustainability problems by creating and demonstrating alternative visions of a better future or promoting effective action to counteract problems and improve health and quality of life.

### **Principle III. Institutional Organization**

This principle relates to the emancipatory properties of dramatic reforms to institutional organization, specifically concerning the disparate goals and actions of disciplinary factions and faculty promotion and rewards systems. Universities are inherently traditional and conventional institutions and this impulse runs counter to movements to dramatically change expectations of student, faculty, or institutional priorities and norms as far as societal engagement.

More specifically, the siloing of disciplines is a critical structural challenge. Individual colleges and professional schools are often managed as fiefdoms with specific internal cultures that totally prevent or strongly dissuade cross-disciplinarity and limit engagement outside conventional academic circles. The structure of faculty promotion fosters and rewards a narrow disciplinary focus and incentivizes the dissemination of research results primarily through publication in academic journals. The current system rarely if ever rewards public engagement nor does it allow much time for faculty

researchers to reach out to and collaborate with non-academic entities. It also explicitly dissuades transdisciplinary coordination and complex and integrated systems approaches to action research agendas. Cumulatively these challenges associated with conventional academic reward mechanisms are major obstructions to building and growing more socially engaged academic institutions.

#### **Principle IV. Extent of Democratic Processes**

This principle establishes that the level and extent of democracy within the community or region in which an institution resides is of great importance in understanding their potential as a change agent. Stephens et al's conception of democratic processes within higher ed is determined by the broader public's access and rights to obtain higher education and the transparency or neutrality of institutions of higher learning.

An evaluation of accessibility ushers in an important series of questions to consider. Does the university simply empower the elite? Does the degree of access affect the potential for the institution to have a democratizing impact beyond the campus borders? To make good on promises of access is to broaden the scope of a university's positive influence and take seriously a political and rhetorical position that education is a human right, especially relevant within the discourse of urban public and anchor institutions.

Regarding neutrality and transparency, because universities are subjected to regular peer-review processes, especially to retain accreditation, they institutionalize a certain level of neutrality and this independence, real or imagined, serves an important

function for democratizing institutional activities. This neutral position, in combination with nonprofit status and mission, allows universities to mediate social discourse on complex and contentious societal tradeoffs concerning political responses to sustainability challenges. The transparency of sustainability or other impact reporting and the extent to which community stakeholders and the public at large are represented in key decision-making processes enable or restrict institutional accountability to their proclaimed mission, though almost never with the threat of real civil or criminal regulatory consequence.

#### **Principle V. Communication and Interaction with Society**

Communication and interaction with society is a principle which concerns cultural and institutional contexts for communication, information management and interaction with society. This includes mechanisms for communication and dissemination of information both internally, within the system, and externally with nonacademic entities. Any challenge to effective communication can compromise cross disciplinary and interdepartmental collaborations internally and externally across different institutions. The type and extent of access university stakeholders, including faculty, students, and leadership, have to decision-makers in government and industry as well as community groups is often a reflection of institutional culture and as a result, quite dynamic with significant potential to prevent or facilitate more activist sustainability aims. Increased outreach activities and regular, transparent collaborative convening and cross-sector planning leads to more substantial action research agendas, the inclusion of more

nonacademic practitioners, and ultimately, more explicit promotion and support of community-based participatory research activities.

The chapter presented a model for action steps aimed at establishing an environmentally, socially, and economically just urban university health system. The five principles derived from a literature review and analysis can guide implementation of institutional programs and policy reforms. By employing this model, decision-makers can identify location-specific characteristics that facilitate the design and implementation of sustainable initiatives, leading to positive impacts on global and local health outcomes. This model focuses on urban bioethical principles and addressed themes related to climate action plans, economic development, university community relations, nation-building, decarbonization efforts in the health sector, and medical education's climate response, each reviewed in previous chapters. The next chapter will present additional suggestions for future research and specific steps for future action based on this comprehensive model responsive to the key themes explicated in the literature review.

## **CHAPTER TEN**

### **BEYOND CARBON TOWARD LIBERATION**

This chapter will discuss implications of the proposed model within the context of urban universities and health systems and identify avenues of future study to further explore feasibility of implementation. Each subchapter will address at least one of the model's principles and suggest next steps for action and research.

#### **Urban Labs and the Governance of Low-Carbon Futures**

Urban laboratories are an important emergent model for university academic and societal engagement in the governance of low-carbon futures and a good example of a strategic institutional program responsive to hyperlocal sustainability challenges, focused on the status and rate of change of socio-economic, technical and environmental conditions of the city. A classic sustainable development formula that couples environmental protection with economic growth, urban labs offer an opportunity for universities to rework the interplay of knowledge production and local governance. Specifically, this bounded space for experimentation with decarbonization technologies fosters more innovative solutions than more traditional research production (Evans et al., 2015).

One key implication of this research-intensive form of governance is that universities and government funding bodies are drawn into the ecosystem of sustainable urban development to help address gaps in knowledge and finance. Ideally, an urban lab functions as a mechanism to mobilize place, territorializing carbon emissions within a

city jurisdiction or college campus district, and university funds, both public and private dollars, are strategically applied to create new landscapes or retrofit existing ones to further generate wealth and stimulate more resilient urban conditions in the wake of climate impacts. There are serious implications of this varietal of university-led public private partnerships. Impacts should be considered for their potential to reinforce uneven patterns of spatial development and community engagement that might exacerbate inequities and put more strain on already contentious town gown relations.

Within Philadelphia, there are several examples of classic urban laboratory programs led by both the city and local universities: the City of Philadelphia's [SmartCityPHL](#) within the Office of Innovation and Technology, Jefferson University's [Lab for Urban & Social Innovation \(jefferson.edu\)](#), University of Philadelphia's [Urban Health Lab](#) and Drexel University's [Lindy Institute for Urban Innovation](#). Run by either private universities or the city itself, all these labs have affiliation with private foundations, other nonprofits or nongovernment associations. A good portion of these urban lab entities proclaim explicit goals of health equity and climate mitigation and resilience.

Future areas of study should address these urban labs' long-term impacts on broader dynamics of urban governance structures with particular attention paid to potential disagreements between neighboring communities and attendant universities about local need and capacity. Research could evaluate programs' effectiveness toward achieving environmental health equity utilizing principles proposed in the model:

- *Financing structure* to inquire about the positive or negative influence of private dollars and potential for corporate interests to inform research goals and outcomes
- *Institutional organization* to inquire about the degree of cross-disciplinary collaboration and transdisciplinarity through a review of the respective research centers' approaches toward faculty promotion and rewards system incentives for participation in such action research agendas
- *Extent of democratic processes* to inquire about the level of community access, or the unequal distribution of access, to the technological resources afforded by the research and innovation programs and the degree of transparency displayed in the lab's community engagement activities and administration of the research dollars
- *Communication and interaction with society* to inquire about communication strategies to disseminate research findings – What is their method and strategy for community outreach? Are there nonacademic practitioners and community members in leadership roles? Does the public know about these projects and their impact? Could the urban labs' work be duplicative or better coordinated amongst other regional higher education institutions?

This line of inquiry into the role and impact of urban laboratories, structured by the proposed model and in the context of broader city policy efforts to address climate impacts and resultant issues of socio-environmental health equity, is an informative example of the type of research and evaluation necessary for the successful

implementation of new modes of environmentally and socially just institutional governance. This brief exercise in utilizing the model sought to conceptualize processes of transitioning university system administration toward more sustainable practices and could be further adapted and applied to additional novel cases beyond urban labs. The remainder of this chapter will further discuss potential challenges and opportunities for future action framed within the context of the model.

### **Broadening Awareness to Build Power**

In larger strokes, more attention should be paid to the influence and power of community-based organizations, city-wide non-profit organizations and more ad hoc social movements. Despite these stakeholders' significant impact in shaping cities' built environment and lifestyle, they are overlooked in discussions about sustainability policy because most of them do not frame their work in environmental terms. Expanding spatial and social dimensions of urban policymaking can make it truly sustainable and equitable by better capturing broader dimensions of ecological sustainability and social equity and the relationship between the two. Some examples of this shift in research focus and ambition might be studying transit systems and their effects on regional housing and labor markets or developing standardized methodology for carbon-footprint analyses that account for consumption-based difference to illuminate the extent to which emissions correlate with class and income. University climate and health equity initiatives should embrace the opportunity to converge with other political campaigns and social movements with shared goals, especially any shared focus on housing, transit, and land use.

Extending the prescribed model's principles for institutional organization and funding structures and generating the buy-in necessary for significant redirection of university funds towards socially engaged programs and research initiatives requires broader social awareness of the sustainability challenges and inequities faced by local community members. In this sense, advocating for socially and environmentally just university systems must be about more than just concrete outcomes to also feature a social and political protagonism, perhaps best facilitated by the application of an urban bioethical framing. The equity turn in urban climate planning presents a clear opportunity for planners, policymakers, and local advocates to foreground the ecological implications of social inequality, such as longer commutes or energy inefficiency in sub-par housing, and, conversely, to emphasize the ecological, and human health benefits of social equity. Local governments and institutions have a choice and opportunity to grow in ambition by recalibrating toward local needs and explicitly taking up the political challenges that shape investments in infrastructure, affordable housing, and public transit.

### **Academic Research Incentives and Systems of Promotion**

Measures of research impact on societal problems are not present in performance evaluation criteria within academic disciplines (Grant, 2021), and because of this, academics instead tailor research practices and problem choices to fit university evaluation criteria for tenure rather than solving social problems, such as health equity and issues of environmental justice. One promising solution is creating and emboldening a quasi-academic role or "third-space professionals," higher education professional

employees and research practitioners who curate public engagement and citizen science networks in addition to or in lieu of seeking publication in academic research journals (Grant, 2021). Grounding rigorous research and data with equal commitment to coalition building and community engagement is certainly easier said than done, but research agendas that seek to understand and correct societal problems increase academics' capacity to speak truth to power and prioritize solutions-based research agendas irrespective of individuals' job security. Making higher ed and research skill acquisition more affordable and accessible is an important first step towards this goal.

### **Policy for Community Justice**

There are several existent policies (Baldwin, 2021) that could be introduced for immediate impact and progress toward each of the goals set out in the proposed model:

**City-Enforced Payment in Lieu of Taxes.** Colleges and universities that remain tax-exempt should compensate cities for their use of public services (police, fire, trash, road maintenance, electric grid use, etc.) and contribute to public needs like local school districts. Universities must work with cities to determine what percentage of buildings are used for strictly academic purposes versus research brought to market, and they must compensate the municipality accordingly.

**Community Benefits Agreements (CBAs).** Colleges and universities should enter into CBAs that address the shared use of space, especially if any public funds are involved. Schools should abide by zip-code-specific guidelines for living-wage job opportunities, fairly resourced subcontracted work, local access to construction projects, etc. CBAs can also include affordable-housing trusts, job training, compensation for

campus-expansion displacement, tuition-free education, use of campus facilities, such as childcare, recreation, and library facilities (especially as emergency cooling centers), and any other discussions of resource allocation. CBAs must always be governed by a community advisory board that meets on a regular basis and includes members of university and community organizations.

**Community-Based Planning and Zoning Board.** Every municipality should create a citywide planning and zoning board with binding authority that includes residents. A standing subcommittee should focus on university-based development. This board would coordinate with all relevant community boards or neighborhood-level governing authorities to help craft and govern a binding community-based neighborhood plan for all campus-expansion or renovation projects. This board would also help oversee the transfer of city-owned property for community land trusts to help manage real estate speculation in campus neighborhoods.

**Community Based Participatory Research Collaboration Agreements.** This CBAs focused on community based participatory research set out mutual goals, opportunities for contribution and measures of accountability amongst researchers and participants within university-funded research projects. Collaboration Agreements are a helpful framework for climate action planning at higher education institutions (Springgate et al., 2021).

An example of such a structure at Temple University is a faculty collaborator who worked together with an organizer from a local, legacy environmental nonprofit to lead what they called "the Breakfast Club," a regular weekly convening of these two researcher-practitioners and selected nonprofit leadership from a collection of

organizations around North Philly including Registered Community Orgs (RCOs) and Community Development Corporations (CDCs). These types of agreements, arrangements and the productive spaces of their convening are extremely effective in facilitating even simple conversations and community dialogue around any issue and ensure that it is immediate and responsive to the most urgent issues of "resiliency" or "environmental health" at a given point in time, regardless of their alignment with traditional sustainability planning initiatives.

A lot of this particular project's research agenda was borne out of a College of Liberal Arts' Center for Sustainable Communities Research Center which often most closely aligns with geography, critical urban studies, and urban planning scholarship and methods. One concept which kept bubbling up from these conversations with activists and community organizers and leaders is the need for a Neighborhood Bill of Rights, which sets out a common purpose and shared goals, but is also more of an organizing tool and situates the lived experience of a given community in relationship to political power and maybe even more specific policy demands. In essence it is an ethical framework, and the experience of inequity and current social and cultural conditions justify its argumentation. How is this different or the same as a Community Benefits Agreement? Are the researchers a part of the neighborhood? Do they become part of the neighborhood through this process of co-learning? When we appeal to some of these basic rights, like if a professor of urban studies or a physician truly believe that healthcare is a human right, are they then engaging in this cultural dialogue about the experience of inequity as subject matter experts or simply as citizens of Philadelphia, but those that benefit from these formal academic structures and the cultural and social capital that accompanies

their affiliation? Co-learning in this context with a much higher degree of responsiveness and reflexivity, and especially incorporating methodology from advanced CBPR scholarship such as Wallerstein et al.'s 2019 publication, looks much more like solidarity and a shared, collective response to the trauma of urban climate catastrophe, albeit with a very stratified and differentiated experience of that cultural and material experience of associated environmental events and chronic slow violence in the urban landscape.

Another dimension of Community Based Participatory Research -- as a process and an ideology -- and its potential to build and grow equitable relationships between universities and their neighboring communities through a formal recognition of the emancipatory power of sharing and elevating community histories (Wallerstein et al., 2019). The naming of specific historical (culturally and geographically bound) lived experience of oppression gives weight and meaning to the structural dynamics which organize and make real the discrepancies in power between researchers and the communities they study. This perspective is very much related to the model's principle concerning democratic processes and is relevant to institutional research agendas but also university's more programmatic or operational efforts to engage community members, such as a "Community Relations" or "Public Affairs" unit. University administration and organizational structures are typically very siloed and sometimes feels like an endless, ever-growing group of committees which rarely, if ever, coordinate among each other. The practice of knowledge democracy, deliberative communication, and community engaged research is considered a process of interactions and an outcome, and because of the community and internal university leadership is built and strengthened in this partnership process of meeting. Attempts to operationalize these more theoretical and

methodological orientations into action steps for decision-making committees and governmental bodies calls into question what power research grant funds really have versus a Board of Trustees resolution to pay PILOTs. This is especially important when consider that much of a grant's principal investigator (PI)'s privilege and power is wrapped up in their proximity to top level decision makers at the institution. How often can researchers directly redistribute resources or relinquish control of the higher education power structure to have a direct impact on the hyperlocal community when they are ostensibly limited by their ability to lobby a university president or often, in the context of a large urban public, a relatively conservative state legislature?

Research centers are often hollow entities which exist solely to apply to grants and do very little relationship building and grassroots community work. The university often dedicates funds for community outreach to staff salary and office/departmental unit infrastructure and resources for work product that looks more or less like a public relations effort to shape the university's narrative and counteract decades of righteous community distrust. How do we better communicate the good work that is being done and is it possible for it to reflexively shape a community perception of and relationship to a given institution? Are there other more procedural ways to change the accountability or transparency of the governance structures so that community members also have a direct say in the shaping of university policy? The answers to these questions factor greatly into decisions about how to better implement social equity and community engagement in a university climate or sustainability action plan.

## **Medical Student Activism**

In attempting to map the contours of the disruption necessary to instill an equity imperative into a university health system's "business as usual" climate policy, the pronounced impact of student activism and advocacy is worthy of great attention. In the case of Harvard's innovative and groundbreaking strides towards integrating climate action into their medical school curricula, it was students who made the case and fought for substantive change and leadership on the issue.

In the future more resources could be given to student organizing, in the form of extra- and co-curricular programming and support for such advocacy activities and trainings to strengthen existing and future student networks. This would enable best practice sharing and information dissemination amongst medical school student cohorts regionally and nationally. Student advocates should have a means to communicate their needs and wants with their institutions' trustees, regents, deans, and other leadership and that process could and should be procedurally enshrined in university health system regulation and governance processes. If it already exists, it should be made explicitly known and iterated as an important means for student-led climate activism on medical school campuses and within university hospital systems.

## CHAPTER ELEVEN

### CONCLUSION

The goal of this thesis was to investigate the role of university health systems in fulfilling municipal climate action mandates through the lens of urban bioethics. Meds and eds are an important point of intervention. There is also great urgency to this work. The climate doom deadlines prescribed in the latest 2022 IPCC report are growing frightfully near and without careful, critical analysis of power and the strategic prioritization of urban bioethical principles in planning for climate emergency, we risk reification of socio-environmental inequities and denying communities the opportunity to thrive amidst an unknowable future.

Through underscoring, complicating and interrogating anchor institutions and the outsized influence of meds and eds as engines of economic development in the major US city of Philadelphia, this thesis effectively argues for a more comprehensive approach by healthcare and higher education institutions and to consider the mutual constitution of urban environments and social difference in addressing climate health impacts. There are avenues for university health systems to respond to these issues of environmental justice more comprehensively and holistically within both curricular and medical training activities as well as hospital and medical school campus operations. Widening the narrow conception of climate justice within health policy and university governance presents an opportunity to reimagine environmental policy as social, educational, economic, and health policy and practice at the scale of the crisis and with the urgency it demands.

A model for action was provided after thorough review into the theories and politics of climate action plans, economic development strategies of urban anchor institutions, a criticism of contemporary university community relations, higher education's role in nation building, decarbonization efforts in the health sector, and medical education's institutional climate response. Addressing climate change and its impact on human health in a university health system, the healthcare sector and medical education all require a transdisciplinary approach that necessarily involves students, faculty, medical professionals, university leadership, urban planners and sustainability officers, community engaged research practitioners, neighborhood constituents and more. The proposed model for action offers future direction and study for all university health system stakeholders to implement climate policies that deemphasize profit generation and instead prioritize community justice in municipal and university governance, facilitate community-engaged research and practice, elevate student activism and advocacy, and create and maintain transparent and democratic institutional procedure and regulation.

True recognition of the interconnectedness of climate change, health equity, and social justice by university health system leadership implicates their ethical obligation to play a central and vital role in mitigating the effects of climate change and achieving health equity in equal measure. Urban med schools can rise to this ultimate climate challenge to heal, build, grow, and sustain resilient, healthy urban communities, with equal chance to not just survive but thrive, for generations to come.

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