BUILDING AMBITIOUS US SUBNATIONAL CLIMATE INITIATIVES:
EMBRACING DIGNITY AND THE TRADITION OF CIVIC ENGAGEMENT

Cyd Slayton, M.F.A.

DLS Chair: Thomas Kerch, Ph.D.

ABSTRACT

The human activity of emitting greenhouse gasses (GHGs) is contributing to the intensification of extreme weather, according to nearly all climate scientists. Already, atmospheric concentrations of the three most heat-trapping greenhouse gasses (GHGs)—carbon dioxide, methane, and nitrous oxide—are “unprecedented for at least 800,000 years.” As a result, heat waves, droughts, floods, cyclones, wildfires, and rising seas are more frequent and powerful. While the planet will survive the climate catastrophes, a destabilized atmosphere threatens all species, including our own.

Over the past 25 years, total GHG emissions have continued to rise, despite international and bilateral climate treaties. Generally, the US has refused to ratify treaties that appear to impinge on national sovereignty, including the Kyoto Protocol with its “top

---

down” emissions targets for developed nations. In 2017, Trump threatened to withdraw from the Paris Agreement, which requires only “bottom up” voluntary mitigation pledges. Yet, despite federal inaction, climate initiatives are continuing to emerge from subnational levels of government (state/local/regional), associations and private enterprise, which the Paris Agreement recognizes as critical non-Party activity. Citizens and their associations are tapping into America’s rich tradition of cyclical civic engagement observed by Alexis de Tocqueville in the early 19th century and detected, once again, by Robert D. Putnam from the late 20th century until the mid-21st century. Currently, the US appears to be entering a new cycle of heightened civic participation, given the rise of numerous social movements. The climate campaign is among the most energetic, particularly among younger generations and liberals who accept the authority of climate scientists and want action.

Philosophers since the ancient Stoics have invoked our moral duties to right conduct. In particular, Kant argued that those duties are based on the foundational value of human dignity that requires treating all others as ends, not means, to create the “kingdom of ends.” This work argues that Kantian duty requires Americans to build mitigation and adaptation initiatives that are ambitious in order to demonstrate their respect for all others, including the most vulnerable populations. As our moral duty, citizen engagement is required, even if the federal government does not show support for mitigation and subnational efforts do not guarantee climate stability.
Ambitious climate action requires that Americans place more emphasis on communal responsibilities, not just individual rights. Also, Americans must revisit the English tradition of the commons, before laws of enclosure and privatization, and imagine the atmosphere as a commons that is clean and stable, not a sink for GHG polluters. As a matter of dignity, we have a duty to protect the atmospheric commons for current and future generations. To do otherwise is to disrespect the millions at risk from extreme weather intensified by human activity, as well as disrespect ourselves.
DEDICATION

I dedicate this dissertation to my academic community at Georgetown University, particularly my chair, Professor Thomas Kerch, and readers Associate Professor Joanna Lewis and Dr. Michael Wall; to Professor Roger Revelle, who in 1970 first taught undergraduates about the finite nature of carbon sinks, and his student, Albert Gore, who saw the urgency of transitioning away from fossil fuel and has never stopped trying to engage citizens to build sustainable communities; to Georgetown University Law Professor Edith Brown Weiss, who has spent much of her career raising awareness about the customary principle of intergenerational equity to protect current and future generations from environmental harms; to citizens who have remained engaged in civic, work and religious associations, even during the decades of decline noted by Putnam; to my mother, I offer a special note of appreciation for her community work of more than 60 years, and to my father, who worked to make Independence, Missouri a model city; and to my spouse, Madeleine McDonough, who is at home with interdisciplinary study and philosophy, and has also been part of my community of scholars throughout this process.
# TABLE OF CONTENTS

ABSTRACT ................................................................................................................................. iii

DEDICATION .............................................................................................................................. vi

INTRODUCTION. AMBITIOUS CLIMATE INITIATIVES: CIVIC ENGAGEMENT AS A MATTER OF DIGNITY ................................................................. 1

CHAPTER 1. THE DISCREDITING OF CLIMATE THEORY BY POLITICAL CONSERVATIVES ................................................................. 11
   The Rise of Scientific Authority in the US ............................................................................. 13
   Western History of Atmospheric Science and Scientific Method ..................................... 16
   The Pivotal Role of Scientists at UC San Diego ................................................................. 22
   American Philosophers of Science Reconsider Scientific Method and Certainty .............. 24
   Political Influence on Public Understanding of Climate Science and Research .................. 26
   The Impact of “Climategate” on Transparency of Scientific Method and Uncertainty ...... 43
   Opportunities Among Communities for Climate Understanding and Action .................... 50

CHAPTER 2. CLIMATE AGREEMENTS AND US SUBNATIONAL CONTRIBUTIONS ........................................................................................................ 53
   The Rise and Fall of US Political Leadership in Climate Agreements ............................... 55
   US Non-Ratification of Kyoto Protocol .............................................................................. 58
The First Wave of US Subnational Climate Initiatives: Regional Coalitions ... 63
Congressional Defeat of Climate Legislation ........................................... 66
A First Step in State Transitions Away from Fossil Fuel: The Clean Power
Plan ........................................................................................................... 70
California Climate Initiatives Supporting Subnational and International Climate
Agreements .................................................................................................. 72
The UN Boosts Subnational Initiatives: Cities, Civic Associations, and Private
Sector ......................................................................................................... 75
A Climate Agreement with Stronger “Bottom-Up” Attributes ....................... 79
The Paris Agreement Retains Universal Substantive Principles ..................... 86
Post-Paris Recognition of Non-Party Activity .............................................. 90
The Growing Urgency for US Subnational Initiatives .................................. 94

CHAPTER 3. TAPPING THE AMERICAN TRADITION OF CIVIC

ENGAGEMENT ...............................................................................................100
The US Tradition of Cyclical Civic Engagement .........................................101
The Decline of 20th Century Civic Engagement ...........................................115
The Rise and Stall of the Environmental Movement ....................................119
Renewal of Civic Engagement Energizing a 21st Century Climate
Movement .....................................................................................................123
Grassroots Climate Activity Against the Fossil Fuel Industry ......................130
Private Sector Response to Climate Change and Divestiture Activism ..........141
Barriers to Community Environmental Activity: Globalization, Government, Technology, Media, and Poverty .................................................................145

Bridging Civic Associations and Informal Networks to Build Coalitions and Momentum ..........................................................................................158

The Future of Citizen Action and the Climate Movement .............................162

CHAPTER 4. THE DUTY TO BUILD AMBITIOUS CLIMATE INITIATIVES AS A MATTER OF DIGNITY ..................................................................................................................165

The Tradition of Dignifying Man and Nature: Markers from Ancient to Modern History ........................................................................................................167

The Kingdom of Ends ..................................................................................173

Dignity Demands Duties ..............................................................................175

Inclinations Versus Duties ..........................................................................185

Incremental Action Versus Saintly Action ....................................................187

The Fall of the Commons and the Rise of Privatization ............................190

The Conflation of Individual and Economic Freedom ...............................199

CHAPTER 5. REVISITING THE COMMONS AND INTERGENERATIONAL DUTIES ..............................................................................................................................205

The Tragedy of the Anti-Commons: Privatization Without Moral Duties .....207

Revisiting the Commons Within a Moral Framework ...............................209

Protecting the Commons as a Matter of Dignity ........................................217

Dignity and the Rise of Universal Customary Standards to Protect the Atmospheric Commons .................................................................219
INTRODUCTION. AMBITIOUS

CLIMATE INITIATIVES: CIVIC ENGAGEMENT AS A MATTER OF DIGNITY

Recognizing the catastrophic risk of climate change, the 2015 Paris Agreement set voluntary emissions targets to limit global warming.\(^1\) Currently, nation-state pledges appear unlikely to meet the agreement’s aspirational goal of 1.5°C above the pre-industrial level,\(^2\) and perhaps not even meet the less ambitious goal of 2°C.\(^3\) Moreover, the pledges reflect reporting differences and offer no guarantee of implementation.\(^4\) In the US, the challenge of meeting the pledge made under the Obama administration is compounded by the Trump administration’s rollback of federal climate initiatives. Therefore, nation-state pledges, which were themselves inadequate to cap global

---


\(^3\) Ibid., 48. See section titled “Expected aggregate emissions resulting from the implementation of the communicated intended nationally determined contributions in relation to least-cost 2 °C scenarios” in the UNFCC report, 12-13 and 48. The emissions trajectory does not extend beyond 2025 or 2030 and, therefore, the report does not estimate the aggregate effect of INDCs on warming. However, at current trajectory of INDC pledges 70-77 percent of the carbon budget of 1,000 Gt to hold warming under 2°C will be filled. Additionally, the report asserts that if Parties delay enhanced mitigation beyond the “least cost” scenarios that require implementation by 2020, the annual emissions reductions and costs will be “substantially higher.” That is, beyond 2030 the revised reductions would need to accelerate to an estimated 2.8-3.9 percent reduction annually, or double the rate of reductions.

\(^4\) Ibid., 4–9. See section titled “Synthesis of information in the communicated and intended nationally-determined contributions,” in the UNFCC report. Reporting differences include assumptions, lack of substantiation and non-reporting on land changes.
warming, may not be met. Thus, intensified extreme weather from human activity will become more frequent and severe. Most assuredly, climate poses a fundamental existential threat, especially to the most vulnerable.

I posit that we should view human activity intensifying climate change as a moral issue through a Kantian framework that requires us to demonstrate respect for others as a matter of dignity. The Kantian deontological position calls for making choices based on our moral duty to all others, not based only on outcomes of these choices. The ambitious climate activities of mitigation, adaptation, and reduced consumption would support a Kantian deontological ethics by showing respect.

This moral position complements the American tradition of civic engagement and duty often generated through citizen associations (religious, civic, and workplace) that support subnational activity, as observed by Alexis de Tocqueville and Robert D. Putnam. These activities support social movements, many of which call for dignifying others, such as the environmental movement. I propose that the moral foundation of Kantian duty, which requires protecting the most vulnerable, poor, elderly, and ill from intensified extreme weather, is the impetus for building the most ambitious of climate projects to address the magnitude of the problem. That is, as a matter of dignity our activity must be accelerated and broadened in scope in our neighborhoods, cities, counties, states, and regions. Within our freedom and practical reason, we must decrease emissions and increase sustainable practices, regardless of the position of the nation-state. The American tradition of civic engagement supports this ambitious subnational action and corresponds with the Kantian duty to act as a matter of respect.
I also posit the moral imperative that we view our atmosphere as a commons, interdependently related to the biosphere (atmosphere, oceans, forests, soil, and plants), which must be protected for all of humanity. I consider whether the idea of the commons, a form of which existed a millennium ago on English manors, could be revisited and re-imagined as the planetary biosphere. A commitment to protect the commons can guide the climate efforts of individuals and their associations, private enterprise, states, and regions. For Americans, a critical challenge to supporting the commons is the long-standing idealism of private rights, both individual and corporate, without a corresponding regard for concomitant responsibilities.

Research demonstrates that the lack of public consensus about climate change among Americans reflects a strong correlation between beliefs and political affiliations. In 2016, only 48 percent of adult Americans believed that climate change is mostly due to human activity. Similarly, only 27 percent believed that there is near-universal agreement among climate scientists that human behavior is mostly responsible for climate change. The barriers to understanding climate risks include the vested interests of fossil fuel corporations and their political allies, who discredit the authority of climate scientists. Additionally, there are numerous other barriers, such as global trade and the

---


6 Ibid.
media’s lack of attention to—and distortion of—climate science, factors which are acknowledged but not explored in depth here.

Despite the barriers, my research provides evidence that climate initiatives are well underway at all subnational levels of governance and where citizens recognize climate change and are concerned about its consequences. In 2015, the Paris Agreement formally recognized non-party, subnational work as critical to curtailing warming. By 2017, US subnational initiatives included multi-state and regional cap-and-trade programs and state incentives for transitioning to alternative energy. These subnational initiatives often work in alliance with community organizations, whether local or national with local chapters.

Within the context of this work, the term “community” can refer to social networks based on geography—from neighborhoods to regions—or non-geographic associations, such as active local chapters of climate organizations. These networks are built on bonds of trust and solidarity, or social capital, and they allow people of similar assumptions and language to develop shared understandings and mobilize to “achieve opportunities or resist threats.”

Within America’s deeply pluralistic communities, we could strengthen commitment to climate activity by invoking the universal dignity of humankind and the concomitant duty to protect the atmospheric commons. Accepting our duty to show our respect for all others, communities could determine whether their actions should be

---

incremental, moderate, or even saintly—a level of sacrifice exhibited in the life of philosopher Simone Weil. The Kantian ideal calls for treating others as a “kingdom of ends,” not merely a means, which demands protecting basic well-being, not treating others as objects or indices of discount rates or collateral damage from the global economy powered by fossil fuels. Thus, as a matter of dignity, I contend that subnational efforts must be ambitious for the well-being of both current and future generations, a position that is emerging as an international customary principle referred to as intergenerational equity. This principle would spur communities to greater ambition and may encourage them to apply this principle within their own cultures, geographies and capabilities. Whether our actions can stop climate destabilization is not the overriding moral issue from the Kantian perspective. Instead, our duty is to demonstrate our respect, regardless of the outcome of our actions. My argument is developed as follows, beginning with an understanding of how American beliefs about climate change became polarized. In Chapter 1, “Beliefs about Scientific Authority and Climate Change Theory,” I provide an overview of the history of greenhouse warming theory and anthropogenic climate change, including longstanding American leadership in climatology. I explore how the fossil fuel industry responded to scientific consensus by building alliances largely with conservative political leaders to publicly cast doubt on scientific authority. Especially among conservatives, their actions have eroded trust of climate science communities. The lack of public consensus provides insight about the vulnerability of scientific authority to political authority, especially when matched with vested economic interests. My research shows that only about half of Americans believe in climate change
from human activity. At the same time, communities that do believe in anthropogenic climate change and are worried about the consequences—primarily categorized by Pew Research Group as “Liberals” and “Next Generation” communities—represent hope for building a more sustainable future.

Chapter 2, “The Need to Exceed Pledges to the Paris Accord,” acknowledges the significant gap between the limits to greenhouse gas (GHG) emissions recommended by the Intergovernmental Panel on Climate Change (IPCC) and the actual pledges of nation-states to curtail emissions. Historically, developed and developing nations have disagreed about their ability and willingness to take on greater levels of commitment, and therefore the “Common but Differentiated Responsibility” (CBDR) principle became a flashpoint for their disagreement. Ultimately, Kyoto did not meet overall emissions targets, nor did the US ratify that treaty or pass comprehensive domestic climate legislation. However, US initiatives emerged from subnational groups to bolster US contributions to the efforts of the global community to reduce emissions.

The 2015 Paris Agreement formally recognized for the first time the need to look to “non-Party activities” emerging from subnational and non-state community activity, beyond simply calling for nation-states to ramp up their pledges. Within the US, subnational initiatives, such as those in California and New England, continue to build ambitious efforts to support a US commitment to mitigation. The US pledge made under the Obama administration to the global community committed to reduce emissions by 26–28 percent below 2005 levels by 2025. Also, California has initiated its own bilateral agreements and memorandums of understanding with agencies and subnational
governments in other nations, such as China and Mexico. Given the rollback of climate rules under the Trump administration, this wide range of subnational activity has become all the more critical to meeting the US pledge.

In Chapter 3, “Tapping the American Tradition of Civic Engagement,” I examine how the American tradition of civic engagement—spearheaded by political, civic, and religious associations—has propelled social movements since the nation’s beginning, as observed by Tocqueville. Americans have participated in varying cycles of heightened civic participation, such as in during the Progressive Era and in post-World War II America, as described by Putnam. In the 21st century, American associations have tapped into the tradition of civic participation to ramp up subnational climate efforts, which is contributing to what could become the next major cycle of civic engagement. I propose that the climate movement would benefit from more direct citizen participation that builds on social bonds, rather than just monetary contributions to cause-oriented marketing campaigns. Increasingly, members of climate associations reflect greater diversity, including Native American, Asian, and Hispanic communities and associations. Some are protesting the harm to their local communities from fracking and extraction, including oil spills from damaged offshore oil rigs and pipelines, as well as protesting rising emissions that produce intensified droughts and flooding.

At the community level, citizens can deepen their understanding of the issues, including the nature of scientific method and certainty related to climate change. They can think global but act local. That is, they can restore local sinks, build energy-efficient buildings and transportation systems, and lower carbon and methane emissions. They can
explore the level of commitment they are willing to make. Barriers to climate action include global trade, media distortion and fossil fuel PACs and lobbying. They also include pre-emption laws that preclude cities making more robust climate action, such as ending fracking at unsafe levels. Despite these barriers, subnational climate activity is building momentum across the US.

In Chapter 4, “The Duty to Build Ambitious Climate Initiatives as a Matter of Dignity,” I argue for adoption of the Kantian moral framework for duty to build ambitious climate action based on dignity. Kant wove strands of traditions of both dignity and duty to come to an understanding of the moral law as a deontological duty. His “kingdom of ends” serves as a moral compass for our commitments to climate action. I propose that communities determine their level and scope of commitment to climate activity within this moral framework, not simply based on their respective capabilities as determined by political leaders or an economic cost-benefit analysis. While we can choose incremental action, which is manifest in excessive offsets and oversupply of cap-and-trade permits, this approach may reflect the self-serving inclinations about which Kant warned. On the other hand, we can choose much bolder actions, aspiring to the more saintly activity, such as efforts to significantly exceed the Paris pledge that may require sacrifice. With the rise of unrestrained privatization, Americans face the prospect of accumulating GHGs at increasingly harmful levels. I note the dilemma: the longer we wait to re-examine the values that have led us to this dangerous precipice, the more we will need secular saints to rise up and try to prevent atmospheric destabilization.
In Chapter 5, “Revisiting the Commons and Intergenerational Duties,” I reconsider the tradition of the commons, which existed a thousand years ago on the English manor. We can imagine the tradition applying to an atmospheric commons. Elinor Ostrom argued for applying the tradition to finite resources, which can be extrapolated to carbon sinks (oceans, forests, soil and plants) because they have a finite capacity to absorb emissions. I argue that we must protect the atmospheric commons as a matter of dignity. The economic rights to fill the sinks primarily benefit landowners and shareholders; they do not dignify humanity. Amitai Etzioni urges the recalibration of the equilibrium of rights and obligations to give greater emphasis to our societal duties.

Addressing climate change is a moral proxy for addressing other societal issues. As communities determine their shared values, they can consider adopting any of the range of customary principles incorporated in international environmental treaties that demonstrate respect for others and, therefore, protect the commons. I argue that the principle of intergenerational equity is particularly relevant to duties to protect future generations, as well as our own, from anthropogenic climate change.

This work does not advocate for a climate policy solution, although some of the ideas presented here could be incorporated into climate policy. Instead, it offers the perspective of an American who sees opportunity for more robust domestic activity based on our tradition of civic engagement and the invocation of the value of dignity. While American society is deeply pluralistic, communities and associations are already bolstering the US commitment to climate activity. Collectively, their voluntary initiative may one day exceed nationally-determined goals and embrace principles founded on the
value of dignity, which calls for showing our respect for all others, even those living both outside and inside the US who are most vulnerable.

The momentum from collaborating across communities provides hope that we will mitigate emissions and deter climate destabilization before climate change becomes irreversible for the long term. But whatever the outcome, those who do act to reduce their environmental footprints will have nonetheless dignified themselves, along with all others. Within the framework of moral duty, they will have demonstrated respect for current and future generations.
CHAPTER 1. THE DISCREDITING OF CLIMATE THEORY BY POLITICAL CONSERVATIVES

In 2014, scientist members of the UN International Panel on Climate Change (IPCC) reached consensus that global warming from human activity was “unequivocal.”\(^1\) The IPCC consensus was shared by US scientific institutions, including the US National Academy of Sciences (NAS), the American Association for the Advancement of Science (AAAS) and 200 scientific agencies around the world.\(^2\) The theory of greenhouse gas warming emerged more than 150 years ago. Yet, the American public ranked the threat of climate change near the bottom of national priorities, well behind federal spending, healthcare, unemployment, the size and power of the federal government, crime, and the possibility of future terrorist attacks in the US, according to an international survey conducted in 40 nations.\(^3\) In 2016, polling showed that 37 percent of adult Americans worried a “great deal” about climate change, only two points higher than in 1987 when


the public was alarmed by a thinning ozone. Additional research has shown that resistance to accepting climate theory largely falls along lines of political affiliation. Conservatives are the most resistant to the idea that human activity is causing climate destabilization. However, political beliefs about climate change within the major parties (Democrats, Republicans, and Independents) are far from uniform.

In 2014, Pew researchers subdivided party affiliations into seven typologies, each viewing climate theory through their particular lens. The researchers found broad acceptance of anthropogenic climate change among Solid Liberals (91 percent) and Next Generation Left (78 percent) affiliations. They also found greater-than-majority acceptance among Faith and Family Left (70 percent), Hard-pressed Skeptics (63 percent), and Young Outsiders (61 percent). On the other hand, acceptance of climate science was slim among Steadfast Conservatives (9 percent) and Business Conservatives (7 percent). Thus, each typology maintains a different level of climate theory acceptance, although the greatest resistance falls within categories of conservatives. Beliefs about climate change are not necessarily correlated with level of education. Non-scientific communities unfamiliar with the nature of scientific inquiry and the inherent

---


uncertainty in any scientific theory are more susceptible to propaganda influences. In the case of understanding climate theory, the public is vulnerable to the influence of misinformation underwritten by the fossil fuel industry and affiliated political groups. Their campaigns have questioned the methods and motives of climate scientists, even after 97 percent of IPCC scientists expressed agreement with anthropogenic climate theory. For decades, their campaigns have denigrated scientific communities and the political leaders who supported the theory and political action. In other words, the campaigns have devalued the authority of climate scientists and elevated the value of political skeptics or deniers, most of whom exist within the conservative typologies. The campaigns have been successful in delaying a federal climate policy, despite the nation’s leadership in climate science research. Therefore, we need public discussions about the nature of scientific inquiry and inherent uncertainty to help inoculate the public from the influence of vested interests. To do nothing is to risk living in a nation that is scientific illiterate and, therefore, threatens humanity’s well-being and survival. While these discussions may not change public opinion in the short-term, they could influence beliefs of skeptics in the long-term, at least among some political authority figures.

The Rise of Scientific Authority in the US

Generally, scientific authority has been accepted in the US, with the major exception of religious-based objections—particularly toward evolutionary theory. Indeed, America’s founders adopted evidence-based scientific method that emerged from the Enlightenment, although settlers themselves were far less likely to espouse Enlightenment thinking. The majority of colonists were “more inspired by the myths of
Christian prophecy than by John Locke,”⁶ noted religious author Karen Armstrong. Therefore, to engage Americans of faith, leaders of the American Revolution incorporated religious themes, even as the war was “incited and carried out disproportionately by amateur scientists” who believed in independent inquiry.⁷

The idea of scientific method, which emerged during Europe’s Scientific Revolution—with scholars like Francis Bacon (1561-1626) who focused on induction leading to hypothesis, and Rene Descartes (1596-1650) who stressed hypothesis leading to deduction—had captured the imagination of public intellectuals during the Age of Enlightenment.⁸ In the post-Revolutionary triumph of liberty, US leaders that embraced scientific theory and conducted their own experiments included Benjamin Franklin (1706-1790), Thomas Paine (1737-1809), and Thomas Jefferson (1743-1826. Benjamin Franklin mapped the course of Gulf Stream winds for mail routing between the US and Europe. Thomas Paine studied nature and was a science enthusiast who viewed science as a means of undermining superstition and political authority.⁹ Thomas Jefferson invented agricultural tools, recorded daily temperatures for 50 years, and served as a statesman of science, commissioning the Lewis & Clark expedition as both a commercial and

---


⁹ Ibid., 81.
As vice-president and president of the United States, Jefferson remained president of the American Philosophical Society, which encompassed the study of science. He was known as an inventor, astronomer, and agronomist, as well as statesman.

America’s founders and cultural leaders viewed science and technology as ever-improving the human condition, reflecting Enlightenment beliefs in eternal progress. Within the US Constitution, leaders took the step of empowering Congress to promote science and provide copyright protection for inventions. Also, they created US agencies for the mission of scientific advancement, emulating foreign institutions created by the monarchies, such as the French Academy of Science in 1666, designated by the French court of Louis XIV. From about 1820, the US watched liberal scientific nations like Britain become global leaders as colonizers and imperialists, accruing “unprecedented amounts of power—over nature and over their fellow human beings.” Among the most significant inventions was the steam engine, which provided transportation for coal mines that ushered in the Industrial Revolution. Science was lauded as a tool to garner global


11 Ferris, The Science of Liberty, 91. In Ancient Greece, science was incorporated in philosophy. During the scientific revolution, science became a separate discipline that developed a method and theory based on objective truth. In the mid-20th century, philosopher of science Thomas Kuhn called for a greater understanding of the influences on scientific method and resulting “normal science.”

12 U.S. Const. art. I, sec. 8, cl. 8. The article is known as the “Copyright Clause.”


14 Ferris, The Science of Liberty, 128.

15 Ibid., 129.
economic power. In response, the US government began developing its own scientific authority by founding scientific institutions. In 1848, the government established the Association of American Geologists and Naturalists, renamed American Association for the Advancement of Science (AAAS), which became the world’s largest multi-disciplinary scientific society.” Thus, the benefits of science were embraced in early American history and gained increasing momentum in the mid-20th century.

**Western History of Atmospheric Science and Scientific Method**

During the first half of the 19th century, much of the atmospheric research was conducted in Western Europe. Joseph Fourier (1768-1839), scientific advisor to Napoleon Bonaparte, studied the concept of heat transfer and concluded that the atmosphere absorbed and radiated heat. Fourier is credited with developing the idea that the earth would be significantly cooler were it not insulated somehow, perhaps by gasses. By 1827, Fourier was convinced that the study of atmospheric dynamics was vital to creating a theory of global warming and cooling. “The question of global temperatures,” Fourier professed, “is one of the most important and one of the most difficult in all natural philosophy, composed of rather diverse elements which should be considered under one general viewpoint.” Fourier’s experimentation proved his

---

16 See the website for the American Association for the Advancement of Science at http://www.aaas.org/about/mission-and-history.


hypothesis that human activity could change the climate, although he focused on warming of the land surface rather than the atmosphere and ocean. He further noted that

the establishment and progress of human societies, the action of natural forces, can notably change, and in vast regions, the state of the surface, the distribution of water and the great movements of the air. Such effects are able to vary, in the course of many centuries, the average degree of heat; because the analytic expressions contain coefficients relating to the state of the surface and which greatly influence the temperature.¹⁹

Other scientists researched the way in which the earth’s gasses impacted the climate. For example, in 1837 the Swiss-American biologist and geologist Louis Agassiz (1807-1873) determined that decreasing GHGs caused glaciation, which Agassiz referred to as the “Ice Age.” But it is British physicist John Tyndall (1820-1893) whom scholars identify as a seminal figure in the development of the greenhouse gas theory. In 1859, Tyndall published an academic paper describing atmospheric warming from increased GHGs that absorb radiant heat and raise air temperature—the inverse of Ice Age cooling from decreased GHGs. Tyndall calculated that cloud vapor was the gas most absorbent of heat,²⁰ a conclusion that Swedish scientist Svante Arrhenius (1859-1927) confirmed with his own models of climate feedback systems that showed warming from water vaporization.²¹

---


²¹ Ibid.
At the same time, American scientists were also studying the impact of greenhouse gas. Indeed, at least one American scientist, Eunice Foote (1819-1888), had published an academic paper on the role of gasses in atmospheric temperature at least two years before Tyndall’s own paper.²² Foote, an early supporter of women’s rights and member of the editorial board of the 1848 Seneca Falls Convention, had conducted experiments on the heat-trapping properties of atmospheric carbon dioxide. On August 23, 1856, her research paper, “Circumstances Affecting the Heat of the Sun’s Rays,” was presented by a male representative at the eighth annual AAAS conference in Albany, New York, as required by Smithsonian gender protocol. The paper was published in the *American Journal of Science* and summarized in the *Annual of Scientific Discovery*.²³ Foote’s research was praised in *Scientific American* for linking high levels of carbon dioxide to high temperatures during the Carboniferous Age.²⁴

Foote’s research was conducted by filling glass jars with water vapor, carbon dioxide, and air, and then comparing how they warmed in the sun. Although her experiments included uncontrolled factors, she hypothesized several years before Tyndall

---

²² No sources reviewed indicated whether Tyndall or Arrhenius were aware of Foote’s research.


that concentrations of carbon dioxide in the atmosphere could influence global temperatures. “An atmosphere of that gas would give to our earth a high temperature; and if as some suppose, at one period of its history the air had mixed with it a larger proportion than at present, an increased temperature from its own action as well as from increased weight must have necessarily resulted,” wrote Foote.25

In 1863, during the South’s succession, Congress created the official scientific advisory body of the federal government, the National Academy of Science (NAS).26 During the Lincoln administration, Congress also funded construction of public universities that taught science and adhered to empirical methods in research.27 In 1870, Congress authorized the US Secretary of War to form the US Weather Bureau for “taking meteorological observations at the military stations,” America’s first organized effort to monitor the atmosphere.28 A year later, the US created the US Commission of Fish and Fisheries to research marine specimens and conserve coastal fisheries.29 These government institutions, as well as those that followed, generated critical scientific research that set the stage for American leadership in science that informed climate change theory.

25 Ibid.

26 Louis Menand, Metaphysical Club, 158.


While scientific research advanced, a small community of American philosophers raised a dissenting view on what had been considered the “foolproof” scientific method. In 1871 in Cambridge, Massachusetts, members of the Metaphysical Club explored the revolutionary idea that scientific theory is not objective. Instead, member Charles Pierce (1839–1914) put forth the idea that scientific events occur only with “probable predictability.”³⁰ In other words, discovery of absolute knowledge was no longer a “live option,” wrote club member William James (1842–1910),³¹ by which he meant that ahistorical knowledge does not exist. Pierce explained that while the scientific method of proving a hypothesis through induction and deduction is superior to other methods of overcoming doubt, natural laws and how we interpret them are always evolving. Thus, at any point in scientific inquiry, “we are only at a provisional stage of it and cannot ascertain how far off we may be from the limit to which we are somehow converging.”³² Pierce proclaimed that “every knowledge claim—and, more generally, every validity claim—is open to challenge, revision, correction, and even rejection.” He saw “multiple strands and diverse types of evidence, data, hunches, and arguments used to support a scientific hypothesis or theory.”³³ As such, Pierce encouraged simultaneous inquiry among scientific communities to test theories, although he also emphasized the

---

³⁰ Menand, Metaphysical Club, 197.


³³ Bernstein, Beyond Objectivism, 69.
need to “not abandon that which is actually known about the workings of the world.”

By “actually known,” Pierce meant known via analysis of empirical evidence understood through scientific inquiry. Thus, Metaphysical Club members acknowledged the validity of scientific method, but they also believed in the human condition of fallibilism, which precludes absolute certainty about scientific theory.

Yet, philosophers of science clung to the idea that the scientific method could determine with certainty an objective, ahistorical truth. These philosophers presumed that what was “out there,” or objective, was independent of human beings. At the same time, the public was mesmerized by the wonders of scientific advancement. Americans benefited from technological advances such as the telephone, vaccines, and motion pictures, which improved their everyday lives.

As Americans welcomed modernity, scientists continued to advance research in the dynamics of atmospheric cooling and warming. Expanding on Agassiz’ research, geologist T.C. Chamberlain (1843-1928) determined stages of glaciation in North America and hypothesized that the stages were the product of changes in atmospheric carbon dioxide. Chamberlain urged other geologists to continue the work of Tyndall and Arrhenius to discover the correlation of carbon dioxide levels with geologic impacts:

The general doctrine that the glacial periods may have been due to a change in the atmospheric content of carbon dioxide is not new. It was urged by Tyndall a half

34 Ibid., 73.
36 Bernstein, Beyond Objectivism, 8.
37 Ibid, 9.
century ago and has been urged by others since. Recently, it has been very effectively urged by Dr. Arrhenius, who has taken a great step in advance of his predecessors in reducing his conclusions to definite quantitative terms deduced from observational data. Valuable as these suggestions were, they must still be regarded as falling much short of working hypothesis, since no attempt was made to show that changes in the content of carbon dioxide of such a degree as would be compatible with the continuity of life and with other limiting geological conditions…

Throughout the first half of the 20th century, scientists did continue Arrhenius’ research, although they lacked the quantitative data and analysis to be able to predict the magnitude of climate destabilization from GHGs. Thus, it would be up to later scientists to develop climate models that predicted with greater accuracy the impact from rising GHGs.

The Pivotal Role of Scientists at UC San Diego

While the greenhouse gas theory was uncontroversial, scientists did not know the amount of carbon dioxide emissions versus absorbed in carbon reservoirs, known as sinks: the atmosphere, oceans, forests, and soil. In the middle of the 20th century, radiocarbon expert Hans Suess and oceanographer Roger Revelle at Scripps Institution of Oceanography (UC San Diego) co-authored an academic paper concluding that scientists had significantly overestimated the ability of oceans to absorb carbon dioxide emissions. While the paper did not foresee the explosive rate of industrialization and

---


39 “Restoring the Quality of our Environment,” 114.

GHG by-products, Revelle soon recognized the danger from rising emissions, which he noted could “become significant during future decades if industrial fuel combustion continues to rise.”

At UC San Diego, Revelle continued to build a community of interdisciplinary scientists researching the possible consequences of GHG emissions. He recruited Charles Keeling who developed an instrument to measure atmospheric carbon dioxide in parts per million. Keeling’s carbon research struggled for underwriting, but Revelle earmarked funds from an array of military and scientific agencies to keep the project afloat. The measurement work of Keeling and Revelle led to the development of the first reliable atmospheric carbon dioxide monitoring station at a government facility, the Mauna Loa Observatory in Hawaii (Earth System Research Lab). The location was chosen because the observatory is remote and sits two miles higher than sea level, above the inversion layer of local emissions from power plants and factories. In 1959, the first year of measurement, Keeling reported that fossilized carbon dioxide was 315.97 ppm, significantly higher than the 280 ppm level of the pre-Industrial Age, determined by ice


42 Ibid., 35–36.

43 Steve Graham, “Roger Revelle,” NASA Earth Observatory, June 19, 2000, accessed on July 4, 2017, earthobservatory.nasa.gov/Features/Revelle. Also, a site of GHG measurements was Antarctica, although less frequently measured than the Mauna Lao site.

core analysis. Increased ppm drive increased warming, which leads to increased melting of polar ice caps and higher sea levels. Thus, in the same year that Hawaii and Alaska were recognized as US states, the climate scientists at UC San Diego knew that islands and coast lines would become vulnerable to sea level rise.

**American Philosophers of Science Reconsider Scientific Method and Certainty**

In the 1960s, as Revelle and Keeling continued to gather empirical evidence of rising emissions, several American philosophers of science reconsidered the Enlightenment concept of objective science, as had members of the Metaphysical Club a century earlier. In other words, at the same time that climate scientists collected evidence to remove uncertainty about the theory of anthropogenic climate change, a community of philosophers of science were challenging the rules for practicing research, or the scientific method.

For example, philosopher Thomas Kuhn (1922-1996) declared that theories were influenced by the cultural traditions of scientific communities. He asserted that “different groups and the same group at different times can have different experiences and therefore in some sense live in different worlds.” In other words, scientific communities pursue theories that reflect their own languages and experiences. Therefore,

---

45 Measurement of pre-industrial levels of carbon dioxide was conducted within tiny air bubbles formed hundreds of thousands of years ago. The carbon was first captured in ice core drilling experiments led by the US military in the Cold War-driven exploration of the Polar Regions.


as noted by Kuhn, it is unhelpful “to imagine that there is some one full, objective, true account of nature.” After prolonged emergence of anomalies within a theory and then the incommensurability of competing theories, scientific communities ultimately withdraw their support of “normal science” and adopt a new paradigm. Thus, like Pierce, Kuhn objected to the Enlightenment idea of scientific objectivism, or a fixed point of certainty. Kuhn considered scientific theory a human construct relative to time, place, and discipline that reflected a futile search for ahistorical truth.

Similarly, American philosopher Richard Bernstein (b. 1932) questioned objectivism because he also considered the human condition to be fallibilistic. That is, our theories fall short of certainty because they are based on belief. Therefore, Bernstein exorcised the idea that objective knowledge is knowable, positing that any point of scientific inquiry is provisional, and absolute certainty in theory making is non-existent. Any knowledge claim is “open to ongoing examination, modification and critique.” Communities of scientists continually examine and develop theories based on factors such as assumptions, intuitions, and temperaments, as well as social practices.

---


But the ideas of Kuhn and Bernstein receded in the late 1980s as academic circles returned to a new realism, a “belief in the possibility that objective science was possible.” However, even believers in objectivism acknowledged fallibilism within theory-making, which philosopher Bernstein referred to as “fallibilistic objectivism.” A half century earlier, scientific communities had begun to recognize degrees of certainty, or “confidence levels” based on statistics. The language of fallibilism and degrees of certainty is not commonly understood among non-scientific communities and has therefore set the stage for political criticism of scientific theory-making.

Political Influence on Public Understanding of Climate Science and Research

In the 1960s, American universities and federal agency policy committees collaborated to assess evidence of global warming. Revelle and his US San Diego colleagues became a primary institution for climate science research and also informed climate policy. In 1963, Revelle moved from Scripps to Harvard University to teach science policy and direct the Center for Population Studies, an outgrowth of concern over unsustainable development from overpopulation. At Harvard, he was instrumental in navigating the convergence of climate science—including carbon monitoring research—and politics. Revelle became an influential member of Congressional science committees.

---


54 The United Nations Intergovernmental Panel on Climate Change (IPCC) has adopted the language of confidence levels.

and the international scientific community. In 1961, he was appointed science advisor by Secretary of Interior Stewart Udall in the Kennedy–Johnson administration. During this crucial period in the environmental movement, Revelle urged Udall to support the anti-pesticide advocacy of marine biologist Rachel Carson, who authored Silent Spring, a highly influential work that ushered in the 1960s environmental movement. He also advocated for environmental work in India and Pakistan, especially related to flood and population control.56 On February 8, 1965, President Lyndon Johnson delivered the speech, “Special Message to the Congress on Conservation and Restoration of Natural Beauty,” which made him the first president to warn of harm from carbon dioxide emissions on a global scale:

Air pollution is no longer confined to isolated places. This generation has altered the composition of the atmosphere on a global scale through radioactive materials and a steady increase in carbon dioxide from the burning of fossil fuels.57

In the same year, the administration convened meetings to follow up on climate concerns that Johnson had vocalized. Revelle was appointed Chair of the Atmospheric Carbon Dioxide subpanel of the President's Science Advisory Committee Panel on Environmental Pollution. Joining Revelle were five scientists, including colleague Keeling, who by then had recorded continuous annual rises in atmospheric carbon dioxide levels. In November 1965, Revelle’s subpanel issued the first authoritative

---


government report in which carbon dioxide from fossil fuels was officially recognized as a global problem, supporting Johnson’s speech.\textsuperscript{58} The subpanel’s report identified the likely impacts of rising temperatures from increases in carbon dioxide emissions: melting of the Antarctic ice cap, rising of sea levels, warming of sea water, increased acidity of fresh waters, and increased photosynthesis.\textsuperscript{59} Thus, under the Johnson administration a report forecast the impact of rising carbon emissions.

At Harvard, Revelle continued to teach courses on population, health, and the environment, and among his students was the son of a US senator, Albert Gore Jr. (class of 1969), an undergraduate majoring in government. Gore wrote that he was “startled” by Revelle’s lectures on the trend of warming from rising carbon dioxide levels and became concerned about the consequences, a “profound and disruptive change in the entire global climate.”\textsuperscript{60} In the year of Gore’s graduation, carbon dioxide had risen to 324 ppm, having increased every year that decade. By then, members of academic communities and federal agencies were already concluding that increased GHG emissions would contribute to climate destabilization.\textsuperscript{61} Their concerns propelled activists in the burgeoning environmental movement.


\textsuperscript{59} Ibid., 123–24.

\textsuperscript{60} Al Gore, \textit{Earth in the Balance: Ecology and the Human Spirit} (New York: Plume, 1992), 5

\textsuperscript{61} Ibid.
By this time, the environmental movement had been spurred by concern over pollution, including atmospheric emissions. In Los Angeles and other cities, rising auto emissions created smog, which triggered asthma and other respiratory problems. Citizens were also concerned about the harm from chemical Agent Orange, sprayed during the Vietnam War, which included cancer, birth defects, and neurological problems. Politicians from both major political parties joined the burgeoning environmental movement, including Senator Gaylord Nelson (Wisconsin–D) and Pete McCloskey (California–R) who spearheaded the inaugural “Earth Day,” which was celebrated in 1970 by 20 million people in US cities. In the same year, the US government created the Environmental Protection Agency (EPA) and the US National Oceanic and Atmospheric Administration (NOAA), and passed the Clean Air, Clean Water, and Endangered Species Acts. Within two years, the environmental movement was further propelled by the iconic photo of the fragile earth captured by Apollo 17 astronauts traveling to the moon.

For a brief period during the 1970s, the theory of global warming was challenged by a minority of scientists who believed that global temperature was actually cooling, based on sporadic temperature decreases since the late 1940s. Given the controversy, American political leaders were reluctant to support the greenhouse gas warming theory. At the same time, Exxon knew by 1977 that oceans were warming from absorbed carbon

---


emissions, yet Exxon executives hid the knowledge and, instead, joined with other corporations to fund Global Climate Action, a lobbying group that distributed misinformation about climate change. The American Petroleum Institute committed to an “Action Plan” that including funding a $7.9 million campaign to ensure that “average citizens” and the media “recognize uncertainties in climate science.” In other words, the fossil fuel industry advanced its own interests by exploiting the uncertainties innate to science.64

By the last half of the 1970s, political leaders became less and less willing to assert the harm from rising GHG emissions. On April 18, 1977, more than a decade after Johnson’s speech on the harm from carbon emissions, President Jimmy Carter omitted the topic of global warming from his famous energy independence speech. Instead, Carter, a nuclear engineer, called for ramping up domestic coal production to solve the energy crisis, an initiative that provoked great concern among scientific communities, including the NAS ad hoc committee and the JASON defense advisory council (named for a Greek mythological hero). In response to Carter’s speech, NAS issued a public report that confirmed greenhouse warming. Revelle, who co-authored the chapter “Energy and Climate,” advocated for policy action in the form of research to develop more sophisticated and predictive climate models. Other groups joined with NAS to advocate for research funding to gain a greater understanding of the physical and biological dynamics of climate change, including the correlation between emissions and

---

rising temperature. But budgets for climate research were underwhelming during the Carter administration and were further slashed during the Reagan administration, which “deferred” the development of a NOAA satellite system designed to advance atmospheric research and weather predictability.

In 1981, the Reagan administration also cut the budget for environmental regulatory work and appointed anti-environmental regulators, later known as the “Gang of Three”—James Watt as Secretary of Interior, Ann Gorsuch as EPA administrator, and Rita Lovelle as head of the Superfund. Watt authorized the sale of more than one billion tons of coal from federal lands in Wyoming, which allowed deforestation, and Gorsuch advocated for significant cuts to EPA funding and to gut the Clean Air Act. Although scientific consensus on anthropogenic climate change was firming, the regulators chose to dismiss scientific authority and quash public education about the harm of rising emissions. Thus, in 1981 only one-third of Americans claimed they had heard or read about climate change.

---


The focus of the Reagan administration was to accelerate the economy with deregulation of industry, including fossil fuel. Reagan rolled back Carter’s clean and efficient energy initiative, including cutting back fuel economy standards. He reduced the renewable R&D budget by 85 percent and eliminated the wind investment tax credit in 1986.69 Also, the administration embarked on an “extraordinarily aggressive policy” of issuing leases for oil, gas, and coal development on tens of millions of acres of national lands.70

But as Reagan’s administration pursued deregulation policies, the boundaries of nature were revealed. In 1985, a NASA satellite image captured the thinning ozone, referred to as the Ozone Hole, and was released to the public. The “hole” was linked to a human-manufactured GHG, chlorofluorocarbon (CFC) used in ammonia for refrigerants and spray-can propellants, including deodorant and hair spray. In response, manufacturers of CFCs questioned the validity of the ozone-thinning theory, “pointing out the uncertainties and noting the lack of supporting evidence.”71 But scientific agencies, including NAS and the National Science Foundation (NSF), reached consensus that connected CFCs with ozone depletion and the onset of cancer.72 Thus, in 1978, the


70 Little, “A Look Back.”


72 Ibid.
EPA banned non-essential uses of CFCs in aerosol products. While the thinning occurred primarily above the largely uninhabitable Polar Regions, especially Antarctica, the alarmed public in the Northern Hemisphere feared the damage would cause skin cancer and cataracts from ultraviolet (UV) exposure.

During Reagan’s second term, America’s political leaders responded to the concern over CFCs by advocating for international curtailment of the GHG. Within the Reagan cabinet, Secretary of State George Schultz is credited with persuading the president to support a global effort to limit the transboundary CFCs, especially among leading CFC-producing nations that did not regulate domestic CFC manufacturing. A proposed international treaty was more acceptable to Dow after the company was able to develop a less harmful substitute. By 1987, the US and all 197 nation-states signed the UN ozone treaty, “Montreal Accord for the Control of Substances that Deplete the Ozone Layer.” This accord is considered a success because it produced the “onset of healing of

---


Antarctic ozone loss." Also, the accord incorporated procedural standards that allow parties to continually adapt the accord to new scientific findings about GHGs. This standard expressly recognized the need to assess current scientific evidence and evolving understanding of climate theory, an approach that Metaphysical Club members Pierce and James would have encouraged to reflect the uncertainties of fallibilism.

On the heels of the Montreal Accord, NASA Goddard Institute scientist Dr. James Hansen appeared before Congress on June 24, 1988. Hansen reported that with 99 percent certainty, the buildup of carbon dioxide and other GHG emissions from human activity was contributing significantly to global warming. The gasses included carbon dioxide, methane, water vapor, and nitrous oxide, as well as manmade gasses such as CFCs. Hansen warned that at current emission rates, especially from carbon dioxide, life on the planet would be greatly endangered. After the hearing, which occurred during an unusually hot summer in the US, a front page headline in the New York Times read “Global Warming Has Begun.” At this point, the American public was on notice that

---


82 Shabecoff, “Global Warming.”
climate change was a threat. Yet, in 1989, only a year after Hansen’s speech, only 35 percent worried “a great deal” about climate change, just two percentage points above the 1981 poll cited by Weart.

In the same year, the Reagan administration supported the development of a new body of scientists under UN auspices, the International Panel on Climate Change (IPCC). The mission of the scientists, appointed by governments and organizations, was to aggregate and synthesize climatology research, not actually conduct research. Over time, the discipline of climatology transitioned from a focus on regional weather forecasting to the study of global climate patterns, which required integration with a wide range of disciplines: mathematics, computer science, geophysics, oceanography chemistry, biology, meteorology, computer science, and statistics. Increasingly, IPCC modeling has become more sophisticated and its assessments more confident.

In 1990, the First IPCC Assessment Report confirmed the “unequivocal detection of the enhanced greenhouse effect,” although the report also called for more research. The panel wanted to explore the dynamics of sinks, clouds, oceans, and polar ice sheets in order to predict “timing, magnitude and regional patterns of climate change that is due

83 “Environment: Global Warming or Climate Change.”

84 The IPCC was established in 1988 by the World Meteorological Organization (WMO) and the UN Environmental Program (UNEP). At least until 2018, the US State Department continued to financially support the UN agencies, contributing $6.44 million in the 2016, or roughly 20 percent of the annual budgets of the agencies, according to the State Dept.

to incomplete understanding.” Yet, the scientists were already able to assert that carbon emissions must be reduced by 60 percent or order to stabilize the climate. Despite the peer-reviewed IPCC report, President George H.W. Bush, from the oil-based economy of Texas, emphasized the scientific uncertainty about climate change, not the dire risks disclosed in the report. At this point, public worry over climate change dropped to 30 percent.

In 1991, the threat of climate change was raised by presidential candidate Al Gore (Tennessee–D), who had already advocated for ozone protection during his previous presidential campaign. But from 1991 to 1997, under the Clinton-Gore administration, the percent of the public that “worried a great deal” about climate change fell precipitously from 35 to 24 percent. Despite the decline in climate worry, Vice-president Gore advocated for US ratification of the Kyoto Protocol, which mandated a modest emissions reduction in developed nations. In 1992, he had published The Earth in Balance: Ecology and the Human Spirit, in which he talked about the harm of rising emissions. But despite Gore’s efforts, on July 25, 1997 the Senate voted unanimously to


87 Ibid., xviii.

88 “Environment: Global Warming or Climate Change.” Gallup does not show public opinion on climate change worry from 1992–1996.

89 Gore, Earth in the Balance, 8. In 1992, physicist S. Fred Singer publicly denounced Al Gore’s omission of Revelle’s skepticism about anthropogenic warming in Earth in the Balance. Singer substantiated his position by pointing to an essay that Revelle and he had co-authored, “Look Before You Leap,” published in Cosmos, a non-scientific journal. Newsweek reporter Gregg Easterbrook referred to this essay in his own article, “Green Cassandra,” and the Newsweek article was in turn picked up by various editors, including George Will.
vote for the Byrd–Hagel Resolution, which declared the Senate would not ratify a protocol with emissions targets that seriously harmed the US economy and required only developed nations to meet binding targets.\textsuperscript{90} The vote prevented Congress from ratifying the Kyoto Protocol.

Despite the setbacks, Gore continued to push Congress for climate initiatives, such as a deep space satellite for tracking global warming that would monitor the earth’s ability to reflect solar radiation, or albedo.\textsuperscript{91} But by 1997, at the front end of the administration’s second term, the percentage of Americans deeply worried about climate change plummeted to 24 percent.\textsuperscript{92} The administration faced initiatives like Global Climate Action and other anti-climate campaigns that cast doubt on the certainty of climate theory.

As scientists grew more concerned about rising emissions, the American public worried less about climate change than they had a decade earlier when Gallup began tracking the issue. In 1998, several American scientists warned about the steep rise in


\textsuperscript{92} “Environment: Global Warming or Climate Change.”
emissions observed since 1900. The scientists—IPCC member Richard Mann and colleagues Raymond Bradley and Malcom Hughes—presented evidence of the “hockey stick” phenomena, a term later coined by climatologist Jerry Mahlman. The hockey shaft represents the long period of climate stability and the upturned blade signified the abrupt increase in carbon dioxide emissions that coincides with rising GHG emissions and global mean temperature throughout the 20th century. “The 1990s was the warmest decade and 1998 was the warmest year, at moderately high levels of confidence,” the co-authors concluded.93 Moreover, the scientists projected that the blade would grow longer for centuries, given the long life of atmospheric carbon dioxide. The evidence for the hockey stick was derived from paleoclimate datasets of tree rings, ice cores, and coral, as well as thermometer readings from the recent past. But Mann’s statistical methods and paleoclimatic data sets received a maelstrom of criticism from outlier scientists, including physicist Fred Singer94 and the George C. Marshall Institute, a conservative think tank that had previously lobbied for Reagan’s Strategic Defense Alliance. Now the instituted criticized the theory global warming, articulated by the three physicists who had formed the institute.95 By the close of the 20th century, the level of public concern about climate


94 Atmospheric physicist S. Fred Singer continued to challenge the theory of greenhouse warming from human activity based on his beliefs that water vapor was more influential than carbon dioxide emissions. Singer considered the 1945–1970 global cooling as supportive evidence of his position. For a topline review of his position, see Singer’s article “The Great Global Warming Swindle,” published May 22, 2007 in the San Francisco Examiner.

95 The anti-climate science physicists were Frederick Seitz, Robert Jastrow, and William Nierenberg.
change was indexed at 34 percent, lower by one percent than when scientist Hansen warned of global warming a decade earlier.\textsuperscript{96} Thus, more than three decades had passed since President Johnson warned about harm from carbon emissions, yet a comprehensive climate bill was no closer to passage.

Despite low polling numbers on climate change, 2000 presidential candidate Gore took the position that the US needed to transition to alternative energy to mitigate the effects of global warming. By April, the percentage of Americans who worried a “great deal” about global warming jumped to 40 percent.\textsuperscript{97} But by the November election, Gore was portrayed by his opponent and some media outlets as an untrustworthy exaggerator, criticism meant to discredit Gore’s warnings of climate destabilization.\textsuperscript{98} By March 2001, several months after Gore’s deemed loss to George W. Bush, the percentage of Americans who worried “a great deal” fell precipitously to 33 percent.\textsuperscript{99} The administration of Bush and Vice-President Dick Cheney (Wyoming–R), both of whom had represented big fossil fuel-producing states and worked for oil corporations, rejected Kyoto ratification. The administration defied scientific consensus, even the 2001 assessment that reported “stronger evidence” proved that most warming observed over

\textsuperscript{96} “Environment: Global Warming or Climate Change.”

\textsuperscript{97} Ibid.


\textsuperscript{99} “Environment: Global Warming or Climate Change.”
the previous 50 years was attributable to human activities.” The 2001 IPCC Assessment included the hockey stick graph visualizing Mann’s theory of sharply rising emissions, a visual that soon took on iconic status. In response, contrarian scientists and fossil fuel industry-funded advocacy groups, such as Heartland and the Competitive Enterprise Institute, attacked Mann’s “hockey stick” argument as incredulous. In a *Scientific American* article, David Appel observed,

> a community skeptical of human-induced warming argued that Mann's data points were too sparse to constitute a true picture, or that his raw data were numerically suspicious, or that they could not reproduce his results with the data he had used. Take down Mann, it seemed, and the rest of the IPCC's conclusions about anthropogenic climate change would follow.

With waning public understanding of climate change, the first-term George W. Bush administration stalled key climate change initiatives. For example, The White House Council on Environmental Quality refused to support mandatory carbon emissions mitigation and, instead, relied on volunteer efforts. The proposed satellite with the mission to measure weather patterns, endorsed by Gore, was shelved. Moreover, the

---


administration opened more federal land to energy exploration. In a move to suppress scientific research, the Bush administration edited global warming reports, some of which were required by law. For example, the findings of the federal report, “The National Assessment of the Potential Consequences of Climate Change Variability and Change,” were withheld, according to federally-employed scientists. By 2004, at the end of Bush’s first term, the percentage of Americans who worried a “great deal” about warming fell to 26 percent, nearly 10 percentage points lower than in the late 1980s, when tracking of climate beliefs began.

In response to the anti-climate policies, political leaders of both parties began to speak vigorously against the administration’s stance. Among the most well-known critics was Gore, who produced his well-known 2006 documentary, “An Inconvenient Truth,” following the publication of his book with the same title. The production, which incorporated the hockey stick graph, won the Academy Award for best documentary feature and as of 2007, was the third-highest grossing documentary in US cinematic history. The year after its release, the 2007 Nobel Prize was awarded to both Gore and

---


106 “Environment: Global Warming or Climate Change.”

the IPCC “for their efforts to build up and share greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change.”108 In that same year, the percentage of Americans who worried a “great deal” about warming rose steeply to 41 percent, a rise in just five years from 25 percent.109 Thus, the rise of pro-climate activists, perhaps most especially Gore, appears to have significantly moved some skeptics toward the belief in climate change from human activity.

In 2007, on the heels of the upswing in public belief in climate change, both Democratic and Republican presidential candidates expressed support for carbon mitigation. Senator John McCain (Arizona–R) and Senator Barack Obama (Illinois–D) advocated for carbon cap-and-trade legislation, respectively reducing emissions by 60 and 80 percent below the 1990 baseline.110 “The time to debate whether climate change is man-made has passed,” Obama declared. “It's time, finally, for America to lead.”111 Thus, the candidates declared their willingness to reclaim US leadership in climate science. For decades, US federal agencies, such as NAS, NASA and NOAA, had led the international scientific community in climate research, and now it appeared that the executive branch


109 “Environment: Global Warming or Climate Change.”


would support their conclusions and act. At this point, the outstanding issue was whether Congress would muster the political will to pass comprehensive climate legislation and end fossil fuel subsidies. Unfortunately for climate bill proponents, Congress became engrossed in an economic threat.

By the time Obama won the presidency and Democrats swept to victory, the nation was focused on recovering from the mortgage securities crises. During the first months of 2009, the percentage of Americans who worried a “great deal” about global warming had fallen to 34 percent, 8 percent lower than a couple of years earlier. The level of worry was the same as two decades before when NASA’s Dr. Hansen rose in the Congressional chamber to urge the curbing of GHG emissions during the Reagan administration. Even Democratic Congressional moderates who benefited from political contributions tied to the oil, coal, and fossil fuel industry, discredited the theory ostensibly to protect jobs. Moreover, as the first Obama administrators began teeing up climate initiatives, they were met by a media frenzy over hacked email exchanges between climate scientists.

The Impact of “Climategate” on Transparency of Scientific Method and Uncertainty

In 2009, an event referred to as “Climategate” compromised US leadership in climate science and jeopardized the success of a UN Copenhagen Convention of the Parties (COP). Only weeks before the 2009 Copenhagen COP, emails of key climate

---

112 “Environment: Global Warming or Climate Change.”
scientists who worked at UK’s Climate Research Unit at East Anglia were hacked, exposing exchanges between East Anglia and NOAA scientists that expressed skepticism about specific climate data. The email exchanges were uploaded on blog sites of climate deniers and picked up in US mainstream media, which did not provide context for the scientific disputes and uncertainty. Climate denier Senator Jim Inhofe (Oklahoma–R), who had said that climate change is “the greatest hoax ever perpetrated on the American people,” demanded an inquiry about what he characterized as a conspiracy among climate scientists. Thus, climate deniers and skeptics used the exchanges as proof that scientists were covering up doubts about climate theory.

As a result of the controversy, reporters and columnists criticized the lack of transparency among scientists about their uncertainties about climate science. “These researchers, some of the most prominent climate experts in Britain and America, seem so focused on winning the public-relations war that they exaggerate their certitude—and ultimately undermine their own cause,” wrote New York Times reporter John Tierney. An official inquiry of the British government deemed the pattern of concealments among climate scientists as “unhelpful and defensive.” The government was especially concerned about the pattern of denying public requests for emails and documents, which

---


could have been supplied under the Freedom of Information Act (FOI). In particular, one widely circulated FOI was initiated by an engineer who wanted to see the correspondence of the tree ring specialist who had contributed to the 2007 IPCC Assessment. While the IPCC had been transparent about formal review exchanges among scientists, placing material online, the inquirer wanted to see email exchanges that fell outside the formal review process. Choosing not to answer his email and others from skeptics, such as Stephen McIntyre affiliated with the blog site *Climate Audit*, came under media scrutiny. East Anglia’s unwillingness to answer the requests and provide transparency resulted in reputational harm to all climate scientists and left the public wondering about the validity of climate science research.\footnote{Fred Pearce, “Climate Scientists Shut Out Skeptics by Turning Down Data Requests,” *Guardian*, February 3, 2010, https://www.theguardian.com/environment/2010/feb/03/climate-scientists-freedom-information-act.}

By then, the IPCC had already received criticism for their own errors, perhaps most notably the miscalculation of the melt rate of the Himalayan Glacier. In response, the UN invited the InterAcademy Council (IAC), an organization of the world’s science academies, to review the IPCC processes.\footnote{Ed Pilkington, “Rajendra Pachauri, Head of UN Climate Change Body, Under Pressure to Resign,” *Guardian*, August 30, 2010, accessed July 7, 2017, https://www.theguardian.com/environment/2010/aug/30/rajendra-pachauri-un-climate-change-pressure-resign.} The resulting IAC report issued a vote of confidence for IPCC assessments, but the report also called for organizational and procedural reform, including greater transparency:

> The process used by the Intergovernmental Panel on Climate Change to produce its periodic assessment reports has been successful overall, but IPCC needs to fundamentally reform its management structure and strengthen its procedures to
handle ever larger and increasingly complex climate assessments as well as the more intense public scrutiny coming from a world grappling with how best to respond to climate change.\textsuperscript{118} 

Subsequently, the 2007 IPCC Assessment Report acknowledged the “limits to knowledge” and the need to create categories and definitions of certainty that would contribute to consistent and uniform reporting among authors about climate risks.\textsuperscript{119} The recognition that science reflected levels of confidence reflected the concerns of mid-18th philosophers of science Pierce and James and mid-20\textsuperscript{th} century philosopher Bernstein, who also recognized the human condition of fallibilism and scientific uncertainty. However, the impact of “Climategate” controversies did result in greater transparency of scientific understanding.

In 2010, the IAC recommended IPCC improvements in transparency in the following areas: 1) processes for the assessment of climate change, including documentation of how lead authors considered a range of scientific views and reviewer comments, 2) evaluation of evidence and treatment of uncertainty, such as a “traceable account” of how scientists arrive at conclusions and sufficient evidence before using quantitative measurements, and 3) governance and management of the IPCC, including a chairperson’s term limit to one scientific assessment.\textsuperscript{120}


\textsuperscript{119} Types of uncertainty mentioned in the 2007 IPCC Assessment report included: structural versus values-based, random versus systemic, and “levels of understanding.”

In the same year that IPCC was improving transparency standards, the percentage of Americans who worried a “great deal” about warming dropped, again, to 28 percent, six points lower than the previous years. “Climategate” seemed to have lowered public trust in the scientific authority of climate scientists. The slide in public concern about climate change continued into 2011 when worry dropped to 25 percent, nearly the lowest percentage since 1987 when Pew pollsters began tracking the issue. In November of 2011, only weeks before the Durbin COP, another batch of emails from the 2009 hacking were released in what became known as Climategate 2.0. The additional exposure of more email exchanges among scientists questioning GHG warming evidence reinforced the positions of climate deniers and skeptics.

In response to public criticism, additional steps were taken to reform climate science research institutions. The East Anglia climate unit agreed to greater levels of transparency and committed to reply to “reasonable requests” for information about their findings. The IPCC formally agreed to the enhanced transparency guidelines recommended by the IAC. Moreover, IPCC Working Group I agreed to transparency

---

121 “Environment: Global Warming or Climate Change.”


of authorship and report approval processes, as described in “Principles Governing IPCC Work” updated in 2011.\textsuperscript{125}

As Climate-gate subsided, media coverage of the climate controversy declined. Thus, by 2012, worry about climate change inched back up to 30 percent.\textsuperscript{126} With the economic recovery well underway, the president saw an opening during his second term to prioritize raising standards for GHG emissions. In a climate speech on June 25, 2013 at Georgetown University, Obama outlined a plan for bolder action: reducing carbon emissions at new and existing power plants, preparing adaptation plans for climate impacts in the US, and working with the international community to build climate treaties and energy technology partnerships.\textsuperscript{127} In 2014, the percentage of Americans who worried a “great deal” rose to 34 percent and in 2016 increased to 37 percent. Thus, in the three decades since climate polling began in 1987, top levels of concern among Americans about global warming had varied little—from 35 percent in 1989 to 37 percent in 2016, although bobbing up and down in response to current events.\textsuperscript{128}

\begin{flushright}
\begin{itemize}
\item \textsuperscript{126} “Environment: Global Warming or Climate Change.”
\item \textsuperscript{128} “Environment: Global Warming or Climate Change.”
\end{itemize}
\end{flushright}
In 2016, only about 50 percent of Americans believed that climate change was caused by human activity. Most Republicans, regardless of their educational level, ascribed ulterior motives to climate scientists. It seems likely that they took their cues from Republican representatives in the 114th Congress (2015–2016). That is, 53 percent of their representatives and 70 percent of senators denied or questioned the harm of rising GHG emissions. In addition, five Democrats denied climate change, including Senator Joe Manchin from coal rich West Virginia and Senator Mary Landrieu from oil refinery giant Louisiana.

President Donald Trump has dismissed climate change as a “Chinese-invented hoax,” and he personally hoisted a “Trump digs coal” poster on the 2016 campaign trail. By 2017, his rollback of Obama’s climate legacy was well underway. Also, the Republican-majority Congress remains relatively unchanged in terms of the caucus votes


130 Funk and Kennedy, “Politics of Climate.”


against climate bills. Thus, at least for the next two years, any shift in national support for meaningful climate change initiatives seems highly unlikely. But as the Trump administration pushes for exploration on federal lands and dismantles EPA rules and regulations, local and state-based climate initiatives are emerging.

**Opportunities Among Communities for Climate Understanding and Action**

Opportunities to deepen understanding of climate risk and build climate initiatives exist within communities of climate believers. Those communities of believers, likely to be located in urban settings even in conservative states, fall into the Pew Research Center typologies of Solid Liberals (91 percent), Next Generation Left (78 percent) and Faith and Family Left (70 percent). To a lesser extent, opportunities also exist among the Hard-pressed Skeptics (63 percent) and Young Outsiders (61 percent). Opportunities to drive climate initiatives also exist within civic associations, particularly those focused on the environment and climate change.

The typologies most resistant to pro-climate mitigation are the Steadfast Conservatives (25 percent) and Business Conservatives (33 percent). Most members of these groups believe that “climate change is not happening.” However, some have demonstrated flexibility, acknowledging that “not enough is yet known about climate change” to have a firm belief about how to respond to climate change. Therefore, members of even conservative groups could be open to new evidence, as long as the

---

evidence is publicly recognized by the authority figures within their Party. Indeed, subgroups within every Pew typology offer opportunities for climate understanding and action, to varying degrees.

Unfortunately, many 21\textsuperscript{st} century citizens are waiting for 100 percent theoretical certainty, an objective and eternal “Archimedean fixed point” of objective truth theorized by Descartes about four centuries ago. Communities may not be familiar with the assumptions and language of scientific method and confidence levels, and they may not know that scientific communities have already reached overwhelming consensus on greenhouse warming theory. As they wait for 100 percent certainty and consensus, the fragile biosphere hangs in the balance.\textsuperscript{136} In 2015, the carbon emissions level reached 401 PPM; for reference, in 1965 when Johnson raised concerns about carbon emissions, the level was 320 PPM.\textsuperscript{137} NOAA lead scientist Pieter Tans has reported that the rate of increase has accelerated “100 to 200 times faster than what the Earth experienced coming out of the last Ice Age.”\textsuperscript{138}

In the meantime, communities of concerned citizens are not waiting for federal climate policies to materialize. They are taking bold steps to build robust climate initiatives in their local communities. Even a majority of conservatives say they are open


to considering the construction of solar panel farms and wind turbine farms based on potential cost savings.\textsuperscript{139}

Grassroots climate initiatives will be needed to protect the most vulnerable even if Congress eventually passes climate legislation. Threat of climate change to the most vulnerable populations requires greater scope, speed of mitigation, and adaptation. Party pledges to the 2015 Paris climate negotiations are inadequate to avert catastrophic and increasingly frequent intense episodes of extreme weather. Moreover, not even robust nation-state pledges to the Paris Accord guarantee protection, if for no other reason than the potential impact of unforeseen domestic crises that would curtail pledge implementation. Thus, non-Party, community-based initiatives are vital to efforts to prevent atmospheric destabilization, as the UN now officially recognizes.
CHAPTER 2. CLIMATE AGREEMENTS AND US SUBNATIONAL CONTRIBUTIONS

The Kyoto Protocol, negotiated under the UN Framework Convention on Climate Change (UNFCCC), accepted the 1990 IPCC Assessment that GHG emissions from human activity were enhancing the greenhouse effect and global warming.\(^1\) Kyoto, the first international agreement with GHG targets and timelines for developed nations, required reductions of six GHGs of five percent below a 1990 baseline.\(^2\) By 2005, the Kyoto protocol was ratified by every developed nation with the exception of the US,\(^3\) even though the US was responsible for the highest emission levels across all important indices: historical, annual, and per capita.\(^4\)

In 2012, at the end of Kyoto’s first commitment period, carbon dioxide emissions had declined 10 to 58 percent (without factoring land changes) among the 30 parties that reported their GHG levels, mainly nations within the EU and Russia.\(^5\) At the same time in

---


the US, carbon emissions increased by 4.31 percent. Much higher emissions were occurring in developing nations, especially China. Thus, during the protocol’s commitment period, overall emissions were not reduced. However, the process of negotiation and implementation led to greater understanding of the treaty weakness, a top-down architecture with legally-binding targets assigned only to developed nations. The treaty had invoked the controversial principle of Common but Differentiated Responsibility (CBDR), which assigned emissions targets to developed nations only.

In 2015, several years after the expiration of Kyoto’s first commitment period, the US and other nation-state representatives agreed to a new treaty structure based on voluntary pledges, called Intended Nationally Determined Contributions (INDC). The goal is to mitigate emissions to a level that would keep warming “well under” 2°C on average, and ideally under 1.5°C. Given the inadequacy of the current nation state pledges, the Paris Agreement recognized the need for ambitious subnational and non-party climate activity. Under the Trump administration, which is aggressively

---


dismantling federal climate initiatives (see chapter 4), any US contributions reflect subnational activity within states, cities, regions, and indigenous territories. These initiatives are propelled by civic, religious, and workplace associations emerging from the American tradition of civic engagement. The first waves of subnational activity emerged at the regional level, and the next waves emerged from smaller entities, primarily at the state and city level. These activities, especially the most ambitious, are necessary to protect the most vulnerable. But the absence of a federal commitment has allowed the unrestrained growth of fossil fuel energy in regions where political leaders are unwilling to undertake climate initiatives. Moreover, the US, which had led in climate research, is ceding global leadership in climate science.

**The Rise and Fall of US Political Leadership in Climate Agreements**

In the early environmental movement, the federal government was the force behind domestic legislation and agreements to protect the atmosphere. In 1967, Congress passed the Clean Air Act (CAA), which expanded GHG research and monitoring. In 1990, both houses of Congress overwhelmingly passed the CAA Amendments to protect the stratosphere from ozone thinning by reducing chlorofluorocarbon (CFC), a compound used primarily in refrigerants, solvents, and fire extinguishers. Also, the amendment established the nation’s first cap-and-trade program, in this case to control power plant
emissions of sulfur dioxide and nitrogen oxides that produce acid when exposed to water, or “acid rain.”

Internationally, the US has been reluctant to sign on to multi-lateral agreements, especially those perceived to infringe on US sovereignty, but the US did sign an agreement to protect the ozone. In 1987, the US ratified the Montreal Protocol on Substances that Deplete the Ozone Layer, to phase out the use of CFCs. Factors supporting US ratification included the leading role of US-based DuPont, which accounted for an estimated 25 percent of global production of CFCs. By limiting future CFC production, Montreal gave a competitive advantage to DuPont and other corporations that made up the small concentration of CFC producers: five in the US, five in Japan, and nine in the EU. Moreover, Montreal allowed a gradual phase-out of CFCs and provided the option of using a less damaging substitute, hydrocarbon fluorocarbons (HCFCs). Additionally, US state legislatures were already introducing bills to regulate CFCs. For these reasons, DuPont publicly “followed the science” of ozone thinning and


ultimately publicly accepted scientific authority and an international agreement.\footnote{Ibid., 277. US regulation of CFCs occurred under the 1990 CAA Amendment.} Thus, only 14 years had passed between the scientific discovery of CFC-depleting chemicals in 1973 and the 1987 ratification of Montreal’s legally binding targets.

In contrast, in the US the theory of anthropogenic climate change has continued to meet strong political resistance, even though scientific consensus is greater now than it was for ozone thinning in 1987. Without question, Kyoto was more ambitious and did not offer US corporations a competitive advantage. Instead, Kyoto represented an energy transformation that threatened the economic interests of the fossil fuel industry, including all sectors in the global supply chain of fossil fuel extraction, production, and distribution. Kyoto also threatened the short-term profitability of powerful entrenched industries, such as automotive and agricultural. These vested interests have ensured that Congress would not pass climate legislation, even though it has been nearly 60 years since Revelle’s team of scientists at Scripps began tracking rising carbon emissions; more than 50 years since President Johnson warned of harm from rising carbon emissions; and more than 25 years since the 1990 IPCC Assessment predicted a rise in global warming not seen for 10,000 years under the business-as-usual trajectory.\footnote{IPCC Working Group I, \textit{Climate Change: The IPCC Scientific Assessment (1990)}, eds. J. T. Houghton, G. J. Jenkins, and J. J. Ephrams (Cambridge: Cambridge University Press, 1990), accessed July 10, 2017, https://www.ipcc.ch/ipccreports/far/wg_i/ipcc_far_wg_i_full_report.pdf.} Thus, while forewarned of the climate risks by a consensus of IPCC and government scientists, the US never ratified the Kyoto Protocol with its specific targets, although it advocated for the UNFCCC agreement.
US Non-Ratification of Kyoto Protocol

In 1992, the US signed the non-binding UNFCCC agreement to curtail six GHGs not covered under the Montreal Protocol. The US goal was to develop economies in a “sustainable manner.” The treaty called for modest efforts to curtail the emissions “…within a time frame sufficient to allow eco-systems to adapt naturally to climate change to ensure that food production is not threatened…” But in contrast to the UNFCCC, the Kyoto Protocol was legally binding with top-down mandatory targets and timelines. In response, the George H.W. Bush administration refused to support the protocol and, instead, prioritized a growing economy. “Economic growth provides the resources for environmental protection, and environmental protection ensures that growth is sustainable,” Bush stated at a 1992 press briefing at the Earth Summit in Rio. During negotiations, Bush was the “loudest voice in the room” calling for voluntary mitigation targets, an approach squarely at odds with the level of urgency assessed by the scientific community. In speaking to Congress, Bush assured representatives that their advice and consent would be required before establishing any binding targets established in subsequent COPs. In lieu of mitigation, the administration prioritized the preservation of forests, phasing out clear-cutting in US forests and planting one billion trees to sequester

---


18 Ibid.
carbon dioxide in foliage and soil. In other words, the administration supported the voluntary restoration and expansion of carbon sinks, but would not restrain GHG emissions.

In contrast, the Clinton administration advocated for a target to reduce carbon emissions to 1990 levels by 2000. But Congressional consent for the target was not forthcoming. Instead, the Senate passed the 1997 Byrd-Hagel Resolution stating that the Senate would not ratify a protocol that committed only developed nations to reduce emissions or “harm the (US) economy.” Thus, a schedule for national regulation of emissions was relegated to the next century.

In 2001, the next president, George W. Bush, echoed his father’s concern that Kyoto ratification would negatively impact the US economy and consumers. The younger Bush cautioned that “complying with these mandates would have a negative economic effect, with layoffs of workers and increases for consumers.” Bush vowed to

---


preserve the American lifestyle, echoing the words of his father: “The American way of life is not up for negotiations.” During Bush’s first term, American lifestyle was unprecedented and rising to new levels of consumerism. In 2001, new single-family homes averaged 2,322 square feet, an increase from 1,740 square feet when his father was vice-president two decades earlier. Moreover, the living area per person expanded in part because of the decline of people living in a household. The lifestyle of some Americans, powered by fossil fuel emissions, was the envy of much of the world. As other nations sought to duplicate this vaunted American way of life, the climate crisis deepened.

The George W. Bush administration objected to Kyoto’s key substantive principle, “Common but Differentiated Responsibility” (CBDR). Under CBDR, developing nations were responsible for funding climate adaptation programs for developing nations, as well as abiding by mandatory emissions targets. The CBDR principle created a political rift between the US and developing nations. In particular, the Bush administration objected to the characterization of China as “developing” because the Chinese standard of living was improving and manufacturing expanding. Indeed, China was developing, in part because the US was outsourcing manufacturing to China.

---


As a result, the US was also outsourcing its GHG emissions. Since 1990, almost all emissions reductions in the US and Europe have been erased by outsourcing of emissions in places like China, according to the project’s Global Carbon Budget 2014 report. What’s more, these kinds of outsourced pollution grew at 11% annually.  

Under Kyoto, nations were required to self-report their domestic emissions, not emissions outsourced or consumed. Ideally, a consumption-based inventory would better reflect the CBDR principle, assuming responsibility belongs to those who consume disproportionately. A consumption inventory would provide greater emissions transparency on a per capita basis, and by this index, the US would rank among the worst offenders, although a consumption-based inventory complicates reporting due to supply chain complexity. Hence, tracking whether emissions mitigation supports the CBDR principle is more difficult to assess, based on production-based reporting. Yet, the American lifestyle powered by fossil fuel energy has clearly endangered the planet for everyone, as attested by per capita consumption patterns. China claims the US is

---


hypocritical for criticizing China’s growing emissions while the US per capita levels are the highest in the world.

But rather than accept responsibility for the nation’s GHG emissions, both historical and per capita, Bush cast doubt about the science of climate change and delayed mitigation action. Like Reagan, who called for more scientific research before accepting anthropogenic climate change, Bush chose to challenge the “incomplete state of scientific knowledge of the causes of, and solutions to, climate change.”

Bush inserted skepticism in the public dialogue about climate theory despite the 2001 IPCC Assessment, issued only two months earlier, which reported with high confidence that increases in carbon dioxide are due to fossil fuel uses and land changes that damage carbon sinks.

Moreover, the IPCC theory was affirmed by US agencies NAS and AAAS, the latter of which learned about greenhouse warming from Edith Foote’s experiment presented 150 years earlier at its annual convention (see chapter 1). That is to say that, in the face of mounting evidence of anthropogenic climate change and consensus among scientific communities, the George W. Bush administration delayed


33 In 2006, the AAAS board of directors affirmed “scientific evidence is clear” that climate change is already occurring, noting the emissions trajectory was heading to temperatures that at have not existed for millions of years. The statement urged immediate action: “The longer we wait to tackle climate change, the harder and more expensive the task will be.” See “AAAS Board Statement on Climate Change,” December 9, 2006, accessed January 20, 2018, https://www.aaas.org/sites/default/files/migrate/uploads/aaas_climate_statement.pdf.
action by waiting for absolute scientific “certainty” to emerge. Of course, absolute certainty would not be forthcoming from the IPCC or any other scientific institution, given the inherent contingencies and novelties that arise within scientific theorization. That is, the scientific method can never provide a guarantee of absolute certainty. Thus, the US, which had developed empirical-based scientific institutions as early as the mid-19th century and became a leader in climate research, was now abdicating its global position of scientific authority. The Bush administration appeared to stall mitigation efforts in order to retain the short-term competitive advantage of free riding, which allowed US industry and consumers to take advantage of emitting high levels of GHG’s while other nations worked on mitigation. As the world’s number one polluter continued to emit with little restraint, the responsibility for curtailing US emissions fell to its subnational communities, as well as other nation-states.

**The First Wave of US Subnational Climate Initiatives: Regional Coalitions**

In 2007, a year before Kyoto’s first commitment period (2008–2012), governors within three US regions simultaneously developed their own climate coalitions: the Regional Greenhouse Gas Initiative (RGGI), comprised of nine states in New England and the Mid-Atlantic; the Western Climate Initiative (WCI); and the Midwestern Greenhouse Gas Reduction Accord (MGGRA). In the absence of Kyoto ratification, these three regional coalitions provided a multi-state framework for advancing subnational climate initiatives. On the East Coast, the RGGI became the first carbon cap-and-trade program requiring power plants to buy emissions permits, which resulted in
lower plant emissions, even as the economy grew.\textsuperscript{34} On the West Coast, the WCI eventually expanded its power plant cap-and-trade market to include large industry, making it the first multi-cap market in the US.\textsuperscript{35} The Midwestern coalition, MGGRA, was unable to advance climate initiatives because of political pressure from fossil fuel corporations, including the Wichita, Kansas-based energy giant Koch Supply & Trading. Koch trades derivatives of oil—refined petroleum and natural gas—operates refineries, and transports commodities through pipelines and by other means.\textsuperscript{36} By 2010, owners of the privately held Koch Industries, brothers David and Charles Koch, had contributed more than $100 million to libertarian think tanks and political groups, many of which are leading the fight against climate change legislation. The staggering level of Koch donations has supported the mis-education of grassroots groups that built the Tea Party, whose instruction included lessons on the fallacy of climate change theory and the need for laissez-faire environmental policies. Additionally, the Koch brothers donated at least $48 million to candidates affiliated with the Tea Party.\textsuperscript{37}


By the 2010 election, all climate coalitions experienced political pressure, especially from conservative-leaning states with large conservative and rural constituencies (see chapter 1). As a result, the Midwestern coalition disbanded, and the WCI eventually lost all original member states except California.

Still, California and the RGGI continued to develop their cap-and-trade regimes. California, the ninth largest economy in the world, built an ambitious cap-and-trade program. The California legislature set its 2050 target at an 80 percent reduction from 1990 levels. At the same time, RGGI exceeded its cap-and-trade goals, as well as expanded its renewable energy wedge. In 2014, RGGI set emissions reduction goals for 2015–2020 at 2.5 percent annually with additional reductions in methane leaks from natural gas pipelines. The decline in emissions in California and states in RGGI reflected the recession and increased use of natural gas, but efficiencies were growing. As

---

By the 2010 election, all climate coalitions experienced political pressure, especially from conservative-leaning states with large conservative and rural constituencies (see chapter 1). As a result, the Midwestern coalition disbanded, and the WCI eventually lost all original member states except California.

Still, California and the RGGI continued to develop their cap-and-trade regimes. California, the ninth largest economy in the world, built an ambitious cap-and-trade program. The California legislature set its 2050 target at an 80 percent reduction from 1990 levels. At the same time, RGGI exceeded its cap-and-trade goals, as well as expanded its renewable energy wedge. In 2014, RGGI set emissions reduction goals for 2015–2020 at 2.5 percent annually with additional reductions in methane leaks from natural gas pipelines. The decline in emissions in California and states in RGGI reflected the recession and increased use of natural gas, but efficiencies were growing. As

---

it is known that Koch contributions helped build the CATO institute, which promoted Climategate, and the Heritage Foundation, which has promoted climate skepticism. They have also gifted funds to a group opposed to presenting global warming as scientific fact in public schools, the Independent Women’s Forum, and the George Mason thinktank, the Mercatus Center, which has opposed EPA clean air rules. The Koch brothers are also founders of Americans for Prosperity, which is actively opposing international and domestic climate agreements, including holding 80 “grassroots” events targeting cap and trade legislation.

---


RGGI and California advanced their cap-and-trade systems, pro-climate political leaders hoped to leverage their efforts to boost a national mitigation program.

**Congressional Defeat of Climate Legislation**

During his first term, President Obama tried to leverage momentum from the regional climate initiatives and other subnational initiatives to pass a federal cap-and-trade bill. The American Clean Energy and Security Act of 2009, co-authored by Congressman Henry Waxman (D–California) and Senator Ed Markey (D–Massachusetts), authorized the federal government to establish an economy-wide cap-and-trade system, which won the support of major energy corporations. But the bill met heavy criticism from groups on both sides of the political spectrum. Conservative free marketers considered the legislation an unnecessary tax, while environmentalists advocated for stronger reduction targets. In the face of likely Senate defeat, a bi-partisan group comprised of Senators John Kerry (D–Massachusetts), Joe Lieberman (I–Connecticut), and Lindsey Graham (R–South Carolina) attempted to salvage a climate legislation victory by narrowing the scope of the bill to utilities and industry. But the bill’s proponents could not overcome the lobbying and public relations campaigns underwritten by the fossil fuel industry, which framed the bill as a “job killer” and a tax.

---

“We turned [the Clean Energy bill] into ‘cap and tax,’” boasted bill critic Myron Ebell of Competitive Enterprise Institute,\textsuperscript{41} financed in part by the coal industry.\textsuperscript{42}

Another climate bill referred to as CLEAR (Carbon Limits and Energy for America’s Renewal) was also defeated, despite bi-partisan support. CLEAR, co-authored by Senators Maria Cantwell (D–Wash) and Susan Collins (R–Maine),\textsuperscript{43} was praised by Obama because the bill mirrored his own campaign proposal to allocate 75 percent of cap-and-trade revenue from permits to citizens, which they would receive as rebate checks averaging $1,100 for a family of four. The revenue balance of 25 percent would finance clean energy research and development.\textsuperscript{44} But CLEAN did not pass, even though Democrats held majorities in both houses of Congress. Critics voiced concern over a range of issues, including the financial impact of cap-and-trade on consumer utility bills and the speculative nature of permit trading.\textsuperscript{45} Thus, the prospects for a national cap-and-trade system were diminished.

\textsuperscript{41} Myron Ebell was appointed by Trump to head the 2016 EPA transition team.


On the heels of cap-and-trade legislative defeats, state politicians and agencies in the Midwest and South plus Utah denounced US affiliation with UN climate agreements. Legislatures in half a dozen conservative states passed bills condemning funding for any climate efforts associated with Agenda 21, a reference to a planning document on sustainable development developed in 1989 by the UN Conference on Environment and Development (UNCED). In 1992, President George H.W. Bush and the leaders of 177 other nations had signed the non-binding document. Yet, more than two decades after the adoption, conservatives Ted Cruz (R–Texas) and Newt Gingrich denounced the UN sustainability program as a threat to individual freedom and private property rights, even though the program was voluntary. Commentators Glenn Beck and Dick Morris condemned Agenda 21 as an attack on US national sovereignty and a step toward a new world order based on totalitarian socialism led by “global elites.”

By 2013, anti-Agenda 21 resolutions had passed in Utah, Alabama, Tennessee, South Dakota, and Kansas, and resolutions had also passed in one chamber in several states, including Missouri. The Missouri Senate bill SB 618 read as follows:

This act prohibits the state and any political subdivision from implementing any policy recommendations that infringe on private property rights and are traceable to Agenda 21 adopted in 1992 by the United Nations or any other international law or ancillary plan of action that contravenes the federal or state constitutions.


47 The actual UNCED Agenda 21 mission was to encourage communities to construct their own voluntary solutions to population growth, economic development, and environmental protection.

Agenda 21 advocates also emerged in the state legislative chambers of Georgia, Illinois, Iowa, Maryland, Montana, Ohio, and Texas and in the city councils and agencies of many local communities. Agenda 21 bills and ordinances prohibit the state and any political organization from entering into any agreement or accepting funds to implement the voluntary sustainability standards.\textsuperscript{49} County office holders who supported voluntary sustainable development were defeated in places such as Carroll Country, Maryland. In Baldwin County, Alabama, members of a planning and zoning commission promoting “smart growth” and “anti-sprawl planning” were forced to resign.\textsuperscript{50} Thus, in the case of anti-Agenda 21 activity, citizen engagement wound up stifling climate understanding and pro-climate activity in some states and communities.

On the other hand, Congress’ failure to pass climate legislation also galvanized activity in other states and cities that is developing momentum. At the same time, the Obama administration required states and Native American territories to create their own clean energy plan for new power plants (not existing plants). The administration recognized the need to give states flexibility and options for meeting the administration’s overall goals.

\textsuperscript{49} Meghan Luecke, SB618 Summary, Missouri Senate, http://www.senate.mo.gov/14info/BTS_Web/Bill.aspx?SessionType=R&BillID=2772365.

A First Step in State Transitions Away from Fossil Fuel: The Clean Power Plan

In 2011, the Obama administration and EPA announced the Clean Power Plan (CPP), issued under section 111 of the Clean Air Act (CAA), which set performance standards for new power plants. Options for state plans included improving efficiencies, investing in alternative energy or increasing natural gas. These goals were viewed as a bridge to alternative energy and reaching national targets. In the US, power plants produced 31 percent of all US emissions, which represented the greatest emissions percentage in any sector until 2018. While CPP targeted only new plants, the plan was a modest but important first step, like Kyoto.

Despite the modest goals of CPP, the plan faced legal challenges, most forcefully from a lawsuit filed in 2015 by plaintiffs from 29 states and state agencies plus privately-held Murray Energy, the largest underground coal mining company in the US with 16 mines in Ohio, Illinois, Kentucky, Utah, and West Virginia and truck, rail, and river terminals. In State of Virginia and State of Texas v. EPA and Regina McCarthy, the AGs argued that under the CAA, the EPA was authorized to regulate only mercury, and does not have the constitutional authority to regulate carbon emissions or reorganize the


nation’s energy grid. Further, the plaintiffs claimed the plan would lead to higher energy costs to consumers, even though the administration gave assurances that the plan would ultimately lead to lower bills for homeowners. Most plaintiffs were from Republican dominated states in the South and Midwest, and nine of the states rank among the highest in percentages of electricity generated by coal: West Virginia, Kentucky, Wyoming, Indiana, Missouri, Utah, Nebraska, Ohio, Colorado, Wisconsin, and Kansas (North Dakota and New Mexico are among this group of coal-based electricity producers, but their Attorneys General did not join the lawsuit). On February 9, 2016, the Supreme Court issued a stay, blocking implementation of the power plan.

In response to the legislative and judicial roadblocks, the Obama administration focused on climate gains within the federal government. The Federal Action on Climate Change included mitigation within the government’s expansive supply chains. The administration also issued plans to increase renewables within the federal government’s energy supply. However, the next administration would aggressively rescind Obama’s climate advances, leaving subnational entities and private actors to spearhead climate

---


54 The stay remained was to remain in effect until the case was decided by the US Court of Appeals in Washington, D.C. The Trump administration has filed a proposal to repeal the Clean Power Plan.

initiatives. The most ambitious activity was occurring within liberal-leaning cities and states, many in California.

**California Climate Initiatives Supporting Subnational and International Climate Agreements**

Since all states except California dropped out of the WCI, California Governor Jerry Brown needed to find new cap-and-trade partners. Brown found them within the Canadian province of Quebec and eventually Ontario, as well as cities, provinces, agencies, and businesses in other nations. Positive results of the state’s efforts to lower emissions while growing the economy were apparent in a 2012–2014 report:

In the two years since the compliance market was implemented, California’s Gross Domestic Product (GDP) grew by 2% while emissions of capped sectors dropped by 3.8%, according to a report by the Environmental Defense Fund. The success spurred California Governor Jerry Brown last week to issue a new executive order to lower the state’s GHG emissions 40% below 1990 levels by 2030.⁵⁶

Even before the WCI formed, California was participating in transnational Memorandums of Understanding (MOUs) on climate agreements. In 2005, California agencies and a US-based NGO entered into a climate agreement with China’s Jiangsu province to develop China’s first large-scale program for energy efficiency. US parties to the bi-lateral agreement were the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC), as well as the Natural Resource Defense Council,

---

an NGO comprised of scientists and lawyers.\textsuperscript{57} In 2014 California signed an MOU with Mexico’s federal ministry of Environment and Natural Resources and Canada’s province of Ontario.\textsuperscript{58}

In May 2015, California was among 12 states from different nations to sign the “Under 2 MOU” agreement to create greater ambition for climate initiatives within their jurisdictions.\textsuperscript{59} Four US states signed the agreement: California, Oregon, Vermont, and Washington. Thus, California’s diplomacy has been building momentum for subnational treaties that support pledges to the Paris agreement.

Following the subnational agreements, the Obama administration negotiated a Northern Hemisphere climate agreement. On February 12, 2016, the US, Canada, and Mexico signed a MOU on Climate Change and Energy Collaboration. On June 29, 2016, Obama met with President Enrique Peña Nieto of Mexico and Prime Minister Justin Trudeau of Canada in a summit that produced specific pledges from each of the three nations. The North American leaders agreed to collaborate in six areas of sustainable


development: 1) reliable low carbon electricity grids; 2) clean energy renewables and technologies; 3) energy-efficient buildings, appliances, industries, and equipment, including energy management systems; 4) carbon capture and storage; 5) climate adaptation and resilience, and 6) emissions reduction in the oil and gas sector, including methane and black carbon.\(^6^0\)

After a decade of shared climate activity among subnational California and Chinese provinces and corporate actors, President Obama and Chinese President Xi Jinping negotiated a bilateral climate agreement with mitigation goals. The presidents of the US and China, who represent about 40 percent of global carbon dioxide emissions, announced their intention to ratify the Paris Agreement, supported by UN Secretary General Ban Ki Moon. The two nations agreed to an ambitious phase-out of HFCs in a Montreal Protocol amendment, reductions in international aviation emissions in partnership with International Civil Aviation and cooperation in ongoing work, including research at the US–China Clean Energy Research Center (CERC).\(^6^1\) Ultimately, the world’s biggest emitters announced their pledges to the Paris Accord against a 2005 baseline. By 2020, China has committed to reduce emissions per unit of GDP by 40 to 45 percent and increase alternative energy to 15 percent. Additionally, China agreed to increase forest coverage by 40 million ha (each ha is 2.47 acres) and forest stock by 1.3


billion ha. The US pledged to reduce emissions by 17 percent in 2020, 30 percent by 2025, and 42 percent by 2030.62

The international cooperation of California with other subnational entities contributed significantly to building momentum for the tri-lateral climate agreement with Canada and Mexico and a bilateral agreement with China. Ultimately, these agreements have bolstered the momentum for ratification of a new international climate agreement. At the same time, a second wave of subnational activity emerged among the largest US cities, boosted by the UN.

The UN Boosts Subnational Initiatives: Cities, Civic Associations, and Private Sector

By the second Obama administration, municipal climate activity was ramping up across the US, especially among the mega cities. Cities consume about two-thirds of the world’s energy and emit 70 percent of the world’s GHGs.63 Many received support from a network first convened by the London mayor in 2005, timed to coincide with preparation for Kyoto’s first commitment period (2008–2012). In 2016, the network was named C-40 when the membership grew to 40 cities. By 2017, the network membership had expanded to 91 mega-cities, which represent one-quarter of the global economy.

US cities participating in C-40 include Chicago, Boston, Houston, Los Angeles, New York, San Francisco, Seattle, and Washington, DC, as well as “innovator” cities

---


Austin, Portland, and New Orleans. In 2010, New York’s Mayor Bloomberg began his
tenure as the chair of C-40 Cities, and under his leadership, C-40 expanded linkages to
NGOs, including the Clinton Climate Initiative and the Carbon Disclosure Project, which
reports emissions. The linkage partners are also corporations, such as Siemens, which
builds digital infrastructure such as grids, and Embarq, a carrier that provides high speed
data and wireless services.

C-40 also partners with a network of mid-size cities and towns called Local
Governments for Sustainability, or ICLEI (International Council for Local Environmental
Initiatives), which was formally organized in 1990 at the UN during the first World
Congress of Local Governments for a Sustainable Future. The germination of ICLEI
began in 1989 when dozens of cities gathered to collaborate on creating local
environmental laws, which at the time focused on phasing out ozone-depleting chemicals.
By 2017, ICLEI had expanded its reach to 1,500 cities representing 25 percent of the
global urban population. ICLEI also expanded its mission to include mitigation pledges
under the “Cities for Climate Protection” campaign and sustainability practices that
include procurement policies for low carbon construction.⁶⁴ ICLEI partners have grown
as well, now including UNEP, UN Habitat, and the UNFCCC, as well the Climate Group
that links business underwriters with state and regional projects, often transboundary.⁶⁵

---

background on urban sustainability practices, see “Cities for Climate Protection Campaign,” World Summit

⁶⁵ “States and Regions Share Energy Transition Innovations Across Borders,” ICLEI, July 7, 2017,
innovations-across-borders.
The goals of C-40 cities are more ambitious because the mission is to keep warming under 1.5°C, which is critical for coastal cities facing rising seas.\textsuperscript{66} The UN supports the ambitious subnational activities of both C-40 and ICLE in the effort to meet and exceed the pledges of sovereign nations. Moreover, the UN launched the Compact of Mayors to exchange urban activity and drive collaboration among cities.\textsuperscript{67}

In the US, another force contributing to US subnational climate initiatives is grassroots activity, particularly civic, religious, and work-related associations (see chapter 3). Perhaps the most notable national organization with a grassroots approach is 350.org, named for the benchmark of 350 ppm of carbon recommended by climate scientists to stabilize the atmosphere,\textsuperscript{68} which is raising awareness about climate change and advocating for climate solutions in local chapters throughout the US.\textsuperscript{69} The founder of 350.org, Bill McKibben, initiated the largest climate march in history, the People’s Climate March, issuing a public invitation in his \textit{Rolling Stone} column to participate. Ultimately, the march included an estimated 1,500 private and civil society associations

\begin{flushright}


\end{flushright}
and drew 300,000 members, many of whom gathered at the UN climate talks in New York City on September 21, 2015, a few days before the march.

UN leaders recognize that subnational activities in conjunction with civic activities are required in order to propel robust initiatives and support nation-state pledges. Team leaders within in the UNEP Gap Emissions reinforced the vital importance of this non-Party activity:

Substantial enhancement or over-delivery on current INDCs by additional national, subnational and non-state actions is required to maintain a reasonable chance of meeting the target of keeping warming well below 2 degrees Celsius.

In preparation for the 2015 Paris meeting, the UN encouraged corporations and cities to make pledges as part of the Paris Pledge for Action (L’Appel de Paris), registering them on a portal site established for subnational and business activity under the Lima–Paris Action Agenda. This portal, referred to as the Non-State Actor Zone for Climate Action (NAZC), received nearly 11,000 commitments from 2,250 cities, 150 regions, 2,025 corporations, 424 investors, and 235 civil society organizations.**70** UN leadership views these subnational commitments as particularly promising:

Microsoft founder Bill Gates and 27 other major investors in 10 countries launched the Breakthrough Energy Coalition to steer more private capital into clean energy deployment. And at a side summit hosted by Paris Mayor Anne Hidalgo and former New York mayor Mike Bloomberg, the Compact of Mayors declared that the collective commitments of more than 360 cities will deliver over half of the world’s potential urban emission reductions by 2020.**71**

---


A Climate Agreement with Stronger “Bottom-Up” Attributes

Despite the multi-prong efforts of the Obama administration to build momentum for a new international agreement, the polarized Senate could not ratify a legally-binding climate treaty. Back in 2014, the New York Times noted the bleak prospects:

Even though Democrats currently control the chamber, the Senate has been unable to reach agreement to ratify relatively noncontroversial United Nations treaties. In 2012, for example, Republican senators blocked ratification of a United Nations treaty on equal rights for the disabled, even though the treaty was modeled after an American law and had been negotiated by a Republican president, George W. Bush.72

Resistance to treaty ratification continued to arise in anti-Agenda 21 campaigns, which vilified the UN, climate change scientists, and China in favor of coal plant construction. Nearly absent from public conversation was the idea that the US bore respective responsibilities to the international community, given US historical and per capita emissions. Thus, Congressional ratification of a climate treaty was implausible.

Support for a climate treaty was also hampered by critics of the top-down treaty architecture. Kyoto’s mitigation targets and timelines were established by UN negotiators using detailed accounting rules.73 US negotiators wanted greater flexibility, which would have recognized the inability to meet targets and timelines during domestic crises.

http://www.c2es.org/international/negotiations/cop21-paris/summary. The repository of commitments from mayors is referred to as the Carbon Climate Registry at carbon.org.


Sovereign nations also wanted the option to continue with their own mitigation work without international interference.\(^74\) Although COPs under Kyoto had provided flexibility to help nations meet their emissions targets, such as the Clean Development Mechanism (CDM) that allowed offsetting, nations that were not meeting their targets had the option of simply disengaging from the treaty, as noted.

The weaknesses of Kyoto’s top-down architecture, as well as its strengths, were described by legal scholar Daniel Bodansky and executive vice-president of Center for Climate and Energy Solutions (C2ES) Eliot Diringer:

Kyoto’s more top-down approach provides greater legal and technical rigor, promotes transparency and comparability of effort, and holds the promise of greater ambition. But few states (nation) have been willing to accept it, primarily because international climate change policy is driven largely by domestic rather than international politics.\(^75\)

Post Kyoto, UN climate leaders and observers proposed a hybrid treaty that strengthened the bottom-up architecture. This hybrid construct was built on contributions determined by each nation-state, not the UN body.\(^76\) In post-Copenhagen COP discussions, this new approach received support during Ad Hoc Working Group meetings and was already attracting broad party participation before the Paris negotiations.\(^77\)


\(^75\) Daniel Bodansky and Elliot Diringer, “Building Flexibility and Ambition into a 2015 Climate Agreement,” Center for Climate and Energy Solutions, June 2014, 1.

\(^76\) Stavins, “Portfolio.”

Under the Paris Agreement, some aspects of top-down architecture were retained, such as the procedural standards. For example, universal agreement was reached on transparency and accountability standards, addressed at the 2013 Durban COP. These standards included strengthening monitoring, verifying, and reporting (MVR) of the inventory of GHGs in both developing and developed nations. Transparency also extended to the “participatory requirement” that allowed public access to climate information and the opportunity to participate in discussion and decision-making, a standard incorporated in the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in Environmental Matters.\(^78\) Aarhus procedural standards include environmental impact assessments (EIA)s and the duty to warn of impending harm, which arguably includes high levels of methane leaks or carbon emissions, as well as the process referred to as monitoring, verifying, and reporting (MVR).\(^79\)

Procedural standards reflect the American tradition of public participation and transparency in US government entities, including subnational levels of government. They exist at the state and local level, as well as the federal, and have applied to subnational climate initiatives. The California Environmental Quality Act requires state


\(^79\) Chris Wold, David Hunter, and Melissa Powers, *Climate Change and the Law*, 2nd ed. (San Francisco, CA: Matthew Bender & Co., 2013), accessed December 11, 2017, http://law.lclark.edu/live/files/14374-chapter-4unfcccfinalpdf. The obligation to not cause harm to other States was extended to environmental damage as early as 1941 in the well-known Trail Smelter arbitration involving a US action brought against Canada for damages caused by air pollution from a Canadian smelter.
and local agencies to conduct EIAs with public transparency and the mandate to reduce the impacts “to the extent possible.”

The standardization of the procedural practices has the potential to help synch up nation-state GHG inventories with municipal and regional GHG inventories, as Daniel Bodansky and Elliott Diringer posited at the Ad Hoc Working Group on the Durban Platform for Enhanced Action. For example, subnational inventories could be formally linked to nation-state inventories by using the same standard for MRV. These procedural standards could support integration of non-party (subnational and corporate) and party initiatives, although concerns over double-counting remain. Certainly, there is a growing understanding that non-party actors are needed to meet and exceed national pledges, as documented at the Durban AWG:

Section 15. (Durban) Welcomes the efforts of non-Party stakeholders, including civil society, the private sector, financial institutions, cities and other subnational authorities, local communities and indigenous peoples, to scale up their climate actions and provide further opportunities for Parties to reduce emissions and/or build resilience and decrease vulnerability to the adverse effects of climate change.

At the 2015 Paris talks, national representatives acknowledged that non-Party initiatives were “required leaders” necessary to keep global warming well under 2°C. These representatives envisioned a “scaling up and introduction of new or strengthened

---


82 Ibid.
voluntary efforts, initiatives and coalitions…” In essence, they imagined a growing proliferation of subnational and private actor initiatives. Thus, the non-party initiatives could close the “significant gap” between weak national pledges and the required reductions for preventing unstoppable climate destabilization.84

At the Paris COP, local and regional climate initiatives were showcased at the Cities & Regions Pavilion, facilitated by the ICLEI. More than 80 subnational projects were presented under the “Transformative Actions Program” before a range of stakeholders, including potential underwriters. The Pavilion provides a platform for attracting attention and funding for the most ambitious local climate plans.85 Among the US presenters were three from California who provided updates on their low carbon projects: 1) a Santa Monica public transportation initiative; 2) a San Francisco carbon sequestration system in which compost enables soil to store carbon for 30 years; and 3) an inventory system of their alternative energy sources to be shared among California municipalities. A Boulder, Colorado presenter described the city’s resilient systems that incorporate redundancy processes, such as micro-grids with battery backup and safe havens for residents.86


84 Ibid.


Subnational initiatives were also presented in workshops facilitated by Georgetown Climate Center. Workshop topics included “Subnational Cooperation on Clean, Resilient Transportation” and “The Subnational Foundation (State and Provincial) for Action.” Another workshop, “US State Leadership on Climate Change” explored cooperation between France and three US states (California, Washington, and Vermont) in sharing technology for improved water management, high speed rail and zero emission vehicles, renewable energy, storage systems, smart grids, energy efficient buildings, along with other regional and local collaborations. Another workshop, “Challenges and Opportunities in China—US Cooperation on Energy and Climate Change,” included panelists from Georgetown University, Tsinghua University, and Chinese agencies, which discussed strengthening the cooperation between the US and China in the areas of climate change and energy.87

Also at the Paris summit was the “Under 2 MOU” group, led by California and the German state of Baden-Württemberg. The group had spearheaded an agreement among 123 subnational jurisdictions to keep emissions under two degrees. The ambitious step they agreed to implement was reducing their GHGs by 80 to 95 percent below 1990 levels or limiting per capita annual emissions to less than two metric tons by 2050.88

---


During the 2015 Paris Accord, Governor Brown’s office issued a release explaining California’s role in building climate agreements with all levels of government and corporations. The office also advocated for putting a price on carbon:

While California emits around 1 percent of the world's greenhouse gases, the state is playing a leading role in broadening collaboration amongst subnational leaders. In recent months the Governor has traveled to the United Nations in New York, the Vatican in Italy and the Climate Summit of the Americas in Toronto, Canada to call on other leaders to join California in the fight against climate change. Governor Brown also recently joined an unprecedented alliance of heads of state, city and state leaders—convened by the World Bank Group and International Monetary Fund—to urge countries and companies around the globe to put a price on carbon. These efforts build on a number of other international climate change agreements with leaders from Mexico, China, North America, Japan, Israel, Peru and Chile…

Speaking with Parisian university students, Brown called for a radical transformation of life on earth and spoke of California’s efforts to slash oil production and boost renewable energy. Brown, who trained as a Jesuit seminarian before attending law school, said humankind must face the consequences of modernity, which include excesses of individualism and oil dependence, and learn to focus on the common good and “live lighter on the planet.” He spoke about the folly of continuing to overweight individual liberties against communitarian responsibilities to protect the commons. Thus, the California governor became a face and a force for subnational and communitarian duties to mitigate GHGs.

---

89 Ibid.

Increasingly, UN leadership is raising the visibility of subnational activities and their role in delivering Party pledges. Yet, some critics argue that subnational activity is underrepresented at the UN and needs to be formally recognized and incorporated in UN governance. The president of the European Committee of the Regions, Markku Markkula, is among the critics:

For the first time the final climate text explicitly recognizes what should be blindingly obvious: cities and regions have a crucial role in fighting climate change. However, we at the European Committee of the Regions (COR)—a political assembly of local and regional politicians—wanted more. As well as more ambitious commitments from the world’s states, we wanted a decisive ‘Action Plan’ for cities and regions. This would have made subnational authorities part of the world’s climate governance system, with a more integrated role in the UN climate process.\(^{91}\)

For now, the Paris Agreement is focused on the activity of nation-states. On October 5, 2016, the threshold of 55 nation-states that account for 55% of the world’s GHGs was met and the agreement was ratified. In 2018, 174 of the 197 parties have ratified the agreement and its guiding principles.\(^{92}\)

**The Paris Agreement Retains Universal Substantive Principles**

Environmental treaties are guided by substantive principles that recognize the value of each human in every nation. These principles are abstract, meant to provide guidance, while procedural standards are more concrete in order to put specific processes

---


in place. Substantive universal principles require that communities come to terms with their own definition and relevance of the principles. The principles can also be incorporated in subnational climate initiatives, nation-state pledges, MOUs, and other agreements, which require their own application. The key principles found in The Paris Agreement are Common but Differentiated Responsibility and Respective Capabilities (CBDRRC), intergenerational equity, and common concern.

CBDRRC, a revision of the Kyoto principle of CBDR. The CBDRRC principles requires all nations, including developing nations, to make a climate pledge that factors in economic and technical capabilities. The CBDR-related controversy that had created a chasm between developed and developing nations during Kyoto negotiations was overcome in part by requiring all parties to make voluntary contributions, while acknowledging each nation’s respective capability to do so. Poor developing nations still wanted acknowledgment for their low levels of historical emissions and to receive assistance to enable them to leap frog into low carbon energy and build resilient communities. For example, India wanted lower costs for intellectual property rights related to energy technology in order to spur sustainable development.

---


A second substantive principle of the agreement is the “principle of equity,” which is an emerging customary principle, often referred to as Intergenerational Equity. The principle calls for equitable access and sharing of resources in current and future generations. Thus, the poor in either generation should be protected from a destabilized atmosphere that would cause destruction and harm from extreme weather. In international law, the intergenerational principle was invoked in principle 1 of UNFCCC. In support of this principle, Obama spoke about the need to protect future generations from climate change:

While our generation will see some of the benefits of building a clean energy economy—jobs created and money saved—we may not live to see the full realization of our achievement. But that’s okay. What matters is that today we can be more confident that this planet is going to be in better shape for the next generation. And that’s what I care about. I imagine taking my grandkids, if I’m lucky enough to have some, to the park someday, and holding their hands, and hearing their laughter, and watching a quiet sunset, all the while knowing that our work today prevented an alternate future that could have been grim; that our work, here and now, gave future generations cleaner air, and cleaner water, and a more sustainable planet. And what could be more important than that?

The preamble of the agreement also acknowledges the need to fulfill the Common Concern of Humankind principle. Common Concern is understood in relationship with the factors that impact well-being, including poverty and economic development. Climate change contributes to the lower standard of well-being because extreme weather exacerbates poverty and slows development. As stated in article six of the agreement,

---

95 “Paris Agreement.”

parties should undertake their climate activity simultaneously with meeting respective obligations in “human rights, the right to health, the rights of the indigenous peoples, local communities, migrants, people with disabilities and people in vulnerable situations…” 97

All of the Paris principles can be interpreted as requiring ambitious climate initiatives. However, the current cumulative pledges are nonetheless inadequate for keeping global warming well under 2°C. Instead, the pledges are more likely to place median warming at 2.6–3.1°C by 2100.98 While the treaty calls for Parties to review their pledges every five years, increasing urgency from rising emissions requires near term subnational action to meet and exceed national pledges. “Whereas recent COPs have featured numerous side events at which such (non-Party) actors could convene alongside negotiators, over the last year these actors have become more central to the international climate agreement,” observed Oxford Professor Thomas Hale.99 In the US, the burden of responsibility for mitigation and adaptation has fallen on subnational and private entities.


Post-Paris Recognition of Non-Party Activity

On November 7, 2016, one year after the Paris gathering, the Marrakech COP22 showcased the progress of civil society and non-state actors. Civil society includes communities, citizens and consumers, youth, NGOs, trade unions and labor organizations, and indigenous peoples. The non-state actors include finance and investment groups (investors, asset owners, and corporations) and technology innovators. At Marrakech, the civil societies and non-state actors joined with Parties to create the Marrakech Partnership for Global Climate Action. Their goal is to accelerate climate action, closing the 4–17 GT gap between the national pledges and the benchmarks to keep warming well below 2 ºC.

Non-party activity in Marrakesh also included a gathering of youth at their own event, “Young and Future Generations Day Intergenerational Inquiry: The Role of Young People in Implementing Climate Change,” which emphasized the equity principle of protecting children and future generations from climate destabilization. In 2016, about 26 percent of the global population or 1.9 billion are age 15 or younger. Thus, youthful

---


engagement in subnational initiatives could help drive the focus on intergenerational equity.

To help mobilize climate action, nation-state representatives at Marrakesh committed to improve communication between the parties and non-Parties of civil societies and non-state actors. UN leaders urged all stakeholders to share their best practices, encompassed in the Action for Climate Empowerment.\textsuperscript{104} However, an ongoing challenge is the ability to assess each other’s pledges and progress, given differing baselines, methodologies, and reporting mechanisms.

Marrakesh occurred one week after Trump was elected president, and attendees expressed their concerns about Trump’s denial of climate change. In response, Secretary of State John Kerry told the COP attendees that presidents look at issues like climate change differently than when they were campaigning. Kerry asserted that climate change is not a controversial issue for leaders at the Pentagon, the US intelligence community, or corporate executives.\textsuperscript{105} More than 300 US-based corporations signed an open letter to president-elect Trump urging him to support the green economy and Paris climate agreement.\textsuperscript{106} Citigroup and the New York pension fund announced they will continue to

\textsuperscript{104} “Doha Work Programme.”


invest billions in low carbon projects.\textsuperscript{107} Yet, Marrakesh attendees and observers expressed deep concern about climate policy under the upcoming Trump administration. On the last day of the COP, UN Secretary Ban Ki-moon met with civil society attendees to urge them to stay involved and create a “common roadmap.”\textsuperscript{108} That roadmap gives more weight to the work of subnational initiatives and non-party activity in the US.

In 2017 in Bonn, Germany, COP23 continued to underscore the important role of non-state actors in closing the gap between pledges and mitigation requirements. Leaders praised the “grand coalition” of “countries, regions, cities, civil society, the private sector and ordinary men and women” in the Marrakesh Partnership for Global Climate Action, launched in Marrakesh, who are driving ambitious climate initiatives.\textsuperscript{109} US subnational leaders led by California’s Gov. Brown and former New York City Mayor Bloomberg presented the US progress report, “American’s Pledge Phase I: States, Cities, and Businesses in the United States Are Stepping Up on Climate Action.”\textsuperscript{110} The report highlights the clout of US non-federal entities (cities and states), which represent $10.1 trillion in GDP; if a nation, they would rank third globally. The first ranking goes to the


US at $18.6 trillion and the second to China at $11.2 trillion.\textsuperscript{111} These entities supporting the Paris agreement represent 49 percent of the American population,\textsuperscript{112} which is, ironically, about the same percent of Americans who believe in anthropogenic climate change, based on Pew research.

This progress report demonstrates the wide range of climate initiatives undertaken by US states, cities and businesses, along with universities and other non-federal actors. States are the primary regulators of energy markets and utilities, and they determine the flexibility of cities to determine their climate initiatives. State programs often include renewable energy portfolio standards, heat and power financing incentives, energy efficiency standards and landfill gas energy project incentives, as well as multi-modal freight plans (rail–truck–ship), public transportation procurement for efficiency, and property tax programs to support sustainable forests.\textsuperscript{113}

The authority of cities to enact climate initiatives depends on the division of responsibility among each state, county, and local community. Generally, cities can negotiate with utilities for greater percentages of alternative energy. Other municipal programs for sustainability include car and bike sharing, fuel efficient public transportation, energy efficiency through procurement, building efficiency and urban heat island goals.

\textsuperscript{111} Ibid., 19.
\textsuperscript{112} Ibid.
\textsuperscript{113} Ibid., 22.
Thus, the subnational approaches adopted can contribute significantly to building sustainable communities. Non-federal activity is also supported by business initiatives that include internal carbon pricing, renewable energy targets and energy efficiency programs for buildings and plants.\textsuperscript{114} Of course, federal climate action could accelerate climate action. The federal government could strengthen long term commitments to climate research and development, decrease usage of public land for fossil fuel extraction, upgrade the interstate grid system and provide tax credits for solar and wind purchases. Also, the federal government could implement national vehicle emissions standards, although those standards are informed by the standards of states, including the more stringent standards enacted by California.\textsuperscript{115}

The Growing Urgency for US Subnational Initiatives

Over the past five reporting years (2011–2015), GHG emissions in the US have decreased overall by 8.2 percent, attributable primarily to the 11.3 percent decline in power plant emissions.\textsuperscript{116} Yet, carbon emissions amass in sinks for hundreds, if not thousands, of years. So, while annual US emissions of carbon dioxide decreased 2.1 percent in 2016, the carbon tonnage continues to accumulate for hundreds of years.\textsuperscript{117}

\begin{itemize}
  \item \textsuperscript{114} Ibid.
  \item \textsuperscript{115} Ibid., 39.
  \item \textsuperscript{116} US Environmental Protection Agency, “GHGRP Reported Data,” EPA.gov (archived site), accessed July 29, 2017, https://19january2017snapshot.epa.gov/ghgreporting/ghgrp-reported-data_.html. The GHGRP emissions data is the only data set of emissions by facilities of the largest industrial sources in the US.
\end{itemize}
From 1870–2015, US historical emissions accounted for 26 percent of the world’s total carbon budget, ahead of all other nations. The next biggest historical emitters were the EU at 22 percent and China at 13 percent.\footnote{Ibid.} Moreover, US emissions are still growing in some sectors of the economy, particularly transportation, even as power plant emissions decline.\footnote{US Environmental Protection Agency, “Fast Facts: 1990–2014,” EPA.gov, https://www.epa.gov/sites/production/files/2016-06/documents/us_ghg_inv_fastfacts2016.pdf. Petroleum fuels 90 percent of the transportation sector. US transportation has exceeded power plants as number one emitter of carbon dioxide.}


Moreover, California’s subnational agreements with foreign governments and US agencies have continued to proliferate. On December 13, 2016, US Interior Secretary
Sally Jewell and California Governor Jerry Brown signed a MOU to expand renewable energy projects on federal and state land and offshore waters, including wind and wave energy. The MOU, agreed to by Western States and the US Department of Interior, also supports increased transmission capacity to transmit the energy sources, including wind, solar, geothermal, and biomass, across public land to high density areas of the Southwest.\textsuperscript{122} While the Trump administration seems unlikely to recognize the MOU, the projects may find support in future administrations.

Within major urban markets, where half of Americans live, subnational initiatives continue to grow.\textsuperscript{123} Mayoral initiatives have been among the most noteworthy of all subnational initiatives (see chapter 3). In 2016, the merger of the Compact of Mayors and Covenant of Mayors created the Global Covenant of Mayors for Climate & Energy with 7,462 members. Within the Global Covenant, 141 mayors are located in the US.\textsuperscript{124} The merger, which was created by the UN Secretariat’s Special Envoy for Cities and Climate Change and the UN Habitat initiative, includes C–40 and ICLEI member cities. Within the Global Covenant, more than 6,800 cities have voluntarily pledged to support an


ambitious target of 40 percent reduction in GHGs by 2030. Thus, cities are emerging as the ambitious champions of the subnational climate movement, often partnering with private enterprise in building sustainable communities.

A plethora of indices have been developed to measure and report emissions mitigation. Indices sponsors include the UN Global Compact or the UN-affiliated World Business Council for Sustainable Development/World Resource Institute, International Organization (ISO), and the Global Reporting Initiative (GRI). While valuable, these indices are connected to the goal of keeping the world well under 2 degree C on average. But citizens are looking for local benchmarks, not a global on average temperature. Yet, despite the lack of correlative local data, the Paris Agreement encourages non-parties to “scale up their climate actions” and provide incentives for emissions reductions. Thus, leaders must find ways to translate the goals from the global to local level.

The US focus on community and regional activity reflects the civic tradition in which communities produce local experiments to solve issues (see chapter 3). America is a deeply diverse nation, and within the nation’s pluralistic communities lies the opportunity for citizens to create a range of climate plans. Communities in solidarity, with shared assumptions, language, and experiences, represent the hope of building low-

---


and no-carbon communities that can help close the gap between national pledges and the actual changes required to prevent an unstoppable destabilized climate. In 2017, more than 380 cities with a total population of 74 million (23 percent of the US population) have committed to upholding the goals in the Paris Agreement. Even hundreds of small and mid-sized cities are engaging with their own associations to build workable initiatives. American history is replete with stories of heightened civic engagement that can be re-engaged in times of moral outrage and environmental threats, such as climate change.

In the 21st century, the US civil society represents a wide range of actors and associations that reflect differing levels of imagination and ambition, as well as capacity. Many of their activities take place within neighborhoods and communities supported by civic, workplace, and faith-based associations, which can generate high levels of participation and engagement. At that level, either local associations or local chapters of national associations can work in collaboration with other regions to build momentum and make a broader impact.

The growing threat of climate change requires an enormous undertaking at all levels of government working with civil society, as well as business, to transition to alternative energy. In *Earth in the Balance*, Al Gore proposed a Marshall Plan for transitioning away from fossil fuel, but in 2017 that plan seems a remote possibility. Thus, subnational government and non-Party entities must be the drivers of ambitious

---

128 “America’s Pledge,” 30.

climate initiatives, as Gore prefaced in his introduction to Climate Reality’s “24 Hours of
Reality,” a livestreamed world tour on December 5, 2016:

The future of the planetary conditions on which human civilization depends are
reliant now more than ever upon scientists and innovators, businesses and civil
society, and our collective efforts to accelerate the implementation of the
solutions to the climate crisis that are already available and cost-effective.\footnote{130}

The American tradition of civic engagement began in the nation’s early history
and has continued to return in cycles of citizen action. There is evidence that American
engagement is on the rise, once again, which could advance subnational climate
initiatives, even as the forces of globalization and media distortion raise barriers to
implementing them.

\footnote{130} Al Gore, “Al Gore: The Road Forward on Climate,” \textit{Scientific American}, December 5, 2016,
climate.
CHAPTER 3. TAPPING THE AMERICAN TRADITION OF CIVIC ENGAGEMENT

Throughout US history, citizens have created formal associations based on civic, religious, and work-place affiliations that have supported the democratic process and improved government responsiveness.¹ Within these associations, bonds are built on trust and reciprocity, or “social capital,” as described by social scientist Robert D. Putnam; these relationships are characterized by “mutual obligation and responsibility for action.”² Putnam described America is “unusually civic,”³ a reputation widely extolled:

(America’s) civil society is the world’s most robust and creative, with a vibrant religious and civic culture that supports a bewildering variety of philanthropic, religious and social service activities. Among liberal democracies, Americans are by far the most patriotic people…most claim to engage in patriotic activities.⁴

In the 21st century, the activities of associations are helping the subnational climate movement transition away from fossil fuels and build sustainable communities. Member activities range from protesting GHG emissions and oil and gas fracking to restoring carbon sinks and building wind and solar farms. The American tradition of civic engagement offers hope that subnational climate activities will contribute significantly to US mitigation pledges to the Paris Accord and bilateral climate agreements. Moreover,


² Putnam, Bowling Alone, 21.


the participation of youth, women, and minority communities in the subnational climate movement could spur levels of civic activity not seen since the Progressive Era (1900-1915).\(^5\)

**The US Tradition of Cyclical Civic Engagement**

Putnam viewed heightened civic engagement as a cyclical occurrence that propels social and political movements. Throughout US history—from the Second Awakening to the Progressive Era—associations have focused on securing rights for specific groups, such as women’s right to vote. Other associations have propelled broad movements cutting across identities, such as the environmental movement. The tradition of engagement embedded in the nation’s early history was observed by Alexis de Tocqueville, a French political scientist whose homeland was highly centralized and without an engaged civil society. In 1831, Tocqueville was amazed by the plethora of associations committed to improving the young society:

> Americans of all ages, all conditions, all minds constantly unite. Not only do they have commercial and industrial associations in which all people take part, but they also have a thousand other kinds: religious, moral, grave, futile, very general and very particular; immense and very small; Americans use associations to give fetes, to found seminaries, to build inns, to raise churches, to distribute books, to send missionaries to missionaires to the antipodes; in this manner they create hospitals, prisons, schools…\(^6\)

Most early Americans were of Western European descent and cherished principles not known to their European ancestors or themselves, new “principles of true

---


Western European homelands had “agitated for centuries” over religious conflicts, even violently during the Thirty Years’ War. At the same time, a growing number of European communities experienced cracks in political and church authority. Scottish communities had won the right of self-governance and elected their own Kirk ministers without the approval from the Church of Scotland. Scottish public intellectuals and supporters, many of whom supported the movement to place a school within every parish, upheld the authority of individual reason and popular sovereignty. They challenged the authority of the English monarchy to issue laws without their consent. In the 18th century, Scotland became the “single most democratic system of church government in Europe.” Scottish immigrants were soldiers in the American Revolutionary War, and nine of the fifty-six signers of the Declaration of Independence claimed Scottish ancestry.

In America, “We the people...” meant something different than in Europe. In England, ‘the people’ remained “only a portion of society—the poor, the canaille, rabble,

---

7 Tocqueville, Democracy in America, 29.


9 Ibid., 20. The founder of the Coventry Presbyterians, George Buchanan (1506–1582), asserted that all political authority ultimately belonged to the people, and they should be allowed to select their representatives. Buchanan’s bold idea was “the powerful formula for democracy: government of the people and for the people.” By the 18th century, Scotland’s literacy rate was the highest in Europe.


and so numerous there,” wrote early American diplomat and poet Joel Barlow. On the other hand, even before the American Revolution, its colonies were “unusually egalitarian compared to England,” the latter ruled by aristocratic classes based on heredity. In America, the concept of “we the people” became the whole society and took on a “quasi-sacred character,” although class was the only social parameter that was mostly all-inclusive. Tocqueville posited that America’s freedoms and decentralized government allowed them to “govern themselves under rules of their own choice.” A local citizen knows how to “influence the road at the end of his estate,” not change the destiny of a nation. During his travels in America, Tocqueville determined that social equality was derived from settlers’ dependence on one another in building the new nation. Within decades, voting rights were extended to all white males in all states, even those who did not own property.

12 Ibid., 36.
14 Wood, Empire of Liberty, 36.
15 Ibid., 10.
16 Putnam, Bowling Alone, 337.
17 Leo Damrosch, Tocqueville’s Discovery of America (New York: Farrar, Straus, and Giroux, 2010), 137.
18 Schudson, The Good Citizen, 97. All American males without property were giving the right to vote by 1824. African American males were allowed to vote in 1870 after the passage of the 15th Amendment, although Jim Crow continued to exist, as does discrimination. Women won the right to vote in 1920 under the 19th amendment after a century of suffragette mobilization for civic causes, although discrimination continues. At various times in US history, foreign-born citizens and their descendants have faced voting discrimination.
However, as civil society was taking shape, the right to dissent was not settled. President George Washington and other leaders feared that dissent could lead to insurrection, a concern heightened by the ongoing French Revolution during the presidencies of Washington and John Adams.\(^\text{19}\) In 1791, Washington engaged militia to curtail organized demonstrations protesting taxation in Western Pennsylvania, known as the “Whiskey Rebellion.” In response, local communities and associations decried Washington’s order. The Democratic Society of Pennsylvania urged a commitment to dissent that could “be generally known” among the public and influence lawmaking.\(^\text{20}\) As well, some founders were concerned about the quashing of dissent. Thomas Jefferson confided in James Madison that he was bewildered by Washington’s decision to squelch the protests.\(^\text{21}\) Thus, as political culture wrangled over whether to tolerate dissent, associations like the Democratic Society were pressing for a free and civil society with popular control of local government.

The dispute over whether to allow dissent was connected to the power struggle between federal and local authority. Those who advocated for a stronger federal government feared the “meddling” of local officials and citizens who could contest federal positions. To prevent such interference, Alexander Hamilton advocated for federal judicial appointments that could restrain local legislatures.\(^\text{22}\) On the other hand,

\[^{19}\text{Schudson, The Good Citizen, 60.}\]
\[^{20}\text{Ibid., 61–62.}\]
\[^{21}\text{Ibid., 62.}\]
Thomas Jefferson supported a decentralized confederation that allowed strong authority within communities and state legislatures. In 1791, the same year Washington tried to quell local protesters, the Tenth Amendment was added to the US Constitution, leaving power to the states when not specifically delegated to Congress. The amendment set the stage for local governments to be incubators of experimentation. Governance would be “closer to the people,” reflecting the specific social, political, and economic conditions of a community and encouraging the accountability of local officials. Indeed, the nation moved toward popular sovereignty at the local level. Even in the 21st century, federal programs that are both funded and administered solely by the federal government are few with the exceptions of defense and Social Security.

Tocqueville was fascinated by Americans’ vigorous participation at the local level, and nowhere more so than in Boston’s townships. “Interests, passions, duties and rights gathered around the separate townships, and within them prevailed a genuine, active political life that was altogether democratic and republican,” he wrote. Harvard President Josiah Quincy, with whom Tocqueville exchanged ideas, reinforced Tocqueville’s views of the vitality of local civic activity.

If someone has an idea for any kind of social improvement—a school, a hospital, a road—it never occurs to him to go to (national) authorities. He announces his

---

23 Ibid., 116.
25 Ibid., 96.
26 Damrosch, *Tocqueville’s Discovery*, 1023.
plan, offers to carry it out, calls upon other individuals to contribute their strength, and fights hand to hand against every obstacle.\textsuperscript{27}

In the US, much civic activity emerged from volunteerism within churches. In the first decades of the 19\textsuperscript{th} century, volunteer associations flourished as Protestants prepared for the Second Coming. During this period, referred to as the Second Great Awakening, members and even sponsors were often women, although they wielded little to no civic authority until the 1850s, when most states enacted the Married Women’s Property Acts giving women piecemeal rights, such as the right to own property regardless of marital status.\textsuperscript{28} New England women, who believed that community work could lead to moral perfection and salvation, advocated for social reforms such as abolitionism, temperance, suffrage, care of the handicapped and mentally ill, and prison reform—ideas which spread to other regions of the nation.\textsuperscript{29} The “infusion of such moral energy” from religious associations continued to invigorate and influence the civil sphere. Today, scholars continue to view Americans as more religious and patriotic than citizens of any other liberal democracy.\textsuperscript{30}

Tocqueville determined that US citizens learn about the democratic process by actually engaging in the lawmaking process. “It is from participating in legislation that the American learns to know the laws, from governing that he instructs himself in the

\textsuperscript{27} Ibid., 103.


\textsuperscript{29} Putnam, \textit{Bowling Alone}, 390.

\textsuperscript{30} Ibid., 113.
forms of government,” he wrote.\textsuperscript{31} Citizens influenced government and government influenced citizens.\textsuperscript{32} Several decades later, President Abraham Lincoln declared in his Gettysburg address that American democracy was “government of the people, by the people and for the people.”\textsuperscript{33} Thus, citizens became learned in how to influence and shape laws in their own neighborhoods and communities.

Decades after Tocqueville’s visit, the path to Civil War and the war itself had destabilized the bonds of many local communities, but in the war’s aftermath older associations were rejuvenated. Also, new associations emerged to re-build communities. Indeed, in the postwar era in America, a new cycle of civic engagement emerged. “America’s most ambitious and ultimately successful associations were launched at the end of the Civil War and during the next quarter century,”\textsuperscript{34} wrote Professor Thea Skocpol of Harvard’s Government and Sociology department and author of \textit{Civic Engagement in American Democracy}. Skocpol notes that associations were better positioned than political parties, which were polarized, to rebuild communities and “reknit North-South ties.”\textsuperscript{35} In the North, women created the Women’s Christian Temperance Union (1873) for broad social reform—from advocating for prison reform

\textsuperscript{31} Tocqueville, \textit{Democracy in America}, 291.

\textsuperscript{32} Ibid.


\textsuperscript{34} Theda Skocpol and Morris P. Fiorina, \textit{Civic Engagement in American Democracy} (Washington, DC: Brookings Institution Press, 1999), 55.

\textsuperscript{35} Ibid., 55.
and forming youth groups to establishing kindergarten and endorsing labor reform.\textsuperscript{36} Also, national associations developed in post-Civil War America. For example, the American Red Cross (1881) grew out of war relief efforts administered through the US Sanitary Commission. The distressed South was not as engaged as the North in building associations. However, in the last decades of the 19\textsuperscript{th} century, the South supported a proliferation of Grange societies linking farmers\textsuperscript{37} and a group of African American fraternal associations that built “civic bridges” between the North and South, such as Prince Hall Masons, the Fraternal Order, and the Heroines of Jericho.\textsuperscript{38} Thus, associations helped revitalize communities and reconnected them across state boundaries, ultimately rebuilding the nation.

On the other hand, bonds also strengthened within associations working for antisocial purposes and promoting anti-democratic values. For example, the Ku Klux Klan (KKK), formed in 1866 by white supremacists, perpetuated racial hatred and damaged Reconstruction efforts. KKK members participated in parades and rallies to terrify African Americans with burning crosses and lynching. KKK activity declined after their victories, such as the institution of Jim Crow practices and laws. The organization resurfaced after African American victories, such as the 1909 formation of the National

\textsuperscript{36} Putnam, \textit{Bowling Alone}, 390.

\textsuperscript{37} Ibid., 57.

\textsuperscript{38} Ibid., 57.
Association for the Advancement of Colored People (NAACP). The KKK has been more about bonding than bridging, and bonding can perpetuate homogeneity and superiority that “bolsters our narrower selves,” Putnam warned.

The Gilded Age (1880 to 1900) of mergers caused struggle within many communities. The prevalent ideology advocated for “natural laws of the marketplace,” which resulted in minimal government interference to restrain corporate mergers, which damaged communities. The mergers of railroad, steel manufacturing, and oil industries created lower wages, widening the gap between the “haves” and “have nots.” Poor neighborhoods, downstream from pollution and unsanitary conditions, declined into squalor and crime. The consequences of the Gilded Age were captured in How the Other Half Lives by Jacob Riis and The Jungle (1905) by Upton Sinclair. The “wrenching transformation” was especially disruptive to tightly knit European immigrants living in urban communities. Ethnic and racial minorities bore the brunt of the emerging nativism, promulgated by Protestant middle and upper income workers, despite the significant contributions within minority communities. However, while many

---

39 Putnam, Bowling Alone, 400. By the 20th century, the KKK’s vitriol was aimed at Jews, Catholics, and organized labor, as well as blacks. During the mid-20th century black civil rights movement, the KKK experienced a resurgence and stepped up its violent acts in the South.

40 Ibid., 23.

41 Ibid., 378.

42 Ibid., 370.

43 Ibid., 372.

44 Ibid., 375.

communities were marginalized and harmed by the ethos of the “survival of the fittest,” the crises also galvanized another cycle of civic engagement with more focus on communal goals.

In response to the Gilded Age, citizens established new associations to counter the forces of social Darwinism that threatened workers and harmed communities. Men were more likely to create associations that were fraternal and work-related, such as the American Federal of Labor (1886), International Association of Machinists (1888) (which later added Aerospace Workers), the United Mine Workers (1890), and the International Brotherhood of Electrical Workers (1891). They also created religious affiliations, such as the Knights of Columbus (1882). For their part, many women believed that leveraging the material prosperity of the Gilded Age could rid big cities of social ills, and so they energized the civil sphere with new associations to fill unmet needs and to support women’s emerging roles outside the home. For example, they created the Hull House (1889), the American University of Business Women (1881), and the American Nurses Association (1896), and they were members of the American Federation of Labor (1886). Women helped found the National Congress of Mothers (1897), later known as the PTA.46

During the Gilded Age, the American conservation movement also emerged. In 1892, John Muir formed the Sierra Club with dozens of scientists and non-scientists to

---


Exclusion Act in 1882, which suspended the immigration of Chinese laborers. The rationale was that the Chinese immigrants were depressing job opportunities and wages.
fight a Congressional bill that would reduce the size of Yosemite National Park. Bill proponents, which included mining interests and local entrepreneurs, hoped to generate revenue from the excavation projects on land they hoped to own. In response, the Sierra Club members engaged civically and blocked privatization of the park. Ultimately, the Sierra Club mission called for expanding the nation’s park system and conserving natural resources, a precursor to the clean air and water movement.

Widespread social activism and political reform ushered in the Progressive Era (1900–1915). Putnam describes the cultural underpinning of the era as a “civic communitarian reaction to the ideological individualism of the Gilded Age.” Many of the major civic associations founded during the Progressive Era still existed in the 21st century. The Progressive movement produced a staggering growth in association memberships, although association memberships plateaued in the 1920s and changed little throughout the 20th century. Thus, local organizations and local chapters of regional and national organizations were the centers of community activism addressing a variety of social problems.


48 Putnam, Bowling Alone, 394.

49 Ibid., 384–85.

50 Ibid., 385. See Figure 95, “Founding and Cumulative Evidence of Large Member Associations.”
Women played significant roles in many progressive associations, as they had during the Second Great Awakening and the Progressive Era. For example, the Sierra Club encouraged women to join men in their local and regional chapters, such as San Francisco, Los Angeles, and Riverside. The club, which educated members about nature conservation, sponsored outdoor adventures to explore the wilderness, bringing together members to climb rocks and hike on trails built by its own members. Women themselves participated in the outdoor adventures, even creating excursions in which members could gain a deeper appreciation of both nature’s beauty and the ecosystem. Among the first national directors of the Sierra Club was Marion Randall, director from 1914 to 1938, who assisted Muir in advocating for the National Park Service. Randall believed nature adventures with club members would lead to a community of outdoor enthusiasts. This 19th century grassroots efforts of men and women to protect the wilderness laid the seeds for the first environmental legislation, establishing the national forest system in 1905 and the national park system in 1913, as well as the 20th century environmental movement that surfaced, perhaps most particularly in California.

Progressive Era reforms reflected direct citizen engagement in communities and states, an approach advocated a century earlier by Jefferson. These early 20th century reforms included citizen-led initiatives and referendums, state presidential primary elections, the city manager system, and direct election of senators, as well as women’s suffrage. In 1947, a California citizen initiative proposed creating Air Pollution Control

---


52 Putnam, Bowling Alone, 398. Women gained the right to vote in 1920.
Districts in every county in the state to support local clean air.\textsuperscript{53} These reforms have allowed greater citizen engagement at the grassroots level, which can support subnational environmental and climate initiatives.

Citizen engagement in associations continued after the Progressive Era, although slowing during the Depression and then accelerating with patriotic zeal during and after World War II. Many of the new members of civic, religious, and workplace associations were returning veterans, including African Americans and women. Women joined local chapters of the American Association of University Women, the Young Women’s Christian Association (YWCA) and the League of Women Voters (LWV), which was established when the suffragette movement ended. More African Americans became members of local chapters of the National Association for the Advancement of Colored People (NAACP) founded in 1909.\textsuperscript{54}

In the 1960s, the Civil Rights movement grew stronger as black leaders emerged to march, protest, and participate in acts of civil disobedience with their communities. Their participation was reminiscent of African American engagement a century earlier during Reconstruction when black associations worked as “active agents” to “stake a claim to equal citizenship.”\textsuperscript{55} The Southern Christian Leadership Conference (SCLC) and


\textsuperscript{54} Skocpol and Fiorina, \textit{Civic Engagement}, 468. The role of the NAACP as community legal advocate has been powerful, yet the membership has never risen above two percent of African Americans.

Student Nonviolent Coordinating Committee (SNCC) moved to the forefront to coordinate mass protests. Inspired by the civil rights movement, the second-wave of the feminist movement gained strength. Feminism spawned new associations such as the chapter-based National Organization for Women (NOW) that advocated for the Equal Rights Amendment.\(^{56}\)

During much of the 1960s, many of the new voices were university students, and they galvanized the rights-based movements for African Americans, migrant workers, and women. Higher education, which expanded massively after World War II, is a universal predictor of citizen participation across diverse communities, according to Putnam.\(^{57}\) Students protested the Vietnam War, and they emboldened the nascent environmental movement, advocating for clean air and waterways. The counterculture expressed the power of dissent, once questioned by President Washington, in the slogan “Power to the people!”

The chorus of new voices in the civil sphere began to influence their communities and build momentum for change. American anthropologist Margaret Mead expressed the trajectory of an engaged community: “Never doubt that a small group of thoughtful, committed individuals can change the world, indeed it’s the only thing that ever has.”\(^{58}\)

---

\(^{56}\) Skocpol and Fiorina, *Civic Engagement*, 468.


\(^{58}\) While scholars have not identified the precise source of this quote, its meaning reflects Meade’s anthropological work on the role of communities in the cultural transmission of influence and change.
But by the end of the 1960s, it was clear that US civic engagement was declining, at least in many formal associations. Putnam detected signs of civic downturn as early as the 1940s and 1950s, but the rise in postwar college enrollments postponed the precipitous decline in civic engagement. Indeed, the leading indicator by far of civic engagement is higher education, which had temporarily propped up high levels of civic engagement.\textsuperscript{59} With new barriers to civic engagement, including the social habits of the younger generations, participation in associations declined.

**The Decline of 20\textsuperscript{th} Century Civic Engagement**

By 1970, the cycle of heightened formal civic engagement that began with Progressivism was at unwinding, as reflected in shrinking religious, civic, and workplace associations and decreasing participation. An exception was environmental associations, although they also declined by 1990. Thus, as the IPCC and UNFCCC were coming into fruition, domestic society was disconnected from heightened environmental activity. Thus, during that last decade of the 20\textsuperscript{th} century, the public was relatively disengaged from emerging social problems, such as climate change. The period echoed disengagement a century earlier, when many Americans faced poverty and pollution of the Gilded Age. Facing a lack of political will to reduce GHG emissions, climate believers were not assured that another cycle of heightened civic activity would emerge to deliver a remedy.

\textsuperscript{59} Putnam, *Bowling Alone*, 18.
Indeed, during the last decades of the 20th century, weak civic engagement appeared grave and without hopeful signs of civic renewal. Memberships in “old line” formal associations were declining, particularly among male fraternal and veteran associations and female religious and civic associations. Moreover, between 1973 and 1994, participation in nearly all types of association meetings plunged by nearly half. Putnam noted,

for the first two-thirds of the twentieth century a powerful tide bore Americans into ever deeper engagement in the life of their communities, but a few decades ago—silently and without warning—that tide reversed and we were overtaken by a treacherous rip current.

Perhaps most telling was the decline in participation in religious associations, which rival education as a predictor of civic engagement. Nearly half of all association members are church-related and churches serve as an “incubator for civic skills, norms, community interests and civic recruitment” wrote Putnam. “Faith communities are arguably the single greatest repository of social capital in America.” But during the last third of the 20th century, the younger generations did not replenish the declining membership rosters in congregations. Within Protestant congregations, memberships fell 12–15 percent, which was “probably the sharpest decline in religious groups in US

---

60 Skocpol and Fiorina, *Civic Engagement*, 463.


62 Ibid., 67.

63 Ibid, 66.

64 Ibid.

65 Ibid.
Among Catholic churches, memberships nearly leveled out, growing only 1 to 1.5 percent per decade. Another view of the data reveals that from 1960 to 2000, overall church membership declined about 10 percent, and church attendance and participation in religious activities declined by about 25–50 percent. Thus, the social capital of religious associations, which has buttressed social movements and served as a major provider of social services, appeared “hallowed out,” in Putnam’s estimation.

During the last third of the 20th century, the primary reason for citizen disengagement across all associations, has been attributed to the new social habits of younger generations. During this period, many opted out of traditional formal associations. The forces for the disengagement vary according to subgroups, but overall 50 percent of respondents attributed the disengagement to generational differences. The Boomers were less likely to participate in formal associations, vote in presidential elections, read newspapers or work on a community project. Another 25 percent attributed the disengagement to increased TV viewing. People preferred to watch “Friends” over the actual experience of meeting friends, such as those in civically-

---

66 Ibid., 76.
67 Ibid., 75–76.
68 Ibid., 72. See page 69 regarding the variances in membership and attendance data, based on “uncertainties about the reliability of evidence.” Denominations differ in their definitions of membership and membership figures are only irregularly updated.
69 Ibid., 72.
70 Ibid., 253.
engaged communities.\textsuperscript{71} Even the family dinner, exemplary of informal connections, became an “endangered species.”\textsuperscript{72} Another 10 percent is attributable to “suburbanization” with sprawl and commuting, and another 10 percent to “pressure of time and money,” especially in two-income households. Under these constraints, full-time working women were less likely to be engaged, but those working outside the home were more likely to be involved in formal associations in the public sphere.\textsuperscript{73} The outcome of all these forces is that citizens turned relatively inward and let their association memberships expire.

A major exception to disengagement was the environmental movement for clean air and water, which continued to increase from the 1970s through the 1990s. In these decades, their growth was exponential in terms of the number of both associations and members, many of whom were young and college educated. Closely related to the movement for clean air and water was the anti-nuclear movement to stop building of nuclear energy plants and, eventually, to disarm nuclear warheads. The “No Nukes” movement was roused by the Cold War and President Nixon’s goal of 1,000 nuclear plants by 2000. Citizen resistance to nuclear energy halted nuclear power plant construction and the Cold War subsided, and the “No Nukes” movement dissipated in the 1990s.\textsuperscript{74}

\textsuperscript{71} Ibid., 108.

\textsuperscript{72} Sander and Putnam, “Still Bowling Alone?,” 1.

\textsuperscript{73} Putnam, \textit{Bowling Alone}, 202.

\textsuperscript{74} “About Clamshell: Picnic Table Democracy,” Clamshell Alliance: Citizens United to End Nuclear Power, accessed February 1, 2018, https://www.clamshellalliance.net/about. Exemplary of the
However, it seemed possible that the environmental movement would continue to flourish. Environmental organizations pumped out direct mail advertising to attract new members. Some environmental associations began to incorporate messages about the threat of climate change from human activity.

**The Rise and Stall of the Environmental Movement**

During the early part of the environmental movement, associations built a broad movement to stop harmful levels of air and water pollution. By 1970, at the end of the first decade of the environmental movement, memberships rose to one million, and continued to climb for two decades as. Some of the most active citizens were in California, where the Sierra Club had been born a half-century earlier. In the 1970s, California was home to the California Citizen Action Group (CCAG) led by Ralph Nader. CCAG incorporated clean air and water into the association’s consumer movement and advocated for protections from nuclear power plant radioactive waste and pipeline leakages of natural gas fumes. The association worked against forest destruction

---

anti-nuclear associations was the Clamshell Alliance in New England, formed in 1976 to stop the construction of a Seabrook nuclear power plant in New Hampshire. Throughout New England, citizens created their own autonomous chapters of the alliance and appeared before town halls to protest the plant, including plant construction, power lines, financing, and waste disposal. In 1978, an estimated 20,000 protestors occupied the Seabrook construction site and some marched on to Washington, DC to protest in front of the Nuclear Regulatory Commission. The group was successful in stopping unit two of the Seabrook power plant, but not unit one. After the 1979 Three Mile Island accident in Pennsylvania, the movement intensified, prompting an estimated one million anti-nuclear marchers at a Washington, DC rally. In 1976, after citizen uprising and civil disobedience, California passed a moratorium on building new plants until disposal of nuclear waste was solved. In the 1980s, the nuclear movement shifted to focus on nuclear disarmament, and leaders created rallies for disarmament across the US that attracted many scientific and environmental associations, such as the Union of Concerned Scientists and the Sierra Club.

---

75 During the 1970s, the author of this dissertation was employed by CCAG as a staff assistant.
and mountaintop removal in coal mining. CCAG was also a proponent of transitioning to alternative energy.\textsuperscript{76}

In those early decades of the movement, the most prominent national environmental associations were the Environmental Defense Fund (1967) and Greenpeace (est. 1971). By 1980, during Reagan’s anti-environment administration, membership in environmental associations had doubled to two million.\textsuperscript{77} During the Reagan administration, the growth of environmental association membership tripled to 6.5 million. The surge reflected a backlash against the administration’s deregulation of air and water, as well as proposals to sell or lease federal land to fossil fuel corporations.\textsuperscript{78} By 1990, the environmental movement counted more than ten thousand organizations nationwide.\textsuperscript{79} Putnam likened the spurt of environmental associations to that of PTA chapters and members from the 1930s to the 1960s.\textsuperscript{80}

Contributing to the momentum were powerful visual metaphors of the earth’s fragile ecosystem, as well as anti-environmental policies. The images served as clarion calls to protect the earth’s atmosphere. The 1972 photograph of the “blue marble” earth


\textsuperscript{77} Putnam,\textit{Bowling Alone}, 155.


\textsuperscript{79} Putnam,\textit{Bowling Alone}, 155.

\textsuperscript{80} Ibid.
captured by moon-bound Apollo 17 astronauts became a symbol of our relatively small and vulnerable planet. In the 1980s, the image of the ozone “hole” detected by Nimbus 7 satellite revealed the damage from the manmade GHG called CFC that had been released into the atmosphere.\textsuperscript{81} Thus, visual images made possible by satellite technology raised understanding and support for mitigating GHGs.

Another factor in the growth of environmental associations was the deployment of sophisticated direct marketing. From 1970 to 1990, environmental groups rolled out direct mail membership campaigns and became leading fundraisers and beneficiaries of wealthy patrons, even as many non-environmental associations faltered. With significant financial resources, environmental groups hired professional staffers that worked at national headquarters, often located in Washington, DC, Los Angeles, and New York City. Many associations hired public relations specialists and lobbyists who built powerful political action committees that contributed to politicians supporting their positions. Some associations hired professional attorneys who crafted language for proposed environmental laws and EPA rules to improve the quality of air and water. During this period, many conservation projects were undertaken by associations to protect nature, including The Nature Conservancy (est. 1951). The conservancy entered partnerships with governmental agencies to preserve the ecological integrity of forests, rivers, and wildlife habitats. By 1997, the EPA reported that the atmosphere was the cleanest since 1970 when the agency began recording pollution data.\textsuperscript{82}

Yet, even during the growth of associations and membership, social capital among environmental groups was dissipating. By 1990, associations relied more heavily on database marketing to attract and retain members. In the first year of membership, the typical dropout rate was 30 percent, a reflection of low social capital compared to personal recruitment among social networks. Nearly three decades later, many large environmental organizations are still not engaging their members to participate in grassroots politics, although 350.org is an exception.

During this period, environmental associations were unable to build Congressional support for environmental legislation, despite their professional and well-funded organizations with large membership bases. The only GHG that had been regulated was CFCs, despite NAS reports and IPCC assessments that reflected overwhelming consensus on climate change from human activity. Ironically, in 1990, the year of the first IPCC assessment, the social capital needed to generate a climate movement did not exist. Thus, a key question was whether environmental associations could convert members into a grassroots political force. That is, the issue was whether the associations could help elect local, state and national politicians who would fight for climate legislation:

What if those (environmental) organizations asked their millions of members to get involved in politics? What if the Sierra Club…insisted that the time for political apathy had ended? If that happened, if hundreds of thousands of members donated time and money and new bursts of energy, then we might see


change...There might be reason for the allies of fossil fuels to fear every other
November, as a mega PAC poured money and volunteers into primary elections.\textsuperscript{84}

During the lull in activism, the Clinton administration turned to voluntary efforts
to decrease GHGs. Also, the administration developed a voluntary Climate Change
Technology Initiative to stimulate the growth of energy-efficient technology through tax
credits and spending. But US voluntary efforts did not meet the UNFCCC’s volunteer
goal of reducing GHGs to 1990 levels by 2000.\textsuperscript{85}

During the 2000 presidential campaign, civic engagement had yet to bounce back
from the lull of the last third of the 20\textsuperscript{th} century, although political consultants were
talking about the promise of the internet with 52 percent usage among adults.\textsuperscript{86} By 2001,
during the first months of the George W. Bush administration, worry about climate
change had declined and converged with the general lack of civic engagement among
Americans.

\textbf{Renewal of Civic Engagement Energizing a 21\textsuperscript{st} Century Climate Movement}

After the September 11, 2001 terrorist attacks, social scientists detected a rise in
civic engagement, particularly among the younger generations. Putnam observed that the

\textsuperscript{84} Phillip Bump, “How the Environmental Movement Can Save the Environment,” grist, February
the-environment.

\textsuperscript{85} Amy Royden, “US Climate Change Under President Clinton: A Look Back,” \textit{Golden Gate
University Law Review} 32, no. 4, (January 2002): 2, February 23, 2018,
http://digitalcommons.law.ggu.edu/cgi/viewcontent.cgi?article=1842&context=ggulrev.

Center, accessed February 1, 2018, file:///C:/Users/Syd/AppData/Local/Packages/Microsoft.MicrosoftEdge_8wekyb3d8bbwe/TempState/Dow
national crises served to strengthen the “civic conscience of young people in the United States.”

By the second term of the Bush presidency, university students increasingly focused on climate change, as evidenced by university associations committed to climate action, such as Georgetown University’s Eco-Action, which merged with Georgetown Environmental Leaders Network. Thus, in the 9-11 aftermath the cycle of civic engagement, there were signs of a return to the heightened engagement levels of Progressivism.

In 2007 and 2008, associations specifically concerned with climate change were born. At least four of the major associations have grown and become highly visible: 350.org, Indigenous Environmental Network, Climate Reality, and Citizens’ Climate Education. Each of these associations continues to generate high quality social capital by directly engaging with members in local chapters, while at the same time utilizing the internet to mobilize social networks. They are collaborating with other climate associations and partnering with municipal and state climate initiatives. Thus, these associations are bridging with other organizations to strengthen the subnational climate movement.

Climate association 350.org, formed by environmentalist Bill McKibben and university students, promotes local associations of 5–10 people for the purpose of meeting regularly to discuss climate issues and to plan activities, such as community

---


presentations and protests against the fossil fuel industry. Members have the option of linking with members in other locations for “coordinated days of action,” such as protests against pipeline risks and marches calling for divestiture of fossil fuel investments among universities, faith groups, and financial institutions. On April 29, 2017, during the first year of the Trump administration, local members of 350.org marched in their own cities and in Washington, DC to support the “People’s Climate Mobilization” campaign.89

The mission of Indigenous Environmental Network (IEN), established by leaders of Native American Territories and their younger members, is “to protect Mother Earth” and support environmental justice. IEN educates members about ways to protect communities from “contamination and exploitation” and to appreciate indigenous knowledge about the natural world. Also, IEN builds camps of resistance to oppose fossil fuel pipeline projects that could pollute their waterways. The association collaborates with a range of other organizations, including those with a faith-based or labor focus, and those for people of color and women, to develop broader identities and exert even greater influence.90

Climate Reality, formed by former Vice President Al Gore, supports its own Leadership Corps, a program that educates community members about climate risks and grassroots campaigns. Climate Reality teaches members about utilizing social media


tools, hosting community leadership presentations, and contacting local political leaders. An annual training program brings together subject-matter experts and climate leaders, allowing them to share their observations and concerns and consider options for civic activity.  

The purpose of Citizen’s Climate Education (CCE), established by real estate developer and philanthropist Marshall Saunders, is to increase public understanding of climate risks and advocate for a price on carbon emissions tonnage. Within the association’s 375 chapters, members learn about climate adaptation and resilience, and the benefits of a carbon tax over other approaches. The CCE proposal to put a price on carbon emissions is gaining interest and support among economic conservatives because their tax proposal is revenue-neutral, meaning all tax dollars are redistributed by the US Treasury directly to citizens.  

CCE members share their understandings and positions with leaders in their own communities, such as local environmental protection committees.  

Climate activity has also occurred in associations with wider missions, including those focused on religious and minority issues. The World Council of Churches, representing hundreds of millions of Christians in the US and around the world, has

---


committed to divesting from fossil fuel within its multimillion-dollar endowment.\textsuperscript{94}

Among Catholics, the Catholic Climate Covenant, formed in 2006 by the US Conference of Catholic Bishops, focuses on individual and community responsibility to reduce carbon footprints during Lent, as well as during everyday living. The organization, which partners with other Catholic groups, such as the Catholic Relief Services, educates “climate ambassadors” so they can facilitate conversations about the moral imperative to care for creation, the earth’s ecology, and the poor. “People of faith have a role to play in bridging a divide and creating safe spaces in our parishes and schools to have civil and constructive dialogue on difficult issues such as climate change,” reads the group’s website.\textsuperscript{95} Pope Francis, who adopted the name of the patron saint of animals and nature, is an inspiration to the group’s members. Among Catholics, belief in GHG warming is highest among Hispanics.\textsuperscript{96}

Among evangelicals, the younger generations are more likely to believe in GHG warming, and many are members of the Evangelical Climate Network created in 2006 to focus on “creation care.” In a dozen states, evangelicals under the age of 30 have organized the Young Evangelical for Climate Action in Christian-affiliated universities,


\textsuperscript{95} “What is the Feast of St. Francis?,” Catholic Climate Covenant, accessed February 1, 2018, http://www.catholicclimatecovenant.org/FOSF.

\textsuperscript{96} Ibid.
such as Oral Roberts in Oklahoma.\textsuperscript{97} While this climate association struggled to gain members in its early years, given the alliance between fundamentalist and political conservative political leaders, it expanded an outreach program and created a grassroots movement for climate stewardship that recruited eight hundred thousand members by 2015.\textsuperscript{98}

In the 21\textsuperscript{st} century, women are creating associations to mitigate emissions for the protection of current and future generations, reflecting their history of heightened engagement for social betterment from the Second Awakening to Progressivism. Mom’s Clean Air Force, which is a program of the Environmental Defense Fund, is comprised of more than one million mothers organized in state-based groups and partners with more than eight hundred associations. In 2014 in Iowa, Mom’s Clean Air Force launched a clean energy campaign that lauded the pro-climate work of Iowa Congressman Bruce Bailey, including his position for GHG regulation and co-sponsorship of a bill to support wind energy development.\textsuperscript{99} While Bailey lost his US Senate race to Joni Ernst, in part because of an anti-Washington backlash, polling has shown growing support for wind energy in the state. Mom’s Clean Air Force provides climate educational materials and specific focus on educating mothers, including those who are Spanish-speaking.\textsuperscript{100}

\begin{footnotes}
\footnote{\textsuperscript{97} “Evangelical Climate Initiative,” Academy of Evangelical Scientists and Ethicists (AESE), accessed February 1, 2018. \url{http://aeseonline.org/aeseonline.org/Evangelical_Climate_Initiative.html}.}

\footnote{\textsuperscript{98} Ibid. Among the Young Evangelicals for Climate Action the concept of creation care includes “choosing life” of the unborn.}

\footnote{\textsuperscript{99} “Be a Force for Clean Air,” Mom’s Clean Air Force, accessed February 1, 2018 \url{http://www.momsclenaairforce.org/clean-air-force}.}

\footnote{\textsuperscript{100} Ibid.}
\end{footnotes}
Climate associations supporting specific minority communities include the Environmental and Climate Justice Program (ECJ) sponsored by the NAACP. This program allows local NAACP chapters to partner with community leaders in minority neighborhoods to protect residents from extreme weather, such as lowland flooding in places like Biloxi, Mississippi and New Orleans, Louisiana. The program also focuses on protecting minorities from pollution, such as toxic ash from mountain topping that is prevalent in communities from Tennessee to West Virginia. Minorities represent the majority of residents within three miles of the 75 coal plants with the highest levels of toxic emissions. Their income is $18,400 per capita, which is lower than the US average of $21,587.

Climate associations formed in the final years of the George W. Bush administration continued to grow during Obama’s administration. By 2017, these associations encouraged local chapters and local associations to participate in local civic action, a distinctly different approach from the earlier environmental associations that prioritized direct mail campaigns. Thus, the emerging climate association growth is building on personalized and grassroots activity, which supports a subnational climate movement and is tapping into the American tradition of civic engagement.


Grassroots Climate Activity Against the Fossil Fuel Industry

In the 21st century, citizens are actively engaging with associations to protest a range of processes within the fossil fuel industry—from extraction and refinement to distribution. These processes have caused toxic water and air pollution and degradation of carbon sinks, as well as changes in seasonality that impact plant growth and animal migration patterns. The rise in civic resistance to the fossil fuel industry coincides with the US’s role as the leader in fossil fuel production. In 2015, the US was ranked first among nations in natural gas and petroleum production,103 and in 2014, the most recent year with sufficient data for coal production, the US ranked second after China.104 With increased production and rollbacks of climate rules under the Trump administration, protests against fossil fuel harms are becoming more visible across the US. These protests reflect a range of local harms from the entire fossil fuel supply chain, as well as extreme weather from warming. Increasingly, the protests include greater numbers of low income and minority communities, which are disproportionately affected by the fossil fuel industry. Thus, climate resistance is now an aspect of NIMBY (Not in My Backyard) campaigns, as well as a global movement.

The NIMBY campaigns often protest toxic chemical by-products that harm humans and the local ecosystem. The four toxic chemicals common to all forms of fossil

---


fuel production are sulfur dioxide (primarily from burning coal), nitrogen oxides (primarily from vehicle emissions), particulate matter (smog-causing soot), and benzene. Particulate matter causes lung, brain, and heart damage. Also, burning coal becomes toxic coal ash and slurry that seeps from waste ponds and broken pipes into rivers and groundwater or becomes airborne.\textsuperscript{105} Energy corporations under pressure to reduce their water and air pollution transfer the ash to waste ponds in landfill sites, often located in low-income, minority neighborhoods in places like Uniontown, Alabama.\textsuperscript{106} Benzene, one of the largest volume ingredients in fossil fuel production, is associated with long term exposure in gas stations and underground storage tanks and is correlated with leukemia, breast, and urinary tract cancers.\textsuperscript{107} All these toxic chemicals are the result of the fossil fuel process—from extraction to the toxicity of emissions.

The civic response to coal extraction has been the focus of communities in Appalachia. Members of Appalachian Voices, founded in 1977, are committed to protecting local communities from destroying their natural habitat. By 2009, mountain topping in Appalachia had already destroyed nearly 1.2 million acres of forests and soil, which store carbon and support biodiversity, and 500 mountain tops.\textsuperscript{108} Mountain topping


also pollutes streams with hard minerals that harm fish and other water species, and “valley filling” can cut off streams. Appalachian Voices is raising awareness about stream pollution from coal production, and in 2017, the association filed a motion with other environmental associations to finalize the Stream Protection Rule, established under the Obama administration.\textsuperscript{109} Murry Energy and coal states challenged the rule and on February 16, 2017, Stream Protection was overruled by a Congressional resolution under the Trump administration.\textsuperscript{110} While the harm has subsided because coal production has declined since 2008, largely because of rising supply of natural gas, the Appalachian Voices and other associations have expressed determination to protect the estimated 50 communities in southern and eastern Appalachia that are still at risk from the extraction process.\textsuperscript{111}

Community resistance is growing to protest the toxic fumes from oil extraction in urban neighborhoods. In Los Angeles, the coalition Stand Together against Neighborhood Drilling is pushing for health and safety buffer zones around neighborhood drilling sites. More than 580,000 LA residents live less than a quarter of a


\textsuperscript{110} For more on Trump’s disapproval of the “Stream Protection Rule,” established by the House Joint Resolution 38 on February 16, 2017, see “Stream Protection Rule,” Office of Surface Mining Reclamation and Enforcement, https://www.osmre.gov/programs/rcm/streamprotectionrule.shtm.

mile from active oil wells in South LA and Wilmington, both of which are overwhelmingly low income and black, Latino, and Asian-Pacific Islander neighborhoods.  

Community resistance is also occurring where pipelines are located to deliver oil to refineries. Pipeline leakages are polluting water and the sacred burial grounds of Native Americans. The XL pipeline carries oil extracted from Tar Sands, which emits 17 percent more carbon emissions than other oil. In 2016 at Standing Rock, South Dakota, XL pipeline protestors included the local Sioux tribes, ranchers and land owners, as well as national associations such as the Indigenous Network and River Keepers. During the period when Standing Rock protests were occurring, Native Americans and other local citizens of Central West Texas joined Big Bend Defense Coalition to protest the Trans-Pecos pipeline that would carry crude oil under the Rio Grande River to Mexico. These protests against local harms from spills and leakages are delaying pipeline infrastructure completion.

Pipeline protests are occurring even after pipeline projects are approved where citizen groups are working with municipalities to exact financial consequences on pipeline underwriters. In Seattle, the municipal government stopped banking with Wells

---


Fargo, a lender to the Dakota XL pipeline construction. Moreover, engaged Native American associations have demonstrated that oil distribution can be disrupted by legal means. For example, in Bellingham, Washington, not far from Seattle, the dissenting tribe of Lummi, or People of the Sea, successfully curtailed construction of a coal export shipping terminal. The Lummi argued that the terminal, which would have been the largest coal terminal in North America, would infringe on the tribe’s fishing rights and dependence on local salmon. Thus, even when fossil fuel pipe projects are allowed to proceed legally, communities and associations can impact the efficiency and profitability of fossil fuel suppliers, including bankers and shippers.

Many local communities are coming together to stop the fracking activities of the natural gas industry. In 2014, citizens in one Oklahoma County formed Stop Fracking Payne County to educate their community about fracking-related risks and to push for a fracking moratorium. US Geological Survey seismologists have concluded that the earthquakes in Oklahoma, which is the most seismically active state in the continental US, are the result of injections used to frack gas, as well as oil. The extreme force and volume of injections into fault lines can trigger earthquakes and methane leaks, especially

---


in regions where fracking has increased significantly and the leaks can flow into and contaminate groundwater.\textsuperscript{117} As a result of fracking, earthquakes are more likely after the injection of salt water and hydraulic fluid into waste wells. In 2015, Oklahoma earthquakes with a magnitude of 3.0 or greater rose sharply to 903, up from 109 in 2013.\textsuperscript{118} Moreover, that same year in Oklahoma the total recorded number of earthquakes was an astounding six thousand. So, while natural gas emits half the carbon dioxide emissions as coal, the process of fracking is a major regional threat. In December 2016, Oklahoma state regulators acknowledged the relationship between fracking and earthquakes and issued guidelines to limit the pressure and volume of water used and the duration of the fracting process.\textsuperscript{119} Thus, while civic resistance did not result in a fracking moratorium, the worst practices of fracking have been banned in Oklahoma.

Grassroots activity also has led to fracking moratoriums in the states of Maryland and Vermont, regions of New York, and eleven cities in Florida.\textsuperscript{120} The activity is particularly noteworthy in Maryland where significant natural gas resources could be tapped. Yet, Maryland has chosen to enforce the fracking moratorium and forego tax


\textsuperscript{118} Ibid. A 3.0-3.9 level of earthquake is considered minor, although it is felt, according to the Mercalli Intensity scale. At a 5.0 level, moderate damage is likely.


revenue from gas extraction. Anti-fracking ordinances have passed in three counties in California where the San Andreas Fault runs. Given the growing number of citizen associations joining Californians against Fracking, including Ventura Stop Fracking, Farmers against Fracking, and Faith Leaders against Fracking, a statewide moratorium seems possible. Elsewhere, civic activity has resulted in municipal moratoriums in places such as Boulder, Colorado, Denton, Texas, and Pittsburgh, Pennsylvania. An estimated 12.6 million Americans live within a half mile of an estimated 1.3 million oil and gas wells. Thus, the potential for the civic activity of local anti-fracking associations to sway elections and political outcomes is considerable. Indeed, strong citizen resistance is drawing the attention of regulators and, in some cases, restraining or halting fracking activities, as noted above.

Other grassroots activity is confronting powerful energy corporations with the goal of shuttering nearby coal plants, which emit harmful toxins and carbon dioxide emissions. The effort to move up the plant retirement schedule is succeeding for numerous reasons: collaboration among civic groups is creating momentum, rising costs of retrofitting aging plants with pollution controls, and the decline of natural gas costs.

Chicago’s south side neighborhood association, Little Village Environmental Justice Organization (LVEJO), joined with both local and national environmental groups,


including the Sierra Club, to accelerate the closure of nearby Fisk and Crawford coal plants operated by the Midwest Generation.¹²³ From 2010 to 2016, the Sierra Club’s “Beyond Coal” campaign assisted such efforts and contributed to phasing out more than 240 coal plants—one-third of the total US capacity.¹²⁴ Thus, the intersection of community engagement with support from national environmental groups, plus the competition from natural gas, has secured the early retirement of aging coal plants.

Climate activists in some pro-climate have instituted their own mitigation goals. In 2006, voters in Berkeley passed by 81 percent an initiative referred to as Measure G, which directed the mayor to work with the community to develop a GHG emissions mitigation plan. In 2009, Berkley’s ambitious plan established the goal of reducing GHGs by 33 percent by 2020 and 80 percent by 2050. Berkley’s Climate Action Plan works in partnership with local associations, including the non-profit Energy Services that offers free solar assessments and the Ecology Center to help citizens reduce their carbon footprint.¹²⁵ In 2015, Berkeley was a finalist in the Georgetown University Energy Prize competition and awarded $20,000 by Pacific Gas & Electric to implement the city’s Climate Action Plan.¹²⁶


¹²⁶ Ibid., 14.
Ambitious climate goals have also come from citizen climate associations working with state legislators. In January 2017, the Maryland Assembly overrode a governor’s veto and increased the requirements for wind and solar by 20 percent, or 25 percent of the total energy mix by 2020. For planning purposes, the state works with the Maryland Climate Coalition, comprised of local environmental, health, labor, and civic associations.\(^\text{127}\)

Other climate groups are working to restore local and regional carbon sinks, such as community parks, woodlands, forests, and soil. Carbon is stored in the trunks, branches, stems, leaves, roots and soil of trees and other plants, as well as the ocean and forests. Carbon sequestration also serves community health and recreation goals, while reducing carbon emissions. Larger trees, which sequester more carbon dioxide, also lower outdoor temperature and provide shade, especially beneficial in poorer neighborhoods where people cannot afford air-conditioning.\(^\text{128}\) The Nature Conservancy is working with twenty communities to both store carbon and lower temperature under tree canopies. Planting trees is a low-tech way for communities to lower temperature by as much as six degrees.\(^\text{129}\) Big cities are more susceptible to becoming “heat islands” because heat is trapped in asphalt, parking lots, and rooftops. Therefore, municipalities


such as Los Angeles and Chicago have initiated cooling projects with community associations, adopting measures such as building green rooftops, which also slow storm water run-off, and turning playground blacktop into grass fields.\textsuperscript{130}

Another form of civic engagement that can lead to climate action is the practice of observing changes in local ecosystems, referred to today as civic science or citizen science. The practice existed more than a century ago within the Sierra Club and Audubon Society. For example, in the early 20\textsuperscript{th} century, local chapters of the Audubon Society counted bird species and members of the Sierra Club identified tree species. Their personal observations contributed to a deepening appreciation of nature, natural resources and the wilderness and, ultimately, the need to preserve nature and create parks.\textsuperscript{131} In the 21\textsuperscript{st} century, citizen scientists are identifying new patterns in species migration and growing seasons and the decline of watersheds. For example, in 2014, Audubon Society members cross referenced habitat loss in watersheds with climate models, an exercise that allowed members to consider likely bird extinctions from climate change.\textsuperscript{132} In 2016, members of The Nature Conservancy in Kansas joined guided tours of the eleven thousand acre Tallgrass Prairie Natural Preserve and learned about the impact of climate change on butterflies.\textsuperscript{133} In early 2017, the National Wildlife Federation

\begin{flushleft}


\end{flushleft}
encouraged communities to become guardians of wildlife at risk from climate change. As part of the federation’s mission, communities of schools, universities, neighborhoods, and congregations volunteer to create and restore habitats for the wild, sometimes on sacred religious grounds. The federation provided hands-on support to members in 11 states that are engaged in wildlife restoration projects.\textsuperscript{134} The federation is working to deepen the understanding of extreme weather already impacting communities. Some citizen scientists are examining evidence of changes in nature, comparing old and new photographs of familiar places,\textsuperscript{135} a comparison also undertaken by NASA scientists comparing satellite photos of the earth’s topography over time.\textsuperscript{136} Thus, citizen scientists are taking the crucial step of making climate change more relevant at the local level.

Community efforts to build low-carbon neighborhoods are increasingly ambitious. In 2017, Whitt Jones founded Lead Locally to help communities transition away from fossil fuel energy, not just support the “all of the above” energy policy advocated by Obama. The association is partnering with 350.org and the Working Families Party to learn about grassroots activism—from canvassing to getting out the


vote (GOTV) and running for local office.\textsuperscript{137} The formation of Lead Locally portends a future in which robust community activity bolsters a robust subnational climate movement.

The ambitious level of local climate activity—from observation of nature and political activity to building sustainable neighborhoods and communities—is encouraging. However, the participation of private industry is also needed to accelerate subnational efforts and ensure their effectiveness. Public–private partnerships are crucial in the absence of federal support for mitigation and adaptation activity.

**Private Sector Response to Climate Change and Divestiture Activism**

The social movement of shareholder divestiture accelerated in the 1980s, when university student associations protested South African apartheid by targeting corporations doing business with the nation. Over the last couple of decades, the category of socially responsible investing has grown 18 percent, or about $6.6 trillion in professionally managed assets, which now targets tobacco, firearms, and fossil fuel corporations. Divestiture aimed at the fossil fuel sector has been strengthened by university student associations urging endowment fund managers to divest from fossil fuel stock. For example, in March 2017, the Harvard student association demanded that the university sell fossil fuel investments from its $35 billion endowment fund. At the same time, the divestiture movement has reached beyond student bodies. In 2015, a

coalition of 2,000 individuals and 400 institutions, along with celebrities that included Leonardo DiCaprio, pledged to divest $2.6 trillion from fossil fuel corporations.\textsuperscript{138}

The result of divestiture campaigns is not necessarily a decrease in share price. Indeed, so far, divestiture campaigns have not significantly harmed shareholder valuations. Even when stock prices decline, stocks often show resilience and bounce back at the point when institutional buyers determine that the price is undervalued.\textsuperscript{139}

However, media coverage of the campaigns can negatively affect consumer attitudes toward corporations and their brand reputations. Moreover, citizen resistance is becoming more visible, as evidence by the April 2017 Climate March in Washington, DC. In response to growing public concern, today corporations are more likely to acknowledge the impact of anthropogenic climate change and tout their sustainability practices, often reflected in corporate social responsibility reports.\textsuperscript{140}

Divestiture campaigns are also aimed at manufacturers that produce high levels of emissions in their supply chain processes, such as cement and auto manufacturers. Campaigns also target the pension funds of academic and municipal employees. The non-profit Ceres helps inoculate retirement funds from divestiture campaigns and consumer protests, but first board members and senior managers have to commit to protect the

\begin{flushright}
\end{flushright}

\begin{flushright}
\textsuperscript{139} Ibid.
\end{flushright}

\begin{flushright}
\end{flushright}
biosphere, “eliminating the release of any substance that causes damage to the air, water or the earth, or its inhabitants,” as well as preserving biodiversity. Ceres educates corporations about climate risk and the positions of pro-climate associations, including the Sierra Club, Communities for Better Environment, Domestic and Foreign Missionary Society, and the AFL-CIO. Also, Ceres partners with work-related and civic associations to work with corporations in developing sustainability practices.

Increasingly, Fortune 500 companies are reducing their carbon footprints and transitioning to alternative energy to build sustainable futures that are profitable. Nearly half the Fortune 500 have set targets to reduce their emissions, which account for 21 percent of all GHGs. High technology corporations, which have high energy needs for processing power, are leaders in alternative energy usage, either by entering into contracts with renewable developers or investing directly in alternative energy production. Microsoft, Google, and Apple are investing directly in alternative energy. For example, in 2013, Microsoft committed to power a San Antonio data center with wind energy from a Texas wind farm. In 2016, Google committed to 100 percent renewable energy by the end of 2017 with purchase agreements from renewable project developers. Google is the largest purchaser of renewable energy, followed by Amazon, the US

---


Department of Defense, Microsoft, and Facebook. Other leaders in solar and wind energy usage are retailers Target, Walmart, Apple, Costco, Kohl’s, and Ikea. Privately-owned utilities are also transitioning to alternative energy. In Iowa, Mid-American Energy, owned by Berkshire Hathaway, has publicly committed to 100 percent renewable wind energy for more than 1.5 million customers in Iowa, Nebraska, Illinois, and South Dakota. Wind farms pay millions in land lease payments to farmers, who refer to wind power as their “drought resistant cash crop.” Nationwide, utilities and other types of corporations have paid $240 million to lease farm land on which wind turbines are located. Moreover, the price of wind energy has declined from $130 to $60 per unit, which is the same unit cost for solar energy. So even though the CPP is at a standstill, some utilities are moving forward to transition to alternative energy with more robust initiatives than were required by the federal plan.

144 Urs Holze “We’re Set to Reach 100% Renewable—and It’s Just the Beginning,” Bloomberg New Energy Finance, December 6, 2016, accessed February 1, 2018, https://blog.google/topics/environment/100-percent-renewable-energy. The ranking of corporate renewable energy purchased was compiled by Bloomberg New Energy Finance.


148 Bloomberg and Pope, Climate of Hope, 155.

But the speed at which utilities and corporations are transitioning to alternative energy may not be enough to prevent climate catastrophes. The barriers to transitioning to a low carbon world are daunting, and none may be more intractable than globalization and the drive for short-term profitability detached from the well-being of humanity.

Barriers to Community Environmental Activity: Globalization, Government, Media, and Poverty

Citizen climate action faces numerous barriers, and among the most powerful are a) the forces of globalization, b) government pre-emption, c) media distortion, and d) poverty that inhibits civic engagement. Pro-climate associations that come up against these barriers must build momentum with other association and subnational entities to become a counterforce to those barriers.

Globalization

Colonist trade around the world had been underway for centuries before the American Revolution. But since the revolution, globalization has grown to encompass vast, complex, and dynamic supply chains that connect corporations to lower-cost labor and materials. The calculation of emissions from supply chains is difficult to pinpoint, although hundreds of multinational corporations are making strides to create lower carbon footprints, as stated in their corporate social responsibility reports.

By 2012, international shipping and aviation transport represented 3.5 percent of global emissions, and the forecast for increased emissions from these industries is

will-the-clean-power-plan-stay-affect-the-utility-power-mix-tra/415090/. In 2018, new factors such as US tariffs on solar panels could influence the speed and scope of the transition to solar energy.
significant without increased efficiencies and mitigation standards. By 2050, aviation emissions is projected to be 10 times higher than in 1990, according to the International Civil Aviation Organization (ICAO),¹⁵⁰ and shipping emissions are expected to increase six times, according to the International Maritime Organization.¹⁵¹ Yet, neither international aviation nor shipping operates under the Paris climate agreement. Instead, International Maritime Agency (IMA) is developing its own voluntary standards for efficiency in shipping practices, and the International Civil Aviation Organization (ICAO) is developing plans for a global emissions trading system.¹⁵²

In 2015, the US stated an “aspirational goal” to reach neutral growth of US commercial aviation emissions by 2020, referencing a 2005 baseline.¹⁵³ Both the aviation and the shipping industries have announced initiatives to use alternative fuel and to continue to improve efficiencies through new technology and processes. The challenge


¹⁵¹ Ibid., 23.


within both industries is reducing emissions within their supply chains while demand
grows for global transportation, exacerbated by increasing population and an expanding
middle class in developing nations. Thus, international aviation and shipping cargo face
daunting challenges to building sustainable global supply chains.

Regarding the barrier of multinational fossil fuel corporations, many factors make
it difficult for them to leave fossil reserves in the ground, despite the warning by 350.org
leader Bill McKibben, who said that extracting more than 20 percent of the remaining
reserves will result in surpassing the carbon emissions budget.\(^{154}\)

Most of that coal and oil and gas—most of that money—is concentrated in a few
huge underground pools of carbon. There’s oil in the Arctic, and in the tar sands
of Canada and Venezuela, and in the Caspian Sea; there’s coal in Western
Australia, Indonesia, China, and in the Powder River Basin; there’s gas to be
fracked in Eastern Europe. Call these the “carbon bombs.” If they go off—if
they’re dug up and burnt—they’ll wreck the planet.\(^{155}\)

Oil and gas reserves are considered indicators of future profitability, based on the
accounting rules adopted by the US Security Exchange Commission. Therefore,
corporate leaders of multinational fossil fuel corporations prioritize acquiring the most
lucrative reserves. Competition for the remaining reserves has increased as sovereign
nations claim them. By the 1990s, Exxon had fallen to the 14\(^{th}\) largest oil company,
following government-owned companies such as Saudi Aramco, Kuwait Petroleum,
Gazprom of Russia, Petrobras of Brazil, and Sonangol of Angola. These sovereign

\(^{154}\) Bill McKibben, “Why We Need to Keep 80% of Fossil Fuels in the Ground,” 350.org, accessed

\(^{155}\) Ibid.
companies competed with Exxon for oil reserves.\footnote{Steve Coll, \textit{Private Empire: ExxonMobil and American Power} (New York: Penguin Books, 2012), 53.} Given the pressure to add reserves, privately-held oil corporations have explored reserves in unstable and violent settings, sometimes working with dictators.\footnote{Ibid., 57.} Also, they have worked in fragile environments, including the Alaskan coast, which was the site of the 1989 Valdez oil spill, and the Gulf Coast estuary, which has been the site of many spills, including the 2010 Deepwater Horizon disaster.\footnote{For an overview of 2017 reserve acquisition activity see Joe Carroll’s “Exxon Caves to Oil Crash with Historic Global Reserves Cut,” Bloomberg Markets, February 22, 2107, accessed February 3, 2018, https://www.bloomberg.com/news/articles/2017-02-22/exxon-takes-historic-cut-to-oil-reserves-amid-crude-market-rout. In 2017, Exxon announce the expansion of oil and gas reserves within Papua New Guinea, Kazakhstan, Indonesia, Norway, and the US. The acquisitions were partial offsets of Exxon’s write-off of $16 billion in reserves in western Canada, which became unprofitable with low energy prices that made extraction and processing of the oil-sands development too expensive. Thus, Exxon reserves are at their lowest since 1997. Conoco Phillips also removed oil-sands crude from its reserves, which pushed company reserves to a 15-year low.} Despite the public outcry against offshore drilling, fossil fuel corporations have continued to explore reserves in high-risk locations.

In the 21\textsuperscript{st} century, Exxon changed its public posture to acknowledge climate science theory. For example, in 2006, after House Democrats won a Congressional majority, Exxon began talking about its evolving position on climate change. Exxon’s VP of public affairs announced to a group of environmental leaders that the company would stop funding the most controversial think tanks. In 2007, the same year the IPCC reported with “very high confidence” that human activity was contributing to global warming, Exxon announced support for a policy to limit emissions at some level. In 2009, after Obama’s victory, ExxonMobil advocated for putting a price on carbon emissions tonnage.
with a carbon tax, as long as the tax was revenue neutral. CEO executives had determined that the cap-and-trade options would create an unnecessary bureaucratic system and greater possibilities for fraud and speculation.\textsuperscript{159}

In 2017, after Trump’s victory, both ExxonMobil and other oil companies, including British Petroleum and Royal Dutch Shell, advocated for a carbon tax. Citizen groups, such as the Citizens’ Climate Lobby, worked with fossil fuel corporations to support the Climate Leadership Council that advocated setting the price of carbon emissions at $40 per ton, adding an estimated $0.36 to each gallon of gasoline. The council projected that this tax could raise more than $200 billion annually, or $2,000 per family,\textsuperscript{160} but Congress appears unlikely to pass carbon tax legislation. On the other hand, although increasing numbers of subnational entities, such as school boards, have announced their support for a carbon tax.

While Exxon advocated for US participation in the Paris Climate Agreement, the strategy was to influence negotiations on a global price of carbon emissions, as well as align the position of the US with that of nearly every nation-state. Also, like all businesses, they wanted regulatory predictability that allowed long-term business planning.\textsuperscript{161} A few major US coal energy corporations, like Peabody and Cloud Peak Energy, were also supportive of the agreement, hoping to ensure they could export “clean

\textsuperscript{159} Coll, \textit{Private Empire}, 537.


coal.” The demand for oil and coal exports is expected to increase with the growing population and a growing middle class worldwide. Thus, fossil fuel corporations would benefit from US participation in the Paris Agreement. These fossil fuel corporations are not advocating for ambitious GHG mitigation. In fact, Exxon’s new Chief Executive Officer, Darren Woods, is advocating for geo-engineering to capture carbon, a technology yet to show signs of a universal remedy.

At the same time, institutional managers have been gaining sway over the governance and stock price of fossil fuel corporations. In particular, the world’s largest institutional manager, US-based BlackRock, is demanding transparency from corporate boards about the impact of climate change, such as property damage from extreme weather, climate-related litigation, and citizen divestiture campaigns. BlackRock has announced a willingness to speak out against the election of any board of directors who oppose transparency of harms from climate change, but it remains to be seen how the

---


164 “How BlackRock Investment Stewardship Engages on Climate Risk,” BlackRock, March 2017, accessed January 29, 2018, https://www.blackrock.com/corporate/en-gb/literature/market-commentary/how-blackrock-investment-stewardship-engages-on-climate-risk-march2017.pdf. BlackRock, which refers to its managers as “investment stewards,” works with corporate boards to identify long term climate risks and ensure that the risks are communicated to shareholders. If board directors do not provide transparency about climate risks, Blackrock has announced that it will intervene during shareholder meetings to raise the issue. “Ultimately the board is responsible for protecting the long-term economic interests of shareholders and we may vote against the re-election of certain directors where we believe they have not fulfilled that duty,” advices BlackRock in guidance to corporate boards.
transparency will bring emissions reductions to a level that will avert unstoppable climate catastrophes.

Ceres continues to encourage fossil fuel corporations, as well as industries in other sectors, to provide transparency and commitment to sustainable practices. Exxon and most fossil fuel energy corporations are not yet fully forthcoming, as reflected in Ceres reporting of oil and gas producers.\(^{165}\) However, in February 2018, Exxon took a significant step toward transparency, providing institutional and retail investors with a “2018 Energy & Carbon Summary,” a report on the energy giant’s response to climate change. The report assumed the need to keep warming under 2°C maximum, but it does not commit Exxon to keeping warming well under 2°C.\(^{166}\) Nor is it clear whether Exxon will develop additional fossil fuel reserves.

**Government**

Yet another potential barrier to pre-emption laws that curtail climate action at lower levels of government. For example, states have prevented regulation of municipal environmental laws. In 2016 the Oklahoma legislature invoked state pre-emption laws to overrule local moratoriums on fracking, which exceeded its own fracking restrictions. In response, some communities are learning how to write moratoriums that focus on land


use. Oklahoma communities are continuing to press the Oklahoma Corporation Commission to stop fracking, and in 2016, the state commission did issue some restrictions on underground injections, as previously mentioned, although fracking continues to grow and is particularly harmful to poor communities. For example, the fracking wells operating in Pennsylvania’s Marcellus Shale have disproportionately harmed the rural poor.

Another threat to local climate activity is state limitation on peaceful assembly of protestors. In 2016, legislators have proposed a variety of laws to thwart protests in some states, including Minnesota, Washington, Michigan, Iowa, Indiana, North Dakota, Virginia, Colorado, Missouri, and North Carolina. In North Dakota, Republican sponsors push restraints on public assembly by citing civic activity against the Dakota pipeline. While state attempts to end protests have emerged in legislatures, it remains to be seen whether these attempts will result in laws restricting assembly.

---


Public preference for local control was manifest in the nation’s beginnings and expressed in the Tenth Amendment. In modernity, trust in the federal government has declined since the Vietnam War and declined significantly during the Iraq War and the financial crisis. In a 2013 Pew Research Center poll, only 28 percent of respondents viewed the federal government favorably, and nearly all Tea Party respondents reported distrusting the federal government. At the same time, the majority of Americans favored state and local activity, respectively 57 percent and 63 percent, over federal activity.¹⁷¹ “It has been a decade since as many as 30% of Americans have said they can trust the government just about always or most of the time,” Pew reported.

Since Trump became president, there is little change in the overall favorability of federal government. Under the Trump administration, Republicans are more than twice as likely to say the federal government does a good job protecting the environment. Yet overall, favorability of the federal government still remains below 30 percent.¹⁷²

A strong dislike of federal government is reflected in policy frameworks that support local control. Many of the most important public functions are primarily


creatures of state and local government, which collectively employ about seven times more officials than the federal government’s civilian workforce—19.8 million versus 2.8 million respectively, in 2009.\textsuperscript{173} Moreover, the belief in privatization, strongly held by many Americans in a culture resting on individual freedom and liberty, calls for individuals, families, businesses, and other civil society groups to “exercise their dominant power” over government services.\textsuperscript{174} In the tradition of decentralization, alternative energies like wind and solar could allow local governments and even individual homeowners or neighborhoods to produce their own energy. “A renewably powered world would be far more localized, democratic, and fair. It’s the opposite of the planet Koch in every way,” wrote Bill McKibben.\textsuperscript{175}

\textit{Media}

Media coverage of climate change presents the barrier of distortion in public understanding. The absence of coverage commensurate with the threat is particularly misleading. For example, between 2014 and 2015, coverage of climate change among the major networks (ABC, CBS, NBC, and Fox) declined in the range of 8 to 146 minutes.\textsuperscript{176} This decline occurred despite landmark events in climate change: the finalized Clean

---

\textsuperscript{173} Schuck, Ibid. Federal government growth is obscured by the hiring of subcontractors and state and local implementation. Also, US debt-to-GDP ratio exceeds that of most European democracies and is the average for Latin America.

\textsuperscript{174} Ibid., 99.


Power Plan, Pope Francis’ encyclical on climate change, Obama’s disapproval of the Keystone XL pipeline, and the Paris Agreement.

The decline in climate news is largely a reflection of network pursuit of ratings. Therefore, news segments are more likely to be visually compelling, such as train accidents, and “horse races” with a beginning, middle and ends, such as political campaigns. TV and radio are especially attune to fast-breaking news and “wall to wall” coverage of emergency events. The mediums also can capture and exploit scandalous events, such as Climategate and the “controversy” between climate scientists. Assuming that the conflict required balanced news reporting also leads to distortion, since 97 percent of scientists agree that human activity impacts climate change.

Climate skepticism has been stoked by talking points distributed to news departments by PR departments of fossil fuel corporations. For decades, the talking points hid Exxon’s rigorous proprietary research of climate models in the 1970s that validated climate change from human activity, according to InsideClimate News and the Union of Concerned Scientists. The research was augmented by a $1 million project conducted on a tanker that determined how much carbon could be absorbed by the ocean. In 1977, Exxon’s leading climate scientist, James Black, characterized the strong evidence for anthropogenic climate change:

“In the first place, there is general scientific agreement that the most likely manner in which mankind is influencing the global climate is through carbon dioxide release from the burning of fossil fuels,” Black told Exxon’s management committee. A year later he warned Exxon that doubling CO2 gases in the

---

atmosphere would increase average global temperatures by two or three degrees—a number that is consistent with the scientific consensus today.\textsuperscript{178}

Despite this internal evidence, oil and coal corporations, along with related trade associations and the auto industry, formed the Global Climate Coalition. The coalition discredited climate science through public relations campaigns and lobbying, giving cover to US politicians who did not support Kyoto.\textsuperscript{179} Exxon alone contributed $30 million to the coalition and other campaigns, even though its own scientists acknowledged climate science.\textsuperscript{180}

Given the ongoing media distortion, pro-climate associations such as Climate Reality encourage members to supplement their learnings by turning to sources other than the mainstream media. For example, citizens can access blogs and internet sites supported by climate scientists and activities: NASA Global Climate Change, IPCC, Yale Forum on Climate Change & Media, US National Oceanic and Atmospheric Administration, Skeptical Science, Climate Central, Renewable Energy World, Clean Technica, Greentech Media, Earhtechling, the Union of Concerned Scientists, the US Energy Information Administration, the International Renewable Energy Agency, International Energy Agency, the Georgetown Climate Center, NOAA’s Coastal Climate Adaptation Site, Secretariat of the Pacific Regional Environment Programme, George Mason Center


\textsuperscript{179} Ibid.

for Climate Change Communication, and the Yale Project on Climate Change Communication.\textsuperscript{181} As climate educators, these web-based sources provide updates on new understandings of climate risk.

Another aspect of media distortion is the celebrity culture in which the public perceives reality. Increasingly, culture thrives on media spectacles for entertainment, rather than understanding. Celebrity worship masks the human condition by “banishing reality.” For example, the genre of reality TV demonstrates a “gross perversion of democracy and morality” that has nothing to do with “education, building community, honesty, transparency, and sharing.”\textsuperscript{182} Indeed, Trump’s celebrity, created on reality TV with “The Apprentice,” set the stage for his popular candidacy. The culture of “The Apprentice” elevates the stature of entertainers to authority figures even as scientific authority, at least as pertains to climate science, is diminished.

\textit{Poverty}

Another barrier to civic engagement for climate activity is poverty, as co-authors Putnam and Sander describe in their essay “Still Bowling Alone?” The essay describes a chasm creating two nations, one for the middle class and one for the working class, whose wages have been depressed by globalization. Generally, the impact of the cleavage is that the middle class is more engaged, and the working class is less so.\textsuperscript{183}

\begin{flushright}
\end{flushright}
However, since 2010 when the essay was written, working class poor and minorities have become engaged in a range of civic activity—involving causes from women’s rights to environmentalism. Some are protesting the harms from nearby fossil fuel extraction and pipeline leakages. Others, such as Chicago’s LVEJO are protesting the health consequences of coal emissions from nearby plants. Their work is also built on networks that are either informal or formal to solidify the coalition.

**Bridging Civic Associations and Informal Networks to Build Coalitions and Momentum**

Putnam described the momentum of social or political movements that is developed by bridging associations.\(^{184}\) In the 21st century, the LGBT movement is exemplary of the power of bridging. For example, local and state LGBT associations bridged with each other and national associations to build support for pro-LGBT legislation and judicial rulings.\(^{185}\) By the Supreme Court ruling that states could not ban gay marriage, public approval of same-sex marriage had risen to 60 percent.\(^{186}\) Thus, bonding among associates builds broader identities and influence.

In the emerging climate movement, local climate associations are also bridging with associations that share similar goals. LVEJO in Southside Chicago has joined forces

---


\(^{185}\) For an overview of a state effort to defeat a Marriage Amendment through coalition building within and outside the state, see C. J. Janovy, *No Place Like Home: Lessons in Activism from LGBT Kansas* (Lawrence, Kansas: University of Kansas Press, 2018).

with a variety of local faith, health, labor, and environmental associations, including the Sierra Club, to shut down local coal plants. In Boulder, Colorado, associations came together to press their city council to reduce GHG emission by 26–29 percent below 2005 levels by 2025, matching the US pledge to the Paris Accord. Similarly, Boulder joined the statewide association Colorado Communities for Climate Action to create a stronger force for home rule authority that removes state regulatory barriers to local clean energy initiatives. Thus, bonding associations are already building momentum to strengthen subnational climate initiatives.

Ultimately, more climate associations may come together under umbrella organizations to accelerate the coalition building and momentum. The US Climate Action Network (USCAN), founded in 1989 to coordinate the efforts of non-governmental agencies during climate negotiations, is gaining support to serve as the umbrella organization for US-based civil society organizations. The expanded mission is to solidify a coalition of grassroots climate organizations and leverage their knowledge and influence at the national and international level. USCAN announced it works to “elevate community-based approaches” that reflect the “knowledge, experience and wisdom” of local and regional associations. USCAN Director Keya Chatterjee acknowledged the difficulty of developing climate action, given the political climate of the US, but hopes the vision and work of local and state civic associations will build collective action.

---


“Civil society exists to do that which government cannot or will not do, and networks exist to accomplish more than can be accomplished alone.” Currently, USCAN is comprised of 160 US associations, including those for people of color, youth, faith-based groups, labor rights, and environmental justice, which share community initiatives with other member communities.\(^{189}\)

While the civic engagement of religious associations has always been a major force in the US, some religious communities are not as willing to bridge with other religious organizations to create a larger identity and movement. Among mainline Protestants, evangelicals, and Catholics, there are stark differences in their willingness to bridge with wider circles. Mainline Protestants are more inclined to be civically engaged with other associations. Likewise, they are more likely than evangelicals and Catholics to volunteer in wider communities. On the other hand, evangelicals are more likely to bond within their own congregations, but they are not generally willing to use their civic skills to bridge with other communities.\(^{190}\)

A growing trend is civic participation through “less formal, more voluntary, more effective channels,” according to Putnam.\(^{191}\) Historically, informal connectedness took the form of “small talk” at dinner parties, card games, and book clubs. In the 21st century, informal networks include digital social media platforms, which are easily accessed and


\(^{190}\) Skocpol and Fiorina, *Civic Engagement*, 346.

\(^{191}\) Putnam, *Bowling Alone*, 47.
more personable. Social media is especially helpful for those citizens facing barriers to engagement, such as responsibilities with child rearing or physical handicaps.

While Putnam is unsure about the level of civic engagement we can expect, he is confident that the nature of the engagement will be different and more informal in the digital age. A characteristic of social media is efficiency and inclusiveness, but it will not generate the same level of social capital. Moreover, sources of questionable credibility proliferate on social media, including those whose goal is to destabilize US democracy. At this point, we do not know whether younger generations will develop high quality civic engagement utilizing digital media, as Putnam and Sander observed:

In a world where Facebook “friendship” can encompass people who have never actually met, we remain agnostic about whether Internet social entrepreneurs have found the right mix of virtual and real strands to replace traditional social ties. But technological innovators may yet master the elusive social alchemy that will enable online behavior to produce real and enduring civic effects. If such effects do come about they will benefit young and adult Americans alike—and fortify the civic impact of the 9/11 generation.\(^{192}\)

Public intellectual Malcom Gladwell does not envision that social media will replace traditional communications. Gladwell asserted that social media tools have not replaced the “personal connection” that is critical to building social capital and rousing social mobilization.\(^{193}\) On the other hand, social media platforms can facilitate personal ties that might not otherwise occur and provide information updates, although the connections are self-selecting and information may confirm existing bias. “Twitter is a

\(^{192}\text{Putnam and Sander, “Still Bowling Alone?,” 15.}\)

way of following (or being followed) by people you have never met,” wrote Gladwell, and “Facebook is a tool for efficiently managing acquaintances, for keeping up with people you would not otherwise be able to stay in touch with.” But these thin connections do not ask much of “friends” in terms of cultivating communities and deepening civic commitment that can lead to activism.194

Other scholars are more confident that social media can function as an instrument for solidifying relationships. Social media can cultivate “trust communities,” wrote Georgetown University Professor Irene Wu.195 Indeed, social media could be integrated in the communications of formal associations, such as climate associations. If so, this hybrid media could help solidify and sustain a climate movement.

More than three decades ago, John Naisbitt wrote in Megatrends that humanity needs a balance of “hi-tech and hi-touch” experiences. In the 21st century, this idea calls for a balance between the hi-tech of social media and the hi-touch of personal and friendships. Many climate associations, such as 350.org and Climate Reality, are working to find that balance to strengthen their communities in solidarity, despite the barriers to social and political change noted above.

The Future of Citizen Action and the Climate Movement

Putnam argued that the catalyst for heightened civic engagement is a series of crises, as was experienced by Americans during World War II. Therefore, climate

194 Ibid.

catastrophes linked to rising GHG emissions could trigger civic activity. Alarmingly, Professor Roger Smith said he doubted Americans will see climate change as a crisis until they experience unstoppable climate destabilization. “I think it’s likely that serious climate action won’t happen until after there are unimaginable catastrophes,” Smith added.196

In 2015, only about half of Americans made the causal link between climate change and human activity, but public opinion shifted in subsequent years. By 2018, a poll indicated that 42 percent of Americans do believe that extreme weather events in 2017 are connected with climate change, which is a 10 percent increase from 2015. However, a year earlier only 15 percent of Americans believed in overwhelming scientific consensus of climate change from human activity. Therefore, we may need to look to Liberal and Next Generation communities, groups defined by Pew, to act to create a low-carbon world.197

Climate change believers are already working at the subnational level and setting the stage for a collaborative climate movement that could create powerful regional climate programs. This subnational approach, energized by citizen engagement, fits comfortably within the American tradition of federalism in which municipalities and states shape their communities, unless otherwise identified in the US Constitution as a federal responsibility.

With the support of pro-climate associations, some states plan to meet or exceed mitigation standards that were planned during the Obama administration. New York, which already operates with 26 percent renewable energy, is setting higher targets and has proposed an offshore windfarm that would be the largest in the nation. Massachusetts is enacting laws to increase investment in alternative energy.\textsuperscript{198} Even within the Midwest and South, the states of Iowa, Oklahoma, and Kansas are powered by increasingly higher percentages of wind energy. In 2016, Iowa’s energy powered by wind turbines comprised 31 percent of all energy used in the state, second only to Texas.\textsuperscript{199} Thus, the energy and ideas underlying the concept of “we the people,” which has grown to include a great diversity of American groups, is driving the subnational climate activity across America. Indeed, alternative energy experimentation within a diverse, pluralistic society can drive climate initiatives that are ambitious.


CHAPTER 4. THE DUTY TO BUILD AMBITIOUS CLIMATE INITIATIVES AS A MATTER OF DIGNITY

This work grounds the duty to protect humanity from anthropogenic climate change in dignity, which recognizes the intrinsic value of every person without regard to their rank or privilege. The value of dignity was widely invoked after World War II, incorporated in the UN Declaration of Human Rights (1948). But early conceptions of dignity emerged in Western antiquity, and strands of the concept re-emerged forcefully during the Enlightenment with the work of Immanuel Kant. The Prussian philosopher asserted that a moral law lies within all persons and requires that we dignify the worthiness of others and ourselves as a matter of duty, regardless of the outcome. Duty demands that we dignify others by demonstrating our respect, which “alone provides a becoming expression for the estimate of it that a rational person must make.”\(^1\) He argued that to treat others respectfully requires us to consider each person as an end, not a means to an end, a treatment we determine by using reason to deduce the applications of moral principles.\(^2\)

In keeping with Kant’s duty to show respect, this chapter argues that communities must build mitigation and adaptation programs to prevent harm caused by human activity. Given the duty to respect all others, including the most vulnerable, these climate activities must be ambitious. Absent a comprehensive federal climate program, the


\(^2\) Ibid., 60.
responsibility for undertaking these climate activities falls on engaged citizens in subnational levels of government and associations, sometimes working in collaboration with private actors and enterprises. Currently, these citizens seem likely to fall in the Solid Liberals and Next Generation Left, based on Pew typologies.³

In the US, the rights of GHG emitters and the rights of fossil fuel extractors, distributors, and refineries have overshadowed their responsibilities to demonstrate respect for other communities, including the most vulnerable facing near-term risk from climate change. The rights that have led to catastrophic damage and harm cannot prevail. Instead, we must embrace dignity and the duty to prevent atmospheric destabilization from harmful human activity, such as deforestation and carbon intensive transportation, which produces extreme weather.

As a matter of showing respect, climate initiatives must become more ambitious to protect both current and future generations. Given the dynamic nature of climate change, we need to continually assess the appropriate weighting of mitigation and adaptation in our efforts to create ambitious initiatives. That is, we must simultaneously work to both cap emissions to keep global warming well under 2°C and to build adaptation projects that help communities survive intensified extreme weather. Thus, US communities and businesses, as well as government, must accept their responsibilities,

rather than simply demand their rights, and accelerate their transitions to a low and no carbon energy and sustainable social practices.

A premise of this work is that the atmosphere is a commons, a collective resource that can serve all humanity, not a sink for polluters. A concept of the commons was known to English landowners and peasants before enclosure laws fueled privatization. Therefore, a renewed concept of the commons must emerge to protect the atmosphere from becoming a carbon sink that harms all, but most especially the poor. We must restore and expand carbon sinks, such as forests and soil. As a matter of dignity, the poor deserve to be treated with this demonstration of respect. Otherwise, their lives are degraded.

The Tradition of Dignifying Man and Nature: Markers from Ancient to Modern History

Many cultures have contributed to the emergence of the Golden Rule, which commands showing respect for neighbors. Reflecting the rule is the oft-cited scripture, “So in everything, do to others what you would have them do to you, for this sums up the Law and the Prophets.”

Philosophically, the rule is problematic because people may not want the same things. Yet, a common interpretation is that we have a duty to demonstrate respect for others, although some would argue that duty is not dependent on reciprocity. Over time, and in theory, the Golden Rule has been extended to include outcasts and people across cultures.

---

4 English Standard Version of the Bible, Matt. 7:12.
In ancient Greek and Roman cultures, respect was designated only for men of elevated status who were deemed worthy of honor. Persons of low status were deemed unworthy. This social order was disrupted by Socrates (d. 399 BCE) when he called for recognizing the value of each individual, the “self-conscious and hence dissident and conscientious individual who by thinking for himself acts to avoid being an instrument of injustice.” The *Apology*, written by Socrates’ student Plato (427–343 BCE), is notable for recognizing that “individuals have equal status.” Thus, the Greek philosophers Socrates and Plato imagined a different world, at least within the context of ancient Greece, in which males from a wider swath of social classes were afforded a level of respect. While the act of inclusion was minimal by modern standards, it was a step forward in recognizing the intrinsic value of every member of the species.

The stature of the human species was elevated above animals long before individuals were thought to have dignity. During the Roman Empire, Cicero (106–43 BCE) claimed in *De Officiis* (*On Duties*) that man’s mind was vastly superior to the nature of animals. He made the case for a hierarchy of dignity that place the human species at the top based on man’s mind, developed by “study and reflection.”

---


7 Ibid., 7–8.

8 Ibid., 3.

invoked *dignitas* as a status term. For example, he exalted orators, who exhibited gravitas.\(^\text{10}\)

Hebrew scriptures proclaimed that humankind is elevated above the rest of nature because humans are made in the image, or likeness, of God (*imago Dei*).\(^\text{11}\) However, that image differed among varying religious traditions and, therefore, humans had different understandings of their duties toward others and themselves. For Augustine, the image was manifest in the concept of the trinity, or *imago trinitas*, in which God is expressed in three persons, one of which is God “made flesh” in the Son. This incarnation redeems mankind from original sin. Augustine’s construct reflects the divinity of Jesus as Man and the inherent divinity of all men. Further, he believed that all men have dignity based on their rational understanding and will to choose to know and love God, and to overcome sin. However, Augustine “does not exalt reason, as does the Stoic-Kantian tradition.” Instead, he argues that reason is unstable and not an “independently self-grounding faculty.”\(^\text{12}\) In the Augustinian tradition, dignity is grounded in our relationship to and with God and each other in which we express acts of love.

While the present work does not focus on the Catholic tradition of dignity, that tradition has influenced Western views of dignity more broadly. At times, the Church has taken the position that dignity is worldly, as opposed to spiritual. At other times, the

\(^{10}\) Ibid., 1.


\(^{12}\) Ibid., 218—21.
Church has emphasized the sacredness of dignity that every individual can claim because dignity is manifest in the “small things,” which reinforces the need for humility. In other words, because dignity is within every person, no one person should be prideful and each person is but a humble servant.13 By the 13th century, Thomas Aquinas also declared the intrinsic value of rational man. In Aquinas’ Commentary on the Sentences, he equated dignity with goodness “on account of itself” within human freedom, as well as goodness in things in nature because they were created by God. Thus, the question was what level of dignity is intrinsic to man and nature.14 The Church evolved to pronounce the worthiness of every person, “no matter how poor, burdened, restricted, ragged or dissolute.” To do otherwise is to degrade others, which is a “sacrilege against God.”15

During the Renaissance, English and Latin-speaking philosophers invoked dignity, attaching their own strands of meaning. Francis Bacon wrote of dignity as worthiness in De Dignitate et Augmentis Scientiarum (Dignity in the Advancement of Learning). In his essay, “Of Great Place,” dignity indicates three things: value that is not restricted to human beings; value that is high social status; and behavior that is “respect worthy.”16 Pico della Mirandola in his oration “De Dignitate Hominis” reinforced man’s dignity as above all others, in part because man chooses his destiny, rather than

---

13 Rosen, Dignity, 14.
14 Ibid., 17.
16 Ibid., 15.
acquiescing to a pre-ordained role, as did the Greeks. 17 Occasionally, dignity referred to a ritual, such as marriage. 18 Thus, dignity represented both abstract ideas and concrete social rank and practices.

On the cusp of the Enlightenment, political philosopher Thomas Hobbes described mankind as “rational, free, and equal,” but also selfish. Mankind was not predisposed to accepting duties to others. Living during the English Civil War, Hobbes focused on the combative state of man’s nature, whether from “vainglorious” behavior or fear of losing access to scarce resources. Hobbes’ answer to a divisive human condition was a sovereign government with absolute authority, whether a monarchy or another form of government. 19 From his perspective, free men must be tamed.

Kant offered the perspective that man does not have to be held hostage to his animal nature and is capable within his freedom of “inventing ideals” for right moral conduct. 20 In The Fundamental Principles of the Metaphysics of Morals (1785), Kant provided what he referred to as a philosophic translation of morality, although he also

17 Ibid., 14–15.
18 Ibid., 17. English poet Milton ascribed dignity to the purpose of rituals, such as marriage.
acknowledged the “transcendental kernel.” Kant determined that our rational minds and good will are capable of grasping moral maxims, which he assumed are universal.

Kant argued that dignity, intrinsic to every rational human being, holds the utmost value in the moral law. Dignity is “an unconditional, incomparable value,” wrote Kant, and we act toward that which has dignity by showing respect because “the word respect alone supplies a becoming expression for the esteem which a rational being must have for it.”

Kant invoked a moral law with the authoritative standing of scientific law. That is, he argued that the moral law is objective, as was scientific theory in the understanding of Enlightenment philosophers. Kant viewed the moral law, or categorical imperative, as emanating from priori intuitions that structure our cognition of the sensory world. The a priori structure on which moral law rests was analogous to the method of inquiry by which scientists discovered objective theory, such as Copernicus’ theory of heliocentric revolution. Thus, the laws of both morality and science were both universal and knowable.

---

21 Knowledge that is transcendental is independent of empirical understanding and transcends our experience, as described by Will and Ariel Durant in *The Story of Civilization: Rousseau and Revolution* (New York: Simon & Schuster, 1967), 536.


23 Ibid., 193.


25 Ibid. Kant proposed mental categories by which sensory data is processed. These categories enable us to acquire knowledge, at least as it appears to us as phenomena. We have no knowledge of things
At the end of the same century in which Kant lived, the Catholic Church affirmed its belief in the dignity of all humankind. In 1891, Pope Leo XIII in his encyclical *Rerum Novarum* or Rights and duties of labor and capital, established the “inviolable right to innate dignity” for all as a foundational principle.\(^{26}\) Thus, at the turn of the 20\(^{th}\) century, leaders of the Catholic Church had affirmed the dignity of every person. Perhaps Catholic theologians were informed by the seminal work of Enlightenment philosopher Kant. Conversely, perhaps Kant was knowledgeable of beliefs about dignity, which emerged in Hebraic scriptures and evolved through Greco-Roman philosophy and early Christianity. While Kant defined dignity abstractly, he also created a moral compass in his concept of the “kingdom of ends” to guide our treatment of others, as well as ourselves.

**The Kingdom of Ends**

Kant provides direction for our moral conduct by requiring that we treat persons as ends, not means. In his ideal, which he terms “the kingdom of ends,” we cannot treat people as though they exist merely to fulfill our own needs.\(^{27}\) Our treatment of others must be based on a rational acceptance of duty, not by motives such as self-interest, guilt or compassion.\(^{28}\) “For all rational beings come under the law that each of them must treat

\(^{26}\) Hanvey, “Imago Trinitatis,” 214.


itself and all others *never merely as means*, but in every case the same time as ends in themselves,” wrote Kant.\(^\text{29}\)

Kant asserted that we must as rational beings rise above our feelings and impulses and act altruistically, despite a natural inclination to satisfy our personal interests. We must show our respect to that which has intrinsic value, which is every person.\(^\text{30}\) To treat another’s humanity as a means impinges upon their sovereign power and denies their ability to make rational choices for themselves. For example, people infringe on others when they deliberately misrepresent climate science or prevent options for living more sustainably, forcing others to live in ways that might be against their will.\(^\text{31}\)

Kant’s idea is to engage goodwill to fulfill universal moral laws, but goodwill does not ensure goodness can be attained. We are “completely powerless” to ensure the moral law is fulfilled, but our goodwill will still “shine like a jewel.”\(^\text{32}\) That is, our good will is “good in itself,” even if we do not achieve goodness by “summoning of all means in our power.”\(^\text{33}\)

In Kant’s kingdom of ends, rational people discern between the things of market value and the things that are beyond value. Those things beyond market value are irreplaceable and, therefore, have an intrinsic worth, or dignity. Therefore, to live under

---

\(^{29}\) Kant, “Metaphysics of Morals,” 190.

\(^{30}\) Ibid., 63.

\(^{31}\) Law, “Moral Philosophy,” 106.

\(^{32}\) Ibid.

\(^{33}\) Kant, “Metaphysics of Morals,” 152.
the moral law, Kant asserts that persons must choose between price and dignity:

“Whatever has a price can be replaced by something else as its equivalent; whatever, on the other hand, is above all price, and therefore admits of no equivalent, has a dignity.”34

In other words, within the scope of our free agency, we have an obligation to treat others as above any price. We are not destined or pre-ordained by the cosmos to be selfish. Instead, we have free will to act and accept our duties to protect the general welfare of humanity.

**Dignity Demands Duties**

For Kant, the point was to awaken men’s minds, so they could intuit their own moral duties to show respect.35 Men must act for duty’s sake, not from self-serving motives. “Duty is the necessity of acting from respect for the law,” Kant wrote.36 That is, the moral law demands showing respect to all persons, not just those of rank and position. This line of reasoning is foundational to Kantian morality. He argued that treating persons respectfully, above any price, requires generosity so as “to be beneficent when we can is a duty.”37

For love, as an affection, cannot be commanded, but beneficence for duty’s sake may. This is practical love, and not pathological—a love that is seated at the will, and not in the propensities of feeling—in principles of action and not of tender sympathy; and it is this love alone which can be commanded.38

__________________________

34 Ibid, 192.
35 Ferry, *Brief History*, 119.
36 Kant, “Metaphysics of Morals,” 158.
37 Kant, “Metaphysics of Morals,” 156.
38 Ibid., 157.
The wellsprings of beliefs about duty are found in antiquity, developed in the three phases of Stoic philosophy—two periods in ancient Greece and the last period much later in Rome. A common theme throughout these three phases was the duty to make wise decisions, based on circumstances, which support the natural and harmonious order of the universe. This practical wisdom reflected the belief that humankind must adjust to the cosmic order, not try to shape the world based on will. During antiquity, men did not conceive of free will. Instead, men honed practical wisdom and right action based on virtuous conduct that reflected natural order. Cicero identified the virtues of wisdom: sociability or fellowship, which branches into justice and liberality; greatness of spirit, or courage; and decorum, which indicates a functionality equivalent to moderation. Also, he specifically condemned citizens who did not accept their duty to engage in political activity to support Republican ideas of governance. Cicero proclaimed that the preeminent duty was to support the “best of all governments” because these governments reflect the natural order.

More than a millennium later, in the 12th century, Aquinas emphasized the power of rationalism to discern the good, as opposed to the Augustinian belief that religious

---

39 Ferry, *Brief History*, 18.

40 Ibid., 31.

41 Ibid., 43.

42 Ibid., 31.

authority and faith ultimately superseded reason. Aquinas boldly asserted that human beings themselves could grasp “absolute precepts,” which foreshadowed the overarching emphasis on rationalism during the Enlightenment. Indeed, the basis of Kant’s framework of morality is that rational agents within their freedom can discern universal maxims and choose to obey them as a matter of duty.

In 1785, when Kant’s “Fundamental Principles of the Metaphysics of Morals” was published, ideas about duties to others were evolving in his native Prussia and seem likely to have influenced his work. That is, in the same year, Prussia was among the first nations that recognized America and participated in a mutual trade agreement, negotiated by Jefferson, Franklin and others, which included the novel idea that there are duties to treat prisoners of war with humanity. The agreement followed the Seven Years’ War (1756–1763) in which Prussia, allied with Great Britain, prevailed against the Kingdom of France. This outcome shifted global power to Great Britain and ended French occupation in North America. Also during that same year, America’s founders were establishing the rules of land ownership, including passage of the Land Ordinance to sell

---


45 Ibid., 331.


the settlers land acquired from France and Britain.\textsuperscript{48} Kant was also focused on governance, but his focus on the ability of autonomous men to self-govern under the moral law. Indeed, only free men could be held responsible for choosing moral conduct that respected the inalienable dignity and equality among all men,\textsuperscript{49} such as humanitarian treatment of prisoners of war.

Kant argued that reason allows us to determine the universal maxims of moral law.\textsuperscript{50} For example, reason tells us that if all nations behaved like the federal government of the US, avoiding mitigation action, the earth would warm beyond 2º C and cause more frequent and intensified extreme weather. Therefore, the value of free-riding that guides the nation state climate policy does not have universal application. On the other hand, if all nations required mitigation laws commensurate with climate risk, keeping warming under 2º C, then universal application of is rational. That is, the moral law of dignifying all humanity with robust mitigation practices is reasonable as a universal maxim.

American philosopher John Rawls created a thought experiment to deduce right action. In his “Veil of Ignorance” experiment, participants are asked to assume they do not know the life circumstances in which they will find themselves, the “original position.” Nor do they know their fortune in the distribution of natural assets and

\textsuperscript{48} In 1785, the year Kant’s work was published, the US Congress of Confederation passed the Land Ordinance to sell land to Americans. The ordinance can be viewed at “Land Ordinance of 1785,” National Archive Catalogue, accessed March 1, 2018, https://catalog.archives.gov/id/1943531.

\textsuperscript{49} Rohlf, “Immanuel Kant: 5.2 Freedom.”

\textsuperscript{50} Arthur and Scalet, \textit{Morality and Moral Controversies}, 59.
abilities. Without knowledge of their class, position or social status, participants are asked to determine principles of social justice for political and social institutions.

Contemporary participants in this thought experiment could factor in the possibility that climate change could place them in a disadvantaged position. However, this experiment appeals to self-interest and consequences, not a deontological obligation.

In contrast to a deontological duty, which Kant embraced, consequentialists prefer to maximize the outcome for the good of society, even when that outcome requires immoral acts. A strain of consequentialism believes that the ends can justify the means, which allows innocent people to be harmed or even die. In another of Rawls’ thought experiments referred to as the “Trolley Car,” a consequentialist would argue that it is better to switch tracks to avoid hitting five people even though one person would be killed on the new route. As Rawls notes,

it seemingly demands (and thus, of course, permits) that in certain circumstances innocents be killed, beaten, lied to, or deprived of material goods to produce greater benefits for others. Consequences—and only consequences—can conceivably justify any kind of act, for it does not matter how harmful it is to some so long as it is more beneficial to others.

Despite differing philosophies, deontologists and consequentialists can find overlapping common ground in the climate change debate. A strain of consequentialism

51 Arthur and Scalet, Morality and Moral Controversies, 400. The “Veil of Ignorance” principle became highly controversial among public intellectuals, who considered its neutrality unattainable.

52 Alexander and Moore, “Deontology Ethics.”

53 Ibid.
believes that helping the most vulnerable is the appropriate moral response, especially if associates costs incurred by the wealthy are minimal. Since emissions are transboundary, this consequentialist response was also agreeable to deontologists. That is, helping the worst off, which satisfies a strain of consequentialism, has the effect of simultaneously helping all others, which satisfies deontological duties. For example, ambitious mitigation in wealthy parts of Los Angeles helps the poorest living in China and India, where one-third of the world’s poorest live, and at the same time helps those better off in the economically advantaged neighborhoods of Los Angeles. In this scenario, as the wealthiest fund mitigation, their wealth decreases only slightly, and so they become less wealthy, but one assumes not less happy. At the same time, the “core needs” of the poorest are met and they become much happier, which is considered maximum optimization. Thus, ambitious climate initiatives can broadly support both

---


consequentialist maximization that commits to helping the poorest and deontological duty to help all human beings.\textsuperscript{57}

However, as GHGs rise, they present more complex moral dilemmas. Already, weather events are more intense and occur with greater frequency and, therefore, communities must decide how best to distribute their efforts between adaptation and mitigation, while determining the speed and scope of their actions. Complicating matters, for the first time, in 2016 the American Meteorological Society reported that certain extreme weather events would not have taken place at all were it not for global warming, such as the heat wave in southern Asia. This report goes beyond the assumption that global warming is intensifying weather patterns, such as the record-breaking rainfall in Texas during Hurricane Harvey.\textsuperscript{58} The prospect of extreme weather impacting more regions is prompting tougher choices about which populations are helped or hurt by our actions, particularly adaptation versus mitigation initiatives. Generally, the poor living today are more likely to receive relief from climate change by weighting efforts toward adaptation, separating storm water from black water to avoid river contamination or building sea walls with pumping capacity. Or, rather than focusing exclusively on adaptation and current generations, communities can add alternative energy and mitigation to also help future generations.


Over the years, communities will need to continually re-evaluate their responses to climate change because what is adaptive today may be maladaptive tomorrow. For example, while the expansion of storm sewer and irrigation infrastructure is critical today for handling higher water flows from increased snow melt, the approach will be maladaptive at the point when snow packs eventually decline. Also exemplary is hydroelectric power that emits relatively fewer carbon emissions yet will ultimately have the negative effect of destroying wetlands that protect communities from extreme weather, such as flooding.\textsuperscript{59} As the climate crises grows more pressing, the moral dilemmas will become more difficult to navigate within strict philosophical frameworks. Thus, while common philosophical ground can exist between deontologists and consequentialists, the deepening crises will make it increasingly difficult to show respect equally in all generations, unless an energy revolution produces a no carbon future.\textsuperscript{60}

Communities will need to continually evaluate the appropriate balance between mitigation, which helps all communities, and adaptation, which helps their own communities.

As communities determine how to show respect, they will need to come to terms with many issues. For one, some regions will fare much better than others in the impact


of climate change. Therefore, consideration must be given as to whether to help the most vulnerable, which requires more ambitious climate activity. For example, future communities in milder climates, such as Anchorage, must figure out the nature of their obligation to communities living in desert conditions, such as the Sonoran Desert in Arizona and the Great Victoria Desert in Australia. Likewise, wealthier communities in the Northern Hemisphere must outline their duties to those living in the poorer and more vulnerable Southern Hemisphere nations, such as the US territory of America Samoa, which has contributed little to historical emissions but is likely to experience harmful rising seas and displacement. Also, older generations benefiting from 20th century fossil fuel-driven production must identify their duties to younger generations that will likely struggle more than themselves under climate change. Additionally, emerging nations must consider their own contributions to mitigation as their own historical emissions rise. In essence, communities must think globally while they act locally. Otherwise, their silence and inaction send the message that dignity belongs only to those of rank and privilege in places with favorable geography, such as the northern latitudes, and cities with funds to build resilient infrastructure.

Currently, wealthier Americans have the means to try to protect themselves from climate risks. For example, they can buy back-up generators to run power in their homes during outages, travel to temporary residences to avoid the intensified extreme weather and even move their permanent residence to less vulnerable regions. On the other hand, the poorest are most likely to experience the economic brunt of extreme weather, such as flooding in the streets of New Jersey and New York from Superstorm Sandy in October.
2012. The poorest are also most likely to be affected by the harms caused by fossil fuel extraction, distribution, and processing, including toxic leakage into water sources and soil. The poorest who are ill and aging are likely to be the most vulnerable, and in order to survive, they may require the benefits of activities that exceed moral duty, referred to as “morally praiseworthy” activity by a strain of deontology.  

Otherwise, despite the American grand narrative of equality, it is the privileged who are fortified against catastrophe—as has been the case throughout history—and more likely to survive intensified extreme weather, while the poorest are more likely to be harmed and degraded, rather than dignified.

As a matter of dignifying all others, communities need to define respect and determine how they will show that respect to all human beings, even the poorest of the poor, in the face of climate change. Approaching 2020, the year in which the Paris Agreement pledges will be reviewed and potentially upgraded, communities need to commit to ambitious mitigation and adaptation pledges that support all human beings, not just the wealthy. Pope Francis has reminded us of our obligation to dignify the poor, especially those living at subsistence levels whose local crops and fresh water are damaged by extreme weather, as a matter of dignity. As well, philosophers like Kant have reminded us of our obligations to show respect for every human being.

---

61 Alexander and Moore, “Deontology Ethics.”
Inclinations Versus Duties

Kant believed that when we relinquish our duties we succumb to inclinations rooted in selfish motives. When actions arise from inclination, such as self-aggrandizement, we are not demonstrating respect, even though the outcome of our actions may be similar. Kant believed we can resist the temptation of inclinations by calling on reason and good will. In other words, we can choose to overcome our inclinations.

In the 21st century, treating people as ends requires that we curtail human activities succumbing to inclinations that contribute to atmospheric destabilization. Those activities include powering lifestyles on fossil fuel, damaging carbon sinks, and consuming products and services at a level that would destroy the planet if imitated by all others. Thus, we must realign our social practices to avoid doing any of the things that ultimately exacerbate extreme weather. Otherwise, we contribute to “temperature deviations from normal” and “ground level ozone and fine-particulate concentrations,” indices of well-being proposed by organizations such as the UN Economic Cooperation and Development (OECD). Under the Obama administration, increases in temperature and particulates were measured by federal impact analysis (FIA) tied to a social cost, but the Trump administration refuses to acknowledge a social cost from warming and ozone


thinning that is commensurate with damage and harm. Moreover, the Trump administration has withdrawn guidance of federal agency review of environmental impacts, including GHG impacts. Therefore, our social well-being is to be determined largely by the values of the marketplace, including short term profitability. In other words, the administration is not discerning between things of market value and things beyond market value. Therefore, the current administration incentivizes people to act out of inclination, rather than duty. The president is validating the indulgences of marketplace mechanisms that delay action for the good, not supporting the kingdom of ends.

Carbon cap-and-trade markets developing in the US are vulnerable to fraudulent economic mechanisms that treat persons as means, not ends. While the markets have placed a price on carbon emissions, which is a start, these mechanisms are modest when contrasted with the likely risk from rising emissions. For example, regional carbon offsets allow corporate emitters to continue producing GHGs if they also commit to reducing carbon emissions elsewhere, although at a lower cost. The moral challenge is that offset mechanisms do not encourage the simultaneous reduction of a corporation’s own emissions, which could support subnational climate initiatives. Another cap-and-trade mechanism susceptible to abuse is the permit system that provides too many permits and

---

64 “Calculating: The EPA is Rewriting the Most Important Number in Climate Economics,” The Economist, November 16, 2017. EPA Director Pruitt has assessed a cost of $1–4 per carbon ton, down from $47 during the Obama administration.

at prices too low to significantly slow the trajectory of emissions. Moreover, cap-and-trade mechanisms are usually applied solely to emissions from energy plants, not to other industries that produce emissions. Thus, in a market-driven culture in which the fossil fuel industry is ubiquitous and powerful, cap-and-trade mechanisms have been manipulated to favor certain industries. By purchasing the right to pollute as an indulgence, the leaders of these industries are showing disrespect for others and themselves, according to the Kantian framework. Instead, humans must use their unique capability in the “great project of stewardship.”

**Incremental Action Versus Saintly Action**

In order to build sustainability, the degree of sacrifice required to show respect is debatable. Some subnational efforts to build sustainable communities and transition to alternative energy are taking modest and incremental steps. For example, the implementation schedule for mass transit systems and energy efficient buildings may be drawn out, even unnecessarily, for decades. Small steps toward sustainability, particularly by people of means, seem antithetical to the moral responsibility to respect all others as a matter of dignity. However, this incrementalism is acceptable under the Golden Rule, according to 21st century philosopher George Kateb:

> The golden rule does not ask for heroic self-sacrifice or saintly forbearance. It asks, instead, that we be better, if only by a little, than the level we might see around us, despite all the risks of priggishness or self-righteousness, and better than we may have been in the past.\(^{67}\)

---


67 Ibid., 53.
But as the threat of climate change rises, more climate activists and their communities of solidarity are taking courageous stances that advance climate initiatives and require sacrifice. The protests of Bill McKibben, founder of 350.org, over fossil fuel drilling and distribution have led to citizen arrests, including his own. The protests of Greenpeace activists aboard the organization’s ship, *Arctic Sunrise*, which disrupted offshore drilling by Statoil in the Arctic waters, prompted seizure by the Norwegian Coast Guard. As the climate becomes more destabilized, more significant levels of protest, even saintly acts of sacrifice, may occur.

Saintly acts have been demonstrated throughout history. During World War II, philosopher Simone Weil refused food in solidarity with the poor. During the Nazi occupation of France, Weil felt the obligation to eat the same meager rations provided to French citizens. She believed that every human being and nature itself deserves equal respect. “We owe a cornfield respect, not because of itself, but because it is food for humankind,” wrote Weil, whose book, *The Need for Roots*, was published posthumously. The book, commissioned by General de Gaulle, addressed the duties toward mankind after liberation and the need to recover spiritual roots. Weil’s philosophy was grounded in the value of dignity that obligates us to show respect for all others. Her

---


69 Ibid., 7.
philosophy demands an uncompromising obligation to respect the vital earthly needs of each and every individual. Weil wrote:

The fact that a human being possesses an eternal destiny imposes only one obligation: respect. The obligation is only performed if the respect is effectively expressed in a real, not a fictitious, way; and this can only be done through the medium of man’s earthly needs.\(^7\)

Weil’s willingness to live as a secular saint stands in stark contrast to small acts, such as minimal corporate “greening” projects. Weil was determined to demonstrate by her own suffering that all humans should be protected against physical insecurity. Were she alive in the 21st century, she surely would have sought to experience the harsh life of climate refugees, uprooted by drought, flooding, and wildfires. Weil would have invoked duties to relieve their suffering and protect the commons. She would have viewed the practice of abusing carbon offsets as antithetical to showing respect.

In 21\(^{st}\) century America, it is up to communities to determine which of their own actions will serve to dignify others. Human reason and judgement must identify the appropriate actions that support dignity, as Kant professed and Kateb reinforced:

Humanity must be the judge in its own case, with all the strains and perplexities such a condition engenders. It is also the only audience or interlocutor for the discussion. There is no arbiter or sponsor. Humanity talks to itself about itself, it judges itself, it invents the questions and answers, it alone worries about human dignity.\(^7\)

We do not know if the ambitious acts of subnational US initiatives, along with other international efforts, will suffice to stop atmospheric destabilization. But the


\(^7\) Kateb, *Human Dignity*, 27.
outcome cannot be the only consideration for how to act. The Kantian moral law binds us to the duty to express our respect and dignity for others with action, regardless of the outcome. In the 21st century, that law requires ambitious subnational climate initiatives.

These subnational initiatives serve to protect the atmosphere as a healthy commons for the benefit of all humanity. Concepts of the commons were part of the Western tradition in the early part of the first millennium. But with the rise of privatization and unbridled economic freedom, the concept faded into the distant memory of a social world that opened the door to environmental degradation.

**The Fall of the Commons and the Rise of Privatization**

In *Toward Perpetual Peace*, published in 1795, Kant invoked the concept of the commons, the “earth’s surface,” which the entire “human race” had the right to use. Kant believed that the practice of sharing the resources, such as land and water, is a duty of respect for others and oneself. 72 But even as Kant invoked the concept, the tradition of the commons was receding with Western ideas about privatization gained strength in Europe and the US.

The English tradition of the commons emerged in the medieval era when noblemen and bishops, as well as kings, allowed resources to be shared among the peasants living on the manor in return for their labor. The manor was a shared commons resources—pastures, estovers, and turbary—that were necessary for acquiring food and

---

other necessities.73 Within the commons, participants developed their own social practices and rules “designed to prevent overconsumption and to reward intricacy, ingenuity, and thrift,”74 which allowed the inhabitants to thrive. Generally, they cooperated with one another to continually assess the ability of resources to support their sheep and crops and provide their families with fuel, meat, milk, tools, housing, and medicine.75 While the nature of this feudal economic system is distinct from modern capitalism, the arrangement demonstrated the ability of persons to share common resources.

But the practice of carrying out mutual obligations in the English commons was under siege with the growing power of barons who pressed the monarchy for property and money.76 In 1215, King John signed the Magna Carta, which required him to


74 Peter Linebaugh, Stop Thief!: The Commons, Enclosures, and Resistance (Oakland, California: PM Press, 2013), 151.


subdivide the kingdom among the barons. The concept of private land ownership was revolutionary, paving the way for individual land rights. However, the new arrangement did not ensure that the new owners would provide for the common good, as had the nobility. Indeed, the new property-owning barons forsook mutual obligations to peasants and chose to use the land for their own purposes, without regard to the practices of the commons. Subsequent formal laws and informal customs treated land ownership in terms of rights, including to rights to exploit the land, rather than possession of the ground itself. The outcome of this land revolution was to “allow one person to profit from the land, regardless of the consequences to the community.” Thus, the Magna Carta ushered in the novel idea that individually-owned property could exist without mutual obligations between land owners and peasants, although much of Europe retained the feudal practices of mutual obligations under Roman Law.

In England, the land revolution from the commons to private property created harsh conditions for peasants. As barons parceled their land for purchase and profit, peasants were moved off the commons. The new property was fenced off by enclosures

---

77 Andro Linklater, *Owning the Earth: The Transforming History of Land Ownership* (New York: Bloomsbury, 2013), 30. Prior to the Magna Carta being issued in 1215, the monarchy had tried to diminish the power of the barons by supporting commons law. Furthermore, the monarchy supported the commons by issuing the Charter of the Forest in 1217 with updates in 1225, which established the rights of freemen to access the royal forests. The forest charter is available at National Archive online, accessed February 19, 2018, http://www.nationalarchives.gov.uk/education/resources/magna-carta/charter-forest-1225-westminster.

78 Ibid., 13.

79 Ibid., 18.

80 Ibid., 31.

81 Ibid., 30.
of hedgerows and walls in a procedure called engrossment, which “split asunder the principle of mutual obligations (between lords and peasants).”

Under English common law, the priority was individual freeholder interests and profits, regardless of consequences to the community. Thus, the English tradition of a commons and mutual obligations began to decline. By the 16th century, landowner duties became untethered from the law and landowners gained new clout in “civil rights, political power, and legal protection” came at the expense of the peasants.

The process of evicting peasants from baron-owned property had been relatively lengthy, a delay partly attributable to fierce protests organized by the English rural poor. They were shocked when barons forced them off the commons where “intricately linked obligations had held the manor together.” The resistance of these peasant laborers and their families, considered a menace to the new property owners, included “petitioning, spreading false rumors, attacking property, foot-dragging, mischief, anonymous threatening poems, grumbling, playing football, breaking the squire’s gates, fence breaking, wood stealing, and so forth.” The defiance of these protestors, although not their specific acts, were early forms of community resistance.

82 Ibid., 14.
83 Ibid., 108.
84 Ibid., 31.
85 Ibid. English common law had no counterbalance in social obligations, as did Chinese and Islamic custom.
86 Ibid., 21.
87 Bollier and Helfrich, The Wealth of the Commons, 120.
During the period from the 15th to 19th century, the English monarchy sold or rented much of its land holdings, including two million acres acquired from monasteries. They buyers were people with the means to acquire property: merchants, landowners, government officials, and tenants on fixed income. By the 16th century, members of the House of Commons who had become new property owners outnumbered the courtier owners and protected their own land interests. Thus, the rise of these property owners further diminished the commons and the related social practices of the peasants that had conserved and shared vital resources. Indeed, the duties of mutual obligation between landowners and peasants were negated, as described by Andro Linklater in *Owning the Earth*. Linklater explains:

Yet that was the very point of the revolution, to allow one person to profit from the land, regardless of the consequences to the community. The whole basis of land ownership up to that moment—mutual obligation, recognition of custom and tradition, and the encompassing sense of justice that tied all to the same set of values—became irrelevant.

By 1630, when the Puritans landed in America, some held the belief in the “pragmatic outlook of the enclosers,” which invoked the commands of Genesis to “increase & multiply, replenish the earth & subdue it.” Settler John Winthrop believed

---

88 Ibid., 19–20. King Henry VIII forced the Catholic Church to give the monarchy its monastery property, which represented 20 percent of the cultivated land in England, or two million acres.

89 Ibid., 19. The House of Commons overruled Henry VIII’s courts, which tried to force the new property owners to end their rebellion against paying use taxes, which comprised two thirds of royal revenue. Arguably, this House of Commons ruling was the turning point that favored the power of new property owners over the monarchy.

90 Ibid., 18.

91 Ibid., 27.
that property should be acquired through occupation and toil, a concept that English philosopher John Locke advanced a half century later. This Lockean proviso asserted that while homesteaders had the right to property by working the land, but only “where there is enough, and as good, left in common for others.” In actuality, land use and improvements were more about making the land highly productive, which put an end to subsistence farming. In other words, settlers were to conquer and the earth, as commanded in Genesis, and parcel the land into property. This Western idea of private property was at odds with tradition of the English commons, as well as the social harmony traditions in Asia and moderation of selfish behavior in India.

In 16th century America, settlers encountered Native Americans who held vastly different beliefs about our relationship with the land. The Wampanoag tribe, on whose land the Pilgrims lived, believed nature was to be shared by all members of the tribe, not divided into private property. At the time of the Pilgrims, Wampanoag leader Massasoit Sachem spoke of his tribe’s familial and interdependent relationship between man and nature and the sharing of communal resources:

The land is our mother nourishing all her children, beasts, birds, fish and all men. The woods, the streams, everything on it belongs to everybody else and is for the use of all. How can one man say it belongs only to him?

---


93 Linklater, Owning the Earth, 22–23.

94 Ibid., 31.

95 Andro Linklater, Owning the Earth, 26. See chapter 2, footnote 26, 407. While no document exists to show that this famous quotation was uttered by Massasoit, the quote is consistent with the cultural dilemma he faced between the governance of his people and his sworn friendship with the colonists, in particular the man who saved him on his death bed, Edward Winslow. Massasoit was recorded as saying,
In stark contrast to Massasoit’s beliefs, the English relationship with nature was increasingly exclusive and contractual. During early American settlement, men of European descent were likely focused on individual freedom to acquire their own property, although the founders held varying views. Statesman Thomas Jefferson was concerned about the potential for concentration of land wealth and “enormous inequality” that would produce “so much misery for the bulk of mankind.” In a letter to Madison, Jefferson wrote, “…it is clear that the laws of property have been so far extended as to violate natural right.” He argued that government intervention was necessary to restrict property rights. Thus, in his draft of the Declaration of Independence, Jefferson did not mention property rights and, instead, gave preeminence to the natural right of happiness, which had been incorporated into English law and theory. In the English tradition, the pursuit of happiness was a reference to classical and Scottish Enlightenment philosophers, as well as Christian theologians. As Carli Conklin writes:

The pursuit of happiness…refers to man’s ability to know the law of nature and of nature’s God as it pertains to man, and man’s unalienable right to then choose to pursue a life of virtue or, in other words, a life lived in harmony with those natural law principles. The result would be *eudaimonia* or man’s own real and substantial happiness.

“The English are my friends and love me,” yet the English continued to acquire Wampanoag land as private property.

96 Ibid., 27.


98 Ibid., 210.

The interpretation of happiness as human flourishing, or *eudaimonia*, had emerged in Greek tradition. *Eudaimonia* was deemed the result of thought that brought about good action. In *Nicomachean Ethics*, Aristotle wrote that “the happy man lives well and does well; for we have practically defined happiness as a sort of good life and good action.”100 The learned Jefferson was likely aware of the Greek concept when he incorporated happiness into the Declaration.

In 1789, America’s founders chose to highlight due process of property ownership instead of the pursuit of happiness, as evident in the Bill of Rights.101 In the Fifth Amendment, the authors put forth the idea that no person should be denied ownership without due process. From 1800 to 1820 in the ever expanding US, the nation sold 13 million acres of federal land to the private sector, as allowed under Article 4, Section 3, of the US Constitution.102 Thus, the scales of justice were already tipping toward ownership rights without duties, a process begun with the Puritan practice of ownership, and away from the common good.


Still, Jefferson continued to argue for land development in the public interest, not the natural right of individuals to own property. Jefferson, who had come by his land through inheritance, was concerned about the influence of land speculators, some of whom were founders, such as George Washington\textsuperscript{103} and Benjamin Franklin.\textsuperscript{104} In 1789, before returning to the US from Paris, Jefferson proposed the adoption of a European arrangement in which land was leased to users during their lifetime, as long as the land was not abused.\textsuperscript{105} But Jefferson’s public position would change during his presidency. In 1803, President Jefferson agreed to outright sale of public land within the Louisiana Purchase, totaling 827,000 square miles, territory that the French had appropriated from Native American tribes.\textsuperscript{106} Thus, paradoxically, the man who invoked the common good and social happiness ultimately became the catalyst for privatization without communal obligations, laying the “foundation for the greatest private property society in history.”\textsuperscript{107}

At this point, the number of Americans who claimed individual property escalated, and increasingly the owners were responsible for harms of land spoilage and pollution.

At the same time, the practice of living in harmony with the sky, rivers, and land was kept alive by Native Americans whose traditions resisted the concept of individual


\textsuperscript{104} Walter Isaacson, \textit{Benjamin Franklin: An American Life} (New York: Simon & Schuster, 2003), 270.

\textsuperscript{105} Linklater, \textit{Owning the Earth}, 209. The term used to describe the leasing arrangement is called usufruct.

\textsuperscript{106} Ibid., 210. The US first bought the land from its native inhabitants.

\textsuperscript{107} Ibid.
property ownership. However, their beliefs threatened settlers who subscribed to the belief ownership and for their own uses.\textsuperscript{108} President George Washington’s secretary of war, Henry Knox, predicted that Indians would be wiped out by the incoming settlers “if they did not learn a love for exclusive property.”\textsuperscript{109} While the predicted genocide did occur, what lived on is the tradition of living with nature, which many tribes viewed as the “Great Spirit.”\textsuperscript{110} This communal relationship with nature was antithetical to American beliefs in individual freedom with few economic constraints.

**The Conflation of Individual and Economic Freedom**

The Kantian idealism that the moral law can be found within influenced Ralph Waldo Emerson, who developed an early American philosophy and literary movement called transcendentalism. In 1842, Emerson tied transcendentalism directly to Kant’s philosophy of categorical imperatives, or transcendental forms, through which experience was filtered and provided access to a priori knowledge.\textsuperscript{111} Emerson’s philosophy inspired his contemporaries, including Thoreau who retreated to Emerson’s pond and penned the classic *Walden*. Thoreau viewed authority as one’s own mind, not to a Hobbesian external authority. Transcendentalism complemented the American narrative of rugged individualism and self-reliance within a free society, and also meshed with the idea of duties. At the same time, for some followers transcendentalism was tied to collective

\begin{itemize}
  \item \textsuperscript{108} Ibid., 210.
  \item \textsuperscript{109} Ibid., 251.
\end{itemize}
action, beyond the self-legislative ideals of Kant. Before the Civil war, action included improving public education and ending the inhumane treatment of Native Americans and enslavement of African Americans.

After the Civil War, individual freedom and activity became ever more conflated with the economic freedom to utilize America’s abundant resources without restraint. Property-owning classes propelled rapid industrialization that eventually created new social ills, such as soot from coal emissions. Because economic liberty far outweighed concerns about protecting nature for the benefit of all others, the act of pollution became a right extended to private property owners. The late 19th century conservation movement that began in California represented a sign that some Americans were reconsidering their destructive relationship with nature, powerful vested interests were extracting natural resources on private and public lands. For example, timber companies were felling forests for railroads and miners extracting coal for energy. From the 1890s to the 1950s, the US led the world in coal extraction, which left the land degraded with open pits and contaminated rivers, and the air polluted with emissions from coal plants. Moreover, the deforestation from mountain topping for coal led to rising carbon emissions.

---


113 Goodman, “Transcendentalism.”


115 Ibid., 32.
American industrialists and complicit consumers did not show signs of restraining their anti-environmental activities to protect others from air and water pollution.

In 1920, economist Cecil Pigou expressed concern that private corporations were not taking responsibility for the social consequences of their growing negative externalities, such as air and water pollutants. In *The Economics of Welfare*, Pigou pointed out the “failures and imperfections” of the market, including the socially harmful effects of industrial pollution. He made the case that societal harms from private gains require government intervention with incentives and rules. For example, large-scale pollution required government intervention in the form of taxes, subsidies, and regulations that include zoning laws. Yet, many political and economic public intellectuals, such as Frederick Hayek, continued to espouse the grand narrative of economic freedom derived from natural laws. They argued that government intervention was unnatural and produced unintended consequences. Thus, in early 20th century, the American economy was not transformed in response to Pigou’s concerns.

By the mid-20th century, energy needs shifted to oil to power transportation—cars, busses, trucks, ships and airplanes—that produced a range of harms from oil extraction and vehicle production, as well as the rise of GHG emissions. Extraction took place primarily in southern California, Texas, Oklahoma, and the Gulf of Mexico, and oil spills

---


118 Ibid., 44.
from tankers. Even the manufacture of a vehicle resulted in the same level of emissions as did driving a car for ten years. Moreover, GHG emissions from oil refineries and vehicles made the US the number one emitter of carbon dioxide. Although emissions from oil were cleaner than coal, the impact of oil- and coal-driven development has damaged the biosphere and reduced biodiversity, as well as harmed communities.

Currently, natural gas is cleaner than oil, GHGs continue to accumulate. Indeed, the US and Western Europe have been the primary contributors to the Age of the Anthropocene in which humans have shaped and destroyed nature with as much force as geological activity. Westerners are conflating individual freedom with economic freedom and, thus, filling up carbon sinks, which is destabilizing the climate and degrading humanity.

In other words, the belief in individual freedom did not call for respecting the natural order, which men of antiquity had revered. Instead, individual freedom coupled with unrestrained economic growth has split humanity from the rest of nature. The disappearance of both the tangible commons and the concept of the commons has allowed extensive industrial pollution and consumerism, which has damaged the life-giving biosphere—from ozone holes to a destabilized climate. To reclaim our duty to respect the natural order, philosopher Luc Ferry considers how ecologists are harkening back to Stoic beliefs:

For ecologists—and in this sense their ideas are akin to aspects of ancient Greek thought, without their necessarily realizing it—nature forms a harmonious totality which it is in our interest to respect and even to imitate. In this sense, the ecologists’ conception of the ‘biosphere,’ or of ‘ecosystems’, is close in spirit to that of the cosmos. In the words of the German philosopher Hans Jonas, a great theorist of contemporary ecology, ‘the ends of man are home in nature.’ In other

---

words, the objectives to which we ought to describe on the ethical pane are already inscribed, as the Stoics believed, in the natural order itself, so that our duty—the moral imperative—is not cut off from being, from nature as such.  

Philosophically, the circle of human beings considered worthy of dignity have grown from only the rank and privileged males in antiquity to the global community of the human species. Yet, there remains a yawning gap between espousing respect and showing respect. To actually demonstrate respect, it is paramount that we become “stewards of nature,” as declared philosopher Kateb.  

While humans are only part of nature, we are the vital species that can determine how to protect vital resources for future generations, including those who are poor and the most vulnerable.

Americans have the opportunity to build sustainable practices across local institutions and neighborhoods, which could build greater momentum for a subnational climate movement. As a matter of dignity, we must accept our duties, even while Congress does not. In our subnational efforts, we must try to wean ourselves from the indulgences of systemic offsets and, instead, turn to the Kantian “kingdom of ends.” Climate change is a moral proxy for demonstrating how the wealthy treat those who are less advantaged and live downstream from pollution.

Throughout US history, individual liberty and ongoing economic growth have been central to the nation’s values. But these ideals have produced harmful levels of pollution, such as the “industrial wastelands” of the Gilded Age. The ideals also

---

120 Ferry, Brief History, 32.

121 Kateb, Human Dignity, 5.

122 Putnam, Bowling Alone, 373.
allowed the pillaging of abundant resources, although a notable exception was the
initiative spearheaded by President Theodore Roosevelt to create public spaces and parks
for the common good (see chapter 3). The liberty to create individual prosperity did not
come with commensurate responsibilities to live in harmony with nature and show
respect for all communities, including those vulnerable to pollution. Instead, throughout
the nation’s history, Americans have continued to be swept up in rights of individuals and
corporations, including those of land speculators, as Jefferson feared. Therefore, to
protect the atmosphere from anthropogenic climate change, individuals within their
communities must revisit the commons and shift the social equilibrium toward our
communal responsibilities.
CHAPTER 5. REVISITING THE COMMONS AND INTERGENERATIONAL DUTIES

Privatization that began with English land enclosures has evolved over hundreds of years to encompass large commercial enterprises, which pollute the environment. Currently, the sinks serve the needs of private enterprise for storage of industrial waste. As the sinks fill, additional carbon remains in the atmosphere, which increases warming and intensifies extreme weather, according to the IPCC.\(^1\) Thus, the overuse of the sinks is damaging the biosphere and harming human beings. In 2016, the US was the second biggest emitter of GHGs in the world.\(^2\) America’s stakeholders in business and government, as well as individuals, have lived fossil fuel-driven lives with little restraint. At this point, we stand at the precipice of irreversible extreme weather patterns that will change how we live on the planet Earth.

From a Kantian view, the climate crisis is a contemporary moral proxy. The crisis demands that we re-examine and re-imagine social practices within a moral framework, rather than merely an economic one. Given Kant’s belief in a universal dignity, which requires us to act in accordance with our duty to demonstrate respect for others, we must view the biosphere as a commons, a collective resource for the benefit of all. Therefore,

---


\(^2\) Johannes Friedrich, Mengpin Ge, and Andrew Pickens, “This Interactive Chart Explains World’s Top Ten Emitters, and How They’ve Changed,” World Resources Institute, April 11, 2017, accessed March 7, 2018, http://www.wri.org/blog/2017/04/interactive-chart-explains-worlds-top-10-emitters-and-how-theyve-changed. On an annual basis, the nations of China the US, plus the EU, contribute more than half of the world’s carbon emissions.
we have the duty to mitigate emissions and restore and expand local sinks. In carrying out our duty, we must come to an understanding of shared values on which we can agree and determine what we are willing to do to show our respect for others. For example, within our communities we must identify our level of commitment to protect the commons for current and future generations, especially the most vulnerable.

The task before us requires nothing less than a wholesale cultural turn toward a moral framework that encompasses a wide swath of social issues, not just climate change. This turn requires community dialogues about our duty to demonstrate respect for the dignity of all. In determining how to protect the commons, the dialogue must include a discussion about our communal responsibilities, as well as our civil rights. An option is for communities to examine customary principles, some of which are being adopted by UN treaties, to inform discussions about our duties toward one another.

In particular, the intergenerational principal is relevant to the climate crisis because it requires us to leave the planet in a condition no worse than we inherited, as a legacy to the next generation. To implement this cultural turn will require direct citizen participation and citizen-led institutions to ensure that the commons is protected, not left to vested interests. Ultimately, the turn will necessitate changes in social and economic practices of daily living, including developing sustainable transportation, housing, and agriculture, to protect the atmospheric commons.

About a half century ago, American philosopher and ecologist Garritt Harden put forth the theory that the commons is not a workable concept. He believed that individual self-interest ultimately prevails and causes spoilage and resource degradation. Hardin’s
theory capsulized the narrative that the forces of privatization, not the commons, are the answer to protecting vital resources. Notably, Hardin made an exception to his theory in the case of transboundary pollution. He understood that the solution to pollution could not be left to free markets only.

**The Tragedy of the Anti-Commons: Privatization Without Moral Duties**

In 1968, Hardin reasoned in his essay, “The Tragedy of the Commons,” that to address many societal problems, such as overpopulation, we must rely on a moral framework. He proclaimed that “the population problem has no technical solutions; it requires a fundamental extension in morality.” In his essay, Hardin highlighted the consequences of the freedom to damage resources, or “fouling one’s nest,” by overfishing, over grazing of sheep, and overcrowding in places like parks. He pointed to the population explosion as “overloading” the “natural biological and chemical cycles.” As a result, Hardin posited, mankind has been prevented from providing the greatest good for the most people, echoing the work of English philosopher Jeremy Bentham, the founder of utilitarianism. Thus, Hardin called for an appreciation of the ability of privatization and enclosures to do the greatest good to care for the land. He acknowledged that the current legal system based on private property and inheritance was

---


4 Ibid., 1245.

5 Ibid., 1243.

6 Ibid., 1245.
“unjust,” but he saw no viable alternative. 

“Injustice is better than total ruin,” he declared, dismissing the concept of the commons.

However, in parallel, Hardin was concerned about the growing “cesspool” of pollution—from nuclear waste and chemicals to billboards. He believed that our “particular concept of private property” had set the stage for harm by “favoring pollution.” Industrialists were dumping their waste in the air and water as if the vital resources were extensions of their private property. Also, he noted that the transboundary nature of these resources made it impossible for pollution to be fenced. Ironically, Hardin’s essay was published during the years in which NOAA scientists at the Mauna Loa Observatory in Hawaii were detecting increasing evidence that carbon emissions were rising and contributing to greenhouse warming (see chapter 1). Like Pigou (see chapter 4), Hardin put forth the idea that pollution requires the restraint of “coercive laws and taxing devices” that made it “cheaper for the polluter to treat his pollutants than to discharge them untreated.” He recognized that inclinations, such as corruption, can arise from within bureaucracies, in today’s society exemplified by cap-and-trade systems. He quoted John Adams’ concern about the moral integrity of bureaucrats: “Who shall watch the watchers themselves?” Hardin did not provide a moral framework for approaching

---

7 Ibid., 1247.
8 Ibid.
9 Ibid., 1245.
10 Ibid. Hardin is referring to rules of coercion that are agreed to by a majority of citizens affected by the ruling.
11 Ibid, 1247. The phrase “who will watch the watchers?” can be traced to the Roman satirist Juvenal, who lived in the first or second century CE and wrote, “but who will guard the guards?” in Satires.
pollution, despite his essay’s appeal to provide such a framework to address societal threats. Although Hardin believed that self-regulation comes from virtuous behavior, he saw the necessity for administrative laws and “mutual coercion,” or agreements based on the consent of the majority affected.\(^\text{12}\)

Despite harm from pollution, Hardin believed that the concept of the commons was “too horrifying to contemplate.”\(^\text{13}\) In the 20\(^{\text{th}}\) century, public conversations about the idea of a commons in which societies could develop social practices to stop atmospheric destabilization did not exist. However, in the last decades of the 20\(^{\text{th}}\) century, the concept of the commons and the need to protect and share vital resources emerged within circles of communitarian philosophers and social scientists, who were at odds with Hardin’s insistence on privatization to protect resources.

**Revisiting the Commons within a Moral Framework**

The idea of accepting responsibilities to further the common good emerged in the work of philosopher Amitai Etzioni and political economist Elinor Ostrom. Etzioni put forth the concept of a Golden Rule that applied to society, not just individuals. Ostrom affirmed that citizen collaboration based on trust and reputation has been shown to serve to protect the commons. Ostrom was awarded the Nobel Prize for Economics in 2009 for

---

\(VI\), lines 347–48. The phrase referred to the impossibility of enforcing moral behavior when the enforcers were themselves corrupt. For translation, see Juvenal, *The Satires*, trans. Niall Rudd (Oxford: Oxford University Press, 1992).

\(^\text{12}\) Ibid., 1247. Hardin believed that appealing to individual conscience, which he viewed as an effort to manage behavior by guilt, was not effective.

\(^\text{13}\) Hardin, “Tragedy,” 1247.
her work on commons governance. In recent decades, Ostrom and Etzioni were among the strongest voices among public intellectuals calling for revisiting the commons tradition. In effect, their ideas about the commons counter the behavior of “free riders,” who use resources free for their own use and benefit, while ignoring the costs and harm to others.

Ostrom countered Hardin’s strict privatization approach with a “third way” to manage the commons that was neither strictly private nor governmental, as she outlined in *Governing the Commons: The Evolution of Institutions for Collective Action* (1990). Her way was citizen-led institutions that establish rules for commons protection and carry out specific functions of implementation, such as monitoring, by utilizing either government departments or private sector partners.\(^{14}\) They could also interact with multiple levels of governance in a “polycentric approach,” which enables diversity and scale.\(^{15}\) “We build enough diversity in the system to match the diversity in the world,” she posited. Her approach is the opposite of top down management or “imposition of rules from the outside,”\(^{16}\) as a Hobbesian society would require.

Based on Ostrom’s field research on community water management, which began in Los Angeles, she concluded that citizen-led cooperatives protect commons resources


for the long term. Ostrom concluded that cooperatives are most effective when they follow her tenets of self-governance, which include: a) matching governance rules with local conditions; b) ensuring that those affected by the rules can modify them; c) providing low-cost means for dispute resolution; and d) using graduated sanctions for violators. Assuming these tenets were followed, engaged citizens are able to protect commons, thus dispelling Harden’s “tragedy of the commons” philosophy.

Ostrom argued that communities with their trusting relationships are uniquely positioned to oversee commons resources. In these communities, collaborative citizens are more likely to personally know which persons are likely to “bear their share,” or fulfill their obligations, or who have reputations of generosity, or “beneficence” to reference to Kant’s term. Even if they did not know others, over time they could get to know them and overcome any fears that they would be “suckered” into fulfilling obligations when others would not do so. Of course, Kant would argue that persons should act from duty, not a need for reciprocity. Ostrom’s belief in the ability of collaborative relationships to support governance is an echo of the work of Putnam, who argued that social networks of highly engaged communities are more likely to accomplish good deeds. In these networks, persons recruit one another to accomplish good deeds that attend to others’ welfare. A strong predictor of this ‘helping’ is civic engagement.

---

17 Ostrom, *Governing the Commons*, 91–102. For list of all principles see Table 3.1, “Design principles illustrated by long-enduring CPR institutions,” 90.


19 Ostrom, “Moral Dimensions.”

Ostrom cited successful models of collective action that have preserved “finite common pool” resources, including those in the mountain and meadow villages of Switzerland and Japan, the fishing villages in Maine and Indonesia, forest villages in Nepal, and institutions that provide irrigation in Spain and the Philippines. This work argues that to protect the atmospheric commons more communities must recognize the finite capacity of local and regional carbon sinks and take action to restore and expand them, as well as mitigate emissions.

Ostrom argued that climate change is a prime example of a collective action problem that is better addressed at both local and regional levels, a polycentric approach. Understanding climate change within one’s community, as opposed to understanding it as a global issue, misses opportunities to tap into community knowledge and engagement. Given this viewpoint, Ostrom urged discussing climate change in the context of local and even household level to encourage family and neighborly conversations and understanding of climate issues and encourage sustainable practices. She advocated for local climate initiatives that match community ecosystems and allow faster ramp up and experimentation in climate activities. At the same time, communities can be connected with other communities through climate information networks. Thus, communities can

---


come to their understandings and take local action while learning from other communities and building collective action.

Communitarian Amitai Etzioni echoed Ostrom’s advocacy of the citizen participation model for community activity, although Etzioni grounded his model in the Golden Rule for societies. His rule calls for equilibrium between community harmony and individual autonomy, rather than the maximization of either approach. Etzioni made the case that modern society needs to rebalance the current equilibrium, placing greater emphasis on community responsibilities, rather than individual rights and autonomy at the expense of a good society. In the case of climate change, communities cannot focus on rights to the exclusion of related duties, although the communitarian impulse must be tempered to allow for a reasonable level of individual autonomy. In the current political milieu, those focused on duty and moral order tend to be social conservatives, and those focused on autonomy are likely every other major group: laissez faire conservatives, neo-conservatives, civil libertarians, and liberals. Thus, once social conservatives accept their moral duty to be stewards of a stable atmosphere, they could be committed to ambitious climate initiatives that restrain emissions and consumption.

Etzioni urged us to examine our balance of rights and duties in a historical context. For example, while the prominence of individual liberties was “well suited to the eighteenth-century world of Adam Smith,” that “license” has lessened individual commitments to critical obligations in contemporary society. Etzioni observed that by

---


the end of the 20\textsuperscript{th} century, excessive liberties came at the expense of duties to build strong and healthy communities.\textsuperscript{26}

Etzioni encouraged communities to cultivate mutual understandings of their shared values, including the Golden Rule of rights and responsibilities.\textsuperscript{27} He envisioned citizens engaging in “moral dialogues” to explore and determine their shared values,\textsuperscript{28} a vision shared by Pope Francis. Etzioni believed that with shared understandings and the identification of shared values, communities could strengthen their moral voices. In turn, communities are more likely to voluntarily enforce community rules and social practices. He also recognized, like Hardin and Ostrom, that sometimes coercion is required to establish social order.\textsuperscript{29}

He argued that shared core beliefs are more important to community solidarity than shared opinions. To illustrate the point, Etzioni said he personally shares with environmentalists the core value of stewardship of the earth and a “moral commitment to the protection of the environment.” However, he noted that he might disagree with others about what he is willing to do to save the wetlands versus to prevent the extinction of the

\textsuperscript{26} Ibid.

\textsuperscript{27} Ibid., 4.


\textsuperscript{29} Etzioni, Golden Rule, 13.
spotted owl. Therefore, he will hold on to his core values, shared with the community, but may be swayed on what he views as secondary matters. Conversely, if his community disagrees with his core conviction about stewardship, he is morally obligated to become a “conscientious objector,” which echoes the protests of the poor against the disappearance of the commons. At the point that our core beliefs are disavowed, we must “refuse, rebel, reject, and join with like-minded others to try to change the course,” insisted Etzioni.\(^{30}\) In other words, we must become engaged citizens to try influence the course of history, which turns on moral values.

In the 21\(^{\text{st}}\) century, the communities envisioned by Etzioni and Ostrom would be engaged to ease the threat of climate change. They would find their shared values and cultivate a moral voice. Their citizen-led institutions and associations would figure out their rules, incentives, and even forceful measures to help build and secure sustainable neighborhoods and institutions. Their efforts would reflect the societal Golden Rule, finding equilibrium between rights and responsibilities, autonomy and social order, and they would nurture bonds of trust that enable social capital and community initiatives. Indeed, in the 21\(^{\text{st}}\) century, many communities are considering or already taking these actions.

At this moment in history, perhaps only three decades from global warming exceeding 2\(^{\circ}\)C, our public intellectuals and activists need to revisit the commons and determine how to protect it. They must overcome the centuries-old idea of individual and exclusive property ownership with little restraint, a grand narrative of individual liberty

and economic freedom that has been adopted at the expense of planetary health. That narrative has been perpetuated by libertarians such as Ann Rand, author of *Atlas Shrugged*, whose ideology of “unbridled capitalism” has been embraced by the Koch brothers, major fossil fuel energy industrialists and PAC contributors.\(^{31}\)

Under the Trump administration, individual property rights with few restraints are exalted. Trump champions economic freedom through decreased tax rates and deregulation that reduce community obligations.\(^{32}\) In his *The Art of the Deal*, Trump boasted about “liking to make deals, big deals,”\(^{33}\) motivated by self-interest, which directly conflicts with the Kantian ideal of acting out of respect for the dignity of others and treating others as ends, not means. Trump’s moral stance is reflected in what Etzioni referred to as the “unbounded autonomous pose” that values heightened individualism at the expense of community.\(^{34}\) In the 2016 presidential campaign, voters could not have missed Trump’s demonstrable posturing of self-referential individuality: a representation of the nation’s grand narrative of boundless individual and economic freedom.

It remains to be seen whether the concept of the atmospheric commons, protected by citizen-led institutions, will take hold. Perhaps the cultural and political pendulum will swing toward communal responsibilities based on a moral foundation that calls for

\(^{31}\) Mayer, “The Kochs V. Cato.”


\(^{34}\) Etzioni, *Golden Rule*, 25.
dignifying all others. Given the American tradition of civic engagement, communities could lead the way in showing respect by building ambitious subnational climate initiatives, as a matter of dignifying others.

**Protecting the Commons as a Matter of Dignity**

The Kantian idea that the human species has a “unique dignity” that entails duties to others, which have been supported by traditions within religious and philosophic communities.\(^{35}\) Today, those duties include protecting nature, such as the atmospheric commons, for the sake of humanity’s well-being. In 2015, Pope Francis declared in his *Encyclical Letter Laudato Si’* that the climate is a commons “belonging to all and meant for all.”\(^{36}\) Francis proclaimed that ensuring natural resource conservation calls for an equilibrium between the markets and the commons,\(^{37}\) echoing the beliefs of Etzioni. While the current pope did not negate the role of privatization in society, he pointed to the harm and suffering from unrestrained emissions, declaring “we cannot fail to consider the effects on people’s lives of environmental deterioration, current models of development and throw away culture.”\(^{38}\) In his encyclical, Pope Francis focused on the need to show respect for the poorest living at subsistence levels, whose survival often depends on natural reserves for agriculture, fishing, and forestry; it is these vulnerable

\(^{35}\) Ibid., 31.


\(^{37}\) Ibid., 5. In the encyclical, Pope Francis underscored the “legitimate right to private property,” but reiterated the social mortgage on all private property, “in order that goods may serve the general purpose that God gave them,” 69.

\(^{38}\) Ibid., 31.
poor who are most likely to become climate refugees.\footnote{Ibid., 20.} He stressed that the rich and poor, including refugees, must have equal dignity, which obligates us to fervently protect the earth, our common home. This duty to protect the commons requires a “global ecological conversion,” affirmed Pope Francis, invoking his predecessor, Pope Saint John Paul II.\footnote{Ibid., 5. Pope Francis invoked Saint John Paul II in his overview of popes that have reminded humankind of the need to care for the earth.}

At the same time, public intellectuals are increasingly arguing for economic systems that support our common home. Economist Jeffrey D. Sachs argued in \textit{Common Wealth} for cap-and-trade carbon systems\footnote{Jeffrey D. Sachs, \textit{Common Wealth: Economics for a Crowded Planet} (New York: Penguin Books, 2008), 106.} and Joseph Stiglitz et al. advocated in \textit{Mis-Measuring Our Lives} for specific indices of well-being that result in sustainable development.\footnote{Joseph E. Stiglitz, Amartya Sen, and Jean-Paul Fitoussi, \textit{Mis-Measuring Our Lives} (NewYork: The New Press, 2010).} Former Vice President Al Gore advocates for values-based leadership that would reform our democratic capitalism so that the laws of nature match the laws of the economy.\footnote{Al Gore, \textit{The Future: Six Drivers of Global Change} (New York: Random House, 2013), XXV.} These and many other public intellectuals, including philosophers and activists, have contributed to a renewed understanding of the need to view economic and legal systems from a moral framework that values well-being. Many recognize the atmosphere as a commons to be protected for all.
A shared understanding of the commons is emerging in customary principles within institutions and treaties, such as the Paris Agreement, even as the Trump administration distances itself from the agreement. These principles could be adopted by subnational climate agreements and civic organizations. Indeed, some associations have already incorporated the principles in their mission statements.

**Dignity and the Rise of Universal Customary Standards to Protect the Atmospheric Commons**

Prior to World War II, the theory of legal positivism, which gave preeminence to nation-state laws, dominated legal theory. The theory, which proclaimed that no rights exist other than those granted by the state, flourished in the US and Europe, as well as Russia. However, the theory simultaneously allowed legal atrocities, such as those in Nazi Germany. As a result, under the League of Nations, world leaders created an international body, the United Nations, which committed to recognizing and protecting the higher moral law of dignity for every person, regardless of the laws of their own sovereign state. Thus, fundamental human rights are recognized, not conferred by a nation-state. Dignity itself is recognized, both formally and tacitly, in the customary principles espoused by UN agreements.

The recognition of dignity as a foundational value has been growing since the 1948 adoption of the UN Declaration of Human Rights (UNDHR) and successive treaties. UNDHR, which was signed by 120 nations that included the US, invoked dignity

---

in the first article: “All humans are born free and equal in dignity and rights. They are
dowered with reason and conscience and should act towards one another in the spirit of
brotherhood.” While human rights are not the focus of this work, the invocation of
dignity in the discourse over human rights has helped inculcate the value of dignity in our
language and customary standards. Moreover, the UNDHR supports community
obligations, not only rights, to carry out our duties to humankind.

In 1972, dignity was invoked in the first environmental treaty, the Declaration of
the UN Conference on the Human Environment (UNCHE) in Stockholm, which warned
against environmental damage from human activity. Under the UNCHE, leaders formally
cited dignity and well-being as foundational values that should prompt humankind to
protect the environment for current and future generations. The declaration’s first
principle states:

Man has the fundamental right to freedom, equality and adequate conditions of
life, in an environment of a quality that permits a life of dignity and well-being,
and he bears a solemn responsibility to protect and improve the environment for
present and future generations.

In 1970, just a year before UNCHE ratification, the EPA was formed to enforce
clean air and water rules and regulations to protect the well-being of all Americans. The

---

45 UN Universal Declaration of Human Rights, Article 1, accessed December 6, 2017,

46 Ibid., Article 29. Some observers believe the treaty framers missed the opportunity to model
obligations rather than entitlement rights. For reference, see Glendon, A World Made New, 189.

Human Environment,” Audiovisual Library of International Law, United Nations, June 16, 1972, accessed
reservation over the right to equitably meet sustainable development for current and future generations.
creation of the EPA reflected concern over pollution, including DDT and emissions from catalytic convertors, which had led to the alliance of dozens of environmental associations and concerned citizens’ groups to support the first Earth Day.\textsuperscript{48} Laws can act as a mirror of societal values, according to law professor Kenneth Manaster. He noted, to some extent, law is an expression of a society's values and policy preferences. Beyond this, however, the power and influence of law make it an important arena for the clarification and development of new trends in human values. Thus, realization of the facts of life will lead to beneficial changes not only in our actions but also in our values.\textsuperscript{49}

Yet, a half century after the EPA’s formation, the US still lacks a comprehensive legal framework to protect humanity from climate change. In the last decades of the 20\textsuperscript{th} century, the environmental movement faced the countervailing forces of individual liberty, limited government, and free markets, as well as civic engagement, and these forces remain. Embedded in anti-climate advocacy work, such as the massive political contributions of energy giants Koch brothers, is the disregard for respecting others, especially those most vulnerable to harm from climate destabilization. Generally, efforts to suppress federal legislation for climate protection have been successful, with the notable exception of the regulations to protect the ozone (see chapter 3).

But despite the anti-environmental backlash, international customary principles have emerged to support the dignity and well-being of current and future generations, and


some find acceptance within the US. So while the principles are incorporated in treaties and international law, they are also cited in domestic court rulings, institutions, and corporate social responsibility policies. Related to the environment and climate change, customary principles include the Common Heritage of Mankind, Common Concern, Common but Differentiated Responsibility (and Respective Capabilities), the Precautionary Principle, Intergenerational Equity, and Sustainable Development. The force of these collective principles can be viewed as grounded in the foundational value of dignity because they require protecting the commons out of respect for others.

The Common Heritage of Mankind (or Humankind) principle holds that certain resources and cultural sites should be held in trust for future generations. The principle was incorporated in the World Heritage Convention of UNESCO (UN Educational, Scientific and Cultural Organization) and the Law of the Sea, as well as invoked in reference to other domains, such as outer space and the Antarctica. The convention, ratified by the US in 1972, conserves more than 1,700 approved sites, 23 of which are

---


located in the US, which the convention wants to protect from climate change.\textsuperscript{52} Thus, the application of the Common Heritage of Mankind principle supports the mitigation of GHG emissions. Yet, on October 12, 2017, the Trump administration announced the US would withdraw from UNESCO, allegedly because of an anti-Israel bias and to save money.\textsuperscript{53}

The UN Convention of the Law of the Sea (LOS), ratified in 1994, also invokes the Common Heritage of Mankind principle to protect natural resources in the deep seabed and marine environment beyond the national jurisdictions. The treaty principle views the high seas as a commons, “taking into account the needs and interests of mankind as a whole.”\textsuperscript{54} While the US did not ratify the LOS because the treaty restricts seabed mining, the nation’s agencies and institutions do recognize the codification of the customary principle of protecting the marine environment.\textsuperscript{55} Under LOS, ocean

\textsuperscript{52} The restoration of Everglade wetlands and marshes has been delayed by extreme precipitation and drought cycles, resulting in unprecedented salinity levels and a die off of grass and consequential algae blooms.


acidification and pollution from rising emissions could one day be interpreted as harmful to the interests of mankind. After all, filling up the largest carbon sink, the ocean, is harming mankind as a whole, as scientist Roger Revelle discovered nearly 60 years ago at Scripps.

The common concern principle appears in the preamble of the UN Framework Convention on Climate Change (UNFCCC), ratified in 1993. Under the framework, the principle acknowledged that the “change in the Earth’s climate and its adverse effects are a common concern of humankind.” This customary principle, which first emerged in 1949 to protect marine resources, outlines duties for cooperation and collective action that the UNFCCC extends to climate stabilization, including the duty of a nation state to provide notice and to consult in good faith when its activities inflict harm on neighboring nations. That is, a sovereign state has the duty to warn other states of impending harm from its activities, which could include unexpected and high levels of methane leaks or higher than reported carbon dioxide emissions. In this case, the procedural standard of

today. LOS enforcement could accelerate retrofitting oil rigs for wind turbines. This interpretation would reflect a change in understanding and terminology that depicts rigs as “sea installations,” rather than “vessels, which would allow coastal states the authority to take comprehensive safety precautions against environmental disasters that harm sea life, affecting coastal populations as well. For background, see Rebecca K. Richards, “Deepwater Mobile Oil Rigs in the Exclusive Economic Zone and the Uncertainty of Coastal State Jurisdiction,” Journal of International Business and Law 10, no. 2 (2011): 387–410, accessed March 5, 2018, https://scholarlycommons.law.hofstra.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1176&context=jibl.


58 The duty to warn of harm to another state was extended to environmental damage in 1941 in the Trailer Smelter arbitration involving a US action brought against Canada for damages caused by air
monitoring, verifying, and reporting (MVR) supports the principle of common concern, which dignifies others.

The overarching principle in Kyoto Protocol is “common but differentiated responsibility,” or CBDR, which has a long history in environmental treaty making, including incorporation in the 1987 Montreal Protocol. The CBDR principle evolved to become CBDRRC that includes “respective capabilities” of developing nations to contribute to climate activity, recognizing the handicap of limited resources and domestic instability. As of the 2015 Paris Accord, all parties have a duty to accept climate obligations to global populations within their capability (see chapter 2).

Another customary standard, the Precautionary principle, gives more weight to avoiding risks, rather than post hoc remedies. The principle has been invoked in many treaties, including the Montreal Protocol, the Rio Convention, the UNFCCC, Kyoto, and NAFTA, as well as WTO cases.\(^59\) While the Precautionary principle has presented opportunities to reduce emissions in Europe, the US legal tradition has not embraced the standard specifically related to climate change risks.\(^60\) Instead, regarding climate change,

---

\(^59\) The precautionary principle is addressed in the following treaty articles: Montreal Protocol (panel of experts can advise on whether to speed up adjustments and add chemicals based on precautionary principle), the Rio Convention (principle 15), the UNFCCC (article 3), Kyoto, and NAFTA (715 (4) SPS), as well as WTO cases, such as the Beef Hormone case (1996). The precautionary principle has been incorporated in environmental treaties that the US has ratified, including the Montreal Protocol and Rio Convention.

\(^60\) Jonathon B. Weiner and Michael D. Rogers, “Comparing Precaution in the US and Europe,” *Journal of Risk and Research* 5, no. 4 (2002): 321, accessed December 27, 2017, https://scholarship.law.duke.edu/cgi/viewcontent.cgi?referer=https://www.bing.com/&httpsredir=1&article =1985&context=faculty_scholarship. See page 322 for a comparative list of issues on which Europe is more precautionary than the US about such risks as GMOs, hormones in beef, toxic substances, phthalates, guns, and antitrust/competition policy, as well as climate change. The list of issues on which the US is more precautionary than Europe includes new drug approval, the ban on CFCs in aerosol spray cans and
the US courts are more likely to invoke a post hoc tradition that requires plaintiffs to show a direct causal relationship between rising emissions and personal harm, as opposed to the EU’s more qualitative and informal understanding of the relationship.\textsuperscript{61} A post hoc approach places the burden of proof on victims to demonstrate causation, breach of duty, and damages. In the US tradition, remediation in civil courts may require a cost-benefit analysis, which may not be aligned with the values of social well-being, such as saving lives, improving health, and preserving biodiversity.\textsuperscript{62} Another challenge to remediation could be difficulty in identifying the relevant polluters or the relevant damages.\textsuperscript{63} Indeed, the harm may be without any financial remedy or replacement, as many things are priceless and “cannot be compared” with other things, as Kant maintained.\textsuperscript{64} Thus, a post hoc approach to climate change will leave many communities, if not all, in harm’s way.

The US has made exceptions to the post hoc tradition in the face of imminent and irreversible harm. For example, in 1991 the federal government invoked the precautionary principle in the 1991 amendment to the 1967 Clean Air Act, which

\footnotesize{the ban on supersonic transport to protect the stratospheric ozone layer, nuclear energy, lead in gasoline, particulate air pollution, highway safety, teenage drinking, cigarette smoking, mad cow disease in blood donations, potentially violent youths, ‘right to know’ information disclosure requirements, and missile defenses.}

\footnotesize{\textsuperscript{61} Ibid., 318.}

\footnotesize{\textsuperscript{62} Daniel A. Farber and Roger W. Findley, \textit{Environmental Law in a Nutshell}, 8\textsuperscript{th} ed. (St. Paul: West Publishing, 1996), 109.}


\footnotesize{\textsuperscript{64} John Arthur and Steven Scalet, \textit{Morality and Moral Controversies: Readings in Moral, Social and Political Philosophy}, 8\textsuperscript{th} ed. (Upper Saddle River, NJ: Prentice Hall, 2009), 63.}
mandated a transition from CFCs for ozone protection and other toxins. In this case, the EPA drew the conclusion that CFCs were harmful based on “suspected, but not completely substantiated” causal relationships between facts. Other exceptions emerged from all levels of government in anti-smoking initiatives (public smoking bans, advertising bans, tax increases, etc.) after scientific consensus found that smoking “can be hazardous to your health.” Recently, the precautionary principle was invoked by citizen action groups in the face of a growing list of threats, such as endocrine disrupters and hazardous materials. Yet, the precautionary principle has yet to be invoked to mitigate rising GHG emissions from plants or land changes, despite the extreme likelihood that human activity, particularly the burning of fossil fuels, is the dominant influence on warming and intensified extreme weather. Thus, we can discern that politics and vested interests, rather than levels of scientific certainty about a threat, can be a formidable force in determining which threats are addressed.


66 Farber and Findley, Environmental Law, 179.

67 The Cigarette Labeling and Advertising Act of 1965 required a health warning on cigarette packs.

The principle that may have more resonance among Americans is the emerging standard of intergenerational equity (or neutrality), which includes the current, near future, and distant generations. The principle imposes the duty of preserving our natural and cultural heritages, recognizing that future generations may choose values other than our own.\[^{69}\] Implicit in the principle is the idea that precautionary measures must be taken to avoid destroying opportunities for future generations.

The intergenerational principle rests on a foundation of fairness to future generations. Based on the intergenerational principle, we view the earth’s resources—including the atmospheric commons—as a trust to pass on to future generations, according to preeminent scholar on this principle, Edith Brown Weiss. She argues that it is unfair to prefer the present generation over future generations in our use of planetary resources.\[^{70}\] Case in point is our use of the atmosphere and sinks as dumping sites for pollution. Already, we have crossed the natural threshold of 350 PPM for carbon emissions and, thus, our generation is leaving the earth worse off for future generations.

Brown Weiss argues that the human capacity to care for the earth resides in our practical reasoning, echoing Kant’s belief that reason can determine the application of moral law.\[^{71}\] In the context of climate change, reason grounded in dignifying others


\[^{70}\] Ibid.

requires that we serve as guardians of the planet. Thus, we need to determine how to protect the atmospheric commons from damage, despite our inclinations. Brown Weiss notes that we need to make climate commitments that restrain selfish motives:

this ethical and philosophical commitment acts as a constraint on a natural inclination to take advantage of our temporary control over the earth's resources, and to use them only for our own benefit without careful regard for what we leave to our children and their descendants. This may seem a self-centered philosophy, but it is actually part of the logic that governs daily economic decisions about the use of our resources.\textsuperscript{72}

The intergenerational principle meshes with the ideas of Etzioni and Ostrom that citizen-led institutions can protect the commons and social well-being. The principle rests on dignity and showing respect for others in current and future generations. Thus, the intergenerational principle, which requires that we serve as trustees of the earth, seems most apt for guiding climate initiatives. Social practices that support the principle can be inculcated within legal, economic, and social institutions.

In terms of legal institutions that support the intergenerational principle, US courts could recognize with more frequency the legal standing of representatives of future generations, allowing them to bring lawsuits against GHG emitters. In 2015, the US District Court for the District of Oregon did grant standing to the Earth Guardian plaintiffs in \textit{Juliana v. US}. The plaintiffs argued that the US government’s climate inaction was contrary to the substance of the intergenerational principle (see chapter 3).\textsuperscript{73}

\textsuperscript{72} Ibid., 1.

Regarding economic institutions, the cap-and-trade exchanges will better protect future generations by discouraging indulgences. That is, emitters under RGGI in New England and Mid-Atlantic coastline states could show greater respect for current and future generations by weaning themselves off carbon offsets.\(^{74}\) Also, exchanges could incentivize greater mitigation by reducing permits and raising the price of emissions tonnage. Currently, such mechanisms allow governments, corporations, and individuals to avoid greater responsibility for protection of the commons.

Regarding social institutions, they could engender community understanding of climate risk and provide opportunities for robust mitigation and adaptation. As guardians of resources for future generations, they can determine the scope and speed at which they build mitigation and adaptation activities. For example, the Arizona Cooperative Extension, which already has community trust and social capital, is teaching communities how to adapt locally to climate change.\(^{75}\)

Moreover, our level of commitment to climate initiatives could be cultivated with thought experiments. Philosopher John Rawls’ experiment allows us to explore our good will toward others’ well-being, as noted earlier in the chapter. He urged us to imagine

\(^{74}\) “Offsets,” Regional Greenhouse Gas Initiative, accessed February 18, 2018, https://rggi.org/allowance-tracking/offsets. RGGIs have five categories of offsets: landfill methane capture; sulfur hexafluoride storage, destruction or recycling; forestry or afforestation; end use efficiency; and avoided agricultural methane.

that we live behind a metaphorical veil of ignorance in which we do not know the social position or generation into which we are born. Thus, by envisioning ourselves as living in any historical time and place, we can better determine the fairness of social practices within institutions that account for the well-being of current and future generations.76 For example, in 2020, extreme weather may be high risk in vulnerable geographic regions, especially in neighborhoods with poor infrastructure. By 2050, unstoppable climate destabilization may be destroying the fabric of our institutions and communities.77 Predictions of increasing frequency and intensity of extreme weather create a foreboding future, but even now, a poor American living in areas vulnerable to drought, flooding, and fire is at high risk of harm. Thus, participating in Rawls’ Veil of Ignorance experiment is all the more relevant today, and could encourage a rapid ramp-up of climate activity.

Beyond the practices of institutions, yet another way to support the intergenerational principle is by adopting the complementary principles of sustainable development (SD), common heritage of humankind, common concern, and CBDRRC. The promotion of SD has become the most visible and durable principle of the environmental movement, recognized in the UNFCCC and the Paris Accord and


integrated in subnational climate initiatives. However, in the US, the SD principle has been highly politicized and polarizing, particularly in states where anti-Agenda 21 campaigns emerged. Until Americans view SD as crucial to the well-being of current and future generations, and not a UN-sponsored program that threatens national sovereignty, the principle’s application to social practices is unlikely to be a priority among politically conservative states. Nonetheless, SD projects have been adopted in hundreds of urban communities, often led by mayors who recognize the need to protect and dignify current and future generations, which is the essence of the intergenerational principle. For example, Los Angeles revamped its massive shipping port and New York City is insulating buildings in order to gain energy efficiencies.

While the federal government has not formally adopted the intergenerational principle to support a climate change policy, this does not preclude all other levels of government and associations from doing so. Subnational governments and their institutions, especially at the municipal level, as well as associations (civic, work, and religious), often working in public-private partnerships, are invoking climate-related duties to future generations. For example, Governor Jerry Brown of California talks publicly about the importance of the state’s cap-and-trade program for the well-being of

---


future generations. Amicus brief contributors in *Juliana v. US* have urged the preservation of an inhabitable planet for future generations. The mission of the American Red Cross, which includes providing relief to climate refugees, is to “ensure respect for the human being” by actively being of service to others in need. Migrant communities from Alaska and elsewhere demand dignity and respect as they move to find work and support. A coalition of the NAACP and Chicago’s Southside association, the Little Village Environmental Justice Organization (LVEJ), working with the Indigenous Environmental Network, invoked the CBDRRC principle in its 2017 environmental report. The value of respect for the health and well-being of all communities is increasingly part of the conversation in which Americans discuss facing the threats.

The intergenerational principle begs the question of how much investment the current generation should and can make to support future generations. Some economists, such as William Nordhaus, assume future generations will benefit from greater wealth and more advanced technology, and therefore they have less need for current climate change mitigation efforts.

---


82 Ibid.

investments. Assuming this economic theory is correct, current generations have a stronger ethical claim to resources than future generations. Therefore, current investments in climate change mitigation represent opportunity costs, compared with higher yielding investments, and should not be the priority. In financial terms, the discount rate for climate investments should be relatively high—Nordhaus pegs the rate at 3 percent initially, with a gradual decline to 1 percent over the next 300 years.

On the other hand, economist Nicholas Stern, author of *The Economics of Climate Change: The Stern Review*, believes the only ethical reason to discount future generations is if we are assuming the human species will be extinct, obliterated by a cataclysmic event. Otherwise, if we assume humankind will exist in future generations, Stern asserts that the discount rate should be pegged at 1 percent in order to encourage near-term capital investments in climate projects that benefit future generations. For more than a decade, Stern and Nordhaus have argued about the relative value of climate investments over time in order to identify discount rates. Notably, the discount rates of Nordhaus and Stern are getting closer as the mean global temperature rises. In 2017, a Trump

---


86 Ibid. For more background on discount rates, see Stern’s *The Economics of Climate Change: The Stern Review* (Cambridge, University Press, 2007).

executive order purported to withdraw the estimated social cost of carbon emissions from agency decision-making, which would further diminish the value of near-term investment in climate projects.\textsuperscript{88} The Trump administration derides the obligation to invest near-term to protect current and future generations.

In actuality, discount rates and other financial indices are complex calculations influenced by political beliefs and affiliations. The rates are speculative in regard to future wealth and technological capacity, despite the focus on rates by the IPCC and agencies.\textsuperscript{89} Instead of rates, the focus should be on qualitative factors, such as the long-term effect of climate change on future generations. Brown Weiss notes that most economists, as well as the general public, are not used to thinking in terms of waiting decades, if not centuries, to see the benefits of investments. Yet, climate impacts are likely to play out for hundreds of years, if not longer. Furthermore, the harm from climate change cannot be defined only in financial terms. The moral issue of dignity and showing respect to others, as well as one’s self, is beyond quantitative measurement. “There is more at stake than what numbers reveal,” asserted philosopher and law professor Dale Jamieson. “No number seems right because the costs of climate change damages go

\textsuperscript{88} Denise Grab, “Trump’s Alternative Economics of Climate Change,” in The Regulatory Review, April 24, 2018, accessed February 16, 2018, https://www.theregreview.org/2017/04/24/grab-trumps-alternative-economics-climate-change. Trump’s executive order requiring that each agency reconsider the current discount rate pegged by the Obama administration did not acknowledge that the former administration had already asked each agency to develop its own metric, an approach put into place by the George W. Bush administration. Thus, the Trump order will likely waste agency resources and open rules up to legal challenges.

\textsuperscript{89} Eric A. Posner and David Weisbach, \textit{Climate Change Justice} (Princeton: Princeton University Press, 2010), 149. The IPCC considers discount rates second only to climate sensitivity as an index of the impact of climate change.
beyond economic damages.” While the discussion of climate is largely framed in terms of the dollar, the harm from climate change encompasses all aspects of well-being, including the loss of place and home from extreme weather. Climate change will change social habits and what it means to be human. Populations will have to live with increasing fear of extreme weather and devastating consequences, and their political leaders will face political and moral dilemmas. Leaders may choose to curtail civil liberties, at least during disasters, and relegate humanitarian relief to only certain groups.

Facing such an existential threat, Jamieson urges communities to determine their own substantive principles and apply them toward climate action. Given the deep pluralism within American society, the outcome may be a “motley collection” of subnational climate initiatives, observed Jamieson. But he urges communities to prioritize activities that support “ready agreement” across large and diverse populations. For example, based on intergenerational or SD principles, communities could transition to electric cars and retrofit residential and commercial buildings for energy efficiency. Or, they could reduce short-lived GHG pollutants like soot and methane. Whatever activity they undertake, communities could decide to accelerate the pace of mitigation and adaptation to protect the worst off, which has the effect of protecting all humankind,

---


91 Ibid., 9.

given the transboundary nature of GHGs. In a nation highly diverse in culture and geography, these wide-ranging community actions can demonstrate universal respect for the dignity of all humankind, regardless of the outcome.

**Universal Dignity Within the Human Condition of Pluralism**

In the 20th century, American philosopher Richard Bernstein defined the human condition as an endless variety of human experiences and languages, or “wild pluralism,”\(^93\) an extension of William James’ concept of the pluralistic human condition.\(^94\) In the 21st century, we need to build bridges between differing communities in order to come to agreements, including the significant need to protect the atmospheric commons to dignify all humanity. Kant had recognized the need to apply reason to the application of universal moral principles, since the principles do not address specific circumstances.\(^95\) Thus, principles must be interpreted within communities for meaning and relevance.

To come to agreements, Bernstein encouraged the cultivation of “dialogical communities,” which Putnam referred to as “bridge-building.” At the same time, Bernstein acknowledged that human beings are inclined to be “insensitive to the feelings and opinions of those who are really different.” We may lack the “civility, desire and


\(^94\) Menand, *Metaphysical Club*, 143. See William James’ “The Pluralistic Universe” and “The One and the Many” for his views on practical applications of the metaphysical concept of pluralism.

even the ability to communicate and share with others,” he observed. He imagined communities engaging with one another with open minds, learning to appreciate differences based on their experiences and languages in order to find common ground.

In the 21st century, the differences between communities are multiplied by greater variances in nationality, religion, race, and ethnicity. In the US, more than 350 languages are spoken, according to the 2015 US Census Bureau report. In 2013, foreign-born Americans, primarily Latin American and Asian, represented 13.1 percent of the population, a percentage not seen since 1890, when the population was comprised of 14.8 percent immigrants. Thus, American diversity reinforces the human condition Bernstein referred to as “wild pluralism.”

Today, the social stratification appears to retain vestiges of Social Darwinism of the 19th century. The theory, developed by Western social scientists, perhaps most notably Herbert Spencer, extrapolated from Darwin’s theory of evolution to posit a hierarchy within the human race, ranking social groups by their levels of “civilization.” Spencer argued that the physiological characteristics of Caucasians were modern and represented intelligence, while the characteristics of African Americans were barbarous.

---

and primitive and reflected inherently inferior intelligence and subhuman traits.\(^{100}\) Spencer’s “science” reinforced the prejudice of those who disrespected and devalued non-Caucasians, who were marginalized and often lived in the least desirable neighborhoods. Thus, minority communities were often subject to poverty and social ills such as unsanitary conditions and pollution. Since industrialization, the disproportionate impact of the pollutants on the poor living downstream continues. Only the chemical compounds have changed—from soot to GHGs. In the 21\(^{\text{st}}\) century, the poorest neighborhoods are facing the bluntest effects of GHGs in the form of by-products from fossil fuel extraction, distribution and refinement, as well as GHG emissions.\(^{101}\) Thus, whether current or past, the treatment of devalued groups reflects society’s inability to show respect to all communities. But Kant reminded that although we have “personal differences,” rational human beings can grasp the moral law and choose what we “ought” to do within our freedom, which is the basis of human dignity.\(^{102}\)

Yet, given the persistence of the idea of a racial hierarchy that contribute to economic classes, some American communities may not demonstrate respect for populations of climate refugees that they perceive are of lesser value than themselves. Since 2008, intensified weather created 26.5 million refugees on average annually,


including vulnerable Americans. The UN High Commissioner for Refugees has identified 59.5 million people who live in “climate hot spots” and are in danger of repeated displacement due to extreme weather. Perhaps American society will one day offer significant help to these refugees, but the US ranks behind most industrialized nations in regard to the proportion of the national income allocated to helping people living at subsistence levels.

Artists are working to raise awareness and understanding of human suffering from climate change, causing people to turn to look at their plight. For example, Chinese dissident Ai Wei Wei’s 2017 documentary, “Human Flow,” focused on populations displaced by war, climate change, and famine. The artwork of Ai and others expresses the core experience of suffering and reminds us of our shared humanity, echoing the words of twentieth century philosopher Simone Weil who said that it is the “looking that saves us.” In the 21st century, witnessing the plight of climate refugees through art, if


104 Ibid., 6.


not the media, could play a role in helping communities accept and commit to our shared humanity and our duties to relieve suffering.

A tradition of the papacy includes the desire to bring humanity together under universal principle of dignity. Pope Benedict believed that people are yearning to uncover “indisputable truths” amidst our unlimited freedom, observed Pope Francis. Benedict invoked the universal value of dignity as a truth that demonstrates respect for all of humankind and nature. Pope Francis invoked dignity in his encyclical on Care for Our Common Home. The pope reminded us that nature has boundaries, including the limit to which GHG emissions can absorbed in sinks, and overshooting these finite sinks will bring about dire environmental and cultural consequences that cause suffering and degrade our earthly home. In the encyclical, Pope Francis urged us to think of nature not as an “economic calculus” of property within private markets, but in terms of a beautiful creation that must be cared for. We are not acting with dignity when we behave as rapacious overlords, “masters, consumers, and ruthless exploiters, unable to set limits on their immediate needs.” Instead, we must behave in a manner that shows dignity to all members of current and future generations who will suffer from the rising emissions and lack of care for the earth.

At the same time, Pope Francis understood that to show respect and dignity we do not have to apply principles uniformly. Instead, universal standards to protect the

---

108 Pope Francis, Encyclical, 7.
109 Ibid.
110 Ibid., 11.
environment can be applied to reflect our various cultures and languages. Accepting the human condition of pluralism, Pope Francis observed that each of us cares for creation “according to his or her own culture, experience, involvements, and talents.” Culture determines how societies understand their relationship with nature and ways they must show respect to the next generation, the poor, and all persons, although each application depends on the specific situation.

The UN Declaration of Human Rights also acknowledged the importance of allowing local interpretations of principles. The declaration, like the Paris Accord, recognized the human condition of pluralism that requires the application of principles according to societal conditions. As Glendon notes,

> one of the most common and unfortunate misunderstandings today involves the notion that the Declaration was meant to impose a single model of right conduct rather than to provide a common standard that can be brought to life in a legitimate variety of ways.\(^\text{112}\)

Many theologians and philosophers have encouraged community dialogues to give meaning to universal principles among different societies. In terms of climate change, communities must understand the risk to them and others and, as a matter of dignity, learn social practices that support the atmospheric commons. Both Pope Francis and economist Elinor Ostrom called for community conversations that give meaning to the commons, illuminate the need to renew it and identify ways to act to protect it.\(^\text{113}\) The

\(^{111}\) Ibid., 13.


\(^{113}\) Pope Francis, *Encyclical*, 147.
understanding is antithetical to market-based language extolling only short-term efficiency and profitability.

Today, the concept of the commons lives outside the marketplace and beyond the awareness of many communities. American philosopher Michael Sandel wrote that market values have “crowded out” non-market standards in many aspects of life—from medicine and education to government and law. Today, the concept of commonly-held resources brings forth images of public spaces, such as parks and town squares, a concept that must be enlarged to include the commons of the atmosphere, oceans, and soil threatened by rising transboundary GHG emissions. Thus, before we can protect the commons, we must see it as a viable concept and imagine how to protect it in our lifetime.\textsuperscript{114}

More than a half century ago, some American communities began to awaken to the need to protect the ecosystems of the natural world from chemical disruption, inspired by the work of biologist Rachel Carson. During the 1960s, the idea of environmentalism as a means to protect the oceans, fresh water, atmosphere, and soil—the biosphere on which our lives depend—was taking hold. At the time, the environmental movement introduced language and stories that spoke to the intricate web of nature. On the forefront of the storytelling were authors and filmmakers such as Rachel Carson in \textit{The Silent Spring}, Buckminster Fuller in \textit{The Operating Manual of Spaceship Earth}, and Aldo Leopold in \textit{A Sand County Almanac}. Provoked by themes that tied us to the delicate web

\textsuperscript{114} Rowe, \textit{Our Common Wealth}, 15.
of life, more communities began to see themselves as inextricably part of nature. Biologist Barry Commoner was a notable figure, who was an organizer of the first Earth Day in 1970, author of the *The Closing Circle: Nature, Man, and Technology* published in 1971, head of the Citizen’s Party, and third party candidate for president in 1980.\(^{115}\)

Even as civic engagement in the US began to wane in the last decades of the 20\(^{th}\) century, public intellectuals continued to support the development of environmental activity and environmental treaties. But looming barriers to understanding and action began to emerge just as it became critical to take the leap from fossil fuel-driven production and excessive habits of consumption to alternative energy and sustainable living (see chapter 3). The emerged full force in the Trump presidency.

**The New Barrier: The Trump Administration**

The Trump administration is rolling back climate initiatives of the Obama administration and advocating for greater reliance on fossil fuels. The rollbacks include withdrawal from the Paris Accord when formally allowable, three years after treaty ratification, November 4, 2016. The *New York Times* has listed 52 actions already undertaken by the Trump administration as executive orders to change environmental rules and regulations; many of them relate to fossil fuel extraction, distribution, and emissions. In its first year, the Trump administration overturned the freeze on new coal leases on public land, approved the Keystone XL and Dakota Access pipelines, repealed a ban on offshore oil and gas drilling in the Atlantic and Arctic oceans, repealed an

Obama-era rule regulating royalties for oil, gas, and coal, revoked a federal agency directive to mitigate the environmental impact of projects, and directed all agencies to stop using the Obama-era calculation of the social cost of carbon.\textsuperscript{116} In progress is the administration’s lowering of fuel-efficiency standards for vehicles and regulations for oil and gas drilling in national parks. The administration proposed a 31.4 percent reduction in the EPA’s $8.2 billion budget for 2018 that would have slowed or halted climate programs, although Congress rejected those reductions. The administration has also announced plans to reduce climate science research under NASA, clean energy research under the Department of Energy, and research on the impact of climate change on soil and water sources under the Department of Agriculture.\textsuperscript{117} Moreover, the administration has announced tariffs on solar panels imported from China, the influx of which had contributed to a 90 percent decrease in the global price of panels over the last decade.\textsuperscript{118}

A key rollback of the Trump administration is ending the Clean Power Plan, announced by EPA director Scott Pruitt. If the Supreme Court does not rule to end the power plan pursuant to the suit filed in 2016 by twenty-six Attorneys General and Murray


Energy as plaintiffs, the administration has other options for delaying implementation. For example, the Justice Department could put the case in abeyance, effectively extending the stay indefinitely. Or, the administration could set in a motion a voluntary remand, which halts the case and allows the administration to devise its own rules, or continually review and revise rules through the Office of Information and Regulatory Affairs in the Executive branch. Another option to deny plan implementation is to allow leniency in state enactment, or to defund the EPA. Moreover, Congress has the option of passing an appropriations rider that denies funding for the enforcement of particular regulations or to overturn some recently completed regulations. Thus, both the executive and legislative branches have many levers that allow them to delay and dismiss climate regulation and rules, if the judicial system does not end the plan.

The rollbacks of this administration have the effect of pushing aside the idea that vital natural resources, such as clean air and water, must be protected and shared by all as a commons. These attempts are supported by continued lobbying and contributions to elect libertarian officials who will vote against emissions regulations. Despite this overpowering barrier to climate action, a remembrance that offers hope for civic

---

119 The plaintiffs appealed a Supreme Court ruling that placed carbon emissions under the category of pollutant, which allows the EPA to regulate those emissions.


engagement is the rise of Progressivism during the Gilded Age. Given the accomplishments of Progressivism, it seems plausible that civic engagement could be renewed and propel ambitious climate action— from the grassroots to a broader momentum in the US— although the barriers for doing so near term are daunting.

**Prospects for Hope: Ambitious Subnational Initiatives Grounded in Dignity**

By 2011, the world had already used more than 50 percent of the estimated total carbon budget of one trillion tons before exceeding 2°C.\(^{122}\) By 2044, the carbon budget could be filled, according to one scenario projected by IPCC modeling.\(^ {123}\) While global emission stalled from 2014 to 2016, they increased by 2% (+0.8% to 3.0%) in 2017.\(^ {124}\) To keep warming under 2°C, global emissions must peak by 2020 and become negative by 2090— with more carbon being taken out of the atmosphere by plants and the oceans than is put into the air each year.\(^ {125}\) To realize this scenario, robust US subnational can make critical contributions.

Ultimately, a hope for significantly reducing the trajectory of emissions resides in acting on the principles of customary standards based on dignity, such as

---

\(^{122}\) IPCC Working Group I, “Summary for Policymakers,” in *Climate Change 2013*, 28. Factoring in shorter-lived climate pollutants, such as nitrogen oxide and soot, brings the overall cumulative carbon budget down from 1 trillion tons of carbon to 800 billion tons, according to the report. Moreover, the report also said that a possible release of greenhouse gases from thawing permafrost and methane hydrates would shrink the remaining carbon budget even further.


\(^{125}\) Freedman, “Carbon Budget.”
intergenerational equity. This moral standard can be applied to subnational initiatives—from community and regional sink restoration to transitioning to alternative energy in order to ensure that the scope and speed of the projects show respect for the most vulnerable, as well as everyone else.

Embracing the dignity-based principles calls for expanding and accelerating a range of mitigation and adaptation measures. Municipalities like Los Angeles need to build sustainable transportation systems and close remaining coal power plants and extraction fields. Regional efforts in New England and also California need to expand their cap-and-trade regimes to include a range of industries, not just power plants. Midwestern states need to decrease livestock production in order to reduce methane. Coastal states need to shore up adaptation programs to prepare for the rise of sea levels, as well as significantly reduce emissions. All states and regions need to restore and expand carbon sinks. These ambitious subnational efforts demonstrate respect for the entire human species, not just the high ranking and privileged few, who may not experience the full brunt of rising GHGs, at least not near term.

Subnational climate initiatives are benefiting from the talent, energy, and political will re-emerging in civic, religious, and workplace associations, sometimes in conjunction with private partners. Among the most promising associations likely to act are those comprised of first and second-generation immigrant Hispanic communities, as well as Native Americans, who can tap into their traditions that show respect for future generations, as well as their own. Many of these communities are already civically engaged in the effort to figure out how to protect the commons (see chapter 3).
Community conversations can help us negotiate our way through the conflict between the American tradition of individual autonomy and the tradition of civic engagement and responsibility. These conversations will help communities imagine and create climate initiatives that mirror their values. They can look beyond current practices of unrestrained privatization to a future of sustainable practices created through both self and government regulation. They can figure out ways to balance between mitigation and adaptation initiatives that protect the atmospheric commons for the poor and vulnerable in both current and future generations.

In the 21st century, public intellectuals are helping us imagine that sustainable world by creating visual and written stories of how to live within the natural boundaries of our planet. In the late 20th and early 21st centuries, the stories have included the TV series “Cosmos” by Carl Sagan, Field Notes from a Catastrophe and Sixth Extinction by Elizabeth Kolbert, the PBS series "Cosmos: A Spacetime Odyssey” with Neil deGrasse Tyson, the documentaries “An Inconvenient Truth” and “An Inconvenient Sequel” produced by Vice-President Al Gore, and Bill Nye’s TV and YouTube appearances. They are helping communities envision a future in which people adopt social practices that support a commons that dignifies humanity. These cultural and political leaders have no doubt influenced Liberal and Next Gen typologies, as Pew Research Group polling has discovered. More intellectuals among Conservatives are needed to influence their followers.

The vast array of subnational activities, spurred on by civic engagement and institutions that recognize and support the commons, may be enough to hold at bay the
brute forces of the fossil fuel industry, at least in some communities. Perhaps they spur activities that build a deep and broad climate movement that ultimately evolves into a comprehensive climate policy. Robust mitigation, which requires leaving fossil fuel in the ground, and adaptation are ways to show respect for others and ourselves and lessen suffering from extreme weather. But even if community efforts do not prevent climate catastrophe, the engaged individuals who built ambitious climate initiatives will have reasoned how to apply the universal moral law grounded in dignity, which requires the duty to act. They will have accepted their duty to protect the atmospheric commons to demonstrate their respect for others.
CONCLUSION

Humanity is at a turning point in which we either accelerate our commitment to climate initiatives or face dire consequences, based on overwhelming scientific consensus. The longer we delay the transition to sustainable energy, the more complicated and vexing the moral and political dilemmas and the harsher the impact, especially among the most vulnerable. Despite the increasing possibility of this outcome, the current administration is promoting fossil fuel, not just rolling back climate initiatives.

At the start of this work, the election of Trump as president seemed implausible and, therefore, the focus of subnational activity was to support federal climate activity. Currently, powerful vested interests and their allies are working with the Trump administration to further delay society’s transition to decarbonization. Climate science authority has been pummeled and denied. The EPA has pulled climate science information pulled from the agency website. While repudiation of scientific authority is not new, the magnitude of the denial may be unprecedented, given the existential threat. The outcome is that the administration has delayed federal climate action by more than a half century since President Johnson forewarned of rising carbon emissions. Thus, at this point Americans can only look to their subnational climate initiatives to build momentum for an ambitious climate movement and try to meet the nation’s Paris Agreement pledges.

Despite federal inaction, subnational climate activity in cities, states and regions has grown significantly since the beginning of the 21st century. For example, the US Conference of Mayor’s Climate Protection Agreement has continue to expand. Municipal
initiatives include commitments to 100 percent renewable energy, fuel efficiency requirements for public fleets, urban heat island goals, and green building requirements. States are pushing for GHG emission targets with financing and incentives, land use plans to restore carbon sinks and stronger vehicle emissions standards. Regional organizations RGGI and the Western Initiative are expanding carbon cap and trade to include more than power plants and creating updated energy corridors for the transmission of alternative energy. The resurgence of regional initiatives signals a recovery after the 2007 downturn when climate efforts met resistance from pro-fossil fuel campaigns while navigating the global economic meltdown. Thus, a subnational climate movement is emerging from civic engagement and climate associations at all levels of government.

A new cycle of heightened civic participation appears to be emerging after decades of disengagement. A pivotal year in climate work was 2007 when several key climate associations with local chapters were formed: Climate Reality, 350.org, and Citizens’ Climate Lobby. Within several years, the Sierra Club expanded its mission to accelerate coal plant closings. Climate activity is building national momentum, as reflected in the 2015 People’s Climate March in New York City that was replicated in cities across the nation.

In 2017, in response to Trump’s announcement that the US would withdraw from the Paris Agreement, the governors of California, Washington, and New York formed the US Climate Alliance. The alliance now includes 14 member states plus Puerto Rico, which are ramping up climate initiatives. For example, Colorado is helping electric
utilities install more renewable energy projects and working with the Western Initiative to build electric vehicle recharging stations along key corridors.¹

However, subnational efforts must be viewed in the sobering context that not even the current climate pledges to the Paris Agreement are enough to keep global warming under 2ºC. While US emissions may be flattening, the nation remains the world’s biggest historical and per capita emitter and the second biggest annual emitter after China. Given US history, Americans need to recalibrate the equilibrium to give more weight to our communal responsibilities, not just individual rights, as Etzioni espoused. This recalibration could be understood within the Kantian moral duty that demands showing respect for all others as a matter of dignity. In the 21st century, this duty to dignify all others requires building more ambitious subnational climate initiatives that protect even the most vulnerable from climate destabilization.

In essence, to dignify all others requires that we come to the understanding that the atmosphere is a commons that supports all humanity. Therefore, we have a duty to protect the carbon sinks—the oceans, fresh water, trees, plants, and soil—to show our respect for all of humanity. Carbon sinks cannot be repositories of private or government pollution. To protect the atmospheric commons we can extrapolate from the English tradition of peasants, who were able to create rules for the commons on the manor.

Today, citizen-led institutions for protecting the commons would need to ensure that

¹ Elizabeth Shogren, “As Trump Retreats, States are Joining Forces on Climate Action,” Yale Environment 360, October 9, 2017, accessed March 20, 2018, https://e360.yale.edu/features/as-trump-retreats-states-are-stepping-up-on-climate-action. The US Climate Alliance is comprised of the following states, which have Democratic governors: California, Colorado, Connecticut, Delaware, Hawaii, Minnesota, New York, North Carolina, Oregon, Rhode Island, Virginia, and Washington. Also, Vermont and Massachusetts, which are led by Republican governors, are part of the alliance.
economic, political and legal rules reflected an understanding of the laws of the natural world, including greenhouse warming.

Currently, the Western idea of the commons is largely contained in the academic books of public intellectuals, such as Elinor Ostrom. Her research profiled communities where citizen-led institutions are already protecting “common pool (finite) resources,” with the support of both private entities and government agencies to carry out specific functions. This work posits that the carbon sinks are also finite resources and must be protected as a commons. Otherwise, sinks filled with carbon emissions destabilize the atmosphere and create ever more dangerous and frequent extreme weather. Both Ostrom and Etzioni recognized the need to enforce rules of the commons with coercive measures when necessary, but they focused on the efficacy of voluntary efforts that arise within the moral fiber of communities. Thus, a moral foundation for the biospheric commons to protect current and future generations could be become a powerful cultural force.

Subnational efforts based only on economic indices, which do not include the indicator of wellbeing, have not been successful in raising the level of climate activity to the ambitious levels required. Moreover, economic mechanisms can potentially delay transitions to ambitious activity through bureaucratic slowdowns and decisions based on short-term profitability. Examples include an overabundance of offsets and permits, low carbon tonnage prices and misleading research conclusions. The self-dealing practices, along with corruption, are the “inclinations” about which Kant warned. Climate activity must be grounded on a moral foundation that treats human beings as ends, not merely as a means, as a matter of dignity.
I propose that communities cultivate moral dialogues to determine their shared values, such as intergenerational equity, by which to guide their decision-making and hopefully propel more ambitious climate initiatives. They can look to public intellectuals to facilitate conversations as “translators” of climate science, deepening understanding of the concepts of scientific method, certainty, and scientific authority. Currently, conservatives appear unlikely to participate in these discussions or change their beliefs until their own political leaders, conservative authority figures, change their positions publicly. Thus, at least for now, we must look to those who are climate believers, primarily the “Liberals” and “Next Gen” communities that comprise the other half of adult Americans, who are worried about climate impacts from human activity and are more likely to build climate initiatives. We can also look to minority and marginalized communities living in vulnerable communities that are participating in protests and sustainability initiatives to curtail the harm they experience directly from fossil fuel extraction, fracking, transport, and refining, as well as extreme weather.

Communities engaging in climate activity can consider the following steps that support Kantian duty:

1. Understand the climate issue within a moral framework in which everyone deserves to be show respect as a matter of dignity. This framework sets the stage for creating the most ambitious mitigation and adaptation initiatives, which can protect the most vulnerable populations.

2. Cultivate community conversations within a moral framework, allowing citizens to come to understandings about their beliefs about issues such as
scientific authority and responsibilities to others. The intergenerational principle can serve as a moral proxy for a range of social issues, not just climate change.

3. View the atmosphere as a commons and study the natural laws that require protection of carbon sinks and mitigation of GHG emissions. Build citizen-led institutions and associations that provide local and regional governance of climate action, drawing on both government agencies and private industry to carry out specific functions.

4. Avoid succumbing to selfish “inclinations,” about which Kant warned. Selfish motives can manifest themselves in economic mechanisms delay climate activities, such as an abundance of carbon offsets and permits.

5. Translate global warming goals to local and regional goals, such as energy efficiency and protection and expansion of carbon sinks. The most ambitious of these local activities can reflect the desire to protect the most vulnerable everywhere, not just in one’s own community.

6. Create social practices that make significant contributions to environmental sustainability. For example, communities can decide to reduce carbon footprints significantly by purchasing energy efficient refrigerators and air conditioners that use only atmosphere benign HFCs. Also, communities can decide to eat less meat to help reduce methane emissions. They can decide to buy only food they will actually consume, not waste. Additionally, communities can decide to share electric vehicles,
eventually phasing out the need for two and three car garages, and use public transportation.

In the effort to build momentum for climate activity, we face brute forces and strong barriers, such as media distortion of climate issues and state pre-emption laws that can halt community action. Moreover, the federal government may not prioritize investments required to update electric grids for alternative energy or provide incentives for new energy technologies. Corporate and government entities, which are not monolithic and have different motives and political agendas, can be either allies or barriers. Thus, government and corporate barriers can stifle ambitious subnational efforts.

Still, as a matter of dignity, we can turn our gaze toward climate victims and refugees, figure out the meaning of shared humanity and find ways to act. Perhaps communities will choose to act boldly out of respect for current and future generations. But regardless of the outcome, it is the “looking that saves us,” as Simon Weill taught.
BIBLIOGRAPHY


Accessed February 27, 2018,


259


Graham-Caso, David. “Council Takes Important Step to Address Threats Posed by Neighborhood Drilling.” *Newsletter of LA Councilman Mike Bonan*, April 19,


Is the precautionary principle invoked in civic organizations.


Revelle, Roger and Hans E. Suess. “Carbon Dioxide Exchange between Atmosphere and Ocean and the Question of an Increase of Atmospheric CO2 During the Past


