PLANNING FOR DENSITY: PROMISES, PERILS AND A PARADOX

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I. INTRODUCTION

Over the past few decades, land use planning and urban development practices increasingly have come to prioritize "planning for density." Put differently, government officials at all levels have embraced the goal of promoting and developing dense, mixed-land-use, walkable urban environments, rather than dispersed, sprawling single-land-use, auto-dependent suburban ones. The trend is perhaps most evident in efforts to densify and redevelop center cities, although many suburban communities, both old and new, also have embraced the goal of planning for density and revised their planning practices accordingly.

The planning for density toolkit is expansive, spanning both mandatory rules and voluntary incentives. These tools include: smart-growth and growth-management policies that seek to direct new development into built-up areas and restrict new suburban development;[1] regional government devices that aim to address interlocal inequities and rationalize development within metropolitan areas;[2] urban development efforts, including tax

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1. *See, e.g.*, *About Smart Growth*, U.S. EPA, https://www.epa.gov/smartgrowth/about-smart-growth#smartgrowth (last visited Jan. 1, 2018); *APA Policy Guide on Smart Growth*, AM. PLAN. ASS'N (Apr. 14, 2012), https://www.planning.org/policy/guides/adopted/smartgrowth.htm.

2. *See generally* MYRON ORFIELD, METROPOLITICS: A REGIONAL AGENDA FOR COMMUNITY AND STABILITY (1997); NEAL R. PEIRCE WITH CURTIS W. JOHNSON & JOHN STUART HALL, CITISTATES: HOW URBAN AMERICA CAN PROSPER IN A COMPETITIVE WORLD (1993); Richard Briffault, *The Local Government Boundary Problem in Metropolitan Areas,* 48 STAN. L. REV. 1115, 1136–41 (1996); Sheryll D. Cashin, *Localism, Self-Interest, and the*

increment financing and other economic development incentives, urban infill, and brownfield remediation efforts;[3] and "new urbanist" planning and development practices, including innovative and increasingly popular regulatory alternatives to Euclidian zoning.[4] None of this is to say that we do not continue to build sprawling suburbs, because we certainly do. But it is to say that both regulators and developers are more focused—or at least focused with more intentionality—on density than they were in past generations.

Proponents of planning for density argue that it holds many promises—economic, ecological, and social[5]—but they tend to disregard or dismiss the reality that there are perils and paradoxes associated with these practices as well. In this essay, I explore these perils and paradoxes. I do so as a proponent of urban density. In the interest of full disclosure, I grew up in suburban Kansas City, and I understand and respect Americans' affinity for suburbia. But I have—to the befuddlement of my suburbanite family members—come to consider myself a convert to urbanism.[6] An authentic religious conversion usually entails a careful study of a new faith—including the confrontation and engagement with its limitations and failings—that leads to the conviction that it holds the truth *despite its flaws*. The same, I think, is true of a conversion to urbanism. I have written extensively about how land use planning, policing, and education policies can be employed to help urban communities thrive.[7] This work has led to the

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Tyranny of the Favored Quarter: Addressing the Barriers to New Regionalism, 88 GEO. L.J. 1985, 2034–37 (2000).

3. *See generally* NICOLE STELLE GARNETT, ORDERING THE CITY: LAND USE, POLICING, AND THE RESTORATION OF URBAN AMERICA 82–85 (2010) [hereinafter GARNETT, ORDERING THE CITY]; Richard Briffault, *The Most Popular Tool: Tax Increment Financing and the Political Economy of Local Government*, 77 U. CHI. L. REV. 65 (2010); *Empowerment Zones, Renewal and Enterprise Communities*, U.S. DEP'T. OF HOUSING & URB. DEV., https://egis-hud.opendata.arcgis.com/datasets/23a64021cec34a8d99b159a58c535d0d_0 (last visited Jan. 1, 2018); *Overview of the Brownfields Program*, U.S. EPA, https://www.epa.gov/brownfields/overview-brownfields-program (last visited Jan. 1, 2018); *Urban Infill and Brownfield Redevelopment,* SUSTAINABLE CITIES INST., NAT'L. LEAGUE OF CITIES (Mar. 7, 2017), http://www.nlc.org/resource/urban-infill-brownfields-redevelopment.

4. *See* Nicole Stelle Garnett, *Redeeming Transect Zoning?*, 78 BROOK. L. REV. 571, 580 n.34 (2013). *See also What is New Urbanism?*, CONGRESS FOR THE NEW URBANISM, https://www.cnu.org/resources/what-new-urbanism (last visited Jan. 1, 2018) (summarizing the principles of new urbanism).

5. *See infra* Part II.

6. My husband and I live what passes for an "urban" life in South Bend, Indiana. We have chosen to raise our family in a modest, century-old house located less than a mile from both the university where I work and downtown South Bend; our children have all attended an urban Catholic parish school founded more than 150 years ago.

7. *See, e.g.*, GARNETT, *supra* note 3, at 83–87; MARGARET F. BRINIG & NICOLE STELLE GARNETT, LOST CLASSROOM, LOST COMMUNITY: CATHOLIC SCHOOLS' IMPORTANCE IN URBAN AMERICA 2–4 (2014); Nicole Stelle Garnett, *Affordable Private Education and the Middle*

conviction that the only successful way to promote policies that encourage density and urban vitality is to face the reality that these practices are not costless—and to find ways to address their costs. That is, I have come to believe that the case for density must reflect both a conviction that density is worth promoting and an understanding that planning for density is hardly a panacea. In other words, we need to be smarter about smart growth.

This essay proceeds in three parts. The first briefly describes the social, economic, ecological, and political dynamics fueling the trend toward planning for density. This section focuses, in particular, on the motivations of those promoting the tools in the planning-for-density toolkit, outlining the promises that proponents argue that these tools hold. The second addresses the perils of mandatory planning devices that seek to achieve density. The final section discusses a paradox of planning for diversity that virtually nobody considers, but which I believe may offer a path forward.

II. THE PROMISES OF PLANNING FOR DENSITY

The current focus on planning for density results from the confluence of a number of factors. The first is the fact that elite residential preferences, especially among young professionals, increasingly have come—for a variety of reasons—to favor urban life.[8] These shifting preferences have fueled an urban comeback in some cities,[9] leading many urban leaders to focus on building the

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Class City, 77 U. CHI. L. REV. 201, 202–04 (2010); Nicole Stelle Garnett, *Managing the Urban Commons*, 160 U. PA. L. REV. 1995, 1998–99 (2012); Nicole Stelle Garnett, *Ordering (and Order in) the City*, 57 STAN. L. REV. 1, 5–6 (2004); Nicole Stelle Garnett, *Relocating Disorder*, 91 VA. L. REV. 1075, 1077–81 (2005); Nicole Stelle Garnett, *Save the Cities, Stop the Suburbs?*, 116 YALE L.J. 598, 621–25 (2006); Nicole Stelle Garnett, *The People Paradox*, 2012 U. ILL. L. REV. 43, 45–46 (2012) [hereinafter *The People Paradox*].

8. *See, e.g.*, Edward L. Glaeser & Joshua D. Gottlieb, *Urban Resurgence and the Consumer City*, 43 URB. STUD. 1275 (2006) (attributing the increased desire to live in urban areas to a rise in income and education levels and a decline in crime rates).

9. *See, e.g.*, Joe Cortright, *Surging City Center Job Growth*, CITY OBSERVATORY 1–2 (Feb. 2015), http://cityobservatory.org/wp-content/uploads/2015/02/Surging-City-Center-Jobs.pdf; Melanie Eversley, *Hard-Knocks Cities Are Working on a Comeback*, USA TODAY (July 24, 2014, 10:40 PM), https://www.usatoday.com/story/news/nation/2014/07/24/cities-visitors-campaigns/12202367/; Richey Piiparinen, *The Rust Bend "Comeback": To What?*, HUFFINGTON POST (Feb. 1, 2017, 6:50 AM), http://www.huffingtonpost.com/entry/the-rust-belt-comeback-to-what_us_5890e681e4b080b3dad6fc81; Richard Voith & Susan Wachter, *The Return of America's Cities: Economic Rebound and the Future of America's Urban Centers*, PENN INST. FOR URB. RES. (Aug. 12, 2014), http://penniur.upenn.edu/publications/the-return-of-americas-cities. *But see* Jacob Anbinder, *Fool for the City: How We're Over-hyping America's Urban Comeback*, THE WEEK (Mar. 5, 2015), http://theweek.com/articles/542508/fool-city-how-overhyping-americas-urban-comeback.

kinds of communities that will attract what Richard Florida has called the "creative class."[10] The second is the environmental movement, which has raised awareness about the ecological effects of sprawling suburban development, spurring the development of federal and state environmental initiatives as well as the "smart growth" movement and the regulatory tools associated with it.[11] The third is the regional government movement, which promotes policies, including growth management, that aim to mute the importance of local government boundaries and emphasizes the need for greater coordination among local government within metropolitan areas—especially with respect to land use planning.[12] And the fourth is the growing influence of the new urbanists, a loosely affiliated group of planners, architects, and lawyers who promote both urban design practices and regulatory alternatives to traditional Euclidean zoning practices.[13]

Not surprisingly, the articulated promises of planning for density map neatly onto the forces motivating the trend. For urban leaders, planning for density is a marketing strategy. As one commentator noted over a decade ago, urban leaders in cities large and small find themselves "[o]n a hunt for ways to put sex in the city."[14] They seek to build the kind of communities—urban, mixed-use, and diverse—that they believe will attract elite, well-educated, hip, young, and affluent residents. The reasoning behind this ambition traces its roots to Richard Florida's enormously influential book, *The Rise of the Creative Class*. Florida argues, in this book and others, that the modern economy is increasingly fueled by "creative" people who are attracted to "creative centers" that provide "the integrated eco-system or habitat where all forms of creativity—artistic and cultural, technological and economic—can take root and flourish."[15] Cities,

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10. RICHARD FLORIDA, THE RISE OF THE CREATIVE CLASS: AND HOW IT'S TRANSFORMING WORK, LEISURE, COMMUNITY AND EVERYDAY LIFE (2002) [hereinafter FLORIDA, THE RISE OF THE CREATIVE CLASS]; RICHARD FLORIDA, THE FLIGHT OF THE CREATIVE CLASS: THE NEW GLOBAL COMPETITION FOR TALENT (2007) [hereinafter FLORIDA, THE FLIGHT OF THE CREATIVE CLASS].

11. *See, e.g.*, RICHARD J. LAZARUS, THE MAKING OF ENVIRONMENTAL LAW 224 (2004); DOUGLAS FARR, SUSTAINABLE URBANISM: URBAN DESIGN WITH NATURE (2007).

12. *See*, *e.g.*, Briffault, *supra* note 2, at 1147–50; ORFIELD, *supra* note 2, at 123–24; DAVID RUSK, CITIES WITHOUT SUBURBS 70 (1993).

13. *See What is New Urbanism?*, *supra* note 4.

14. John Leland, *On a Hunt for Ways to Put Sex in the City*, N.Y. TIMES, Dec. 11, 2003, http://www.nytimes.com/2003/12/11/garden/on-a-hunt-for-ways-to-put-sex-in-the-city.html.

15. FLORIDA, THE RISE OF THE CREATIVE CLASS, *supra* note 10, at 218. *Accord* FLORIDA, THE FLIGHT OF THE CREATIVE CLASS, *supra* note 10; RICHARD FLORIDA, WHO'S YOUR CITY?: HOW THE CREATIVE ECONOMY IS MAKING WHERE TO LIVE THE MOST IMPORTANT DECISION IN YOUR LIFE 116–20 (2008) [hereinafter FLORIDA, WHO'S YOUR CITY?].

Florida argues, "have become the prime location for the creative lifestyle and the new amenities that go with it."[16] Florida's arguments have been sharply criticized,[17] and the extent of America's urban comeback remains contested.[18] But these disputes have not tempered the enthusiasm of urban leaders for "densification"—a reality reflected in, among other trends, the adoption of "new urbanist" land use regulations discussed below.[19]

Environmentalists focus on the ecological promises of planning for density.[20] They argue that "smart growth" regulations that channel growth back into urban centers and older suburbs (and restrict new development on the urban fringe) will help preserve greenfields and valuable agricultural lands,[21] protect wetlands and other sensitive habitats,[22] maintain biodiversity,[23] and reduce greenhouse gases.[24]

For regional government proponents, planning for density is a means of addressing the inefficiencies and inequalities that

16. FLORIDA, THE RISE OF THE CREATIVE CLASS, *supra* note 10, at 287.

17. *See*, *e.g.*, JOEL KOTKIN, THE HUMAN CITY: URBANISM FOR THE REST OF US (2016) (questioning the evidence supporting Florida's conclusions); David Brooks, *Where America is Working*, N.Y. TIMES, June 3, 2016, https://www.nytimes.com/2016/06/03/opinion/where-america-is-working.html?mcubz=3; Ian David Moss, *Deconstructing Richard Florida*, CREATEQUITY (Apr. 27, 2009) http://createquity.com/2009/04/deconstructing-richard-florida/. *But cf.* RICHARD FLORIDA, THE NEW URBAN CRISIS: HOW OUR CITIES ARE INCREASING INEQUALITY, DEEPENING SEGREGATION, AND FAILING THE MIDDLE CLASS—AND WHAT WE CAN DO ABOUT IT (2017) [hereinafter FLORIDA, THE NEW URBAN CRISIS] (recognizing that the benefits of urbanism are not equally distributed); Max Heninger, *A New Urban Crisis*, REAL CLEAR POLICY (Jan. 4, 2017) http://www.realclearpolicy.com/articles/2017/01/04/a_new_urban_crisis_110129.html (recognizing the competing views of Florida and Kotkin).

18. *See*, *e.g.*, Anbinder, *supra* note 9.

19. *See infra* notes 44–45 and text accompanying notes.

20. *See generally* David Dodman, *Urban Form, Greenhouse Gas Emissions and Climate Vulnerability*, *in* POPULATION DYNAMICS AND CLIMATE CHANGE 64–79 (José Miguel Guzmán et al. eds., 2009), http://www.unfpa.org/sites/default/files/resource-pdf/pop_dynamics_climate_change_0.pdf; Michael P. Johnson, *Environmental Impacts of Urban Sprawl: A Survey of the Literature and Proposed Research Agenda*, 33 ENV'T & PLAN. A 717 (2001); *APA Policy Guide on Smart Growth*, *supra* note 1; *Sprawl Overview*, SIERRA CLUB, http://vault.sierraclub.org/sprawl/overview/ (last visited Jan. 1, 2018).

21. *See, e.g.*, *APA Policy Guide on Agricultural Land Preservation*, AM. PLAN. ASS'N, https://www.planning.org/policy/guides/adopted/agricultural.htm (last visited Jan. 1, 2018).

22. *See*, *e.g.*, William E. Buzbee, *Urban Sprawl, Federalism and the Problem of Institutional Complexity*, 68 FORDHAM L. REV. 57, 74–75 (1999).

23. *See, e.g.*, Francesca Ortiz, *Biodiversity, the City, and Sprawl*, 82 B.U. L. REV. 145, 169–75 (2002); *Study Shows Urban Sprawl Threatens Genetic Diversity*, THE SAN DIEGO UNION-TRIB., Sept. 22, 2010, 6:00 AM, http://www.sandiegouniontribune.com/sdut-urbanization-threatens-genetic-diversity-species-2010sep22-story.html.

24. *See, e.g.*, Christopher Jones & Daniel M. Kammen, *Spatial Distribution of U.S. Carbon Footprints Reveals Suburbanization Undermines Greenhouse Gas Benefits of Urban Population Density*, 48 ENVTL. SCI. & TECH. 895 (2014) (finding that dense urban centers contribute less greenhouse-gas emissions per person than other areas of the country, but these cities' extensive suburbs wipe out their climate benefits).

pervade our metropolitan areas.[25] Proponents of regional government assume that suburbs are places of exit.[26] According to this account, suburbanites abandoned cities (often motivated by racism);[27] municipal incorporation laws shield suburbs from annexation;[28] exclusionary suburban land use policies prevent the exit of poor urban residents;[29] and exiters saddle urban governments with the burden of addressing (but not the resources to address) the myriad woes of poverty.[30] The never-ending cycle of new suburban development also necessitates wasteful development of new infrastructure (while older, urban infrastructure decays or lies fallow), reduces the opportunities for interlocal cooperation, and prevents local governments from capitalizing on economies of scale.[31]

Regionalists argue that suburbanites remain, in important respects, part of the urban polity, reasoning that the suburbs where they live are intertwined socially and economically with the center cities.[32] According to this view, suburbanites are essentially economic "leeches" that reap the benefits of cities without contributing in any meaningful way to supporting them.[33] For regionalists, economic and social justice mandate planning for density, especially through regional growth management tools that

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25. *See supra* note 2.

26. *See* Nicole Stelle Garnett, *Suburbs as Exit, Suburbs as Entrance*, 106 MICH. L. REV. 277 (2007).

27. *See* Jerry Frug, *Decentering Decentralization*, 60 U. CHI. L. REV. 253, 256 (1993) ("[M]illions of people have escaped city problems by crossing the boundary between city and suburb . . . segregat[ing] many of America's metropolitan areas into 'two nations': rich and poor, white and black, expanding and contracting."); Cashin, *supra* note 2, at 2015 ("[F]ragmented political borders were . . . the result of economic, social, and racial differentiation—a locational sorting process . . . .").

28. *See* Briffault, *supra* note 2, at 1141–44.

29. *See* LEE ANNE FENNELL, THE UNBOUNDED HOME: PROPERTY VALUES BEYOND PROPERTY LINES 42–60 (2009); Jerry Frug, *The Geography of Community*, 48 STAN. L. REV. 1047, 1048 (1996).

30. *See* ORFIELD, *supra* note 2, at 2 ("Throughout the United States, people move 'up and out,' taking their economic and social resources with them and leaving behind an increasingly dense core of poverty in the city and rapidly growing social needs in older suburbs.").

31. *See* PEIRCE, *supra* note 2, at 97–99; Briffault, *supra* note 2, at 1147–50; Clayton P. Gillette, *Regionalization and Interlocal Bargains*, 76 N.Y.U. L. REV. 190, 204–06 (2001).

32. The continued importance of center cities is supported by substantial evidence linking overall regional health with center-city fortunes, *see* RUSK, *supra* note 12, at 72–73, and suggests that commuters to city jobs tend to have higher wages than suburban employees, Gillette, *supra* note 31, at 241–42.

33. *See* Richard Briffault, *Our Localism: Part II—Localism and Legal Theory,* 90 COLUM. L. REV. 346, 443 (1990) (asserting that suburbanites routinely deny that "[t]he city was the primary center of jobs and commercial and cultural institutions for the region"); Gillette, *supra* note 31, at 241 ("[S]uburbanites exploit the central city by taking advantage of the cultural and commercial benefits . . . but then retreat without contributing to the services necessary to provide those benefits and without redressing the social problems endemic to cities.").

direct new development back into built-up areas. Encouraging (or requiring) urban redevelopment is embraced as a way to right the wrongs wrought by our fragmented system of local government, build more inclusive and just communities, and improve the educational and economic prospects of the urban poor.[34]

And then there are the new urbanists. I want to spend just a bit more time on them, both because they are not well-known outside of land use circles and because their growing influence on land use regulation is underappreciated. The new urbanism is also central to the paradox of planning for density. The new urbanists are a loosely affiliated group of architects and urban planning professionals who promote the development of—and the adoption of legal rules that mandate the development of—mixed-land-use "urban" neighborhoods.[35] The new urbanists' claim builds, in important ways, upon Jane Jacobs's enormously influential book, *The Death and Life of Great American Cities*.[36] Jacobs wrote at the apex of the urban renewal period, when urban planning ideology strongly favored the imposition of single-land-use patterns on our cities, even to the point of demolishing mixed-land-use communities in order to replace them with single-land-use ones. She vehemently rejected the accepted wisdom that dense urban neighborhoods were antiquated and unhealthy.[37] On the contrary, she argued that mixed-land-use neighborhoods are critical to city life, because commercial land uses both generate social capital and guarantee a steady supply of "eyes upon the street" to monitor and keep disorder and crime in check.[38]

The new urbanists embrace many of the environmentalists' and regionalists' arguments, but they argue that planning for density has cultural and aesthetic benefits as well. Their case against Euclidean zoning is part anti-suburban polemic and part pro-urban philosophy. At heart, the new urbanists' claim is that cities are good for us, and suburbs are bad.[39] They are bad for two

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34. *See* Frug, *supra* note 27, at 279–81, 294–99.

35. *See Charter of the New Urbanism*, CONGRESS FOR THE NEW URBANISM (2001), https://www.cnu.org/who-we-are/charter-new-urbanism (stating the principles of the new urbanism); *What is CNU?*, CONGRESS FOR THE NEW URBANISM, https://www.cnu.org/who-we-are (last visited Jan. 1, 2018) (same); *see also* GERALD E. FRUG, CITY MAKING: BUILDING COMMUNITIES WITHOUT BUILDING WALLS 149–54 (1999) (describing the principles of the new urbanism).

36. *See generally* JANE JACOBS, THE DEATH AND LIFE OF GREAT AMERICAN CITIES (1961).

37. *Id.* at 3–25.

38. *Id.* at 34–38.

39. *See, e.g.*, LÉON KRIER, THE ARCHITECTURE OF COMMUNITY 104 (Dhiru A. Thadani & Peter J. Hetzel eds. 2009) ("Functional zoning replaces the organic order of the city with the mechanical disorder of the suburbs . . . .").

reasons. First, the new urbanists believe that suburbs are ugly. Indeed, they think just about everything built since the Second World War that was not designed by new urbanists is ugly.[40] Second, they believe that urban neighborhoods build community. Cities, they argue, are as socializing and democratizing as suburbs are privatizing. Cities are diverse and vibrant, suburbs monolithic and isolating. To put the claim into social-science terminology, the new urbanists argue that cities generate social capital by drawing together strangers who would not otherwise connect, while suburbs inhibit social capital by further privatizing our already-atomized culture.[41] Thus, it follows that zoning laws that mandate a single-land-use, "suburban" built environment are antisocial and ought to be scrapped.[42] The normative claims of new urbanists are colorfully summarized by James Howard Kunstler as follows: "[T]he model of the human habitat dictated by zoning is a formless, soulless, centerless, demoralizing mess. It bankrupts families and townships. It causes mental illness. It disables whole classes of decent, normal citizens. It ruins the air we breathe. It corrupts and deadens our spirits."[43]

Kunstler makes clear that the normative and aesthetic claims of the new urbanists are intertwined. New urbanists believe that architectural design can cure the social, as well as the aesthetic, woes of our culture. Traditional architecture, they argue, is friendly and welcoming; suburban architecture is cold and privatizing. They love front porches and hate garage doors. This is important because, over the last few decades, the new urbanists have mounted a remarkably successful public relations campaign against traditional zoning practices and the suburban land use patterns resulting from them. They also have developed an

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40. JAMES HOWARD KUNSTLER, THE GEOGRAPHY OF NOWHERE: THE RISE AND DECLINE OF AMERICA'S MAN-MADE LANDSCAPE 10 (1993) [hereinafter KUNSTLER, THE GEOGRAPHY OF NOWHERE] ("Eighty percent of everything ever built in America has been built in the last fifty years, and most of it is depressing, brutal, ugly, unhealthy and spiritually degrading . . . .").

41. By social capital, I refer here to Robert Putnam's "lean and mean" definition: "[S]ocial networks and the norms of reciprocity . . . that arise from them." ROBERT D. PUTNAM, BOWLING ALONE: THE COLLAPSE AND REVIVAL OF AMERICAN COMMUNITY 19 (2000). Specifically, the new urbanists claim, to borrow from Putnam, that nonresidential land uses are "bridging" institutions—that is, they draw together groups of individuals who might not otherwise interact. *Id.* at 22–24. For a thoughtful discussion of the new urbanism and social capital, see Sheila R. Foster, *The City as an Ecological Space: Social Capital and Urban Land Use*, 82 NOTRE DAME L. REV. 527, 559–61 (2006).

42. JAMES HOWARD KUNSTLER, HOME FROM NOWHERE: REMAKING OUR EVERYDAY WORLD FOR THE TWENTY-FIRST CENTURY 134–35 (1996) [hereinafter KUNSTLER, HOME FROM NOWHERE] ("The public consensus about how to build a human settlement . . . has collapsed. Standards of excellence in architecture and town planning have collapsed. . . . What was thrown away must now be reconstructed, spelled out, and reinstated.").

43. *Id.* at 112.

alternative to zoning laws—"transect zoning"—that seeks to impose these aesthetic sensibilities through the law, which local governments increasingly are embracing.[44] The reach of these regulations varies by jurisdiction,[45] with a growing number of local governments, including several major cities, choosing to implement them comprehensively on a city-wide basis.[46]

III. THE PERILS OF PLANNING FOR DENSITY

The perils of planning for density are well-understood, if contested, and are primarily associated with the coercive (rather than the voluntary) regulatory practices in the planning-for-density toolkit—especially regulations that promote urban density by restricting suburban growth. The economics of growth management are fairly straightforward. Despite their best efforts, land use planners inevitably confront the law of supply and demand. Both economic theory and empirical research suggest that regulatory limits on new development drive up property values and reduce housing affordability.[47] Michael Schill succinctly summarized the problem as follows: "The Achilles' heel of the 'smart growth' movement is the impact that many of the proposals put forth by its advocates would have on affordable housing."[48]

According to proponents, properly structured, metropolitan- or state-wide limits on suburban development are necessary to

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44. *See Tools*, CONGRESS FOR THE NEW URBANISM, https://www.cnu.org/resources/tools (last visited Jan. 1, 2018); CHAD EMERSON & ANDRES DUANY, THE SMARTCODE SOLUTION TO SPRAWL (2007).

45. *See* Nate Berg, *Brave New Codes*, ARCHITECT MAG., July 2010, at 50, 51–53, http://cdn.coverstand.com/11050/41861/41861.2.pdf.

46. The cities of Miami, Denver, and Cincinnati have overhauled their existing zoning codes in favor of transect-zoning regulations. *See, e.g.*, Dakota Handon & Alex Adams, *Miami 21: The Blueprint for Miami's Future*, FLA. PLAN. 4 (Winter 2010), http://www.fltod.com/research/tod_planning_and_fbc_in_florida/miami_21/miami_21_florida_planning.pdf; CITY OF MIAMI PLAN. AND ZONING DEP'T, MIAMI21: YOUR CITY, YOUR PLAN, www.miami21.org (last visited Jan. 1, 2018); Christopher N. Osher, *Denver Council Passes Overhaul of City's Zoning Laws*, DENVER POST (June 21, 2010, 4:03 PM), http://www.denverpost.com/2010/06/21/denver-council-passes-overhaul-of-citys-zoning-laws/; *How Does the Denver Zoning Code Work?*, DENVER DEP'T OF COMMUNITY PLAN. AND DEV., https://www.denvergov.org/content/denvergov/en/community-planning-and-development/zoning/neighborhood-context.html (last visited Jan. 1, 2018); John Yung, *Here's How Cincinnati's Form-Based Codes are Designed to Spur Redevelopment*, CINN. BUS. COURIER (Jan. 14, 2014, 9:45 AM) http://www.bizjournals.com/cincinnati/news/2014/01/21/heres-how-cincinnatis-form-based.html.

47. *See, e.g.*, Shen, *infra* note 54, at 70 (reviewing empirical studies analyzing the price effects of growth controls).

48. Michael H. Schill, Comment, *Smart Growth and Affordable Housing*, *in* GROWTH MANAGEMENT AND AFFORDABLE HOUSING: DO THEY CONFLICT? 102, 102 (Anthony Downs ed., 2004).

achieve urban density because local government power leads inevitably to a tragedy of the commons scenario within a metropolitan area.[49] Each suburban government jealously guards its authority to regulate land use so as to maximize local tax revenues (and resident satisfaction).[50] More affluent "inner-ring" suburbs tend to accomplish these goals through exclusionary zoning techniques that freeze out new development, pushing it to the suburban fringe.[51] Communities located on that fringe, recognizing their competitive advantage, have incentives to encourage development by relaxing land use standards.[52] Increased sprawl results inevitably from this pattern of exclusion and invitation.[53] When growth controls are imposed locally, therefore, they tend to exacerbate, rather than ameliorate, sprawl by shifting development to non-controlled areas.[54] As William Fischel has observed, local growth controls "probably cause metropolitan areas to be to spread out . . . [by] caus[ing] developers to go to other communities."[55]

For this reason, growth-management and regional government proponents alike tend to favor controls imposed at the state or regional level, such as the urban growth boundaries imposed in Oregon. Proponents argue that regional growth controls can counter the inefficiencies described above by channeling new development back into declining center cities and saving undeveloped land from "cheating" suburbs with lax land use

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49. *See*, *e.g.*, ARTHUR C. NELSON & JAMES B. DUNCAN WITH CLANCY J. MULLEN & KIRK R. BISHOP, GROWTH MANAGEMENT PRINCIPLES & PRACTICES 19 (1993) ("Regional approaches to planning and growth management issues have long been championed as a necessary alternative to the problems associated with fragmented, uncoordinated, and competitive local government policies.").

50. *See*, *e.g.*, Briffault, *supra* note 33, at 349 (noting that "local government law does not distinguish within the category of municipal corporation between city and suburb"); *id.* at 366 (linking suburban autonomy and local land use regulation); Briffault, *supra* note 2, at 1134–35.

51. *See* Briffault, *supra* note 2, at 1135–36 (noting that affluent communities use exclusionary zoning to preserve high tax base); Frug, *supra* note 29, at 1083–84 (describing use of exclusionary zoning).

52. *See* Briffault, *supra* note 2, at 1135 (attributing "'leapfrog' pattern of development" to exclusionary zoning in central suburbs that forces new development to outer-ring suburbs with more favorable political climates); WILLIAM A. FISCHEL, DO GROWTH CONTROLS MATTER? A REVIEW OF EMPIRICAL EVIDENCE ON THE EFFECTIVENESS AND EFFICIENCY OF LOCAL GOVERNMENT LAND USE REGULATION 55 (1990).

53. *See*, *e.g.*, Robert H. Freilich & Linda Kirts Davis, *Saving the Land: The Utilization of Modern Techniques of Growth Management to Preserve Rural and Agricultural America*, 13 URB. L. 27, 30–31 (1981).

54. *See*, *e.g.*, Q Shen, *Spatial Impacts of Locally Enacted Growth Controls: The San Francisco Bay Region in the 1980s*, 23 ENV'T & PLAN. B: PLAN. & DESIGN 61, 86 (1996).

55. FISCHEL, *supra* note 52, at 55.

regulations.[56] Unfortunately, centralized growth management policies likely exacerbate their price effects. One benefit of the traditional pattern of exclusion and invitation described above is that new growth on the suburban fringe tends to mitigate the price effects of growth controls in inner suburbs.[57] Sprawl, in turn, promotes the housing filtering process, by which a wealthier individual moving to a larger house sets off a "chain of successive housing moves" that increases the availability of quality housing for poor and moderate-income individuals.[58] We might therefore expect comprehensive growth management, more than local controls, to increase overall regional housing prices.[59]

Regional government proponents counter that centralized control over development policy can actually increase the affordability of housing overall,[60] by curtailing local governments' exclusionary tendencies.[61] This is because regional growth policies not only limit exclusionary zoning, but also often incorporate planning tools (such as housing linkage, inclusionary zoning, density bonuses, and impact-fee waivers) designed to increase the supply of affordable housing.[62] Perhaps. But even assuming that policymakers muster the political will to implement affordability-promotion tools on a large enough scale to counter the

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56. *See*, *e.g.*, *id.* at 30 (arguing that growth controls would "benefit central city dwellers through rehabilitation and revitalization of the central city" and "would be environmentally beneficial by preserving agricultural land and open space"); William B. Shore, *Recentralization: The Single Answer to More Than a Dozen Unites States Problems and a Major Answer to Poverty*, 61 J. AM. PLAN. ASS'N 496 (1995).

57. *See* Nicole Stelle Garnett, *Save the Cities, Stop the Suburbs?* 116 YALE L.J. 598, 605–609 (2006) (reviewing literature).

58. Brian J.L. Berry, *Ghetto Expansion and Single-Family Housing Prices: Chicago, 1968–1972*, 3 J. URB. ECON. 397, 417 (1976) (arguing that suburbanization led to a massive chain of moves, which mitigated the price effects of racial discrimination in Chicago and enabled many families to improve their housing situation).

59. *See, e.g.*, Vicki Been, *"Exit" as a Constraint on Land Use Exactions: Rethinking the Unconstitutional Conditions Doctrine*, 91 COLUM. L. REV. 473, 509–28 (1991) (arguing that competition between municipalities may reduce their ability to exact concessions from developers); Arthur C. Nelson et al., *The Link between Growth Management and Housing Affordability: The Academic Evidence*, *in* GROWTH MANAGEMENT AND AFFORDABLE HOUSING: DO THEY CONFLICT? 127–28 (predicting that regional growth management policies will have greater price effects than will local ones, which permit housing consumers to migrate to uncontrolled jurisdictions).

60. *See, e.g.,* GERRIT KNAAP & ARTHUR C. NELSON, THE REGULATED LANDSCAPE: LESSONS ON STATE LAND USE PLANNING FROM OREGON 52–58 (1992) (discussing conflicting evidence on the price effects of Oregon's comprehensive growth management program).

61. Metropolitan fragmentation undoubtedly permits local governments to dress up exclusionary zoning in a growth-management gown. After all, limits on *all* new development serve the double purpose of excluding disfavored land uses (and questionable new neighbors) and making existing homes a scarcer, and therefore more valuable, resource. *See, e.g.*, Vicki Been, *Impact Fees and Housing Affordability*, 8 CITYSCAPE: J. POL'Y DEV. & RES. 139, 146 (2005) (discussing literature).

62. Richard P. Voith & David L. Crawford, *Smart Growth and Affordable Housing*, *in* GROWTH MANAGEMENT AND AFFORDABLE HOUSING: DO THEY CONFLICT?, 86–100.

regressive effects of growth management—a big "if," in my opinion—the transitional fairness questions raised by suburban growth restrictions remain. These concerns are not limited to housing affordability. Even if a regional development strategy succeeded in holding constant the overall cost of housing, most affordable housing would likely continue to be found in center cities and older suburbs.[63] After all, regional growth-management strategies aim to channel new development into built-up areas. Yet, as Robert Bruegmann highlights in his excellent history of suburban sprawl, urban life has always been most difficult for the poor, and suburbs have long represented the urban poor's hope for a better life.[64] The reality is that suburbs offer the good schools, economic opportunities, and environmental amenities that wealthy urban dwellers can afford to purchase and poorer ones cannot[65]—realities that Richard Florida himself acknowledges in a recent book.[66]

Moreover, and in my view more importantly, there is something slightly unseemly about dramatically curtailing suburban growth at a time when racial minorities are responsible for the lion's share of suburban population gains in many major metropolitan areas.[67] A majority of Asian Americans, half of Hispanic Americans, and nearly forty percent of African Americans are now suburbanites.[68] Efforts to channel development into the urban core could slow or reverse this trend, which is fueling increased suburban racial diversity. This risk is especially pronounced because many of the most diverse neighborhoods have characteristics that draw the ire of sprawl opponents: they are located in low-density metropolitan areas in the West and Southwest and filled with relatively low cost "starter homes."[69] It is difficult to avoid concluding that changing the rules of the development game at this time is tantamount to pulling the suburban ladder out from under those late exiters who

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63. *See* Schill, *supra* note 48, at 104.

64. *See* ROBERT BRUEGMANN, SPRAWL: A COMPACT HISTORY 26–29 (2005).

65. *See, e.g.*, James E. Ryan & Michael Heise, *The Political Economy of School Choice*, 111 YALE L.J. 2043, 2102–08 (2002) (discussing the connection between economic status and educational achievement); Michael H. Schill, *Deconcentrating the Inner-City Poor*, 67 CHI.-KENT L. REV. 795, 811–31 (1991) (advocating policies that help the urban poor move to suburbs).

66. *See* FLORIDA, THE NEW URBAN CRISIS, *supra* note 17.

67. WILLIAM H. FREY, *Melting Pot Suburbs: A Study of Suburban Diversity*, *in* 1 REDEFINING URBAN AND SUBURBAN AMERICA: EVIDENCE FROM CENSUS 2000, at 155, 163 (Bruce Katz & Robert E. Lang eds., 2003).

68. *Id.* at 167–74.

69. *See* Been, *supra* note 61, at 164 ("[N]ew neighborhoods of starter homes are more racially mixed than established neighborhoods." (citation omitted)).

previously were excluded from suburban life by economic circumstance, exclusionary zoning, and—in some cases—intentional discrimination. Moreover, the primary advantages of growth management imposed in the name of planning for density may be enjoyed by individuals who have perpetrated, or at least benefited from, this past exclusion: that is, the current suburban homeowners who are the immediate beneficiaries of the economic and environmental amenities that attend growth controls.[70]

The new urbanists promise that their regulatory alternative to Euclidean zoning promotes density while avoiding or mitigating the economic perils of growth controls by "simplifying" land use regulation.[71] New urbanists argue that cities should reject *use-based* zoning regulations in favor of a system of *form-based* aesthetic controls that governs the appropriate form of buildings in a given neighborhood.[72] Their regulatory alternative to zoning finds its roots in architect Andrés Duany's 2003 *SmartCode*. New urbanist codes flow from the assumption that urban development proceeds naturally from more-dense areas to less-dense ones.[73] Duany calls this progression the "transect" and urges cities to replace traditional use zoning with regulations on building form appropriate to the various "transect zones" along the progression.[74] Most cities' transect-zoning schemes, by and large, have adopted this formula (depicted in Figure 1 below), which assumes a natural progression of urban development from more to less dense.[75]

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70. Robert C. Ellickson, *Suburban Growth Controls: An Economic and Legal Analysis*, 86 YALE L.J. 385, 400 (1977) ("Antigrowth measures have one premier class of beneficiaries: those who already own residential structures in the municipality doing the excluding."). Although the evidence is mixed, some studies show a correlation between levels of home ownership and support for growth controls. *See*, *e.g.*, MARK BALDASSARE, TROUBLE IN PARADISE: THE SUBURBAN TRANSFORMATION IN AMERICA 95 (1986) (finding strong correlation between home ownership and support for limiting apartment construction); Alan Gin & Jonathan Sandy, *Evaluating the Demand for Residential Growth Controls*, 3 J. HOUSING ECON. 109 (1994) (support for growth controls increases with rates of home ownership). *But see* Mark Baldassare & Georjeanna Wilson, *Changing Sources of Suburban Support for Local Growth Controls*, 33 URB. STUD. 459, 462 (1996) (evidence on correlation mixed).

71. *See* DANIEL G. PAROLEK ET AL., FORM-BASED CODES: A GUIDE FOR PLANNERS, URBAN DESIGNERS, MUNICIPALITIES, AND DEVELOPERS 4, 39 (2008) (arguing that new urbanist codes ought to be "simple" and short).

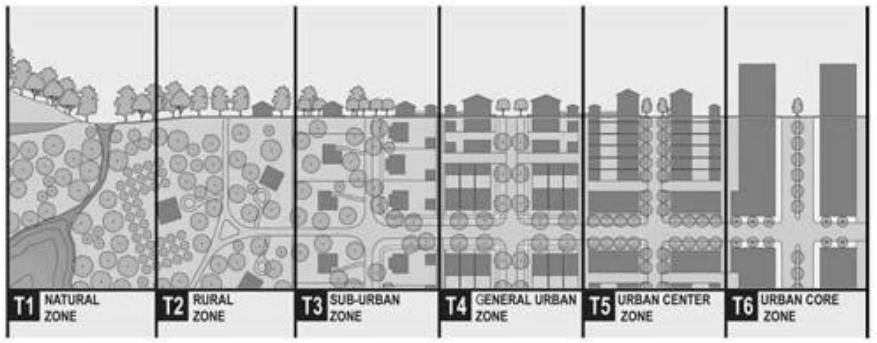
72. *Id.* at 12 (describing form-based codes as a method to regulate new-urbanist-style development by controlling physical form rather than land use).

73. *See* ANDRÉS DUANY ET AL., SMARTCODE: VERSION 9.2, at vi–vii (2012).

74. *Id.* at xi; Andrés Duany & Emily Talen, *Transect Planning*, 68 J. AM. PLAN. ASS'N 245, 245–48 (2002).

75. *The Transect*, CTR. FOR APPLIED TRANSECT STUD., http://transect.org/transect.html (last visited Jan. 1, 2018) ("Before the automobile, American development patterns were walkable, and transects within towns and city neighborhoods revealed areas that were less

Figure 1. The Urban Transect[76]



Drawing upon this concept, proponents of transect zoning urge regulators to scrap traditional zoning codes, which regulate based upon property uses, in favor of a regulatory system that targets building density and form.[77] Proponents of transect zoning argue that the codes defining the appropriate building forms along the transect—known in the vernacular as "form-based codes"—ought to be "simple" and short.[78] Unfortunately, while new urbanists echo Jacobs' embrace of urban land use patterns, their preferred method for achieving them departs from her relatively libertarian belief that cities thrive best when government leaves them alone.[79] As implemented, neither the new urbanism nor the new urbanists' regulatory alternative to zoning is a libertarian project. On the contrary, to borrow from Vicki Been and Bob Ellickson's description of building codes, form-based codes can be "technical document[s], whose level of difficulty at places may rival that of the Internal Revenue Code."[80] New urbanists have specific ideas about how buildings should look: they should not only be architecturally appropriate, but also attractive, indeed welcoming, in their details.[81] Many form-based codes favor "traditional"

urban and more urban in character. This urbanism could be analyzed as natural transects are analyzed.").

76. *Id.*

77. PAROLEK ET AL., *supra* note 71, at 18–19.

78. *Id.* at 39.

79. *See* DUANY ET AL., *supra* note 73, at iv ("[The SmartCode] is meant to be law . . . administered by municipal planning departments and interpreted by elected representatives of local government."); *Form-Based Codes Defined*, FORM-BASED CODES INST., https://formbasedcodes.org/definition/ (last visited Oct. 24, 2017) ("[F]orm-based codes are regulatory, not advisory.").

80. ROBERT C. ELLICKSON & VICKI L. BEEN, LAND USE CONTROLS: CASES AND MATERIALS 447 (3d ed. 2005).

81. *See generally* KRIER, *supra* note 39 (discussing architecture and urbanism).

building designs—that is, those reminiscent of the pre-zoning communities that new urbanists champion as a planning ideal. And, while most new urbanists argue that form-based codes are distinct from architectural regulations, in practice, many form-based codes mandate architectural design elements.[82]

There are both practical and theoretical reasons why architectural details pervade transect-zoning regulations. Practically, determining which building "forms" belong in a given transect zone is not a self-evident proposition, but rather, must be spelled out in architectural codes, such as the one reproduced above in Figure 1.[83] Moreover, detailed architectural restrictions may placate groups that are resistant to regulatory changes enabling density and a mixing of land uses—particularly, homeowners concerned about protecting their property values from externalities that nonresidential land uses may generate.[84] Theoretically, many new urbanists believe that our society's idea of what constitutes "good" urban environments has been corrupted by decades of zoning. Therefore, they believe that pervasive and comprehensive government regulation is required in order to mandate those environments. As James Howard Kunstler argues, "The[se] codes will invoke in words and graphic images standards of excellence that previously existed in the minds of ordinary citizens but which have been forgotten and forsaken. The codes, therefore, aim to restore the collective cultural consciousness."[85]

Not surprisingly, therefore, form-based codes frequently impose high compliance costs. These costs flow in large part from the imposition of architectural standards, which, at a minimum, require securing the services of an architect to ensure compliance, but may also require expensive building materials.[86] This extra

82. *See* Berg, *supra* note 45, at 51–53.

83. *See* Elizabeth Garvin & Dawn Jourdan, *Through the Looking Glass: Analyzing the Potential Legal Challenges to Form-Based Codes*, 23 J. LAND USE & ENVTL. L. 395, 404–06 (2008); Kenny Be, *Everybody Must Get Zoned: Kenny Be Looks at Denver's New Zoning Rules*, WESTWORD (Jan. 20, 2010, 8:36 AM), http://www.westword.com/news/everybody-must-get-zoned-kenny-be-looks-at-denvers-new-zoning-rules-5879939#page-1 ("[A]t 730 pages, not including 76 neighborhood maps and six Overlay District maps, the new zoning code is being called an improvement. It is a control-freak fantasy, with detailed rules for every aspect of city life.").

84. GARNETT, ORDERING THE CITY, *supra* note 3, at 200–201.

85. KUNSTLER, HOME FROM NOWHERE, *supra* note 42 at 135.

86. *See* Ajay Garde, *Designing and Developing New Urbanist Projects in the United States: Insights and Implications*, 11 J. OF URB. DESIGN 33, 43–44 (2006) (noting that architectural features, materials and highly detailed design codes are cost burdens associated with new urbanism); Yan Song & Mark Stevens, *The Economics of New Urbanism and Smart Growth: Comparing Price Gains and Costs Between New Urbanists and Conventional Developments*, *in* THE OXFORD HANDBOOK OF URBAN ECONOMICS AND PLANNING 503, 513–19 (Nancy Brooks et al. eds., 2012).

layer of difficulty supplements pre-existing regulations of "building form," including building codes and the accessibility regulations of the Americans with Disabilities Act (ADA).[87] Moreover, the public-choice realities discussed above often require that form-based codes supplement, rather than supplant, pre-existing zoning regulations and growth controls.[88] Essentially, these codes are the equivalent of a highly technical performance-zoning overlay.[89] Not only are new urbanist developments more expensive than conventional ones,[90] but compliance costs have stalled some redevelopment efforts governed by form-based zoning.[91] In other

87. *See, e.g.*, CNTY. OF SANTA BARBARA PLANNING & DEV. DEP'T, LOS ALAMOS BELL STREET DESIGN GUIDELINES 24 (2011) (mandating that ramps and guiderails should complement the overall design intent while conforming with existing building code and ADA requirements). For a discussion of general building costs associated with ADA compliance, see ELLICKSON & BEEN, *supra* note 80, at 452.

88. *See* Kaizer Rangwala, *Hybrid Codes Versus Form-Based Codes*, NEW URB. NEWS, Apr.–May 2009, at 12, 13 (noting that, despite plans for city-wide form-based codes, limited resources, development, and political pressures forced officials to adopt hybrid codes or overlay districts in Phoenix and Ventura); *see also* DONALD L. ELLIOTT, A BETTER WAY TO ZONE: TEN PRINCIPLES TO CREATE MORE LIVABLE CITIES 37–38 (2008) (asserting that form-based codes are likely to supplement rather than replace conventional zoning because of lack of time, money, and political support); John M. Barry, *Form Based Codes: Measured Success Through Both Mandatory and Optional Implementation*, 41 CONN. L. REV. 305, 331 (2008) (offering parallel form-based codes that supplement conventional zoning as a solution when there is public opposition to mandatory form-based codes).

89. Performance zoning regulates land use by establishing parameters designed to limit the negative impact of the use. Although performance zoning is more flexible than conventional zoning, it is often difficult to administer and no major city has replaced Euclidean zoning in favor of performance zoning. *See* ELLIOTT, *supra* note 88, at 23–26; JULIAN CONRAD JUERGENSMEYER & THOMAS ROBERTS, LAND USE PLANNING AND DEVELOPMENT REGULATION LAW 101–02 (2d ed. 2007). For an example of a highly detailed form-based overlay, see Jeremy E. Sharp, An Examination of the Form-Based Code and Its Application to the Town of Blacksburg 20–21 (Nov. 4, 2004) (unpublished Master's thesis, Virginia Polytechnic Institute and State University), https://vtechworks.lib.vt.edu/bitstream/handle/10919/37154/SharpFINALmajorpaper.pdf?sequence=1&isAllowed=y (noting that South Miami's highly detailed form-based overlay regulates the uses on each floor of buildings in the urban zone).

90. *See, e.g.*, Joseph E. Gyourko & Witold Rybczynski, *Financing New Urbanism Projects: Obstacles and Solutions*, 11 HOUSING POL'Y DEBATE 733, 739–40 (2000) (concluding, based on an extensive survey of builders and developers, that new urbanist projects are more expensive); Philip Langdon, *The Not-So-Secret Code: Across the U.S., Form-Based Codes Are Putting New Urbanist Ideas into Practice*, AM. PLAN. ASS'N (Jan. 2006) (asserting that the cost of form-based codes "exceeds that of a conventional land-use plan" making citywide form-based coding "prohibitively expensive").

91. *See* GARNETT, ORDERING THE CITY, *supra* note 3, at 176–180; Ed Tombari, *The Future of Zoning?*, 22 LAND DEV. 23, 25 (2009) (noting development drawbacks to Arlington, Virginia's form-based overlay that include having to go back to the Planning Board in order to make minor facade changes); Mark Simpson, *Cost and Business Resistance Kill Orlando Suburb Beautification and Traffic Calming Effort*, WNYC: TRANS. NATION (Apr. 2, 2011), http://www.wnyc.org/story/285835-cost-and-business-resistance-kill-orlando-suburb-beautification-and-traffic-calming-effort/ (noting the cost of a form-based redevelopment project as a reason for its rejection); Robert Steuteville, *Survey: Combine New Code with Activities and Investment*, CONGRESS FOR THE NEW URBANISM: PUB. SQUARE (Apr. 1, 2010), https://www.cnu.org/publicsquare/survey-combine-new-code-activities-and-investment

words, new urbanist regulation may exacerbate, rather than mitigate, the economic effects of achieving urban density through growth management.

IV. THE PARADOX OF PLANNING FOR DENSITY

I come at last to the paradox of planning for density, a paradox that flows from the particular claims of the new urbanists. As discussed previously, the new urbanists argue that planning for density—or, at least their version of it, which focuses on encouraging and/or mandating mixed-land-use developments—holds promises beyond the economic, ecological, and distributional. Specifically, building upon Jane Jacobs' claims about the communitarian benefits of the urban form, the new urbanists argue that planning for density will foster the social capital necessary to build thriving communities.

The paradox of planning for density can be summarized in four words: "Was Jane Jacobs wrong?" Recall that Jane Jacobs argued that dense, mixed-land-use urban neighborhoods were safer and more socially cohesive than less populated, single-use ones.[92] These claims, which have been embraced with great gusto by the new urbanists, flowed from two convictions/predictions about the effects of density, especially of commercial land uses, on city life. First, she argued that mixed-land-use neighborhoods are safer than single-land-use ones.[93] She intuited that, by drawing people into city streets, businesses generate "eyes upon the street" that keep disorder and crime in check.[94] Indeed, she went so far as to argue that neighborhood bars could contribute to neighborhood security, reasoning that their patrons would serve a private surveillance function well into the night hours.[95] Second, Jacobs argued that commercial land uses help build community by bringing together people who would not otherwise meet. Jacobs reasoned, "The trust of a city street is formed over time from many, many little public sidewalk contacts. It grows out of people stopping by at the bar for a beer, getting advice from the grocer and giving advice to the newsstand man . . . ."[96] Drawing from Jacobs, the new urbanists assert that the single-land-use design of

(noting that only twenty-nine percent of the communities that adopted form-based codes during or after 2007 have had projects built).

92. *See* JACOBS, *supra* note 36, at 3–25.

93. *Id.* at 36–37.

94. *Id.* at 34–35 ("A well-used city street is apt to be a safe street. A deserted city street is apt to be unsafe.").

95. *Id.* at 40–41.

96. *Id*. at 56.

suburbia deprives many Americans of the opportunity to build community and relationships with one another.[97] Philip Langdon, for example, echoes Jacobs when he argues, "[T]he tavern, the cafe, the coffee shop, the neighborhood store . . . have been zoned out of residential areas . . . . As informal gathering places have been banished, many opportunities for making friendships and pursuing common interests have disappeared."[98]

Unfortunately, Jacobs' arguments appear to be intuitively appealing but empirically unsustainable. The popular and academic commentary on Jacobs' arguments almost entirely neglects to take into account the empirical literature testing and rejecting her hypotheses. These studies find instead that commercial land uses increase crime and disorder and suppress social capital.[99] In a number of studies criminologists, sociologists, and environmental psychologists have examined the connection between land use patterns and disorder, crime, and "collective efficacy," which sociologists and social psychologists define as the "ability of neighborhoods to realize the common goals of residents and maintain effective social control."[100] These studies test Jacobs' claims by comparing the levels of crime, disorder, and social cohesion in exclusively residential and mixed-land-use neighborhoods.[101] These studies generally find that exclusively

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97. ANDRES DUANY, ELIZABETH PLATER-ZYBECK & JEFF SPECK, SUBURBAN NATION: THE RISE OF SPRAWL AND THE DECLINE OF THE AMERICAN DREAM 59–64 (2010) ("Americans are splintering into insular factions, each pursuing an increasingly narrow agenda, with nary a thought for the greater good. Further, more and more citizens seem to be withdrawing from public life into the shelter of their private homes . . . . [I]t is near-impossible to imagine *community* independent of the town square or the local pub . . . . [P]edestrian life cannot exist in the absence of worthwhile destinations that are easily accessible on foot. This is a condition that modern suburbia fails to satisfy, since it strives to keep all commercial activity well separated from housing.").

98. PHILIP LANGDON, A BETTER PLACE TO LIVE: RESHAPING THE AMERICAN SUBURB 15–16 (1994).

99. *See, e.g.,* Robert J. Sampson & Stephen W. Raudenbush, *Systematic Social Observation of Public Spaces: A New Look at Disorder in Urban Neighborhoods*, 105 AM. J. SOC. 603, 624 (1999) ("Neighborhoods with mixed residential and commercial development exhibit higher levels of both physical and social disorder, regardless of sociodemographic characteristics.").

100. Tracey L. Meares, *Praying for Community Policing*, 90 CAL. L. REV. 1593, 1604 (2002). For a fuller discussion on collective efficacy and neighborhood health, see Sampson & Raudenbush, *supra* note 99. *See also* Robert J. Sampson et al., *Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy*, SCI., Aug. 15, 1997, at 918.

101. Some of these studies focus on so-called land use "hot spots"—that is, particular land uses associated with high levels of crime and disorder. It is fair to say that the empirical literature on land use "hot spots" does not bear out Jacobs's hunch about taverns, as there is ample evidence that bars increase crime and disorder and suppress informal social controls within a neighborhood. *See, e.g.*, Dennis W. Roncek & Mitchell A. Pravatiner, *Additional Evidence that Taverns Enhance Nearby Crime*, SOC. & SOC. RES., July 1989, 185; Dennis W. Roncek & Pamela A. Maier, *Bars, Blocks and Crimes Revisited: Linking the Theory of Routine Activities to the Empiricism of "Hot Spots"*, 29 CRIMINOLOGY 725 (1991).

residential neighborhoods have lower crime rates, less disorder, and more collective efficacy than mixed residential and commercial neighborhoods.[102]

Researchers conducting these studies link their findings to the "routine activities" theory of crime.[103] Routine activities theory builds on the insight that most predatory crime is opportunistic. As Robert Sampson and Stephen Raudenbush summarize, "predatory crime involves the intersection in time and space of motivated offenders, suitable targets, and the absence of capable guardians."[104] Land use patterns are relevant to this thesis for two reasons. First, non-residential land uses (for example schools, stores, parks, etc.) may serve to invite would-be offenders into a neighborhood. Moreover, by providing places where individuals congregate, commercial land uses generate a larger pool of potential victims than residential ones. In other words, while Jacobs may have been right that commercial land uses increase the number of individuals present in an urban neighborhood, the routine activities theory suggests that higher numbers of "eyes upon the street" may increase the number of potential offenders, as well as the number of law-abiding crime monitors.

Second, contrary to Jacobs's intuition, commercial land uses decrease incentives for private surveillance efforts. Jacobs argued that outsiders as well as insiders to a community provide the "eyes upon the street" needed to suppress disorder and crime.[105] Unfortunately, the empirical evidence suggests that the opposite is true. Strangers "invited" to a community by commercial land uses apparently act to decrease, rather than increase, the level of informal surveillance in a neighborhood. They also appear to reduce neighborhood social cohesion.[106] Resident surveys conducted for the land use studies discussed above, however, suggest that commercial land uses reduce informal monitoring, because they reduce the sense in which residents consider it their "own;" perhaps, because commercial land uses generate foot traffic that makes it difficult for residents to discern between insiders and outsiders in a community.[107] In one study, for example,

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102. *See, e.g.*, Ralph B. Taylor et al., *Street Blocks with More Nonresidential Land Uses Have More Physical Deterioration: Evidence from Baltimore and Philadelphia*, 31 URB. AFF. REV. 120 (1995).

103. Jeffrey D. Morenoff, *et al.*, *Neighborhood Inequality, Collective Efficacy, and the Spatial Dynamics of Urban Violence*, 39 CRIMINOLOGY 517, 521 (2001).

104. Sampson & Raudenbush, *supra* note 99, at 610.

105. JACOBS, *supra* note 36, at 35.

106. *See* Taylor et al., *supra* note 102.

107. *See* Pamela Wilcox et al., *Busy Places and Broken Windows? Toward Defining the Role of Physical Structure and Process in Community Crime Models*, 45 SOC. Q. 185, 188–90,

"[r]esidents on blocks with more nonresidential land use . . . recognized other on-block residents less well, felt that they had less control over events in the neighborhood, and were less likely to count on a neighbor to watch out for suspicious activity," than residents of exclusively residential blocks.[108]

Since most of my early scholarship might have been described as "Jane Jacobs on steroids," these findings were initially devastating to me. I pondered them for years before I came to the conclusion that intellectual honestly demanded that I build a case for planning for density, rather than build a case for mixed-land-use planning, that tackles the uncomfortable reality that these empirical studies present. My case is built upon an apparent paradox, which I call the "People Paradox." The People Paradox can be summarized as follows: In urban neighborhoods, people may not make us safer, but for a variety of reasons, they apparently make us feel safer. The empirical evidence suggests that, although we are not safer in busy places, we think that we are. That is, we feel safer in busy places. At least in urban neighborhoods, that is, we are afraid of being alone. We believe that there is safety in numbers. For a variety of reasons that I explore in detail in other work, we associate "aloneness" with vulnerability to crime.[109] As Mark Warr, the author of one of the most systematic studies linking the fear of crime to the fear of being alone, has observed, "being alone in a truly dangerous environment is the stuff of nightmares."[110]

This People Paradox suggests that, even if the new urbanists' project rests on a flawed intuition about the benefits of mixed-land-use communities, we need not abandon efforts to plan for density. This is because fear of crime is at least as important a contributor to residential stability as crime itself—the two phenomena being related but distinct. Safety—reflected both in actual crime rates and the perceived risk of victimization—strongly influences residential location decisions. In his 1956 essay, *A Pure Theory of Local Expenditures*, Charles Tiebout influentially hypothesized that municipalities compete for residents by offering different packages of public policies and

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200 (2004); Stephanie W. Greenberg et al., *Safety in Urban Neighborhoods: A Comparison of Physical Characteristics and Informal Territorial Control in High and Low Crime Neighborhoods*, 5 POPULATION & ENV'T 141, 162 (1982); Taylor et al., *supra* note 102, at 121.

108. Ellen M. Kurtz et al., *Land Use, Physical Deterioration, Resident-Based Control, and Calls for Service on Urban Streetblocks*, 15 JUST. Q. 121, 135 (1998).

109. *See The People Paradox*, *supra* note 7, 71–75 (2012) (reviewing literature).

110. Mark Warr, *Dangerous Situations: Social Context and the Fear of Victimization*, 68 SOC. FORCES 891, 895 (1990).

public goods.[111] According to the Tiebout model, residents sort themselves within a metropolitan area according to their preferences for public goods and municipal services.[112] The benefit of this sorting is that it drives efficiency by subjecting local governments to market competition.[113]

Although Tiebout did not mention it specifically, safety undoubtedly is one of the public goods influencing residential sorting. The Tieboutian case for safe city neighborhoods is not merely a theoretical one. In one nationwide study, Julie Berry Cullen and Steven Levitt found a strong correlation between crime and urban flight. Each reported city crime correlated with a one-person decline in city population; "[a] [ten percent] increase in crime correspond[ed] to a [one percent] decline in city population."[114] Cullen and Levitt also found that residents motivated to move by fear of crime were more likely to remain in the same metropolitan area than those moving for other reasons, which suggests that the fear of crime encourages residents to move to the suburbs. [115] And, importantly, even studies that question the connection between fear and migration to the suburbs suggest that crime exerts a relatively strong, and negative, influence on in-migration—that is, on residents' decision to move from the suburbs to the city.[116] Moreover, while Cullen and Levitt's study focused on the connection between crime and out-migration to suburbs, fear of crime undoubtedly also influences residents intra-locally as well, with safer neighborhoods enjoying greater residential stability than more dangerous ones.[117]

This connection between fear of crime and residential stability is important because residential stability is strongly correlated with collective efficacy.[118] Not surprisingly, neighborhoods with

111. Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416 (1956).

112. *Id*. at 418–19.

113. The empirical evidence in a variety of contexts supports Tiebout's hypothesis. *See* William A. Fischel, *Footloose at 50: An Introduction to the Tiebout Anniversary Essays*, *in* THE TIEBOUT MODEL AT FIFTY: ESSAYS IN PUBLIC ECONOMICS IN HONOR OF WALLACE OATES 8–11 (William A. Fischel, ed., 2006). Critics, however, caution that Tieboutian competition between municipalities has a dark side, enabling exclusionary zoning and contributing to the intra-metropolitan inequities that concern regional government proponents. *See* Lee Anne Fennell, *Exclusion's Attraction: Land Use Controls in Tieboutian Perspective*, *in* THE TIEBOUT MODEL AT FIFTY, *supra*, at 163–99.

114. Julie Berry Cullen & Steven D. Levitt, *Crime, Urban Flight, and the Consequences for Cities*, 81 REV. ECON. & STAT. 159, 159 (1999).

115. *Id*. at 167.

116. *See, e.g.*, Martin T. Katzman, *The Contribution of Crime to Urban Decline*, 17 URB. STUD. 277 (1980).

117. *See generally* Cullen & Levitt, *supra* note 114 (examining connection between fear of crime and out-migration to suburbs).

118. *See supra* notes 100–102 and accompanying text.

high levels of collective efficacy are healthier than those with lower levels. Neighborhoods with low levels of collective efficacy exhibit more signs of social distress—for example, they are more dangerous and disorderly and residents are more fearful of victimization—than those with higher levels. In a major study of 343 Chicago neighborhoods, Robert Sampson, Stephen Raudenbush, and Felton Earls found that residential stability, measured by average residential tenure and levels of homeownership, was one of three major factors explaining neighborhood variation in collective efficacy, and that collective efficacy, in turn, mediated the negative effects of the other two factors—economic disadvantage and immigration—enough to reduce violent crime in a neighborhood.[119] These findings are consistent with other social science research linking residential tenure and homeownership, especially of single-family homes, with high levels of collective efficacy.[120]

V. CONCLUSION: THE PLANNING FOR DENSITY AND THE PEOPLE PARADOX

Proponents tend to agree that the best way to secure the promises of planning for density is for residents to live—and developers to build—in built-up areas rather than in new suburbs on the outskirts of metropolitan regions. In other words, the primary goal of planning for density is urban redevelopment.[121] When considering what kinds of policies will advance that goal, it is important to acknowledge that Americans' suburban affinities are not universally shared. Cities are not for everyone, to be sure. But they are for some people. Just as some people would, if given the opportunity, prefer to the live in suburbs—despite their many flaws—so also would many people prefer to live in cities—despite their many flaws. And, the way to increase the numbers of people who fall into the latter category is to embrace the People Paradox, which suggests busy-ness, not sterility, is what draws people to urban life.

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119. Sampson et al., *supra* note 100, at 921; Sampson & Raudenbush, *supra* note 99 ("Systemic theories of urban communities have long pointed to the importance of residential stability as a major feature of urban social organization." (citation omitted)).

120. *See, e.g.*, Chris L. Gibson et al., *Social Integration, Individual Perceptions of Collective Efficacy, and Fear of Crime in Three Cities*, 19 JUST. Q. 537, 540–43 (2002) (collecting literature); Matthew R. Lee & Terri L. Earnest, *Perceived Community Cohesion and Perceived Risk of Victimization: A Cross-National Analysis*, 20 JUST. Q. 131, 138–39 (2003); Wilcox et al., *supra* note 107, at 186–88.

121. A secondary goal, beyond the scope of this paper and embraced with particular zeal by new urbanists, is the development of new, more-urban suburbs.

The People Paradox also suggests partial solutions to the economic and distribution perils of planning for density—although these solutions are ones that many land use planners will find discomfiting. In my view, the best way to achieve density likely is persuasion, not coercion. The coercive tools in the planning-for-density toolkit promoted by environmentalists and regionalists seek to drive development back into urban centers by increasing the cost of suburban growth. But they do little to address myriad challenges to building healthy urban communities that would-be city dwellers, rich and poor, care about deeply. The form-based codes promoted by new urbanists offer expensive aesthetic micromanagement of those challenges. But if we really want to achieve the goal of density, the best way to do so is to reduce the costs of living in cities and the costs of development in cities. Coercive regulation will do neither. Furthermore, the People Paradox suggests that discussions of planning for density are all-to-frequently divorced from the discussions of managing the effects of density. In particular, it suggests an overlooked connection between policing practices and land use policies, a subject beyond the scope of this Article about which I have written extensively on.[122]

Finally, the people paradox suggests an overlooked connection between land use policy and education policy. As Joel Kotkin has observed, the young and hip may be attracted to busy cities, but most creative people are middle-aged and middle class—not young and hip. And middle-aged, middle class people continue to gravitate to suburbs for the same reasons that their parents did: schools. It is telling that, while many cities made a comeback in recent years, the comeback was primarily driven by young people and rich people. The population share of middle class families living in cities continues to decline. Addressing the affordability of urban life may be a necessary but not sufficient component of a strategy to retain middle class families; addressing the educational woes of urban schools is a critical component.[123] But the perils and paradoxes of education reform strategies are a subject for another day.

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122. *See* sources cited *supra* note 7.

123. *See* Nicole Stelle Garnett, *Affordable Private Education and the Middle Class City*, 77 U. CHI. L. REV. 201 (2010).

THE NATION'S FIRST FORESTER-IN-CHIEF: THE OVERLOOKED ROLE OF FDR AND THE ENVIRONMENT

Review of Douglas Brinkley's *Rightful Heritage: Franklin D. Roosevelt and the Land of America* (HarperCollins Pub. 2016)

MICHAEL C. BLUMM*

Douglas Brinkley, biographer of Theodore Roosevelt and his environmental legacy, has produced a sequel on his distant cousin, Franklin Delano Roosevelt (FDR). In a comprehensive eco-biography, Brinkley shows in some detail how committed an environmentalist FDR was, protecting federal lands, encouraging state conservation efforts, making wildlife protection a national priority, and dedicating the federal government to soil protection and forest replanting. Although FDR's romance with federal dams undercuts the assertion somewhat, the Brinkley biography successfully shows that FDR has a legitimate claim to being the foremost of environmental American presidents.

* Jeffrey Bain Faculty Scholar & Professor of Law, Lewis and Clark Law School. Dedicated to the memory of John P. Frank, who epitomized the FDR ethic, and who left a large mark on everyone he met. Kathleen Blumm provided expert editorial assistance and, in the process, became a fan of FDR herself.

INTRODUCTION

Douglas Brinkley anointed Theodore Roosevelt (TR) as the nation's "Wilderness Warrior" for protecting some 234 million acres of wild America during his presidency of 1901-1909.[1] In a *New York Times* survey of environmental groups in 2012, three years after Brinkley's book, *The Wilderness Warrior,* TR was the overwhelming choice as the "greenest" president in United States (U.S.) history, while his distant cousin, Franklin Delano Roosevelt (FDR) barely made the list.[2] Brinkley's recent environmental biography attempts to reclaim FDR's "rightful heritage" as a legitimate contender for the claim as America's greatest environmentalist to inhabit the White House.[3] Brinkley largely succeeds. After publication of *Rightful Heritage*, FDR's environmental contributions can no longer be considered so cavalierly by those evaluating the green legacy of American presidents. If FDR's achievements do not exceed TR's, they certainly rival them, as Brinkley repeatedly makes clear over his 500+ page eco-biography.

This review considers Brinkley's reevaluation of FDR's substantial and largely overlooked environmental contributions. Section I briefly surveys useful background information that the Brinkley book supplies. Section II discusses the principal geographic places that influenced FDR's approach to conservation, which is how most people of his era referred to environmental protection. Section III turns to people who shaped FDR's environmental ethic and helped him carry out his environmental programs. Section IV evaluates his environmental legacy, divided temporally into actions during 1933-38 and from 1939 until the end of FDR's presidency in 1945. This review essay agrees with Brinkley that FDR's environmental sensitivities match any White House incumbent and tower over most. They also contrast markedly from the current occupant. Today's environmentalists

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1. *See generally* DOUGLAS BRINKLEY, THE WILDERNESS WARRIOR: THEODORE ROOSEVELT AND THE CRUSADE FOR AMERICA (2009).

2. *See* Emma Bryce, *America's Greenest Presidents*, N.Y. TIMES (Sept. 20, 2012, 1:13 PM), https://green.blogs.nytimes.com/2012/09/20/americas-greenest-presidents/?_r=0 (survey by a dozen environmental organizations, ranking TR as the overwhelming favorite, followed in order by Presidents Nixon, Carter, Obama (through his first term), Jefferson, Ford, FDR, and Clinton. Only eight presidents received votes in the survey.).

3. *See* DOUGLAS BRINKLEY, RIGHTFUL HERITAGE: FRANKLIN D. ROOSEVELT AND THE LAND OF AMERICA (2016) [hereinafter BRINKLEY, RIGHTFUL HERITAGE].

can only hope sometime in the future for a 21st century reprise of the years in which "America's Forester-in-Chief" headed the country.

I. BACKGROUND

According to Brinkley, FDR—born into a Hudson Valley aristocratic family in 1882—lived the "pastoral ideal."[4] He grew up on a 600-acre estate bordering the Hudson—Springwood—in Hyde Park, New York, established by his father, James.[5] As a boy he was an avid birder, classifying more than 300 species inhabiting Duchess County;[6] he kept detailed "Bird Diaries," and earned an associate membership in the prestigious American Ornithologists' Union.[7] Roosevelt pursued his ornithological studies during several trips to Europe, which he visited regularly in his youth.[8]

After being tutored at Springwood in his early years,[9] FDR proceeded to study at Groton, an exclusive boarding school in Massachusetts outside of Boston, where the wealthy prepped for Ivy League schools, and where he was an average student quite interested in natural history.[10] A highlight at Groton was an 1897 visit by his cousin, TR, who regaled the students about wilderness conservation in the West.[11]

From Groton, FDR matriculated to Harvard University, after his father rejected his attempt to attend the Naval Academy, a product of FDR's love of sailing.[12] Soon after he entered Harvard, his seventy-two year old father died, leaving FDR the responsibility of managing the grounds at Springwood, a duty he took seriously his whole life.[13] After his father's death, Frederic Delano, his mother's younger brother, became an influential figure in FDR's life[14]—and would remain so throughout the White House years.[15] Although he was an undistinguished student, FDR did

4. *Id.* at 3–5.
5. *Id.* at 9. FDR later expanded the Springwood estate to more than 1400 acres. *Id.*
6. *Id.* at 17.
7. *Id.* at 21–22. After discovering drawers full of bird nests and eggs in his son's bedroom, his father instructed young Franklin not to take more than one egg from a nest, a conservation lesson which, as Brinkley noted, "stuck." *Id.* at 16.
8. *Id.* at 17–18.
9. *Id.* at 6, 24–25.
10. *Id.* at 26–30.
11. *Id.* at 30–31. At the time, TR had just finished serving as superintendent of the New York City police commission and was soon off to Cuba for the Spanish-American War. *Id.*
12. *Id.* at 33–34.
13. *Id.* at 34.
14. *Id.* at 35–36.
15. *See infra* Section III.B.

become an editor and then president of the *Harvard Crimson* and joined a number societies and clubs, including the yacht club.[16] Although he gained most of his knowledge of American history from his "obsessive" stamp collecting (which he began at the age of ten), FDR did graduate from Harvard with a degree in history in 1903 and promptly returned to Europe for the summer.[17]

Upon his return, he began law school at Columbia without much enthusiasm.[18] But, in the summer of 1902, he ran into his fifth cousin (and TR's niece), Eleanor Roosevelt, on a train, and within a year-and-a-half they were engaged—over his mother's objections.[19] Brinkley challenges those who have suggested that FDR and Eleanor had little in common, noting their common roots in the Hudson Valley and their mutual attachment to the nearby Catskill and Shawangunk mountain ranges.[20] They spent their honeymoon in the Hudson Valley, at FDR's home in Hyde Park.[21]

Bored with law practice, FDR ran for and scored an upset victory in a race for state senate for a traditionally Republican seat in 1910. With a "mellifluous" voice, "never grasping for the right word,"[22] he maintained that his neighbors, the farmers of the Hudson Valley, should plant trees to stabilize stream banks, curb soil erosion, and provide safe drinking water.[23] He won a narrow victory and soon became the chair of the senate's Forest, Fish, and Game Committee.[24]

Many of FDR's later policies and passions were evident during his state senate career. He promoted many forestry and wildlife protection measures, including the Roosevelt-Jones Conservation Bill, which brought police power regulation to clear-cut forestry.[25]

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16. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 37.

17. *Id.* at 40.

18. *Id.* at 41 ("Legal studies bored him."). He did eventually pass the bar examination, however, and joined the firm of Carter Ledyard & Wilburn, a Wall Street firm, in 1907, doing some admiralty law but resisting cases he considered boring and considering law practice to be tedious. *Id.* at 49.

19. *Id.* at 41–42.

20. *Id.* at 43.

21. *Id.* They did spend the summer on a three-month tour of Europe. *Id.* at 43–44. During the trip, FDR admired the German community forests and German forest practices. *Id.* at 44–46. He would continue to do so throughout his life. *See infra* notes 40, 57, 90–96, 114, 117 and accompanying text. As Brinkley stated, "[t]rees were more than just aesthetically pleasing to Franklin Roosevelt, they were God's greatest utilitarian convention." BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 46.

22. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 53.

23. *Id.* at 53–54.

24. *Id.* at 55.

25. *Id.* at 56, 60. In support of the Roosevelt-Jones bill, FDR criticized greedy timber harvesters, who clear-cut the Adirondack Mountains

> for the sake of [lining] their own pockets during their own lifetime. They care not what happens after are gone, and I go further and say that they care not what

Among the issues he championed during his 1912 reelection campaign was sewage treatment, referring to his conservation philosophy as the "liberty of community."[26] After being reelected, he became chair of the state senate's Agricultural Committee and oversaw publication of *Woodlot Forestry* (which became his bible at Springwood), advocating government's obligation to teach farmers how to grow hardwood forests on good land and white pine and black ash in swamps.[27]

FDR's state senate career was cut short by his appointment by President Wilson as Assistant Secretary of the Navy in March 1913, and he served in that position for more than seven years.[28] During his Wilson Administration service, Roosevelt became close friends with Interior Secretary, Franklin Lane, both of whom were advocates for the "miracles" of hydropower, which also fostered land reclamation through irrigation.[29] FDR's affinity with dams and hydroelectric power would persist throughout his political career.[30]

After World War I, FDR became the Democratic nominee for vice president in 1920, the first election with women voting nationwide. During the campaign, he was a conservationist when speaking in his home state of New York, but in the West he was in favor of the development of public lands.[31] This dichotomy was evident later in the New Deal.[32] His campaigning for "public dams"[33] was no doubt as much a product of his dislike of the monopoly power associated with private utility dams as it was for enhancing water supplies. After the election, in which the James

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> happens to their neighbors, to the community as a whole, during their own lifetime. They will argue that even though they do exhaust all the natural resources, the inventiveness of man, and the progress of civilization . . . will supply a substitute when the time comes.

Id. at 67. FDR tried to prevent the logging of large trees, but his no-cut rule was eliminated in order to get the votes needed to pass the bill. *Id.* at 68.

26. *Id.* at 69.

27. *Id.* at 70–71.

28. *Id.* at 72. In his capacity as Navy Secretary, FDR was silent during the principal natural resources controversy of the day, the damming of Hetch Hetchy Valley in the Sierra Mountains, which Congress approved in 1913 for municipal water supply. *Id.* at 74–77. The next year, 1914, FDR unexpectedly (and without the support of the Wilson Administration) ran for U.S. Senate, but he lost in the primary to a Tammany Hall candidate. *Id.* at 80 (explaining that Roosevelt did not jeopardize his Navy position by running for office).

29. *Id.* at 76.

30. *See infra* notes 50–52, 128 and accompanying text.

31. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 86–87. Roosevelt even said in Montana that "what is needed is development rather than conservation." *Id.* at 86. The territorial governor of Alaska interpreted FDR's Montana speech to be a rejection of "Pinchotism," which he claimed "all the West [is] rabid against . . . ." *Id.*

32. *See infra* notes 50–52, 128 and accompanying text.

33. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 89.

Cox-FDR ticket lost by a landslide to the Republican ticket of Warren Harding and Calvin Coolidge, Brinkley reports that FDR "rediscovered his conservationist footing, only now with state parks instead of reforestation as his preferred mantra."[34]

Always a Boy Scout enthusiast, FDR attended and served as toastmaster at a July 1921 jamboree held at Bear Mountain state park, forty miles north of New York City, which was drawing a million visitors annually.[35] Unfortunately, Roosevelt went for a swim at the park, the waters of which were contaminated with coliform bacteria (due to poor sanitary conditions at the park's toilets), and he contracted poliovirus.[36] Almost immediately after traveling to his summer home at Campobello Island in New Brunswick along the Maine border, his legs were paralyzed.[37] He would never again walk without assistance.

During the next few years, FDR fought unsuccessfully to regain strength in his legs, although he found time to join the state park movement, work with the newly formed Isaac Walton League to combat water pollution, became president of the Boy Scout Foundation, and be a founding member of the Adirondack Mountain Club (dedicated to enforcing the "forever wild" provisions of the New York Constitution).[38] In 1922, his friend Gifford Pinchot was elected governor of Pennsylvania, who at the time of his election was president of the National Coast Anti-Pollution League and campaigned against private utilities as monopolists and exploiters of natural resources.[39] Brinkley observed that Pinchot's campaign "captured Roosevelt's attention."[40]

During 1923, FDR took a winter vacation in Florida and discovered the Everglades, which would redound to the benefit of that land-water sea of grass in the future.[41] The next year, he encountered Warm Springs in Georgia, which within a decade

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34. *Id.* at 91.
35. *Id.* at 92–95.
36. *Id.* at 94–95.
37. *Id.* at 96.
38. *Id.* at 98–99.
39. *Id.* at 100.
40. *Id.* During the mid-1920s, FDR unsuccessfully sought to convince the president of the American Forestry Association to embrace a community-based kind of forestry comprised of both public and private lands that existed in Germany and Austria. This community-based kind of forestry would pursue sustainable "wise management" of the forest while producing a profit, as FDR did from his own management of Springwood. The president, George DuPont Pratt, did not believe the model would attract sufficient private investors. *Id.* at 100–01.
41. *Id.* at 101–04. *See infra* notes 109–111 and accompanying text.

would become the southern White House.[42] As he did in the Hudson Valley, FDR often drove (with the assistance of a hand-controlled car) through the country roads surrounding Warm Springs, stopping frequently to discuss crops and animal husbandry with his neighbors.[43] Perhaps understandably given his physical condition, he believed that the automobile was a vehicle for the democratization of nature, as it made accessible to the masses places like Yosemite and Yellowstone as well as closer state parks.[44] Affinity to places such as the Everglades, Warm Springs, and the Hudson Valley encouraged FDR to write his "conservation manifesto" in 1923, in which he pledged to 1) support wildlife refuges on both public and private land; 2) eliminate laws allowing open hunting seasons on federal lands; 3) educate the public that songbirds are not game species; and 4) standardize licensing and improving the "morale of the hunter."[45] He would remain true to these principles until he died.

Appointed to the Taconic State Park Commission by Governor Al Smith in 1925, he scoured his beloved Hudson River Valley for potential state parks, promoted the Taconic State Parkway, and actually planned that parkway's route in some detail in order to preserve natural features as much as possible.[46] After becoming the Democratic Party's presidential nominee in 1928, Governor Smith persuaded FDR, after some reluctance, to run for governor.[47] His ensuing campaign "preached the gospel of state parks, soil conservation, public utilities, and scientific forestry… ."[48] After he won a narrow victory (at the same time that Al Smith was being trounced in the presidential election by

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42. BRINKLEY, RIGHTFUL *Heritage, supra* note 3, at 105–12. FDR was attracted to Warm Springs for its pine forests, clean air, and thermal pools. The latter induced a fish hatchery that interested Roosevelt, especially its sturgeon ponds. *Id.* at 109, 111.

43. *Id.* at 110. Roosevelt demonstrated that the land in the Warm Springs area, depleted from years of cotton planting, could ably support grazing beef cattle. *Id.*

44. *Id.* at 113.

45. *Id.* at 106.

46. *Id.* at 115. The great urban architect, Lewis Mumford—often critical of highways—considered FDR's Taconic Parkway to be "masterly combination of modern engineering and conservation." *Id.* at 124 (noting that the parkway, when finally finished in 1963, closely followed the route that Roosevelt established in 1929). However, another advocate for automobile recreation, Robert Moses, was often in conflict with FDR, so much so that Brinkley labeled Moses as Roosevelt's "archenemy" of the 1920s. *Id.* at 113. Although both men believed in state and federal funding of roads, and both advocated preserving state parkland, Moses was focused on developments on Long Island; FDR, on projects in the Hudson River Valley and farther upstate. But both believed that beaches and coastal areas should be open to the public. *Id.* at 113–14.

47. *Id.* at 116.

48. *Id.* (also noting that FDR "took a stand against corruption").

Herbert Hoover), FDR became the unofficial leader of the Democratic Party.[49]

From the governor's house in Albany, according to Brinkley, he proved to be "a genius at making conservation a promise of exercise of self-worth and skill, not simply a warning that abstinence and caution were needed," promoting scientific forestry, public hydropower, land rehabilitation, and pollution control.[50] Thus, he was a supporter of old-growth forest preservation, tree planting, and land restoration as well as public dam building, a dichotomy that would also characterize New Deal policies.[51] His support for public hydropower development was a product of his distrust of the monopoly power that private utilities then seemed to have in setting consumer rates.[52] Roosevelt also clashed with preservationists over constructing a bobsled run at Lake Placid within the Adirondack Forest Preserve and over a proposed highway to the top of Whiteface Mountain, in both cases favoring recreational developments over preservation.[53]

FDR's response to the stock market crash of late 1929 and the ensuing economic depression was to provide tax relief for farmers and public work projects involving reforestation, pollution control, soil conservation, waterpower, and crop restoration.[54] But he opposed old-growth, commercial timber harvests and would continue to do so later in the White House.[55] The inveterate auto traveler also promoted tree planting near highways and opposed what he called the "excrescences on the landscape known as advertising signs"—efforts to improve highway scenery more than three decades before Congress enacted the Highway Beautification Act that Lyndon Johnson signed in 1965.[56]

By the time FDR was reelected governor in 1930, the Great Depression was well underway. He successfully lobbied for a state constitutional amendment authorizing state funding to purchase cut-over and abandoned lands in order to replant and, eventually, harvest timber from the reforested lands in the

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49. *Id.* at 120–21.

50. *Id.* at 122.

51. *Id.* 89, 122, 128–129.

52. *Id.* at 128–29 (also calling for "hyperregulation" of private utilities).

53. *Id.* at 124–26. The bobsled run for the 1932 Olympics eventually was constructed on private lands after the state's highest court thought it was inconsistent with the "forever wild" provisions of the New York Constitution. *Id.* at 125.

54. *Id.* at 129.

55. *Id.* Brinkley claimed that "there remains no better way to understand Roosevelt's land ethic and historical preservation instincts than by reading copies of [*American Forests*] magazine," which FDR read religiously. *Id.*

56. *Id.* at 132–33.

manner of the German community forests he so admired.[57] Fellow Hudson Valley resident, Robert Morgenthau, Jr.—whom Roosevelt appointed head of the state's Conservation Department—proceeded to scout and purchase soil-depleted and clear-cut lands at discounted prices due to the economic depression.[58] FDR and Morgenthau's plan was to replant with young, unemployed men with funding provided by an agency established in 1931, the Temporary Emergency Relief Administration (TERA), placed under the control of fellow progressive, Harry Hopkins.[59] Brinkley suggested that the 1931 constitutional amendment, coupled with its implementation by TERA's youth "conservation corps," was the birth of New Deal conservation.[60]

FDR announced he was running for president in January 1932, one week before his fiftieth birthday, beginning a campaign that would keep conservative Democrats from the South in his camp by "staying mum" on Jim Crow segregation laws and avoiding criticism of business.[61] He also supported the proposed Great Smoky Mountains National Park, sewage treatment to restore the Potomac River, and the preservation of the Okefenokee Swamp with its centuries-old cypress trees along the Georgia-Florida border from timbering.[62] After brokering a deal with Speaker of the House John Nance Garner to accept the vice-presidential nomination, FDR defeated Al Smith on the fourth ballot for the

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57. *Id.* at 138–40 (also explaining that FDR enlisted Gifford Pinchot's support for the constitutional amendment). The amendment encountered unexpected opposition when Al Smith led outdoors enthusiasts, who were concerned that the amendment would limit the expansion of the Adirondack Park, by countenancing nearby timber harvesting. *Id.* at 139. The amendment passed by a three to two margin in November 1931. *Id.* at 140.

58. *Id.* at 137–38. For more on Morgenthau, see *infra* note 153.

59. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 135–36. As governor, in 1930, FDR wrote an article in the journal *Country Home* expressing his deep concern over the fact that each year Americans consumed five times more timber than they planted. *Id.* at 133. Sounding very much like the ecologically sensitive forester that he was, he maintained that forests were necessary for soil conservation

> to break the force of rainfall to delay the melting of snows, to sponge up the moisture that would otherwise pour down the slopes and grades, carrying with it invaluable fertility and creating floods that destroy. Much of the water that falls in forested land never needs to be carried away, for it is said that one average white oak tree will give off by evaporation one hundred and fifty gallons of water on a hot day.

Id. Roosevelt was heavily influenced by *Soil Erosion: A National Menace*, a 1928 pamphlet of U.S. Department of Agriculture, written by Hugh Bennett, the "father of soil conservation," who accurately predicted the onset of the Dust Bowl. *Id.* at 42. FDR thought the pamphlet was, in Brinkley's words, "a moral call to action." *Id.*

60. *Id.* at 138–40 (citing the *New York Times*' opinion that the passage of the amendment was the beginning of FDR's presidential campaign).

61. *Id.* at 144.

62. *Id.* at 145–47.

presidential nomination.[63] Roosevelt's acceptance speech not only mentioned a "new deal" for the American public, but also emphasized reforestation of cut-over and abandoned lands that would, through a "conservation corps," supply a million jobs for the unemployed and simultaneously address both the soil erosion and "timber famine" problems.[64] He also called for doubling the number of national forests and wildlife refuges.[65] Conservation has never since been so prominent a feature of a presidential campaign.[66]

In the 1932 election, FDR won a landslide, carrying every western state. Roosevelt's coattails were long, as the Democrats won overwhelming majorities in both the Senate and the House.[67] Consulting with both Gifford Pinchot and Bob Marshall, the president-elect began to formulate a conservation program involving a large land acquisition program and use of the unemployed to restore and rehabilitate forestlands.[68] Work relief, land acquisition, and the institution of scientific forestry to heal the land would all work together in the forthcoming New Deal.[69]

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63. *Id.* at 148–49. Garner served two terms as FDR's vice-president, but he had so many policy disagreements with the Roosevelt Administration that he was ostracized from FDR's inner circle and famously described the vice-presidency as not worth "a bucket of warm piss." *Id.* at 149.

64. *Id.* at 150–51. Brinkley concluded that the "conservation corps" idea was the product of numerous influences, including the TERA corps in New York, FDR's own experiences with his lands in Hyde Park and Warm Springs, his fondness for German working forests, conversations with Gifford Pinchot, and FDR's Boy Scout experiences. *Id.* *See also infra* notes 103–105, 138–139, 190–199 and accompanying text (discussing the Civilian Conservation Corps).

65. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 154.

66. An FDR letter, which the incumbent Hoover Administration unsuccessfully attempted to use against Roosevelt, stated:

> I believe in the inherent right of every citizen to employment at a living wage and pledge my support to whatever measures I may deem necessary for inaugurating self-liquidating public works, such as utilization of our water resources, flood control and land reclamation, to provide employment for all surplus labor at all times.

Id. at 154–55.

67. *Id.* at 155 (Senate majority of 60–35; House majority of 310–117). The FDR–Garner ticket won the electoral vote 472–59. *Id.*

68. Pinchot enlisted Marshall, who wrote the recreation portion of a report entitled *A National Plan for American Forestry* for the Senate, known as the Copeland Report, which recommended putting ten percent of federal forests into recreation zones. The report also recommended that the government purchase some 240 million acres of private woodlands. *Id.* at 161.

69. One prominent policy that FDR's New Deal pursued was to prioritize local recreational opportunities through encouraging the establishment of state park systems in each state. *Id.* at 162.

II. FDR'S PLACES

One way to understand FDR's environmental policies is to consider the places he held sacred. Roosevelt, as the novelist Wallace Stegner said, was a "placed person,"[70] someone who learned from his association with diverse geographic places, although he was first and foremost a Dutchess County/Hudson Valley resident.

A. Springwood/Hudson Valley

FDR's boyhood was spent on his father's Springwood estate adjacent to the Hudson River in Hyde Park. At Springwood, he lived the "pastoral ideal" as a youth, riding horses and sleighs, sailing little boats on the Hudson and, as an only child tutored at home, developing an intimate relationship with the land he wandered, its trees, and its wildlife.[71]

Situated among fellow Hudson Valley aristocratic families like the Rockefellers, the Astors, and the Vanderbilts, the Roosevelts—like their wealthy neighbors—opposed industrial logging practiced by large companies like the Hudson River Pulp Company.[72] Living in harmony with nature was something FDR's parents preached, especially maintaining woodlands.[73] Hudson Valley timberlands were predominantly privately owned, so there was a felt necessity to acquire more public forests.[74] In 1894, the state shored up its forest preserves in the Adirondack and Catskill Mountains by adopting a constitutional amendment calling for all state forests to be "forever kept as wild," outlawing timber harvests, and restricting harvests on adjacent private lands as well.[75] The Roosevelts, supporters of Democratic president Grover Cleveland, took young Franklin to meet the President who, ironically enough, wished the youngster would "never be president of the United States."[76]

One of FDR's cousins, Robert Barnwell Roosevelt, was one of the earliest "riverkeepers" of the Hudson; he castigated the industries polluting the Hudson, wrote books about game fish and

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70. *Id.* at 26.
71. *Id.* at 5–6.
72. *Id.* at 15.
73. *Id.* at 9.
74. *Id.* at 7.
75. *Id.* Brinkley maintained that the "forever wild" commitment in the New York Constitution was the "birth [of] the modern wilderness preservation movement." *Id.*
76. *Id.* at 12.

birds, and helped establish state fish hatcheries.[77] Combatting water pollution of the Hudson not only from industries but also from human waste became a cause of the wealthy families along the river, who thought of the river as America's Rhine because it seldom flooded.[78] No matter how far he traveled, FDR thought himself connected to the Hudson Valley: a "sanctified landscape" of "transcendent importance to a regional and national cultural identity."[79] FDR's conservation impulse grew out of his concern for the Hudson Valley and its environs.

B. Campobello Island

In 1883, the Roosevelts began summer vacationing at Campobello Island, a fifteen square-mile island where the St. Croix River meets the Bay of Fundy in New Brunswick, just across the water from Maine.[80] The family liked it well enough to purchase a four-acre tract, where they built a thirty-four-room mansion, finished in 1895.[81] FDR became his father's first mate; the two would navigate the fierce winds of Passamaquoddy Bay, an inlet of the Bay of Fundy.[82] It was at Campobello that FDR's polio became paralyzing in 1921.[83] He would not return until after he was elected president, as a respite from the frenetic first "Hundred Days," in 1933.[84] At Campobello, Roosevelt plotted the "second hundred days" of his administration, which emphasized restoring wildlife populations, especially migratory waterfowl—a New Deal priority.[85]

The fishing and sailing FDR learned at Campobello would stay with him throughout his life. He was an acknowledged "old salt," with instinctive navigation skills that he used to good advantage when exploring the North Carolina and Florida coasts.[86] Campobello likely was also a motivating force behind FDR's interest in preserving Cape Hatteras as a national seashore, which

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77. *Id.* at 13.
78. *Id.* at 14.
79. *Id.* at 26. FDR believed that Hyde Park was a model village for the rest of America. *Id.*
80. *Id.* at 14.
81. *Id.*
82. *Id.*
83. *Id.* at 95–96. *See also supra* notes 36–37 and accompanying text.
84. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 214.
85. *Id.* at 221.
86. *See, e.g.*, *id.* at 436 (describing FDR as having possessed a "blue mind," with no anxiety on the sea, "[d]ismissive of landlubbers . . . [and] blessed with an intuitive feel for favorable currents and perfect fishing grounds . . .").

Congress approved in 1937,[87] and which later became a model for President Kennedy in establishing national seashores at Cape Cod, Massachusetts, South Padre Island, Texas, and Point Reyes, California.[88] In 1938, FDR embarked on a twenty-four-day excursion to the Galapagos Islands, off Ecuador, to study marine biology with the Smithsonian Institution, during which he landed a sixty-pound shark.[89] No sitting president has taken such a scientific expedition since, nor landed such an impressive fish.

C. German Community Forests

On one of his frequent European trips as a youth and young man, FDR encountered German community forests in 1891 near the cities of Cologne and Heidelberg, the management of which, he was surprised to learn, eliminated the need for local taxes.[90] On a later trip to Europe, after his marriage to Eleanor in 1905, he revisited the German forests and was impressed that German timber cutting took place based on science and aimed to serve community, not individual, ends.[91] He was particularly taken with the fact that German citizens could receive tax incentives for maintaining community forests.[92] Exposure to German forestry had a profound effect on FDR: upon his return, he began to argue that New York should assume a guardianship over cut-over lands and replant them, and began, in 1906, to transform Springwood into a model tree farm.[93]

Roosevelt, however, was unable to convince the president of the American Forestry Association, George DuPont Pratt, in the 1920s to advocate for a system of public and privately owned forests like those in Germany's Black Forest. Pratt doubted that investors would find it attractive, since any economic returns from community forest harvest would be realized a quarter-century into the future.[94] But when FDR became president, he instructed the Forest Service to begin to study European forests, where community forests existed "for hundreds of years."[95] The selective

87. *Id.* at 375–80.
88. *Id.* at 584–85.
89. *Id.* at 439.
90. *Id.* at 15–16, 20.
91. *Id.* at 45.
92. *Id.*
93. *Id.*
94. *Id.* at 101.
95. *Id.* at 170, 394 (mentioning the "admirable profits" German communities earned from their selective cutting).

cutting that the Germans practiced—and which he instituted on his own lands at Springwood—would be a hallmark of New Deal forestry.[96]

D. Warm Springs

FDR discovered Warm Springs, Georgia, in 1924, when a friend told him about its thermal pools, and he mistakenly thought he would find a cure—or at least some relief—from his paralysis.[97] Roosevelt was attracted to Warm Springs not only for its eighty-eight degree pools, but also its pine forests, red clay, clean air, and for a fish hatchery he admired.[98] FDR proceeded to invest two-thirds of his fortune rehabilitating the spa-town, spending Thanksgivings there during his presidency, and showing Georgians that their lands could support cattle grazing even after it was worn out due to exclusive reliance on cotton.[99] Roosevelt made sixteen trips to his "Little White House" at Warm Springs as president; on his last trip, he would die in April 1945.[100]

Warm Springs was significant to FDR not only for its promised therapy, but also because his experience there influenced his approach to land reclamation.[101] He learned that most rural southerners misunderstood the soil composition necessary to grow robust crops, so he instructed the Department of Agriculture to begin educating southerners on the importance of crop rotation on soil renewal.[102] The New Deal's Civilian Conservation Corps (CCC) would have no fewer than fifty-eight camps in the President's adopted home state.[103] The CCC produced a good deal of land restoration, but also planted the invasive species of kudzu, which bedevils the southern landscape to this day.[104] As part of a silent

96. *Id.* at 543. Brinkley saluted FDR for not losing his conservation ethic during the pressure of World War II: "It's hard to allot credit in history for *preventing* something, but Roosevelt's insistence that national forests and national wildlife refuges not be pillaged for natural resources during the war was indeed proof of a brave conservation policy." *Id.*

97. *Id.* at 109–10.

98. *Id.* at 109–11.

99. *Id.* at 232.

100. *Id.* at 231, 574–75. Earlier, FDR made thirteen visits to Warm Springs between 1924 and his election as governor in 1928. *Id.* at 112.

101. *Id.* at 231 ("Georgia was Roosevelt's demonstration plot in the American South. If Georgia could be saved from ecological ruin, he believed, so, too, could Alabama, Mississippi, South Carolina, and the rest.").

102. *Id.* at 220.

103. *Id.* at 233.

104. *Id.* at 444. Kudzu, a Japanese climbing vine introduced to the U.S. at the centennial exposition in Philadelphia in 1876, supplied good livestock feed but suffocated native plants. *Id.*

deal between the New Deal and southern Democrats, the CCC camps were segregated; there were 150 "all-Negro" CCC camps with some 250,000 enrolled black men.[105]

E. Everglades/Okeffenoke

Growing up adjacent to the Hudson River and traveling regularly by water to Campobello Island, FDR had a special affinity for waterfowl. Thus, when approached about saving the Okefenokee Swamp on the Georgia-Florida border from the industrial harvesting of old-growth cypress trees, Roosevelt was quite sympathetic and determined to save the swamp, where timber companies had harvested over 1.9 million board-feet.[106] He helped block a plan to channelize the Okefenokee to provide a ship canal through the swamp, authorized the buying out of private lands, and established the Okefenokee National Wildlife Refuge in 1937.[107] Roosevelt would proclaim many more national wildlife refuges during his time in office.[108]

South of the Okefenokee was the Everglades, Florida's "river of grass," threatened by the water diversions of sugar growers. A Florida fishing trip in 1924 introduced FDR.[109] Many south Floridians thought that the Everglades was a nuisance in need of draining, not preservation.[110] But after receiving a report from the great landscape architect, Frederick Law Olmstead, who catalogued sixteen species of wading birds and both alligators and crocodiles in the Everglades, the Roosevelt Administration pushed through national park designation in 1934, which FDR declared to be the year of the national park.[111]

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105. *Id.* at 185. Women were largely excluded from the CCC, although Eleanor Roosevelt pushed for women's CCC camps, and a few participated in a "female camper" program in which they did mostly housework and were paid far less than the men. *Id.* at 244, 255. Only 8,500 women participated, compared to 3.5 million men. *Id.* at 255. For more on Eleanor Roosevelt's unsuccessful attempt to overcome the sexism in the CCC program, see *infra* note 173 and accompanying text.

106. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 146–47. The swamp was also devastated by a 1922 runaway wildfire, fueled by drought and poor timber practices. *Id.* at 147.

107. *Id.* at 146–47.

108. *See infra* note 251 and accompanying text (noting that FDR established 140 national wildlife refuges).

109. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 104–05.

110. *Id.* at 239.

111. *Id.* at 238, 241–42. The statute creating the nation's first tropical national park promised that it would be "permanently reserved as a wilderness" and barred development that would disturb the "unique flora and fauna" of the area. The law also promised preservation of the park's "essential primitive natural conditions." *Id.* at 242. But the statute prohibited the federal government from acquiring private lands in the park; it was instead the responsibility of the state of Florida to donate lands for the park. *Id.*

Okefenokee and the Everglades were early signals that the New Deal was quite serious about conservation. FDR's interest in both was predictable from his background—and his efforts were mere harbingers of numerous conservation efforts to come.[112]

F. Adirondack Park

The "forever wild" provisions of the Adirondack Park were established when FDR was a boy.[113] He was of course a big supporter of the park, but he had a somewhat uneasy relationship with it, since its timbering ban was not consistent with his vision of replicating German community forests.[114] For example, his advocacy of bobsled run for the Olympics and his support for a road to the top of Whiteface Mountain both were conflicts in which he favored recreation over preservation.[115]

FDR was a founding member of the Adirondack Mountain Club, dedicated to implementing the "forever wild" provisions of the state constitution, even though with his paralysis he could no longer scale its peaks.[116] The fact that many lands in the Adirondack reserve were privately owned also influenced Roosevelt, resembling the German forests of which he was so fond.[117] In an era long before there was legal wilderness, a man who could not access roadless areas became a defender of the "forever wild" provisions of his state's constitution.[118]

III. PERSONAL INFLUENCES ON FDR'S ENVIRONMENTALISM

Another way to understand FDR and his approach to the environment is to focus on those who were his primary influences. Of course, his father, James, and his Springwood estate loomed large in FDR's boyhood, where he became a serious

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Landowners raised the prices for their land after Congress enacted the statute, making acquisitions difficult, which Interior Secretary Ickes labeled as "holding the land for ransom." *Id.* at 334.

112. *See infra* text accompanying notes 251, 257 and note 269 and accompanying text (cataloguing FDR's numerous conservation achievements).

113. *See supra* notes 38, 75 and accompanying text.

114. *See supra* notes 90–96 and accompanying text (discussing German community forests).

115. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 124–26. Wilderness proponents, including Bob Marshall, often criticized FDR for his attachment (perhaps understandable, given his paralysis) to creating scenic drives atop mountain ranges. *Id.* at 319.

116. *Id.* at 99.

117. *See supra* notes 90–96 and accompanying text.

118. Disagreements over the Olympic bobsled run and the Whiteface road, see *supra* text accompanying note 115, were perhaps exceptions.

ornithologist.[119] His father taught him to ride a horse at the age of four and to sail at six,[120] and took him to Europe seven times by the time he was fourteen.[121] But his father died shortly after FDR entered Harvard in 1900.[122] His mother, Sara, who idealized the Hudson Valley, painted Hudson Valley landscapes, and lived a long life at Springwood, doted over her only child and raised him to be a Dutchess County gentleman.[123] Brinkley does not suggest that she played an active role in FDR's conservation efforts, however.[124]

A. TR/Gifford Pinchot

Beyond his parents, the origin of FDR's conservation ethic is clearly traceable to his distant cousin, TR, as well as TR's close friend and ally, Gifford Pinchot. FDR shared with "Uncle Theodore" a passion for natural resources conservation, particularly for restoration of soil, polluted water, clear-cut forests and depleted wildlife according to scientific management.[125] Although both advocated preservation of large forests and wildlife, TR was attracted to the Rocky Mountains and the Badlands; FDR to more pastoral settings. TR was a big-game hunter; FDR was a bird-watcher. TR got seasick; FDR was a "first-class salt" on the water.[126] FDR joked on his trip to the Galapagos Islands in 1938 that TR was a grizzly bear hunter, while he was a collector of crustaceans.[127] Both were advocates of dams that would reclaim arid lands with irrigation water and provide public power to serve as a yardstick for measuring the reasonableness of private utility

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119. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 16–23.

120. *Id.* at 24.

121. *Id.* at 15.

122. *Id.* at 34.

123. *Id.* at 10–12. Sara wrote what Brinkley termed a "nostalgic forward" to a 1938 locally published book in which she regretted the local disappearance of a scented vine with blue grapes that was destroyed by misguided local farmers. *Id.* at 12. FDR's mother died at Springwood in 1941 at the age of eighty-six. *Id.* at 511 (recounting the story of tallest deciduous tree at Springwood falling to the ground with a thunderous boom upon her death).

124. Sara's domineering ways did induce FDR to build a separate house for his wife, Eleanor, at Springwood to give her some space. Named Val-Kill, the house became a retreat for Eleanor and a permanent residence for her activist friends, Marion Dickerman and Nancy Cook. *Id.* at 108.

125. *Id.* at 11. Both Roosevelts championed their hometowns—Oyster Bay and Hyde Park—as model towns, with tree-lined streets and parks. Both were concerned that many New York City neighborhoods had deteriorated "into hellholes of squalor." *Id.*

126. *Id.* at 32.

127. *Id.* at 437.

electric rates.[128] But cowboys were heroes to TR; they were likely viewed as overgrazers by FDR.[129]

Gifford Pinchot, who was like a son to TR, was his first chief of the Forest Service and helped the President establish over 100 national forests in the West. FDR said that although they were members of different political parties, Pinchot set him "on the conservation road."[130] Both TR and Pinchot believed that large trees reaching a certain height should not be harvested, because they were worth more for their watershed value than for timber.[131] FDR went farther than TR, however, believing that trees were not merely aesthetically pleasing but "God's greatest utilitarian invention."[132]

As a state senator in 1911, FDR invited Pinchot (recently fired as Forest Service chief by TR's successor, William Howard Taft, for insubordination), to address a joint committee of the New York legislature concerning his study of the Adirondacks, which recommended a constitutional amendment to authorize state regulation of private lands exclusively based on scientific principles.[133] When Pinchot's speech expanded the focus of his scientific forestry beyond trees and water to include soils and wildlife, FDR "experienced an epiphany."[134] He consulted with Pinchot regularly thereafter on forest issues.[135]

Pinchot was elected governor of Pennsylvania in 1922 (and again in 1930). After the presidential election in 1932, FDR summoned Pinchot to consult with him concerning the development of a New Deal forest conservation strategy.[136] Pinchot enlisted Bob Marshall—who wrote a plan for American Forestry for the U.S. Senate the year before, which called for a massive government land acquisition and forest rehabilitation program to be implemented by the unemployed—to help chart the New Deal

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128. *Id.* at 51–55.

129. *Id.* at 60. FDR brought grazing regulation to the public domain when he signed the Taylor Grazing Act in 1934. *Id.* at 306 (observing that the New Deal established fifty-nine grazing districts, regulating 168 million acres of land, under the Taylor Act). *See infra* notes 226–228 and accompanying text.

130. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 39 (noting that TR and Pinchot wrestled with each other, bird-watched together, hiked with each other in the Adirondacks, and "scorned lumber interests that plundered forests").

131. *Id.*

132. *Id.* at 46.

133. *Id.* at 65–66.

134. *Id.* at 66.

135. *Id.* at 63–64 (noting that FDR read and was influenced by Pinchot's 1910 book, *The Fight for Conservation*).

136. *Id.* at 159.

approach.[137] Within months, Congress approved the CCC to implement an emergency conservation program based on Marshall's study.[138] Pinchot helped organize CCC camps in Pennsylvania, and successfully argued that the CCC enrollees should be from the rural areas that they were restoring.[139]

B. Frederic Delano

After FDR's father's death in 1900, when FDR was just eighteen, his uncle, Frederic Delano—his mother's brother—became a father figure.[140] A devotee of Frederick Law Olmstead's "city beautiful" movement, Delano advocated keeping the Chicago lakefront undeveloped, helped to conserve several sites associated with George Washington, and worked on the plan for parks in the District of Columbia.[141] He considered trees to be "the great givers of life."[142] Delano taught FDR how to plant violets at Springwood and how to transplant trees.[143]

Delano, who referred to FDR as a "twice-born man" after his paralysis in 1921,[144] was particularly influential in FDR's historic preservation efforts, and he became known as a person who could get ideas to FDR.[145] Delano wanted nothing less than for all American roads to have scenic quality; he supported tree planting to green industrial areas; and he advocated sewage treatment plants, among other reforms, for urban areas.[146] He encouraged FDR to build the Blue Ridge Parkway in Virginia and North

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137. *Id.* at 161 (calling for the federal purchase of 240 million acres of private woodland).

138. *Id.* at 169. Marshall, who would be one of the founders of the Wilderness Society in 1935 and helped develop the Forest Service "U-regulations," which preserved wilderness-like areas, died unexpectedly from heart failure in 1939 at the age of thirty-eight. *Id.* at 160–61, 480.

139. *Id.* at 181. Fifty-five percent of CCC enrollees were from rural areas. *Id.* at 182. For recent calls for a revival of the CCC, see *infra* note 199.

140. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 35.

141. *Id.*

142. *Id.* Brinkley explained that Delano introduced FDR to a large cottonwood tree in Newburg (the Balmville tree), which was the oldest example of its species in the U.S. FDR would often park at the Balmville tree to ponder life when visiting Delano in Newburg. *Id.* at 35–36.

143. *Id.* at 36.

144. *Id.* at 136.

145. *Id.* at 193. Brinkley observed that "Delano's gravitas was never built on claiming 'personal credit for anything.'" *Id.* (citing the *Washington Evening Star*).

146. *Id.* at 194.

Carolina and the Natchez Trace Parkway in Mississippi, Alabama, and Tennessee.[147]

Delano was FDR's "confidential adviser on all things related to conservation and preservation."[148] He chaired the Natural Resources Planning Board, which recommended large-scale federal land purchases, looking ahead twenty years to the nation's needs in 1960.[149] Brinkley maintained that Delano was instrumental in getting his nephew to "think[] big" about conservation, and, sounding like a twenty-first century reformer, Delano advocated a bill of rights to guarantee adequate food, clothing, shelter, medical care, and the "right to rest, recreation, and adventure" for everyone.[150] Delano even helped pick the architect who built the new Interior Department building in Washington, still in use to this day.[151] As chair of the National Capital Park and Planning Commission, he oversaw the restoration of the Chesapeake & Ohio Canal adjacent to the Potomac River for use as a path for recreation and hiking, which is also still a landmark in the nation's capital.[152]

C. Harold Ickes

Harold Ickes, FDR's only Interior Secretary, was the chief implementer of New Deal conservation policies.[153] Ickes was from Chicago, a supporter of TR during his 1912 Bull Moose campaign, an inveterate antimonopolist, a civil rights advocate, and a

147. *Id.* According to the historian Arthur Schlesinger, Jr., "Few Americans had had more impressive experience in city and regional planning than Delano. . . . Chicago, New York, and Washington all bore his mark in their programs for urban development." *Id.*

148. *Id.* at 213.

149. *Id.* at 214 (recommending the purchase of 75 million acres of farmland, 244 million acres of timberland, and 114 million acres for recreation and conversation).

150. *Id.*

151. *Id.* at 237.

152. *Id.* at 246.

153. Another cabinet member, Secretary of the Treasury, Henry Morgenthau, Jr., also had a considerable influence on FDR's conservation policy. Morgenthau, from a wealthy New York family and publisher of the *American Agriculturalist* (which FDR read), moved to the Hudson Valley not far from FDR's Springwood (where Roosevelt would take what he thought were therapeutic swims in Morgenthau's pool). He and Roosevelt found that they both were committed to responsible farming and natural resources conservation. *Id.* at 117–19. It was Morgenthau's hiring of unemployed workers to maintain his estate that caught FDR's attention, and when Roosevelt became governor, he appointed Morgenthau Conservation Commissioner. Morgenthau and Roosevelt soon established a Boy Scout-like program of taking urban youth to work on forest restoration in the Catskills and Hudson River highlands. *Id.* at 132, 138. When a constitutional amendment authorized the state's purchase of abandoned farmland for forest restoration, FDR put Morgenthau in charge of the land purchases, and the conservation-reforestation program served as a kind of test-run for what later became the New Deal's CCC. *Id.* at 170.

wilderness protector.[154] FDR and Ickes collaborated in declaring that 1934 was the "Year of the National Park" and planned to expand the park system to include the Everglades, the Dry Tortugas, the Sonoran Desert, and the Cascades.[155] Ickes became the environmental conscience of the New Deal, sometimes tempering FDR's penchant for parkways and hydropower where they threatened wilderness.[156]

In 1936, at the North American Wildlife Conference arranged by FDR, Ickes asserted that conservation was the foremost duty of government, promised to resist new roads in national parks, and declared that Roosevelt was the most environmentally conscious president in American history.[157] In 1938, Ickes, celebrating the establishment of Olympic National Park before a Seattle audience, promised to keep the park in a wilderness condition, a speech on which Brinkley remarked, "Never before—or since—did a secretary of the interior speak out so forcefully for primeval zones in national parks."[158]

Later, Ickes was able to successfully argue to the Sierra Club to support Kings Canyon National Park, a fact that Brinkley considered "quite an amazing moment in U.S. environmental history," since the Secretary was arguing to the environmentalists for a national park in the Sierra—"not the other way around."[159] Stung by criticism from the great ecologist, Aldo Leopold, over the social and environmental costs of the Grand Coulee Dam in Washington—the construction and operation of which displaced some three thousand people, mostly Native Americans, and devastated their salmon-based livelihoods—Ickes hired the singer-songwriter, Woody Guthrie, to celebrate the wonders of the hydroelectric transformation taking place on the Columbia and its tributaries.[160]

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154. *Id.* at 62–63.

155. *Id.* at 238, 244–45.

156. *Id.* at 244–45.

157. *Id.* at 324 ("What other President in our history has done so much to reclaim our forests, to reclaim submarginal lands, to harness our floods and purify our streams, to call a halt to the sinful waste of our oil resources? In his conservation program he ought to have the enthusiastic assistance of every true conservationist."). The National Wildlife Federation was born in the wake of the 1936 conference. *Id.* at 325.

158. *Id.* at 430.

159. *Id.* at 431. The Sierra Club and the Wilderness Society preferred Forest Service management of Kings Canyon to national park designation, fearing that a park would produce roads and commercialization. But Ickes promised "roadless wilderness." *Id.* at 431–32.

160. *Id.* at 415. Guthrie wrote twenty-six songs in his unlikely role as a "New Deal propagandist," some of them—like "Roll on Columbia" and the "Grand Coulee Dam"—quite memorable. *Id.* On Native American salmon harvests on the Columbia, see MICHAEL C. BLUMM, SACRIFICING THE SALMON: A LEGAL AND POLICY HISTORY OF THE DECLINE OF

Ickes served FDR for the entirety of his presidency, despite several attempts to resign, which Roosevelt always rejected.[161] Ickes helped the New Deal establish national monuments and parks like Organ Pipe (Arizona), Channel Islands (California), the Everglades (Florida), Dry Tortugas (Florida), Kings Canyon (California), Isle Royale (Michigan), Jackson Hole (Wyoming), and Joshua Tree (California), among others, in addition to the Cape Hatteras National Seashore (North Carolina) that Congress approved.[162] Ickes' department was also the beneficiary of the numerous national wildlife refuges and game ranges established by FDR and managed by U.S. Fish and Wildlife Service, which Roosevelt created out of the old Biological Survey and the Bureau of Fisheries in 1940.[163]

One achievement that eluded Ickes, however, was his dream of transferring the Forest Service from the Department of Agriculture to his jurisdiction under a new Department of Conservation.[164] The idea was under consideration in 1940, but the Senate quashed it as too risky in an election year, causing Ickes to offer another resignation, which FDR again refused.[165] Brinkley's assessment of Ickes' influence on FDR was that the Interior Secretary was a considerable force:

> It was [Ickes], more so than FDR, who moved beyond the wise-use confines of conservation and became a genuine environmental warrior in the tradition of John Muir. Roosevelt leaned away from commercial interests more than other presidents, before or since, but he was indeed a tree farmer and saw some room for compromise. Ickes didn't.[166]

COLUMBIA BASIN SALMON 53–56 (Bookworld Pub. 2002); *id.* at 87–102 (discussing the dam building and its effects).

161. BRINKELY, RIGHTFUL HERITAGE, *supra* note 3, at 244.

162. *Id.* at 354–55, 422–23, 334–35, 386, 430–33, 491, 546–47, 210–12, 376–81. National parks and seashores require congressional approval; however, the president may declare national monuments, authorized by the Antiquities Act, unilaterally. *See id.* at 45–46. Ickes, a Native American rights crusader, was also instrumental in FDR's naming of John Collier, a progressive reformer, to head the Bureau of Indian Affairs, and Bob Marshall, the visionary wilderness advocate, as the chief forester for that agency. *Id.* at 165–66. *See also supra* notes 68, 137–138 and accompanying text.

163. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 493 (suggesting that the reorganization was a consolation prize for Ickes after his failure to convince FDR to transfer the Forest Service to the Interior Department). *See also infra* notes 164–165, 241 and accompanying text.

164. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 486–87 (noting that Gifford Pinchot also opposed the Forest Service's transfer to the Interior Department).

165. *Id.* at 487–89.

166. *Id.* at 488 (explaining that "Like FDR, [Ickes] hoped future generations would be able to wander among the New England hills, Utah canyonlands, Missouri bottoms, Georgia

The environmental warrior of the New Deal would be fired by President Truman in 1946, over his opposition to allowing California to lease offshore areas to oil companies.[167]

D. Eleanor Roosevelt

The marriage of Eleanor and Franklin Roosevelt may have been irretrievably damaged due to FDR's dalliance with Lucy Mercer Rutherford, Eleanor's social secretary, before his paralysis,[168] but Eleanor was a fellow traveler on FDR's conservation journey. Brinkley claimed "Franklin and Eleanor made an exceedingly good match," citing their shared devotion to the flora and fauna of the Hudson Valley and the Catskill Mountains.[169] Eleanor knew her husband's conservation policy was to avoid wasting land or its resources, since, as she explained, "Where land is wastefully used and becomes unprofitable, the people go to waste too. Good land and good people go hand in hand."[170] She led protests against the destruction of wilderness areas, and knew that the best way for conservation advocates to persuade FDR to protect an area was to meet with him and show him photos.[171] She wrote a syndicated newspaper column, "My Day," from 1935 until 1962, in which she lauded pastoralism even more than feminism or Democratic politics.[172] She fought against the all-male CCC, but was largely unable to overcome the rampant sexism of the 1930s.[173]

After Pearl Harbor, Eleanor tried to remind Americans that conservation and Democratic values were intimately related; as she wrote in one of her "My Day" columns, "One important lesson we still must learn is that we cannot ask anything which comes from our soil and not return something to the soil for the use of

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pine woods, and Dakota grasslands and see stretches of America just as it had been when the *Mayflower* arrived in the New World. That was part of Ickes's soul . . .").

167. *Id.* at 581. Ickes wanted to see the entire California coast from Camp Pendleton to the Oregon border protected "as a public trust." *Id.* at 380.

168. *Id.* at 77, 565.

169. *Id.* at 42–43.

170. *Id.* at 154.

171. *Id.* at 244, 541.

172. *Id.* at 312.

173. *Id.* at 255–56 (noting that Eleanor established a CCC camp for women at Bear Mountain State Park—where FDR had contracted the polio virus years earlier—but the women were only taught sewing and were not paid).

generations to come."[174] She touted conservation education, stating that young people needed to understand the "interdependence of human kind—the animals, the oceans, the Earth, and human beings."[175]

After FDR's death, President Truman named Eleanor a delegate to the United Nations, where she became "the most respected human rights activist in the world."[176] After resigning in 1952, she traveled the world, often advocating global reforestation projects and became an elder political leader of the Democratic Party by the time she died in 1962—still writing her "My Day" columns.[177]

E. William O. Douglas

William O. Douglas was a former law professor and poker-playing partner of FDR's, who appointed him chair of the Securities and Exchange Commission in 1937.[178] Douglas was a committed environmentalist who hiked throughout the West, and encouraged the President to obtain national park status for the Olympic Mountains in his home state of Washington.[179] Douglas touted the CCC as an incubator of good citizenship. He thought the CCC experience developed individual self-sufficiency and discipline by exposing the urban poor to the public lands of the West.[180]

Douglas was a strong supporter of FDR's ill-fated "court-packing plan," which died in the summer of 1938, and his reward was an unexpected nomination to the Supreme Court to fill retiring Justice Louis Brandeis' seat.[181] His champion was Ickes, who advocated for him over another candidate that FDR initially favored, because Ickes thought it important that an environmentalist be in the Court.[182] The pick was a shrewd one; Douglas was indeed the most environmental of all justices on the

174. *Id.* at 518–19. Practicing what she preached, the First Lady had the scrawny-looking squirrels on the White House grounds captured, put on a special diet at the national zoo, and then returned when they were no longer scrawny. *Id.* at 565.

175. *Id.* at 565.

176. *Id.* at 583.

177. *Id.*

178. *Id.* at 565.

179. *Id.* at 348–49.

180. *Id.* at 348. Douglas also worked to have Hart Mountain in Oregon designated as a National Antelope Range, which FDR proclaimed in 1935, in order to benefit pronghorn antelope that were threatened with extinction. *Id.* at 317, 349.

181. *Id.* at 350.

182. *Id.*

Court, and he would serve on the Court until 1975—the last vestige of the New Deal in high office.[183]

Douglas wrote that the New Deal was the model for "the environmental justice movement of the 1960s and beyond."[184] Ironically, in perhaps his most famous environmental law majority opinion, Douglas interpreted the Federal Power Act to require an alternative analysis concerning the wisdom of issuing a license to build the High Mountain Sheep Dam in Idaho, which would have blocked all salmon migration into central Idaho.[185] The decision saved Idaho's remaining salmon runs, and the dam was never built. FDR, the champion of both hydropower generation and wildlife protection, might have had mixed feelings over the High Mountain Sheep Dam decision, but he certainly would have cheered Douglas' long and distinguished career on the Court as its leading environmentalist.[186]

IV. FDR'S ENVIRONMENTAL LEGACY

FDR's environmental legacy is a long one. He was persistent in adding protection to federal lands and, indeed, in adding lands to the federal estate, even during the war years. This section divides his accomplishments into those between 1933 and 1938, when FDR and his party suffered a significant electoral setback in the wake of an economic recession and the congressional defeat of FDR's "court-packing" plan,[187] and those that occurred between 1939 and Roosevelt's death in 1945.

A. 1933-38

FDR's 1933 inaugural speech, in which he famously proclaimed, "the only thing we have to fear is fear itself,"[188] began

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183. *Id.*

184. *Id.* at 585.

185. *See* Udall v. Fed. Power Comm'n, 387 U.S. 428 (1967); *see also* Michael C. Blumm, *Saving Idaho's Salmon: A History of Failure and a Dubious Future*, 28 IDAHO L. REV. 667, 675–77 (1991) (discussing the case and its significance).

186. *See generally* STEPHEN L. WASBY, "HE SHALL NOT PASS THIS WAY AGAIN": THE LEGACY OF JUSTICE WILLIAM O. DOUGLAS (1990).

187. In the 1938 mid-term elections, the Democrats lost seventy-two seats in the House and seven in the Senate, but they retained majorities in both; the first time that the party of a six-year president had not lost control of either house. However, after the election, the Roosevelt Administration largely lost control of the congressional agenda to a coalition of Republicans and conservative southern Democrats.

188. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 167–68. Eleanor later picked the "fear itself" speech as FDR's greatest public moment. *Id.* at 168. Brinkley ranks it with Washington's first inaugural in 1789 and Lincoln's first in 1861 (although he may have meant Lincoln's second, now memorialized on the walls of the Lincoln Memorial). *Id.*

a dizzying first hundred days of his presidency in which he convinced Congress to pass fifteen major emergency statutes.[189] Included among this outpouring of legislation were conservation measures calling for the establishment of the CCC, the Soil Conservation Service, and the Tennessee Valley Authority.[190] CCC camps, along with Works Program Administration projects, soon employed some 250,000 young men, "bring[ing] ecological integrity to public lands."[191] In the years after World War II, Brinkley claims that CCC enrollees eventually became "environmental warriors, challenging developers who polluted aquifers and unregulated factories that befouled the air."[192] However, Congress authorized the CCC only as a temporary work-relief agency, and FDR was—to his great regret—unable to convince Congress to give permanent status for the agency, which was dismantled shortly after the war began in 1942.[193] During its first six years, CCC enrollees planted some 1.7 billion trees, put 2.5 million men to work, and paid enrollees over $500 million.[194] The massive tree-planting program had its critics, including the ecologist, Aldo Leopold, who accused the agency of planting the wrong types of trees in some locations, including some invasive species.[195]

By the time of its demise in 1942, the CCC had enrolled more than 3.4 million men to work on environmental and economic revitalization, brought erosion-control to some 40 million acres, and produced numerous infrastructure projects like bridges, fencing, and fire lookout towers.[196] The CCC also helped establish over 700 state parks, restored close to 4,000 historic structures, rehabilitated some 3,400 beaches, and conserved more than 118 million acres of public land.[197] In the end, FDR's "boys" planted roughly three billion trees, in what Brinkley referred to as "the single best land-rehabilitation idea ever adopted by a U.S. president."[198] One in every six men drafted to serve

189. *Id.*
190. *Id.* at 169.
191. *Id.*
192. *Id.* at 172.
193. *Id.* at 173, 338, 380, 583. The only African-American member of the House of Representatives, Oscar S. DePriest of Illinois, objected to the racial segregation of the CCC—to no avail. *Id.* at 173, 475.
194. *Id.* at 474.
195. *Id.* at 475.
196. *Id.* at 526–27.
197. *Id.* at 527, 582.
198. *Id.* at 527.

in World War II was a former CCC enrollee toughened for the military by his conservation efforts.[199]

A less well-recognized achievement of the early New Deal was its elevation of the National Park Service to perhaps the most prominent federal conservation agency.[200] One vehicle was the 1933 Reorganization Act, under which FDR was able to transfer national military parks of the Defense Department and national monuments of Forest Service to the Park Service.[201] With the consolidation of national parks, monuments, and battlefields under Park Service jurisdiction, FDR gave birth to the modern National Park Service.[202] By the time his presidency ended, Roosevelt had expanded the areas under Park Service jurisdiction by more than five times the number that existed at the agency's founding in 1916.[203]

But Brinkley considered FDR's "most enduring accomplishment" to be the New Deal's expansion of the National Wildlife Refuge system.[204] In 1933, FDR inherited some sixty-seven wildlife areas of confusing names.[205] By 1940, Roosevelt had developed a coherent system of 252 marshes, prairie potholes, deserts, mountains, and coastal areas that protected 700 species of birds, 220 species of mammals, 250 types of reptiles and amphibians, more than a thousand kinds of fish, and countless invertebrates and plants.[206] To manage these diverse areas,

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199. *Id.* For a spirited call for a 21st century CCC, see Gundars Rudzitis, *How Can We Protect Our National Parks? Here's an Idea*, HIGH COUNTRY NEWS (Oct. 31, 2016), http://www.hcn.org/issues/48.18/we-need-a-new-civilian-conservation-corps/print_view (noting that in 2011 the Obama Administration proposed a $1 billion program that would have employed veterans returning from Iraq and Afghanistan, but Congress refused to fund it). *See also* Paul J. Bachich, *The U.S. Needs a New Civilian Conservation Corps*, THE NATION (Oct. 25, 2017), https://www.thenation.com/article/the-us-needs-a-new-civilian-conservation-corps/ (explaining how a new CCC could use vocational training to prepare for quality union jobs and create the skills needed for green-infrastructure projects).

200. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 581. FDR could wax eloquent about the national parks:

> There is nothing so American as our national parks . . . . The scenery and wildlife are native. The fundamental idea behind the parks is native. It is, in brief, that the country belongs to the people, that it is in the process of making for the enrichment of the lives of all of us. The parks stand as the outward symbol of this great human principle.

Id. at 262–63.

201. *Id.* at 581. Still, by 1935, FDR had acquired more than twice as much acreage for national forests as acquired prior to the New Deal. *Id.* at 308.

202. *Id.* at 189–92.

203. *Id.* at 581 (claiming that Roosevelt and Ickes made the Park Service into "perhaps the most beloved agency in the U.S. government").

204. *Id.* at 497.

205. *Id.*

206. *Id.* In 1934, FDR directed the Biological Survey to develop a coherent system of wildlife refuges. *Id.* at 268.

Roosevelt created a new Fish and Wildlife Service (from Agriculture's Biological Survey and the Bureau of Fisheries) in the Interior Department, whose director, Dr. Ira Gabrielson, proceeded to negotiate a Pan-American wildlife agreement to preserve wildlife, and whose responsibilities would soon include implementing the Bald Eagle Act of 1940.[207]

The early New Deal's conservation achievements included a 1934 executive order that established the Prairie States Forestry Project, commonly called Shelterbelt. The program involved planting trees and scrubs to serve as windbreaks at the borders of croplands and pastures in order to reduce wind speeds and decrease evaporation, thereby protecting crops and livestock and limiting Dust Bowl's clouds of dust.[208] The idea was to plant these buffers from Texas to the Canadian border to anchor the soil, in what the Forest Service chief called "the largest project ever undertaken in the country to modify the climate and agricultural conditions in an area now consistently harassed by winds and drought."[209] Like the CCC, Shelterbelt "was essentially FDR's 'own idea,'" and "the most ambitious afforestation program in world history."[210] However, it did offend some Great Plains farmers, who considered it "socialistic and a pseudo-scientific experiment."[211] The program unfortunately had the shortcoming of relying on the more durable cottonwood trees, which grew fast in hostile conditions, instead of using conifers, which were more sensitive but more effective in the long run.[212] On the other hand, FDR's antidote to desertification mostly achieved its promise of stabilizing the soil, reducing dust, warding off winter injury, providing shade for livestock, and restoring wildlife habitat.[213] Shelterbelt also provided employment and an influx of money to the economically depressed Great Plains.[214]

Also in 1934, FDR signed the Migratory Bird Hunting and Conservation Stamp Act into law, which required those purchasing state hunting licenses to buy a "duck stamp" for one dollar as a condition of obtaining a state hunting license.[215] Ninety-eight percent of the proceeds of the stamps went toward purchasing and

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207. *Id.* at 497–98. *See also supra* note 163 and accompanying text on the founding of the U.S. Fish and Wildlife Service.

208. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 287.

209. *Id.* at 288.

210. *Id.* (citation omitted).

211. *Id.* at 289.

212. *Id.* at 289–90.

213. *Id.* at 290–91.

214. *Id.* at 291.

215. *Id.* at 281.

maintaining "inviolate" wetland and wildlife habitat for refuges.[216] FDR, a habitual stamp collector, took a special interest in the artwork on the stamps, drawn by his Biological Survey head, Ding Darling.[217] The President's keen interest in the stamps produced considerable publicity, and in the first year the fund generated $600,000 for wildlife habitat.[218] Having a dedicated fund was an invaluable asset for habitat acquisition; over the years (through 2009), the fund provided over $500 million to purchase some five million acres managed for wildlife.[219] Duck stamp revenues remain an important federal program to this day.[220]

A potentially overlooked accomplishment of the early New Deal was enactment of the Fish and Wildlife Coordination Act, which authorized migratory bird refuges on federal lands managed by the Forest Service and the Interior Department, so long as the authorization was consistent with major purpose of the lands.[221] As amended in 1958, the Coordination Act today requires "equal consideration" of fish and wildlife with other purposes of federal or federally permitted projects.[222] According to Brinkley, the Coordination Act, together with the duck stamp program and a 1934 "National Plan for Wild Life Restoration"—that called for the federal purchase of millions of acres of wildlife habitat[223]—meant that within three years FDR had "done more for wildlife conservation than all his White House predecessors, including Theodore Roosevelt."[224] By the end of 1935, the New Deal had acquired more than 1.5 million acres of wildlife habitat, more than all previous acquisition efforts; migratory waterfowl numbers rebounded, jumping from thirty million birds in 1933 to more than one hundred million by the beginning of World War II.[225]

Another important conservation initiative of 1934 was enactment of the Taylor Grazing Act, which brought regulation to

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216. *Id.*

217. *Id.* at 282–83.

218. *Id.*

219. *Id.* at 283.

220. *See Duck Stamp Dollars at Work*, U.S. FISH & WILDLIFE SERV., DEP'T OF THE INTERIOR, https://www.fws.gov/birds/get-involved/duck-stamp/duck-stamp-dollars-at-work.php (last updated Sept. 12, 2017); *Federal Duck Stamp Program*, U.S. FISH & WILDLIFE SERV., DEP'T OF THE INTERIOR (Aug. 2016), https://www.fws.gov/migratorybirds/pdf/get-involved/DSOfactsheet.pdf (fact sheet).

221. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 296–97.

222. 16 U.S.C. § 661 (2012).

223. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 278–80 (recommending the purchase of four million acres of migratory waterfowl and shorebird habitat, two million acres for mammals, one million acres for breeding and nesting of other birds, and five million acres for upland game species).

224. *Id.* at 297.

225. *Id.*

168 million acres of federal grazing lands in the West.[226] Unregulated grazing had allowed grazers to essentially monopolize, without charge, the unreserved federal public domain to the detriment of wildlife, which consumed the same grasslands.[227] The Taylor Act was one of the most important New Deal wildlife initiatives, because it effectively ended a century-and-a-half of federal lands disposition to private parties; although it is not clear that Brinkley fully appreciated the long-term significance of the statute.[228]

A potentially overlooked statute of conservation significance was the Historic Sites Act of 1935, which made protection of historic sites a National Park Service obligation.[229] Two years earlier, FDR had put historic battlefields into the agency's portfolio, and the same 1933 executive order "brought the National Park Service into urban areas."[230] Preserving history was a priority for FDR, who believed that historic sites "instilled in citizens a sense of pride in, and ownership of, the United States."[231] The New Deal's historic preservation achievements included Aquatic Park in San Francisco, Metropolitan Park in Cleveland, and the Saratoga Battlefield.[232]

By the end of 1938, five years into the New Deal, Roosevelt had protected many special areas, including the Great Smoky Mountains National Park (Tennessee and North Carolina, 1934), the Okefenokee National Wildlife Refuge (Georgia, 1937), Everglades National Park (Florida, 1934), Olympic National Park (Washington, 1937), Organ Pipe Cactus National Monument (Arizona, 1937), Hart Mountain National Antelope Refuge (Oregon, 1935), Cape Hatteras National Seashore (North Carolina, 1937), Channel Islands National Monument (California, 1938), Desert Game Range (Nevada, 1936), Joshua Tree National Monument (California, 1936), Capital Reef National Monument (Utah, 1936), and Cape Meares National Monument (Oregon, 1938).[233] There was more conservation to come in the post-1938 era.

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226. *Id.* at 306.

227. For more on the antimonopolistic effect of the Taylor Act, see Michael C. Blumm & Kara Tebeau, *Antimonopoly in American Public Land Law*, 28 GEO. ENVTL. L. REV. 155, 195–97 (2016).

228. Brinkley's book devoted only four sentences to the Taylor Act. *See* BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 306, 499.

229. *Id.* at 190.

230. *Id.* at 192–93.

231. *Id.* at 191.

232. *Id.*

233. *Id.* at 248 (Great Smoky National Park); *Id.* at 352 (Okefenokee National Wildlife Refuge); *Id.* at 266 (Everglades National Park); *Id.* at 419 (Olympic National Park); *Id.* at

B. 1939-45

FDR's unsuccessful effort to change the composition of the Supreme Court crashed in mid-1938[234] and, in the fall elections, Democrats lost the landslide majorities they gained in the 1932 and 1936 elections.[235] The congressional setbacks did not deter FDR from his conservation mission, however.

In early 1939, FDR established the Kofa and Cabeza Game Ranges in Arizona over the objections of grazers and miners, in order to protect desert bighorn sheep.[236] About the same time, CCC camps staged celebrations for FDR on his 57th birthday, but Congress failed to deliver the birthday present he wanted: permanent status of the CCC.[237] Despite that disappointment, Roosevelt, with assistance from the Sierra Club,[238] worked throughout 1939 to establish national park protection for King's Canyon, located south of Yosemite in the Sierra—including engaging in "one of the fiercest congressional battles on record."[239] In 1940, the Administration succeeded in convincing Congress to establish Kings Canyon National Park, ending a conservation battle ongoing since the 1920s.[240]

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355 (Organ Pipe Cactus National Monument); *Id.* at 317 (Hart Mountain National Wildlife Refuge); *Id.* at 381 (Cape Hatteras National Seashore); *Id.* at 423 (Channel Islands National Monument); *Id.* at 328 (Desert National Game Range); *Id.* at 341 (Joshua Tree National Monument); *Id.* at 196 (Capital Reef National Monument); *Id.* at 423 (Cape Meares National Monument).

234. In 1936, in a landslide reelection, FDR won 46 of 48 states over the Republican candidate, Alfred Landon, and 523 electoral votes to Landon's 8. On his coattails, the Democrats won both the Senate—76 to 16—and the House—334 to 88. In the wake of that election, Roosevelt decided to expand the size of the Supreme Court—which had stymied a number of his initiatives as unconstitutional, including the National Industrial Recovery Act and the Agricultural Adjustment Act, through a restrictive version of the federal Commerce Clause power. FDR's plan called for appointment of a new justice for each justice reaching seventy years of age, up to fifteen justices. These appointments would have likely assured a broader interpretation of the federal commerce power. But the plan threatened to expose the political nature of the Court and undermine its alleged role as an unbiased arbiter of the Constitution. Partly because the Court began to interpret federal authority more generously, partly because of the opposition of the sitting Court, partly because one justice resigned (giving FDR his first appointment opportunity; he would have seven opportunities over the next four years), and partly because the Senate majority leader unexpectedly died, FDR's court expansion plan failed to win congressional approval. *See generally* JOHN E. NOWAK & RONALD D. ROTUNDA, CONSTITUTIONAL LAW, §§ 4.7, 11.4 (7th ed. 2004).

235. *See supra* notes 67, 187 and accompanying text.

236. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 457–60.

237. *Id* at 451.

238. The Sierra Club's support was due to the unprecedented lobbying of Secretary Ickes. *See supra* note 159 and accompanying text.

239. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 452.

240. *Id.* at 106–07 ("since the 1920s"), 452–53. On the other hand, in 1940, in an action not mentioned in the Brinkley book, FDR did reduce the size of the Grand Canyon National Monument by about one-fourth, in response to complaints by the local livestock grazers. *See*

In 1940, Ickes efforts to convince FDR to transfer the Forest Service to the Interior Department, in an effort to create a Department of Conservation, failed.[241] But the President proceeded to expand the Ickes' Interior Department by creating the U.S. Fish and Wildlife Service to manage national wildlife refuges and monuments.[242]

Roosevelt also secured congressional approval for Isle Royale National Park (Michigan); Mammoth Cave (Kentucky) and Big Bend (Texas) were soon to follow.[243] Even after the onset of World War II, he proceeded with conservation efforts, designating the Kenai National Moose Range days after Pearl Harbor, in December 1941.[244]

During the war, conservation initiatives obviously took a back seat. Nonetheless, in 1943, FDR proclaimed the Jackson Hole National Wildlife Refuge and several other refuges, even though they lacked federal funding.[245] But the war years produced numerous long-term environmental problems, including serious toxic pollution issues.[246] Still, FDR continued to emphasize sound forestry practices on the campaign trail, such as his statement dedicating Great Smoky Mountain National Park in September 1940 (two months before the presidential election), in which he proclaimed, "we shall conserve these trees, the pine, the red-bud, the dogwood, the azalea, and the rhododendron, we shall conserve the trout and the thrush for the happiness of the American people."[247] Four years later, during his last campaign, he was still preaching the conservation gospel, discussing the benefits

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Jennifer Yachnin, *Fans of Abolishing Site Aim to Build on Past Examples*, GREENWIRE (Feb. 8, 2017), http://www.eenews.net/greenwire/2017/02/08/stories/1060049750.

241. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 490; *see also supra* note 163 and accompanying text.

242. BRINKELY, RIGHTFUL HERITAGE, *supra* note 3, at 493. On the Fish and Wildlife Service, *see supra* notes 163, 207.

243. BRINKELY, RIGHTFUL HERITAGE, *supra* note 3, at 507.

244. *Id.* at 517.

245. *Id.* at 540, 544, 590. Congress attempted to overturn the Jackson Hole monument in 1944, but FDR vetoed the bill. *Id.* at 564. The Republican presidential candidate in 1944, Thomas E. Dewey, tried to make a campaign issue of the monument, claiming that it represented "land grabing" and "anti-American collectivism." *Id.* at 563. But the American public apparently did not agree, reelecting FDR to an unprecedented fourth term, on an electoral vote of 432 to 99. *Id.* at 566.

246. *Id.* at 570–71 (describing increased use of pesticides, including DDT to combat tropical diseases like malaria).

247. *Id.* at 503.

of healthy forests at every campaign stop, explaining their ability to absorb rainfall; their importance in refilling aquifers; and their role in slowing storm runoff.[248]

Among Roosevelt's chief post-war hopes was an international conservation conference. He consulted with Gifford Pinchot on the matter just weeks after D-Day, agreeing with Pinchot that "[c]onservation is the basis of permanent peace."[249] The day before he died of a cerebral hemorrhage, he discussed with Henry Morgenthau how to repastoralize Germany and make it into the breadbasket of post-war Europe. He was planning a speech to the first United Nations conference that no doubt would have touted the virtues of conservation and the international conference.[250] FDR was a conservationist until his last breath.

CONCLUSION

Franklin Roosevelt's effect on the American environment was profound. Brinkley includes several appendices that reflect just how staggering that effect was: 64 battlefields, monuments, and historic sites transferred to the jurisdiction of the National Park Service; 140 national wildlife refuges established; 29 new national monuments; and 216 national forests established or enlarged.[251] From the Everglades and the Okefenokke to the Olympics and the Kenai, from desert landscapes to waterfowl wetlands, no part of the country was unaffected by FDR and his New Deal. No president can match his record of protected lands, including his aggressive federal acquisition of cut-over lands that would be unthinkable today, an era of widespread distrust of federal land ownership.[252] To FDR, "public lands were the heart and soul of the nation."[253] He had a particular aversion to clear-cut timber harvests, favoring selective cutting by small woodlot owners (like himself).[254]

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248. *Id.* at 559. When a member of his audience accused FDR of speaking more about trees, soil, and water than the World War, he responded, "I fear that I must plead guilty to that charge." *Id.*

249. *Id.* at 560–61.

250. *Id.* at 575. For more on Morgenthau and FDR, see *supra* notes 58–59, 153.

251. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 596–623.

252. Many acquisitions were under the authority of the Weeks Act, authorizing the purchase of lands or interests in lands for eastern national forests. *See* Weeks Act, ch. 186, 36 Stat. 961 (1911).

253. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 588.

254. *See id.* at 579 (observing that FDR's will required that the half million trees he planted at Springwood be preserved in perpetuity, and that if any died, they had to be replaced). For more on Roosevelt's steadfast opposition to clear-cutting, see *supra* notes 25, 55, 72, 96 and accompanying text.

Roosevelt's monumental environmental legacy, it is true, is undermined by his attachment to dams and the hydropower generation and irrigation they brought. Dams like Grand Coulee were "holy causes" to FDR, according to Brinkley, despite devastating environmental consequences for salmon and those that harvested that species.[255] Roosevelt's instinctive distrust of private utilities led him to favor public power and to countenance the damage that public dams produced. Brinkley succinctly captures the New Deal legacy: "While FDR deserves high marks for forestry, wildlife protection, state and national parks management, and soil conservation, his dams in the name of the 'public interest' devastated numerous riverine ecosystems."[256]

Among Roosevelt's most notable achievements was the CCC, which not only responded to the unemployment crisis of the Great Depression, but also did remarkable conservation work—conserving some 118 million acres, more land than in the state of California.[257] Perhaps his greatest conservation regret was his inability to convince Congress to make the CCC permanent,[258] something some of his successors have attempted unsuccessfully to replicate.[259] In an era threatened with potential catastrophic consequences due to climate change, the tree-planting program of the CCC would be, according to a leading environmental voice, a therapeutic antidote.[260]

Over seventy years after the New Deal, we now have an Administration that questions climate change and the Paris deal to curb greenhouse gas emissions and approves fossil-fuel pipelines over widespread local opposition.[261] We have a Congress that

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255. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 571.

256. *Id.* (mentioning not only the Columbia, *see supra* note 160, but also the Tennessee Valley and the Colorado). One might also criticize FDR for not anticipating the problems that widespread use of pesticide like DDT, would pose to the environment. *See supra* note 246 and accompanying text. But that would require wisdom few possessed twenty years before publication of Rachel Carson's *Silent Spring* in 1965, which Brinkley credits as the birth of "the modern environmental movement." BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 468. A more trenchant criticism would concern both FDR's and his CCC's willingness to plant non-native species. *Id.* at 498 ("planting" fish in wildlife refuges.). *See also supra* notes 195 (criticism of Aldo Leopold), 212 and accompanying text.

257. *Id.* at 582.

258. *See supra* notes 193, 237 and accompanying text.

259. BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 585–86 (discussing Bill Clinton's AmeriCorps and Barrack Obama's twenty-first century Conservation Corps, neither of which Congress funded at the level of the CCC); *see supra* note 199 (discussing calls for a revival of the CCC).

260. *Id.* at 586 (quoting Bill McKibben, founder of 350.org).

261. President Trump has vowed to cancel Paris climate change, although he later stated that he is keeping an "open mind" about it. *See* Coral Davenport, *Donald Trump Could Put Climate Change on Course for 'Danger Zone'*, N.Y. TIMES, Nov. 10, 2016, https://www.nytimes.com/2016/11/11/us/politics/donald-trump-climate-

rejected a carbon tax and scuttled regulatory initiatives designed to curb methane emissions and improve federal land planning.[262] We have states challenging national regulations curbing power plant emissions and restoring federal jurisdiction over activities damaging the nation's waters,[263] and trying to convince Congress to gift federal lands to the states.[264] With most branches of government apparently committed to anti-environmental, anti-federal government agenda, it may be of some consolation to know that there was a time, now some seventy years ago, when the federal government was looked upon as a large part of the solution

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change.html ("Mr. Trump has called human-caused climate change a 'hoax.' He has vowed to dismantle the Environmental Protection Agency 'in almost every form.'"); Timothy Cama, *Trump Softens Stance on Paris Climate Pact*, THE HILL (Nov. 22, 2016, 1:35 PM), http://thehill.com/policy/energy-environment/307211-trump-i-have-an-open-mind-on-paris-climate-pact. Mr. Trump also revived the Keystone XL pipeline that was rejected by President Obama and the Dakota Access pipeline. Both had stirred an intense debate and fierce opposition from local communities. *See* Peter Baker & Coral Davenport, *Trump Revives Keystone Pipeline Rejected by Obama*, N.Y. TIMES, Jan. 24, 2017, https://www.nytimes.com/2017/01/24/us/politics/keystone-dakota-pipeline-trump.html. *See generally* Michael C. Blumm & Olivier Jamin, *The Trump Public Lands Revolution: Redefining "the Public" in Public Land Law,* 48 ENVTL. L. no. 2 (forthcoming 2018), https://ssrn.com/abstract=3051026.

262. The House passed a GOP-backed resolution concluding that a carbon tax "would be detrimental to American families and businesses, and is not in the best interest of the United States." Timothy Cama, *House Votes to Condemn Carbon Tax*, THE HILL (June 10, 2016, 12:52 PM), http://thehill.com/policy/energy-environment/283029-house-condemns-carbon-tax. Congress rescinded a BLM regulation that would have made federal land use planning more efficient and accessible to the public and nearly did the same to the previous administration's methane-gas emission rule. *See* Chelsea Harvey, *Congress's Latest Target for Reversal: An Obama Attempt to Modernize How We Mange Public Lands*, WASHINGTON POST, Feb. 15, 2017, https://www.washingtonpost.com/news/energy-environment/wp/2017/02/15/a-public-land-management-rule-should-be-non-controversial-say-environmentalists-but-congress-is-trying-to-overturn-it/?utm_term=.fa256d9144e9; Matthew Daly, *House Votes to Overturn Obama Rule on Natural Gas 'Flaring'*, AP NEWS (Feb. 3, 2017), https://apnews.com/d84e8dd2a74042ed8d9e864fdb59d069/house-poised-overturn-obama-rule-natural-gas-flaring. *See also* Blumm & Jamin, *supra* note 261 (discussing these issues).

263. At least fifteen states challenged a rule curbing power plant emissions, while twenty-seven states challenged the new Clean Water rule. *See* Maureen Groppe, *States Must Wait to Challenge EPA Greenhouse Gas Curbs, U.S. Court Rules*, USA TODAY (June 9, 2015, 5:39 PM), http://www.usatoday.com/story/news/politics/2015/06/09/states-must-wait-to-challenge-epas-greenhouse-gas-curbs/28758529/; Timothy Cama, *27 States Challenge Obama Water Rule in Court*, THE HILL (June 30, 2015, 12:02 PM), http://thehill.com/policy/energy-environment/246539-27-states-challenge-obama-water-rule-in-court.

264. *See* Crady deGolian, *Western Lawmakers Call for Return of Public Lands to States*, CAPITOL IDEAS (CSG, Lexington, KY) (July–Aug. 2017), http://www.csg.org/pubs/capitolideas/enews/issue136_2.aspx (for Utah, Nevada, New Mexico, and Montana); Kirk Siegler, *Push to Transfer Federal Lands to States Has Sportsmen on Edge*, NPR, (Jan. 5, 2017, 5:00 AM), http://www.npr.org/2017/01/05/508018599/push-to-transfer-federal-lands-to-states-has-sportsmen-on-edge. Utah's transfer efforts may fail, but there is little question that the Zinke Interior Department aims to make federal public lands the centerpiece of a fossil fuel-dominated energy policy. *See* Blumm & Jamin, *supra* note 261.

to conservation problems, when a president was a tireless promoter of federal and state parks and forests, national monuments and wildlife refuges, and who put some three million people to work on conservation projects.[265] One hopes that the conservation ethic that drove FDR and his Administration will someday again be ascendant in American political life.[266]

An environmentalist's regret concerning the Roosevelt years would be the willingness of FDR to allow Harry Truman to be on the ticket with him in 1944 instead of the other finalist, William O. Douglas.[267] Douglas in the White House would have surely changed environmental history.[268] But whether he would have the remarkable legacy of FDR may well be doubted. Brinkley's book makes that clear that historians need to rethink the place of FDR in the environmental pantheon.[269] TR is surely not the only Roosevelt who deserves mention at the top of the list of environmentalist presidents.

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265. *See supra* notes 68–69 (federal and state parks and forests); note 233 and accompanying text (national monuments and wildlife refuges); note 69 (putting the unemployed to work on conservation).

266. *See supra* note 45 and accompanying text (describing Roosevelt's conservation ethic). FDR explained the New Deal environmental philosophy in the following terms: "Long ago, I pledged myself to a policy of conservation which would guard against the ravaging of our forests, the waste of our good earth and water supplies, the squandering of irreplaceable oil and mineral deposits, the preservation of our wildlife and the protection of our streams." BRINKLEY, RIGHTFUL HERITAGE, *supra* note 3, at 344.

267. *Id.* at 559 (explaining that FDR gave a list to the Democratic National Committee Chairman that had Douglas first and Truman second, but the chair, Robert E. Hannigan of Missouri, switched the names so that his fellow Missourian was on the top of the list).

268. Brinkley quotes Douglas as follows:

> We have lost much of our environment. We allow engineers and scientists to convert nature into dollars and into goodies. A river is a thing to be exploited, not to be treasured. A lake is better as a repository of sewage than as a fishery or canoe-way. We are replacing a natural environment with a symbolic one.

Id. at 559.

269. *See, e.g.*, Barbara Basbanes Richter, *A Tale of Two Roosevelts,* HIGH COUNTRY NEWS (Mar. 20, 2017), http://www.hcn.org/issues/49.5/a-tale-of-two-roosevelts (noting that despite FDR's attachment to highways and hydropower: "no president has done more to protect America's wilderness," and observing that Brinkley's book took a hundred pages of appendices to list all of Roosevelt's achievements, including conservation of 118 million acres, planting over three billion trees, and establishing hundreds of federal bird sanctuaries).

CONFLICTS AND LAUDATO SI': TEN PRINCIPLES FOR ENVIRONMENTAL DISPUTE RESOLUTION

LUCIA A. SILECCHIA*

I. INTRODUCTION TO THE PROBLEM

Unfortunately, conflicts are all too familiar in the modern world. Global conflicts claim and threaten the lives of many. Personal conflicts strike at the heart of families and friendships. Courts, workplaces, communities, the political process, mediating institutions, businesses, and media all seem fraught with conflicts that can unnecessarily divide rather than unite.

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Without a doubt, there is a certain amount of conflict that is helpful, and even vitally necessary, to any society. Without it, there is no healthy debate about things that matter, a diminished ability to reach compromises that may represent the best of competing ideas, and less opportunity to fight for those values that are held most dear. Many people accomplish some of the things about which they are most proud when a conflict of some kind moves them out of complacency and toward action on that which they believe to be good or important. However, when it comes to addressing and resolving conflicts, there are, quite simply, good ways and bad ways to do so.

The particular context of environmental law and policy making is one that is rife with conflict in the boardroom, in the courtroom, and in legislative chambers. The existence of conflicts—and the intractable nature of many of those conflicts—is particularly virulent and rampant in environmental law for many reasons:[1]

When environmental issues arise, they often cannot be limited to a single geo-political arena because, as is obvious, pollution travels. As a result, "global environmental problems require multi-faceted legal approaches that combine local, regional, national, and international public law."[2] Finding a single voice of authority to resolve a conflict does not happen easily.[3]

It is very frequently the case that environmental benefits and environmental burdens exist or arise far away from each other. Thus, attempting to solve environmental conflicts in anything

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1. For further discussion of the particular difficulties inherent in environmental disputes, see generally, Gail Bingham et al., *Effective Representation of Clients in Environmental Dispute Resolution*, 27 PACE ENVTL. L. REV. 61, 62–65 (2009).

2. Sarah E. Light & Eric W. Orts, *Parallels in Public and Private Environmental Governance*, 5 MICH. J. ENVTL. & ADMIN. L. 1, 4 (2015). For a case study dramatically illustrating this geopolitical complexity in the specific context of the Nile River, see Edna Udobong, *The Rising Conflict on the Nile Waters: Understanding its Legal, Environmental and Public Health Consequences*, 10 LIBERTY U. L. REV. 467 (2016). This is true in the domestic context as well as in the international context. *See e.g.*, Jack Tuholske & Mark Foster, *Solving Transboundary Pollution Disputes Locally: Success in the Crown of the Continent*, 92 OR. L. REV. 649, 663 (2014) ("The patchwork of federal, state, tribal, and county jurisdictions make ecosystem-based resource planning and protection a daunting task in the United States; each jurisdiction has a separate management plan, sometimes with conflicting goals and standards. While there are efforts to coordinate, different government agencies are subject to wide-ranging political influences and bureaucratic agendas.").

3. *See generally*, Light & Orts, *supra* note 2, at 4. Many of today's most challenging environmental problems—such as climate change, biodiversity loss, deforestation, loss of available land, nitrogen over-fertilization, destruction of the ocean's fisheries, and fresh water shortages—have defied easy governmental regulatory solutions. In our view, these kinds of global environmental problems require multi-faceted legal approaches that combine local, regional, national, and international public law.

more than a superficial way is a challenging proposition, as recent attempts at international negotiations have illustrated.[4]

Environmental conflicts nearly always involve balancing interests among multiple generations.[5] This requires weighing the interests of those who obtained advantages in the past, those who live with the consequences of the past today, and those to whom the world will be bequeathed in the future.

Environmental conflicts involve a level of expertise in science, technology, economics, and law that is often rare among those charged with resolving them.[6] Expertise in one of these areas may be common, but the ability to understand all of them and the ways in which they intersect is hard to come by.

Environmental disputes often involve a degree of both scientific uncertainty and differing viewpoints on the appropriate, moral, and efficient balance between reckless risk and paralyzing precaution in the face of such uncertainty.[7] This makes peaceful resolutions even harder to obtain.

Environmental problems can arise from multiple sources and the (often valuable or unavoidable) activity of multiple actors.[8]

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4. *See* Alessandra Lehmen, *The Case for the Creation of an International Environmental Court: Non-State Actors and International Environmental Dispute Resolution*, 26 COLO. NAT. RESOURCES, ENERGY & ENVTL. L. REV. 179, 183 (2015) ("In a world of political, economic, legal, geographic, and cultural interdependences, no individual state, as competent as it may be, is able to effectively deal with transnational problems, such as those associated with international environmental protection.").

5. *See* Edith Brown Weiss, *Our Rights and Obligations to Future Generations for Environment*, 84 AM. J .INT'L L. 198, 199 (1990) ("As members of the present generation, we hold the earth in trust for future generations. At the same time, we are beneficiaries entitled to use and benefit from it.").

6. *See, e.g.*, George Pring & Catherine Pring, *Twenty-first Century Environmental Dispute Resolution—Is There an "ECT" in Your Future*?, 33 J. ENERGY & NAT. RESOURCES L. 1, 17 (2015). The Prings argue in favor of specialized environmental courts and tribunals since "general court judges are, by their nature, legal generalists—not trained in environmental law let alone relevant environmental science and technology." *Id*. Furthermore, "even the basic concepts that arise in environmental cases—such as causation, damages, future impacts, sustainable development, the prevention principle, the precautionary principle, the polluter-pays principle, the no-harm rule and standards—require expertise that law-trained judges and decision-makers simply do not have." *Id.* at 23.

7. *See* Bingham et al., *supra* note 1, at 63 ("Environmental disputes also tend to involve complex technical issues and scientific uncertainty. There are typically gaps in scientific information, different models or assumptions for interpreting existing data, and multiple disciplines each with their own terminology and all of which complicate the dispute."). For a comprehensive analysis of the problem of uncertainty in environmental conflict and the role of perception, see generally, Michael Traynor, *Communicating Scientific Uncertainty: A Lawyer's Perspective*, 45 ENVTL. L. REP. NEWS & ANALYSIS 10159 (2015); John William Draper, *Human Survival, Risk, and Law: Considering Risk Filters to Replace Cost-Benefit Analysis*, 27 FORDHAM ENVTL. L. REV. 301, 393 (2016); Robert R. M. Verchick, *Culture, Cognition and Climate*, 2016 U. ILL. L. REV. 969, 1024 (2016).

8. *See* Thalia González & Giovanni Saarman, *Regulating Pollutants, Good Neighbor Agreements and Negative Externalities: Who Bears the Burden of Protecting Communities?*, 41 ECOLOGY L.Q. 37, 51 ("[E]xternalties are often concealed due to an inability to discern the exact source or responsible party to prove causation.").

Environmental conflicts create problems that need solutions—but the solutions themselves often create new problems.[9] Thus, while in some contexts environmental problems can involve conflicts between the good and the bad, sometimes they involve more intractable and ambiguous conflicts between the *possibly* good and the *possibly* bad.

Environmental conflicts involve high stakes because "they often involve actions that have irreversible impacts on the physical environment."[10] When a problem is both serious and irreversible, it is a conflict less amenable to compromise than a conflict with lower, more malleable costs.

Environmental conflicts involve many parties.[11] Both directly and indirectly, "[m]any diverse stakeholders are often involved in environmental disputes. These stakeholders may include members of the public, various levels of government, private industry, environmental and advocacy organizations, and nearby property owners. Resource and power disparities may arise between and among the stakeholders."[12] This is far more difficult to negotiate than a straightforward, bilateral dispute. Yet, "a crucial threshold issue is determining who should be at the table for negotiation."[13]

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9. *See, e.g.*, *id.* at 49 ("Striking this balance between specific and effective regulation to address social and environmental harms and the corresponding economic benefits of polluting activity is precisely the goal of successful environmental regulation. This socially desirable level of pollution, stemming from an efficient allocation of resources, is achieved when polluters are held for the associated costs of their activity, costs that are often imposed on third parties as negative externalities."). *See also id*. at 52 (noting that "avoiding the impact of pollution entails inconvenience and substantial cost.").

10. Bingham et al., *supra* note 1, at 63. *See also* Roni Elias, *Using ADR in Superfund Cases*, 63 FED. LAW. 54, 57 (2016) ("[C]ompromise and collaboration can be harder when negotiating outcomes that could be irreversible."); Michelle Ryan, *Alternative Dispute Resolution in Environmental Cases: Friend or Foe?*, 10 TUL. ENVTL. L.J. 397, 397 (1997) ("Because environmental disputes concern conflicts over the quality of life itself, the way in which we resolve these disputes will determine the future of our planet."); *id.* at 413 ("One of the most important features of environmental disputes is the fact that they typically involve "irreversible decisions" and implicate major alterationsto the physical environment. Such decisions often involve fundamental questions of values.").

11. *See generally*, Elias, *supra* note 10, at 57 ("[E]nvironmental disputes involve multiple parties, and multilateral negotiation is necessarily more complicated than its bilateral counterpart. These complications are even more pronounced when some of the parties are trying to vindicate interests, such as clean water or environmental integrity, which are not easily translated into quantifiable values."). *See also* Janet Martinez et al., *Upstream, Midstream, and Downstream: Dispute System Design for Sustainable Groundwater Management*, 13 U. ST. THOMAS L.J. 297, 301–02 (2017) (describing myriad stakeholders involved in groundwater disputes).

12. Allison Rose, *Mending the Fracture: Bringing Parties Together on High Volume Hydraulic Fracturing Through Alternative Dispute Resolution*, 5 KY. J. EQUINE, AGRIC. & NAT. RESOURCES L. 33, 60 (2012).

13. Michael Baram, *A New Social Contract for Governing Industrial Risk in the Community*, 56 JURIMETRICS J. 223, 233 (2016).

Environmental conflicts can be "complex and expensive."[14] They have been described, aptly, by one mediator/arbitrator as "some of the most interesting, challenging, complicated and daunting issues that a mediator may confront."[15] The costs of both environmental harm and environmental remediation are high and unpredictable. In this highly-charged context, conflicts escalate rapidly, and arguments can become extremely contentious extremely quickly.[16]

Environmental conflicts can also involve competition with other values that are also compelling—the need for economic development and opportunity; the desire for fuel and the benefits of comfort; and the desire to increase the production of and availability of essential or desired goods and services. Since these other values are not—and often should not be—easily compromised, resolving environmental disputes in a reasonable way is much more difficult than it would be if there were merely two competing values at stake.

Thus, into this world came *Laudato Si'*.[17] Pope Francis released this eagerly anticipated encyclical on June 18, 2015.[18] Indeed,

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14. Bingham *et al.*, *supra* note 1, at 62; Pring & Pring, *supra* note 6, at 21 ("The costs of a general court action can be daunting – potentially tens of thousands or even millions in U.S. dollars – to engage counsel, hire expert witnesses, perform discovery, conduct investigations and testing, spend days or weeks in trial, and then appeal an adverse decision. This results in many legitimate complaints going unfiled, unheard and unresolved.").

15. John Bickerman, *Using the Right Strategy to Mediate Environmental Disputes*, 67 DISP. RESOL. J. 9 (2012).

16. *See id.* at 9 (observing that conflicts over natural resources "have often simmered for decades, they tend to involve parties who are highly emotional about the issues and whose perspectives and cultural differences often polarize them from each other."); Michele Straub, *Report Card on Environmental Dispute Resolution in Utah-Grade: Incomplete but Showing Promise*, 28 J. ENVTL. L. & LITIG. 227, 248 (2013) (noting that environmental dispute resolutions "that engage potentially opposing views in dialogue can be time consuming, as strongly-held opinions and distrust of other stakeholders do not generally change overnight. It is particularly difficult to break down age-old barriers and build trust between historic opponents . . .").

17. Pope Francis, Encyclical Letter, *Laudato Si': On Care for Our Common Home* (May 24, 2015), http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html [hereinafter *Laudato Si*]. Pope Francis, while the first Pope to issue an encyclical directed toward environmental matters, is by no means the first or only Pope to have spoken of the moral issues linked to care for creation. His immediate predecessors spoke extensively on these issues. For example, Pope Paul VI sent a 1972 message to the United Nations Conference on the Environment in Stockholm. *See* Pope Paul VI, *Message of His Holiness Paul VI to Mr. Maurice F. Strong, Secretary General of the Conference on the Environment* (June 1, 1972), https://w2.vatican.va/content/paul-vi/en/messages/pont-messages/documents/hf_p-vi_mess_19720605_conferenza-ambiente.html [hereinafter *Paul VI Message*]. Both Pope John Paul II and Benedict XVI used the occasion of the January 1 World Day of Peace to deliver powerful messages on environmental matters. *See* Pope John Paul II, *Peace With God the Creator, Peace With All Of Creation* (Jan. 1, 1990), https://w2.vatican.va/content/john-paul-ii/en/messages/peace/documents/hf_jp-ii_mes_19891208_xxiii-world-day-for-peace.html [hereinafter *Peace With God the Creator*] and Pope Benedict XVI, *If You Want to Cultivate Peace, Protect Creation* (Jan. 1, 2010), https://w2.vatican.va/content/benedict-

"[t]he media coverage of this document has been unprecedented, including coverage in all the major newspapers and media outlets in the United States."[19] Much discussion of *Laudato Si'* in the popular press speaks of it narrowly as a "climate change" encyclical or, slightly more broadly, as an "environmental" encyclical.[20] Certainly, it is both of those things. But, in its pages lies a much broader analysis of the world's political, social, economic, physical, and spiritual state.[21] As one commentator

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xvi/en/messages/peace/documents/hf_ben-xvi_mes_20091208_xliii-world-day-peace.html [hereinafter *Protect Creation*]. For further background in the earlier roots of *Laudato Si'*, see generally, Lucia A. Silecchia, *Dialogue: The Morality of Market Mechanisms,* 46 ELR 10005, 10006-07 (2016) [hereinafter *Dialogue*]; Peter H. Raven, *Four Commentaries on the Pope's Message on Climate Change and Income Inequality,* 91 Q. REV. BIO. 247, 253, 255.

18. In the time since it was released, *Laudato Si'* has already generated much commentary. *See generally* Daniel Bodansky, *The Pope's Encyclical and Climate Change Policy: Should We Care What the Pope Says About Climate Change?*, 109 AJIL UNBOUND 127 (2015); Rachel Nadelman, *'Let Us Care For Everyone's Home': The Catholic Church's Role in Keeping Gold Mining Out of El Salvador* (CLALS Working Paper Series 9, Dec. 2015); John Nagle, *Pope Francis, Environmental Anthropologist*, 28 REGENT U. L. REV. 7 (2015); *Dialogue*, *supra* note 17; Andrea Tilche & Antonello Nociti, *Laudato Si'*; *The Beauty of Pope Francis' Vision*, 8 REV. OF ENVTL. ENERGY & ECONOMICS 1 (2015); Alessandro Spina, *Reflections on Science, Technology and Risk Regulation in Pope Francis' Encyclical Letter Laudato Si'*, 6 EJRR 579 (2015); Eduardo M. Peñalver, *Carbon Trading and the Morality of Laudato Si'*, (Cornell Legal S. Research Paper No. 17-3 (2017)); Lucia A. Silecchia, *"Social Love" as a Vision for Environmental Law: Laudato Si' and the Rule of Law*, 10 LIBERTY U. L. REV. 371 (2016); Dale Jamieson, *The Pope's Encyclical and Climate Change Policy: Theology and Politics in Laudato Si'*, 109 AJIL UNBOUND 122 (2015); Christopher Hrynkow, *The Pope, the Planet, and Politics: A Mapping of How Francis is Calling for More Than the Paris Agreement*, 59 J. CHURCH & STATE 1 (2016); Jonas J. Monast et al., *On Morals, Markets, and Climate Change: Exploring Pope Francis' Challenge*, 80 LAW & CONTEMP. PROBS. 135 (2017); W. David Montgomery, *The Flawed Economics of Laudato Si',* 50 THE NEW ATLANTIS 31 (2016); Jeffrey Mazo, *The Pope's Divisions*, 57 SURVIVAL 203 (2015); Anna Rowlands, *Laudato Si': Rethinking Politics,* 16 POLITICAL THEOLOGY 418 (2015); Christiana Z. Peppard, *Pope Francis and the Fourth Era of the Catholic Church's Engagement with Science*, 71 BULLETIN OF THE ATOMIC SCIENTISTS 31 (2015); Edward Maibach et al., *The Francis Effect: How Pope Francis Changed the Conversation About Global Warming,* GEORGE MASON UNIVERSITY CENTER FOR CLIMATE CHANGE COMMUNICATION & YALE PROGRAM ON CLIMATE CHANGE COMMUNICATION (Nov. 2015), http://climatecommunication.yale.edu/wp-content/uploads/2015/11/The_Francis_Effect.pdf; Stephen Schneck, *Review of Pope Francis Laudato Si': On Care for Our Common Home*, 37 ENERGY L. J. 79 (2016); Gerardo Ceballo, *Pope Francis' Encyclical Letter Laudato Si': Global Environmental Risks and the Future of Humanity*, 91 Q. REV. OF BIOLOGY 285 (2016); Raven, *supra* note 17; Mary Evelyn Tucker & John Grim, *Integrating Ecology and Justice: The Papal Encyclical,* 91 Q. REV. OF BIOLOGY 261 (Sept 2016); Calvin B. DeWitt, *Earth Stewardship and Laudato Si'*, 91 Q. REV. OF BIOLOGY 271 (Sept. 2016); Emma Green, *The Pope's Moral Case for Taking on Climate Change*, THE ATLANTIC (June 18, 2015), https://www.theatlantic.com/international/archive/2015/06/pope-francis-encyclical-moral-climate-change/396200/.

19. Tucker & Grim, *supra* note 18, at 261.

20. *See generally*, *supra* note 18. As is obvious from the titles of these media reports, the climate change issue in *Laudato Si'* captured popular attention.

21. This is certainly not the first time in which a broad view of environmental matters has been proposed. This has been done repeatedly in the secular context as well. Domestically, the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 (1970) [hereinafter NEPA] articulated a comprehensive vision for the future of the human race and environment. Internationally, the landmark Declaration of the United Nations Conference

noted, "it is an encyclical about humanity."[22] As part of this discourse on the state of humanity, the question of conflicts naturally arises, as conflicts often define important aspects of human life. However, a careful reading of *Laudato Si'* also reveals a roadmap for the ways in which contemporary conflicts and disputes over environmental issues can best be managed and resolved.

II. LAUDATO SI' AND ENVIRONMENTAL DISPUTE RESOLUTIONS

Laudato Si' is, frankly, not an optimistic account of the world.[23] Indeed, Pope Francis himself described his reflections in *Laudato Si'* as "both joyful and troubling."[24] Indeed, it was, since its "analysis of our moral shortcomings as creation's caretakers [was] unsparing."[25] It is safe to assume that Pope Francis was and is fully aware of the contentious, pessimistic nature of environmental

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on the Human Environment, *see* U.N. Conference on the Human Environment, *Report of the U.N. Conference on the Human Environment,* U.N. Doc. A/CONF.48/14/Rev.1 (June 5–16, 1972) [hereinafter *Stockholm Declaration*]; and the Rio Declaration on Environment and Development, *see* U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26/Rev.1 (Vol.1), (Aug. 12, 1992) [hereinafter *Rio Declaration*] also articulate broad principles for environmental and sustainability questions. These issues were explored even more fully in the World Commission on Environment and Development's *Toward Our Common Future* report, *see* World Comm'n on Env't and Dev., Toward Our Common Future, U.N. Doc. A/42/427 (1987) (available at http://www.un-documents.net/wced-ocf.htm) [hereinafter *Brundtland Repor*t], and the more recent the 2030 Agenda for Sustainable Development resolution, *see* G.A. Res. 70/1 (September 25, 2015) (available at http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E) [hereinafter *2030 Agenda*].

22. Nagle, *supra* note 18, at 10. *See also* Green, *supra* note 18 (describing *Laudato Si'* as focused more on humans than nature).

23. *See, e.g.*, Nagle, *supra* note 18, at 8 ("The rhetoric often takes an apocalyptic turn, suggesting that the world on which we depend is in such dire straits that we must take fundamental, immediate action to avert an ecological catastrophe.14 Such warnings are typically accompanied by evidence of how bygone civilizations collapsed because of their abuse of the environment. Francis adopts such an approach in his encyclical." (citation omitted)). *See also* Green, *supra* note 18 (observing that Pope Francis "rattles off fact after fact about the pitiful state of the earth"). For a different perspective, however, see Ceballo, *supra* note 18, at 285 ("We need hope. And that is what Pope Francis gave us when he published his most inspiring and unexpected Encyclical Letter."); *id*. at 293 (describing *Laudato Si'* as "a call to action and breath of fresh air and hope in times of darkness"); and Todd Edwards & Matt Russell, *Earth Friendly Agriculture for Soil, Water and Climate: A Multijurisdictional Cooperative Approach*, 21 DRAKE J. AGRI. L. 325, 342 (2016) ("*Laudato Si'* provides hopefulness for humanity in the face of an ecological crisis. The call to action is urgent and the identifying of accountability is razor sharp. Yet, the encyclical celebrates the possibilities for humanity to solve the problems. The Pope suggests people are capable of finding the technical solutions so long as they are moved by the moral argument for action.").

24. *Laudato Si', supra* note 17, ¶ 246.

25. Schneck, *supra* note 18, at 80.

debates[26] and the compelling need for effective, ethical and, even, holy ways to resolve conflicts in this arena.

Laudato Si' is not a reference work, a legal analysis, or a detailed blueprint for environmental dispute resolution. However, a framework for effective and ethical dispute resolution can be gleaned in its pages. There are at least ten key principles embedded in it that define Pope Francis' view on conflict resolution in the environmental context. These are principles that are applicable—albeit in different practical ways—whether those conflicts are resolved in the courtroom by adversaries embroiled in a bitter dispute; in a corporate board room where competing interests are hotly contested; in a legislative chamber where complex compromises are being sought; at a negotiating table where parties who may or may not be equals try to hammer out agreements on issues of great import; in the international arena where nations in vastly different circumstances seek common ground; or in the political arena where rhetoric runs hot and delicate, and nuanced negotiations seem rare.

A. Principle One: Stakeholder Involvement Should Be Expansive

First, *Laudato Si'* stresses the critical importance of having all stakeholders actively involved in the process of conflict resolution. Pope Francis himself says in the opening pages of *Laudato Si'*, "I wish to address every person living on this planet. . . . I would like to enter into dialogue with all people about our common home."[27] He also expresses a desire to "bring the whole human family together to seek a sustainable and integral development,"[28] believing that "[w]e need a conversation which includes everyone, since the environmental challenge we are undergoing, and its human roots, concern and affect us all."[29]

Obviously, in the literal sense, dispute resolution cannot include dialogue with all seven billion people on the planet. In fact, some environmental disputes will appear to involve discrete parties with well-known and clearly articulated interests. In this context, "lawyers generally seek to keep as many people out of the legal proceeding as possible, e.g., by contesting disputants' legal

26. *See Laudato Si', supra* note 17, ¶ 113. ("There is also the fact that people no longer seem to believe in a happy future; they no longer have blind trust in a better tomorrow based on the present state of the world and our technical abilities.").

27. *Laudato Si', supra* note 17, ¶ 3.

28. *Id.* ¶ 13.

29. *Id.* ¶ 14.

rights to bring claims against their client."[30] Yet, Pope Francis believes that there are often parties deeply affected by environmental disputes whose voices are never heard, whose insights are never sought, and who are often spoken *of* or *about* and not *with*. He fears that the poor and excluded "are mentioned in international political and economic discussions but … [with] the impression that their problems are brought up as an afterthought, a question which gets added almost out of duty or in a tangential way, if not treated merely as collateral damage."[31]

This can certainly be inadvertent, but it can also be intentional. It can be caused by a well-intended paternalism, by simple carelessness, or by a more sinister desire to dominate those who are weaker. In any of these scenarios, the interests of those who can be deeply affected are not fully addressed in a meaningful way. Alternatively, their interests may not be addressed until it is too late to do anything meaningful to respond to them. Or, those who purport to represent their interest may not truly understand their needs, values and concerns, and may, even with the best of intentions, create new problems as intractable as the ones they are endeavoring to resolve.

This most directly harms those who cannot weigh in on the issues that may directly and detrimentally impact them. Moreover, it harms the decision-making process itself, because it may mean that critically important facets of a problem are overlooked since "people closer to an environmental problem possess information that the government might not have."[32] Pope Francis attempts to diagnose the reasons for this:

> [M]any professionals, opinion makers, communications media and centers of power, being located in affluent urban areas, are far removed from the poor, with little direct contact with their problems. They live and reason from the comfortable position of a high level of development and a quality of life well beyond the reach of the majority of the world's population. This lack of physical contact and encounter, encouraged at times by the disintegration of our cities, can lead to a numbing of conscience and to

30. Bingham et al., *supra* note 1, at 76.

31. *Laudato Si', supra* note 17, ¶ 49. *See also* Gonzalez & Saarman, *supra* note 8 at 39 ("[C]ommunities that have traditionally experienced pollution disproportionately are often the same communities that have been excluded from environmental decision-making processes.").

32. Jeff Todd, *Trade Treaties, Citizen Submissions and Environmental Justice*, 44 ECOLOGY L. Q. 89, 94 (2017).

> tendentious analyses which neglect parts of reality. At times, this attitude exists side by side with a "green" rhetoric.[33]

This critique is, unfortunately, one that is frequently directed toward environmental advocates.[34] Like all generalizations, it is overbroad. Yet, there is a certain truth to the critique. Paradoxically, at the same time that modern life brings more facts, information, and data about the perspectives of other stakeholders in environmental disputes,[35] it can simultaneously "shield us from direct contact with the pain, the fears and the joys of others and the complexity of their personal experiences."[36] Thus, as a primary mandate, *Laudato Si'* urges that disputes be resolved with all interested parties participating or being represented in meaningful ways.[37]

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33. *Laudato Si', supra* note 17, ¶ 49. Pope Francis reiterates this theme more fully when he offers a concrete example. *Id.* ¶ 142 ("What takes place in any one area can have a direct or indirect influence on other areas. Thus . . . drug use in affluent societies creates a continual and growing demand for products imported from poorer regions where behavior is corrupted, lives are destroyed, and the environment continues to deteriorate."). Pope Paul VI recognized this over four decades ago, warning the United Nations that "[a]n abuse, a deterioration in one part of the world has repercussions in other places and can spoil the quality of other people's lives, often unbeknownst to them and through no fault of their own." *Paul VI Message*, *supra* note 17. *See also Protect Creation*, *supra* note 17, ¶ 11 ("We cannot remain indifferent to what is happening around us for the deterioration of any one part of the planet affects us all."); *id.* ¶ 12 ("The book of nature is one and indivisible. It includes not only the environment but also individual, family and social ethics.").

34. *See* Michael Foard Heagerty, Comment, *Crime and the Environment – Expanding the Boundaries of Environmental Justice*, 23 TUL. ENVTL. L.J. 517, 523 (2009) ("Public awareness and academic study are steps in the right direction, but the movement must affect an end to injustice on the ground-level if it is to be judged a true success. . . . [M]any of the communities most severely affected by the hazards of toxic exposure are not able to socially or politically organize to the extent necessary to bring about meaningful change.").

35. *See, e.g.*, Todd, *supra* note 32, at 120 ("The internet is a popular tool for justice advocates because websites are inexpensive and easy to maintain, plus they have a worldwide reach that allows for information about foreign struggles to reach U.S. audiences.").

36. *Laudato Si', supra* note 17, ¶ 47. *But see* Bingham et al., *supra* note 1, at 96 (outlining various ways in which the internet and other modern technology may provide "numerous benefits, not the least of which is its ability to involve more participants in the process and lower the costs of participation . . . [it] may create new opportunities for enhanced interactivity, draw more people into the process, and help stakeholders to conceptualize competing interests in a more tangible manner").

37. Obviously, this is not the only place in which the need for such broad participation has been urged. *See, e.g.*, *Rio Declaration*, *supra* note 21, Principle 10 ("Environmental issues are best handled with the participation of all concerned citizens, at the relevant level.").

B. Principle Two: "Environmental" Issues Should Be Defined Broadly

Second, Pope Francis is concerned that environmental disputes are viewed far too narrowly. He urges constant consideration of the many inter-related issues that are affected by environmental problems.

Certainly, a narrow view of decision-making is tempting as this is an era of increased, and often beneficial, specialization. Indeed, "[e]nvironmental issues span a vast range of topics, including natural resources, land use, ocean uses and pollution energy, air and water pollution and climate change."[38] When an environmental dispute arises, it is tempting to seek solutions to the specific problem by addressing solely those pressing environmental concerns that need to be resolved at that very moment in time.[39] This may involve defining a problem narrowly and consulting those who can explore that narrow problem in impressive depth.

Pope Francis adds a new and significant challenge to the scope of environmental dispute resolution. He repeatedly emphasizes that environmental issues are intimately connected with so many other issues, which must no longer be seen as tangents but as integral to resolving environmental disputes.[40] This is a tall order! He says, since "everything in the world is connected,"[41] our "world cannot be analyzed by isolating only one of its aspects."[42] Rather,

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38. Kayla Kelly-Slatten, *UNCITRAL Transparency: An Examination of the 2014 International Arbitration Transparency Rules and Their Effect on Investor-State Environmental Disputes and Economic Fairness*, 8 U.B. ON ARB. & MEDIATION 94, 102 (2016). In *Laudato Si'*, Pope Francis certainly takes on this "entire litany of environmental problems." Bodansky, *supra* note 18, at 127.

39. Pope Benedict XVI also recognized that environmental problems often involve a wide array of issues. He asked, "Can we remain indifferent before the problems associated with such realities as climate change, desertification, the deterioration and loss of productivity in vast agricultural areas, the pollution of rivers and aquifers, the loss of biodiversity, the increase of natural catastrophes and the deforestation of equatorial and tropical regions?" *Protect Creation*, *supra* note 17, ¶ 4.

40. In this, he echoes the insight of Pope John Paul II who warned,

> An adequate solution cannot be found merely in a better management or a more rational use of the earth's resources, as important as these may be. Rather, we must go to the source of the problem and face in its entirety that profound moral crisis of which the destruction of the environment is only one troubling aspect.

Peace With God the Creator, supra note 17, ¶ 5. *See also Protect Creation, supra* note 17, ¶ 5. ("[T]he ecological crisis cannot be viewed in isolation from other related questions, since it is closely linked to the notion of development itself and our understanding of man in his relationship to others and to the rest of creation.").

41. *Laudato Si', supra* note 17, ¶ 16.

42. *Id.* ¶ 7.

in a deeply profound way, he says that "the bond is between concern for nature, justice for the poor, commitment to society and interior peace."[43]

In light of this, any environmental dispute must, according to *Laudato Si'*, address such intangibles as justice, commitment, and peace. As most scientists and ecologists already know, and as Pope Francis recognizes, there is a "mysterious network of relations between things and so [we] sometimes solve[] one problem only to create others."[44] He observes that "[w]e cannot adequately combat environmental degradation unless we attend to causes related to human and social degradation."[45] This is because "the analysis of environmental problems cannot be separated from the analysis of human, family, work-related and urban contexts, nor from how individuals relate to themselves, which leads in turn to how they relate to others and to the environment."[46] This exponentially increases the work for the environmental problem-solver! However, it is a challenge in environmental dispute resolution to view the task of problem-solving in the broadest possible way.

In one sense, this is inspiring. It situates what can be an otherwise cold, technical, scientific, or legal dispute squarely at the heart of the common good and all the moral, economic, social, and political dimensions that this entails. It truly "aims at presenting a holistic approach"[47] to solving environmental problems and disputes. Yet, it exponentially increases the complexity of environmental problems because it places them at the heart of a more profound and comprehensive inquiry into all aspects of life in this world, as Pope Francis' view would "make it increasingly untenable to separate social, political, and ecological action."[48]

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43. *Id.* ¶ 10. In a similar vein, Pope John Paul II argued that "proper ecological balance will not be found without directly addressing the structural forms of poverty that exist throughout the world." *Peace With God the Creator, supra* note 17, ¶ 11.

44. *Laudato Si', supra* note 17, ¶ 20.

45. *Id.* ¶ 48. Pope Francis returns to this theme frequently in *Laudato Si'*. *See id.* ¶ 89 ("[A]all of us are linked by unseen bonds and together form a kind of universal family, a sublime communion which fills us with a sacred, affectionate and humble respect."); *id.* ¶ 142 ("If everything is related, then the health of a society's institutions has consequences for the environment and the quality of human life."); *id.* ¶ 139 ("Recognizing the reasons why a given area is polluted requires a study of the workings of society, its economy, its behavior patterns, and the ways it grasps reality. . . . [I]t is no longer possible to find a specific, discrete answer for each part of the problem. It is essential to seek comprehensive solutions which consider the interactions within natural systems themselves and with social systems.").

46. *Id.* ¶ 141.

47. Spina, *supra* note 18, at 5. *See also* Mazo, *supra* note 18, at 204 (noting the broad, interdisciplinary approach to ecology featured in *Laudato Si'* and observing that "[c]hallenges such as pollution, water security and biodiversity are given equal (or greater) space, and collectively they are coupled with social problems such as the declining quality of life, global inequality and weak international policy making").

48. Hrynkow, *supra* note 18, at 381.

C. Principle Three: Intergenerational Obligations Are Sacred and Need Protection

Third, in *Laudato Si'*, Pope Francis stresses the intergenerational character of our responsibilities, and warns that, "[w]e can be silent witnesses to terrible injustices if we think that we can obtain significant benefits by making the rest of humanity, present and future, pay the extremely high costs of environmental deterioration."[49] Often, in different contexts, the pursuit of the intragenerational "common good" is invoked with respect to obligations that flow to contemporaries.[50] However, in the environmental context, Pope Francis warns that:

> The notion of common good also extends to future generations. . . . Once we start to think about the kind of world we are leaving to future generations, we look at things differently; we realize that the world is a gift which we have freely received and must share with others. Since the world has been given to us, we can no longer view reality in a purely utilitarian way.[51]

The intergenerational character of environmental matters is not a new reflection.[52] Indeed, what makes the case for environmental protection so compelling is the fact that the consequences of environmental abuses are often felt far into the future. Likewise, and in a positive way, some of the most valuable benefits of present prudence will be enjoyed by those born far in the future. Scientists and secular commentators alike share Pope Francis' view that there is a moral imperative for considering the

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49. *Laudato Si', supra* note 17, ¶ 36.

50. *See Paul VI Message*, *supra* note 17 ("Interdependence must now be met by joint responsibility; common destiny by solidarity"); *Protect Creation, supra* note 17, ¶ 2 ("The environment must be seen as God's gift to all people, and the use we make of it entails a shared responsibility for all humanity, especially the poor and future generations.").

51. *Laudato Si', supra* note 17, ¶ 159.

52. Prior popes emphasized this as well. *See Paul VI Message, supra* note 17, ¶ 4 ("[O]ur generation must energetically accept the challenge of going beyond partial and immediate goals in order to prepare a hospitable earth for future generations."); *Peace With God the Creator, supra* note 17, ¶ 6 ("[W]e cannot interfere in one area of the ecosystem without paying due attention both to the consequences of such interferences in other areas and to the well-being of future generations."); *Peace With God the Creator, supra* note 17, ¶ 15 (noting the "grave responsibility to preserve this order for the well-being of future generations"); *Protect Creation, supra* note 17, ¶ 7 (warning that ecological exploration "is seriously endangering the supply of certain natural resources not only for the present generation, but above all, for generations yet to come"); *Protect Creation, supra* note 17, ¶ 8 ("[I]ntergenerational solidarity is urgently needed. Future generations cannot be saddled with the cost of our use of common environmental resources.").

consequences of environmental harm to those who will come afterwards.[53] However, the challenge that *Laudato Si'* poses for those interested in dispute resolution is a practical one: How are intergenerational concerns properly made part of dispute resolution? Who represents future generations? How should predictive models be assessed? How optimistic or pessimistic should we be about the ability of technology to resolve problems for future generations in ways unimaginable today? How does intergenerational well-being conflict with intragenerational well-being?[54] Whose interests should prevail in a situation in which the harm to currently living people is known and the potential harm to those in the future is less certain to take place? *Laudato Si'* offers no easy answers to these questions. Yet, it teaches that ignoring these issues imperils both current and future generations.[55]

Certainly, intergenerational responsibility is not solely a religious concept. Both the Stockholm Declaration[56] and the Rio Declaration[57] refer to it in their own ways on an international scale

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53. *See e.g.*, J. Michael Angstadt, *Securing Access to Justice Through Environmental Courts and Tribunals: A Case in Diversity*, 17 VT. J. ENVTL L. 345, 369 (2016) (noting that "intergenerational equity [is] something that environmental policy makers have long identified as crucial to durable sustainability").

54. This tension also concerned Pope Benedict XVI who warned, "[T]here is . . . an urgent moral need for a renewed sense of intergenerational solidarity, especially in relationships between developing countries and highly industrialized countries." *Protect Creation, supra* note 17, ¶ 8.

55. Obviously, this is not a matter of concern only within the environmental movement. Indeed, the concept of intergenerational solidarity has become such an important part of Catholic social thought that it has been the recent topic of intense study by the Pontifical Academy of Social Sciences, which has, in recent years, devoted several of its plenary sessions to discussion of this topic. *See* MARY ANN GLENDON, ED., INTERGENERATIONAL SOLIDARITY, WELFARE AND HUMAN ECOLOGY: THE PROCEEDINGS OF THE TENTH PLENARY SESSION OF THE PONTIFICAL ACADEMY OF SOCIAL SCIENCES, April 29–May 3, 2003.

56. *Stockholm Declaration*, *supra* note 21, at 6 (speaking of the need to "defend and improve the human environment for present and future generations."); *id*. Principle 1 (articulating the "solemn responsibility to protect and improve the environment for present and future generations."). The Stockholm Declaration was adopted by the United Nations Conference on the Human Environment in 1972. *See* David A. Wirth, *The Rio Declaration on Environment and Development: Two Steps Forward and One Back, or Vice Versa?*, 29 GA. L. REV. 599, 602 (1995). "The conference declaration contains 26 principles and an action plan including 109 recommendations for future implementation . . . ." Specifically, "Principle 1 declares a solemn responsibility to protect and improve the environment for present and future generations … Principle 2 asserts that natural resources, including air, water, land, flora, and fauna, must be safeguarded for the benefit of present and future generations." *Id.* In fact, without explicitly mentioning "future generations," Stockholm Principle 5 warns against "future exhaustion of nonrenewable resources." *Id*.

57. *Rio Declaration*, *supra* note 21, Principle 3 ("The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations."). The Rio Declaration was adopted by the United Nations Conference on Environment and Development in 1992. *See* Susan L. Smith, *Ecologically Sustainable Development: Integrating Economics, Ecology, and Law*, 31 WILLAMETTE L. REV. 261, 265 (1995). ("The Rio Declaration declares the principles that humanity is at the focus of environmentally sustainable development and that, although each nation is the sovereign holder of its own resources, international cooperation is needed to ensure that the

while, domestically, the eloquent National Environmental Policy Act does so, as well.[58] It is a moral demand for a selflessness in dispute resolution that will extend environmental protections to those who will live far in the future and never be known by those who respect their interests by planning wisely and well.

D. Principle Four: The Rule of Law Is Critically Important

Fourth, *Laudato Si'* speaks of the importance of a sound set of laws, calling for the "establishment of a legal framework which can set clear boundaries and ensure the protection of ecosystems[;] . . . otherwise, the new power structures based on the techno-economic paradigm may overwhelm not only our politics but also freedom and justice."[59] Pope Francis worries that "lack of respect for the law is becoming more common. Laws may be well framed yet remain a dead letter. Can we hope, then, that in such cases, legislation and regulations dealing with the environment will really prove effective?"[60]

Those considering dispute resolution in the environmental context have had to grapple with the proper role of a legal framework. On the one hand, there seems to be no legal framework capable of resolving all disputes—and it is also doubtful that there should be one. The need to respond strategically and effectively to unforeseen problems and rapidly changing conditions seems to warrant a more flexible legal framework. Likewise, there are limits to what law can realistically accomplish, and it can be short-sighted to place too much confidence in law, while ignoring other necessary ingredients in forming solutions to the world's most intractable problems.[61]

Yet, as Pope Francis noted—although for perhaps different reasons—those interested in dispute resolution must recognize that a sound set of legal principles with clear rights and responsibilities is necessary. If for no other reason, negotiations and compromises must take place in the light of respected principles. Otherwise, the strongest will always win, and those parties who are weaker and more fragile will have no legal

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development of those resources equitably meets the needs of both the present and future generations.").

58. NEPA, *supra* note 21.

59. *Laudato Si'*, *supra* note 17, at 53.

60. *Id.* ¶ 142.

61. At a fundamental level, "[a] long-running tension in legal matters has always been to determine the appropriate line between what can be achieved by individual morality and when the coercive force of law is required to supplement and incentivize individual moral decisions." Silecchia, *supra* note 18, at 394.

safety-net to secure their claims.[62] It is often the case that "[p]ublic rules embody a degree of accountability and transparency that private environmental governance cannot always achieve."[63] Indeed, this has been cited as the reason why "[l]itigation is – the better option for those looking to establish or confirm a legal entitlement or principle."[64] Yet, *Laudato Si'* recognizes that "[a]ttempts to resolve all problems through uniform regulations or technical interventions can lead to overlooking the complexities of local problems which demand the active participation of all members of the community."[65]

Finding the balance between a rule of law that stifles and a rule of law that sustains is no easy task. Nevertheless, both Pope Francis and those engaged in resolving disputes understand that without clear rules, there is no pathway forward in fairness. These rules may be cumbersome to create, enact, and interpret. They also involve the commitment of many levels of authority from the global to the local.[66] But without rules and guidelines as a stable starting point,[67] dispute resolution of any type rests on a weak foundation that leaves the vulnerable at greater risk.[68]

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62. *See id.* at 376 ("Pope Francis views law as, perhaps, the only force strong enough and comprehensive enough to serve as a bulwark against an economic system that he believes has been destructive of human and natural ecology.").

63. Light & Orts, *supra* note 2 at 63.

64. Bingham et al., *supra* note 1, at 67. *See also* Joseph A. Siegel, *Alternative Dispute Resolution in Environmental Cases: A Call for Enhanced Assessment and Greater Use*, 24 PACE ENVTL. L. REV. 187, 204 (2007) ("[T]here may be cases in which it is in a party's interest to litigate in order to establish legal precedents.").

65. *Laudato Si', supra* note 17, ¶ 144.

66. *See Protects Creation, supra* note 17, ¶ 8 (noting that "the duty of gradually adopting effective environmental measures and policies is incumbent upon all"). This is derived from the classic principle of subsidiarity in which "the necessity of spaces allow[s] the smallest possible political units to make decisions supportive of peace, social justice and the common good." Hrynkow, *supra* note 18, at 12 (recognizing that national and international laws play a vital back-up role). *See also* Silecchia, *supra* note 18, at 382 ("While it is certainly true that environmental harms travel and that there is a place for broad initiatives . . . . various locations – due to their typography, geology, level of industrialization, degree of economic development, and the presence, *vel non*, of particularly fragile resources – have needs that differ greatly."); Nagle, *supra* note 18, at 40 ("The claim of subsidiarity is that laws should be made by the government that is closest to the people that can successfully address the problem at hand."); Tuholske & Foster, *supra* note 2, at 684 (describing subsidiarity as a guide that "embraces the concept that problems should be solved and action should be taken at the lowest level of governance appropriate to the situation").

67. *See, e.g. Rio Declaration*, *supra* note 21, Principle 11 ("States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply.").

68. Although often maligned, an adversarial litigation process is, at times, an essential supplement to the more collegial rule-making process. For discussion of this in the domestic context, see Carol E. Dinkins, *Shall We Fight or Will We Finish: Environmental Dispute Resolution in a Litigious Society*, 14 ELR 10398, 10399 (1984) ("Although litigation is often cumbersome, divisive and costly, it does serves an essential function in the dispute resolution process. Congress at best is often imprecise. Congress creates it laws in a climate of competing interests where conflict is ultimately forged into compromise. The resulting

E. Principle Five: Honesty Is a Critical Virtue for Dispute Resolution

Fifth, *Laudato Si'* points to the importance of honesty in problem solving, saying that "[h]onest debate must be encouraged among experts, while respecting divergent views."[69] This would seem to be self-evident as a basic principle of dispute resolution in any field. However, Pope Francis expands upon it in his discussions.

When Pope Francis speaks of honesty, he alludes to two important, intertwined types of honesty. The first is the obvious one: negotiations may not be built on or supported by claims of fact, law, science, or economics that are not true. Very few would argue this point—respecting it, at least in theory, if not in practice. However, there is a different type of honesty that *Laudato Si'* demands—and it is much harder to achieve. It is an honesty that insists that the motives behind arguments and recommendations be assessed thoroughly and thoughtfully, and that political and economic biases not enter into the calculations when assessing accuracy.[70]

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products often contain ambiquities, apparently irreconcilable provisions and indefinite standards. Litigation is an important tool to sharpen and hone legal requirements and to define more clearly the respective rights and responsibilities of parties under law."). *See also id.* ("[L]itigation is often necessary to define the roles, rights, and responsibilities of the various institutions and branches of government regulating environmental matters."). A similar point was raised in Aileen Carlos, *Perspectives from Practitioners: An Inside Look at Dispute Resolution*, 28 J. ENVTL. L. & LITIG. 287, 289 (2013) (quoting an observation of Elena Gonzalez that "[a]nything that needs a precedent for key parties and stakeholders should go through the adversarial process"(citation omitted)); James Diskint, Note, *Safe and Sound: How ADR Can Protect Aquatic Life and National Security*, 16 CARD. J. CONFLICT RES. 965, 994–95 (2015) ("As a result, a party desirous of establishing a legal precedent for future similar disputes is well advised to litigate the matter."); Elias, *supra* note 10, at 58 ("Some argue that traditional litigation is preferable to ADR because it generates judicial decisions that involve clear legal rules with precedential effect. . . . If too many cases are settled without any litigation or judicial decisions, it will be difficult for the parties in subsequent cases to accurately determine the relative strength and weakness of their positions and, therefore, to negotiate effectively for a non-judicial solution."). *See also* Ryan, *supra* note 10, at 413 ("Many of the courtroom procedures involved in traditional litigation developed as a means of ensuring due process and the protection of parties."); Todd, *supra* note 32, at 100 ("Litigation has rhetorical purposes, such as bolstering the community campaign by providing a key data point to articulate a message, identify shared interests, and build a coalition, as well as indirectly attacking the agent of harm by engaging additional stakeholders such as regulators. Litigation also gives plaintiffs the opportunity to negotiate and perhaps force a settlement, which can go beyond compensation to include abatement or reduction of the harmful activity and remediation of polluted sites.").

69. *Laudato Si', supra* note 17, ¶ 61.

70. This can easily become problematic in the environmental context where "[c]ommunications about scientific uncertainty can become polarized and political, with zealous protestations and apocalyptic warnings on one side and self-serving justifications and denials on the other. Both are barriers not only to effective communication and

He says, "Honesty and truth are needed in scientific and political discussions; these should not be limited to the issue of whether or not a particular project is permitted by law."[71] This means that:

> [B]road, responsible scientific and social debate needs to take place, one capable of considering all the available information and of *calling things by their name*. It sometimes happens that complete information is not put on the table; a selection is made on the basis of particular interests, be they politico-economic or ideological. This makes it difficult to reach a balanced and prudent judgment on different questions, one which takes into account all the pertinent variables. Discussions are needed in which all those directly or indirectly affected … can make known their problems and concerns, and have access to adequate and reliable information in order to make decisions for the common good, present and future.[72]

He begs for "reflection and debate about the conditions required for the life and survival of society, and the honesty needed to question certain models of development, production and consumption."[73] Absent this, "[t]he culture of consumerism, which prioritizes short-term gain and private interest, can make it easy to rubber-stamp authorizations or to conceal information."[74] Many may not necessarily view this as fitting the common definition of dishonesty. Yet, *Laudato Si'* demands this broader view that ensures not only that what is said is scrupulously accurate, but that it is not misleading; that it is not based on willful ignorance or neglect of facts; and that it is honestly updated to reflect newly acquired knowledge, even when inconvenient to one's political or economic interest.

Laudato Si's warnings about dishonesty in dispute resolution are dire ones. Yet, they are also realistic. Those who are involved in dispute resolution may pride themselves on being beyond reproach when it comes to the honesty of the statements they make. But, it is in the more subtle dishonesty—choosing what to emphasize and what to downplay, deciding who to consult and who

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understanding, but also to reasoned discussion and possible intermediate approaches." Traynor, *supra* note 7, at 10163.

71. *Laudato Si', supra* note 17, ¶ 183. *See also Id.*¶ 91. ("[I]n view of the common good, there is urgent need for politics and economics to enter into a frank dialogue in the service of life, especially human life.").

72. *Id.* ¶ 135 (emphasis added).

73. *Id.* ¶ 138.

74. *Id.* ¶ 184.

to ignore, discerning which sources to cite and which to neglect—that the integrity of dispute resolution can be called into doubt.

F. Principle Six: The Precautionary Principle Must Be Respected as Far As Feasible

Sixth, *Laudato Si'* urges that the precautionary principle be applied in resolving disputes. Disputes must frequently be resolved in a context of great urgency, deep uncertainty, or both. In the environmental arena, in particular:

> We do not always know enough about a problem, its causes, and the effects of various solutions to produce the result that we seek. Even if we are able to design and implement a law that achieves our goals, that law may also produce unintended consequences that create distinct (and sometimes worse) problems than we sought to solve.[75]

Pope Francis describes the precautionary principle in a way that should be familiar because he articulates it as lawyers and diplomats do: "If objective information suggests that serious and irreversible damage may result, a project should be halted or modified, even in the absence of indisputable proof."[76]

This echoes the precautionary principle as stated in the Stockholm Declaration,[77] the Rio Declaration,[78] the National Environmental Policy Act, and other legal frameworks as well.[79]

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75. Nagle, *supra* note 18, at 45.

76. *Laudato Si', supra* note 17, ¶ 186. Pope Benedict speaks of the related virtue of "prudence, the virtue which tells us what needs to be done today in view of what might happen tomorrow." *Protect Creation, supra* note 17, ¶ 9.

77. *See* Stockholm Declaration, *supra* note 21, Principle 6; *See also* Catherine Tinker, *Is a United Nations Convention The Most Appropriate Means to Pursue the Goal of Biological Diversity?: Responsibility for Biological Diversity Conservation Under International Law*, 28 VAND. J. TRANSNAT'L L. 777, 797 (1995) (suggesting that Principle 21 of the Stockholm Declaration may be achieved through observation of the precautionary principle since the Principle provides that "all nations have a responsibility to ensure that activities under their jurisdiction or control do not cause damage to the environment of other states or to areas beyond national jurisdiction[,]" exemplifying opportunity for nations to act with caution before hurrying to possibilities of irreversible damage).

78. S*ee Rio Declaration*, *supra* note 21, Principle 15 ("[T]he precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."). *See also* Robert V. Percival, *The North American Symposium on the Judiciary and Environmental Law: Who's Afraid of the Precautionary Principle?*, 23 PACE ENVTL. L. REV. 21 (2006). Professor Percival explains that:

> [T]he most widely embraced statement of the [precautionary principle] is that contained in the Rio Declaration, which was endorsed by nearly every country in the world. Principle 15 of the Rio Declaration states that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a

Pope Francis advocates this as a principle to guide decision making when lack of information or confidence can paralyze decision making. *Laudato Si'* calls for comprehensive risk management made at the time before harm is done:

> Environmental impact assessment should not come after the drawing up of a business proposition or the proposal of a particular policy, plan, or programme. It should be part of the process from the beginning, and be carried out in a way which is interdisciplinary, transparent and free of all economic or political pressure. It should be linked to a study of working conditions and possible effects on people's physical and mental health, on the local economy and on public safety. Economic returns can thus be forecast more realistically, taking into account potential scenarios and the eventual need for further investment to correct possible undesired effects.[80]

This emphasizes not only the importance of the precautionary principle, but also the importance of its application at a meaningful point in time.

As a corollary to the precautionary principle, *Laudato Si'* also teaches that "when significant new information comes to light, a reassessment should be made, with the involvement of all interested parties."[81] It is easy to see how recklessness can characterize dispute resolution, because it can be easy to discount possible harms that are not guaranteed to take place. It is also easy to see how fear can paralyze decision-making and the resolution of disputes can be delayed. The precautionary principle keeps the focus on serious and irreversible damage, and demands that objective information, which is consistently and honestly updated drive decision-making.

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reason for postponing cost-effective measures to prevent environmental degradation." *Id.* at 28. (quoting *Rio Declaration*). Thus, "if there are threats of significant harm, scientific uncertainty should not serve as an obstacle to taking cost-effective preventive measures." *Id.*

79. *See, e.g.*, Tuholske & Foster, *supra* note 2, at 677 ("[T]he precautionary principle is thoroughly embedded in European Union environmental law, and while not uniformly part of U.S. environmental law, it influences international environmental decisions in a myriad of ways.").

80. *Laudato Si', supra* note 17, ¶ 183. Similarly, Pope Francis continues:

> In any discussion about a proposed venture, a number of questions need to be asked in order to discern whether or not it will contribute to genuine integral development. What will it accomplish? Why? Where? When? How? For whom? What are the risks? What are the costs? Who will pay these costs and how?

Id. ¶ 185.

81. *Id.* ¶ 187.

The uncertainty in the environmental law arena is a factor that has both objective and subjective elements to it that may complicate application of the precautionary principle:

> [T]here are human considerations and frailties. . . . [W]e use shortcuts to make decisions. We are not good judges of probability. We are not rational utility maximizers. We may not perceive or appreciate probability distributions. We routinely overestimate some outcomes . . . . We routinely underestimate some outcomes . . . . We may be more likely to misjudge probability if we are far removed from risk or when our individual behavior (as distinguished from collective behavior) may have only an infinitesimal effect. In addition, we have cultural biases that may tilt our views in one direction or another.[82]

In spite of these biases, which can so often influence the ways in which uncertainties are addressed, Pope Francis urges reasonable and respectful caution in such moments of doubt.

G. Principle Seven: Science in All Fields Warrants Respect

Seventh, *Laudato Si'* expresses a great deal of respect for the role of science, properly and broadly understood, in environmental dispute resolution. It is a sad commentary on dispute resolution today that lawyers, scientists, economists, and ethicists all seem, at times, to speak different languages. Without care and respect, this can lead to discounting the scientific expertise of those outside one's own narrow sphere.

By definition, any expert who evaluates an environmental problem has an understanding of the situation that is limited by his or her training and relatively narrow area of expertise. It is wise, well and good to tread very carefully in any area outside ones own expertise. Nevertheless, this does not mean that experts in diverse fields should be so siloed from each other. *Laudato Si'* pleads for the integration of scientific inquiry of all types, urging a broad view of such scientific inquiry that embraces the social sciences as well:

> [F]ragmentation of knowledge proves helpful for concrete applications, and yet it often leads to a loss of appreciation for the whole, for the relationships between things, and for the broader horizon, which then becomes irrelevant. This

82. Traynor, *supra* note 7, at 10161–62.

> very fact makes it hard to find adequate ways of solving the more complex problems of today's world . . . ; these problems cannot be dealt with from a single perspective or from a single set of interests. A science which would offer solutions to the great issues would necessarily have to take into account the data generated by other fields of knowledge, including philosophy and social ethics; but this is a difficult habit to acquire today.[83]

He warns as well that "fragmentation of knowledge and the isolation of bits of information can actually become a form of ignorance, unless they are integrated into a broader vision of reality."[84] This principle is closely linked to Pope Francis' plea that environmental issues be defined very broadly.

One of the dangers that an encyclical like *Laudato Si'* may face is the critique that it displaces scientific inquiry with theology. However, what Pope Francis hopes to make clear throughout this encyclical is that there is a role for all of the sciences to play in addressing the most significant disputes, conflicts and challenges of modern life. Conflict resolution will require scientific expertise of all types.[85] This is not efficient, quick or inexpensive to obtain. Yet, without it, the decisions reached will be ideological, political and incapable of resolving disputes in a way that accurately frames the priorities to be advanced.

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83. *Laudato Si', supra* note 17, ¶ 110. Pope Francis also warns about the harms of having too much data at our disposal:

> [W]hen media and the digital world become omnipresent, their influence can stop people from learning how to live wisely, to think deeply and to love generously. In this context, the great sages of the past run the risk of going unheard amid the noise and distractions of an information overload. . . . True wisdom, as the fruit of self-examination, dialogue and generous encounter between persons, is not acquired by a mere accumulation of data which eventually leads to overload and confusion, a sort of mental pollution.

Id.

84. *Id.* ¶ 138. For reflection on the limitations of science, see *id.* ¶ 164 ("[T]he same ingenuity which has brought about enormous technological progress has so far proved incapable of finding effective ways of dealing with grave environmental and social problems worldwide.").

85. Forty-five years prior to *Laudato Si'*, a similar plea for the embrace of a broad scientific inquiry was made in the National Environmental Policy Act which urged that federal agencies "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making which may have an impact on man's environment[.]" NEPA, *supra* note 21, § 4332 (A).

H. Principle Eight: Problems Rather Than Symptoms Must Be Addressed

Eighth, *Laudato Si'* hopes that the focus of environmental dispute resolution will remain on solving problems and not merely addressing symptoms of those problems. Very often, and by necessity, dispute resolution focuses on symptoms. Parties enter into disputes and rights must be adjudicated because there is a specific problem in the regulatory regime, in the allocation of rights, or in the justice of burden allocation.

Pope Francis says, "[W]e look for solutions not only in technology but in a change of humanity; otherwise we would be dealing merely with symptoms"[86] because "[m]erely technical solutions run the risk of addressing symptoms and not the more serious underlying problems."[87] Indeed, "[t]o seek only a technical remedy to each environmental problem which comes up is to separate what is in reality interconnected and to mask the true and deepest problems of the global system."[88]

In some ways, this can be discouraging. There is a lot that is good to be said for alleviation of symptoms. Often, that is necessary and good in a world in which disputes must be resolved quickly, efficiently and fairly. However, *Laudato Si'* does inject a bit of uneasiness into this equation by suggesting that, perhaps, goals should be set higher. Otherwise, the same symptoms will continually recur without any hope of a permanent resolution of the underlying problem.

Laudato Si' offers some hope that this can happen. For example, in the context of investments in sustainability, Pope Francis opines that "[e]fforts to promote a sustainable use of natural resources are not a waste of money, but rather an investment capable of providing other economic benefits in the medium term."[89] This suggests that solutions to specific problems should be addressed with an eye to the long- and medium-term so that they do not merely resolve or mitigate the immediate crisis, but can lay the groundwork for a more systematic resolution of the underlying problem. In practical terms, this can be difficult to navigate—particularly, when it may delay results for those currently embroiled in an active dispute or suffering present

86. *Laudato Si', supra* note 17, ¶ 9.

87. *Id.* ¶ 144.

88. *Id.* ¶ 111. *See also id.* ¶ 54 ("Consequently, the most one can expect is superficial rhetoric, sporadic acts of philanthropy and perfunctory expressions of concern for the environment, whereas any genuine attempt by groups within society to introduce change is viewed as a nuisance based on romantic illusions or an obstacle to be circumvented.").

89. *Id.* ¶ 191.

harms. Yet, it is also the case that short-term symptom solving can make long-term solutions more elusive. It can also mask long-term problems, making them appear less noticeable and more tolerable than they, in fact, are.

I. Principle Nine: Moral Transformation Is Critically Important

Ninth, *Laudato Si'* proposes that environmental dispute resolution requires a fundamental moral transformation[90] or personal conversion.[91] This should hardly be surprising in an encyclical that comes from a religious leader. Pope Francis believes that there are moral guides that must direct the resolution of disputes, since the root of much evil and discord is, as he puts it, "the notion that there are no indisputable truths to guide our lives, and hence human freedom is limitless."[92] The contours of this moral transformation are complex, and *Laudato Si'* presents some of the guideposts for it, as does the wealth of tradition in moral formation. However, just as law proposes some fundamental minimums that should guide dispute resolution, moral transformation points to something, perhaps, more ambitious and binding. It does not satisfy itself with merely setting minimums but calls all to a higher and more comprehensive sense of what is right, just and good.

As Pope Francis warns, "[E]ven the best mechanisms can break down when there are no worthy goals and values, or a genuine and profound humanism to serve as the basis of a noble and generous society."[93] This is a call to a more modest and sober lifestyle, lived with generosity.[94] Moral transformation gets little attention in

90. As with other principles, this reference to the moral transformation needed is not unique to Pope Francis. It builds on the observations of his immediate predecessors. *See, e.g., Paul VI Message, supra* note 17, ¶ 6 ("[A]ll technical measures would remain ineffectual if they were not accompanied by an awareness of the necessity for a radical change in mentality.").

91. *See e.g.*, Silecchia, *supra* note 18, at 372 ("*Laudato Si'* also includes a profound, nearly desperate plea for personal conversion, arguing that this is the only way to foster enduring and proper relationships between God, each other, and creation . . ."); Raven, *supra* note 17, at 250 ("[M]any of us have come to believe that a moral or spiritual revolution will be necessary if we are to keep our civilization intact."); Green, *supra* note 19, ¶ 5 (observing that in *Laudato Si'*, Pope Francis "is offering the world a moral vocabulary for talking about climate change, shifting global attention from the macro solutions of public policy summits to the personal ethics of environmental stewardship").

92. *Laudato Si', supra* note 17, ¶ 6.

93. *Id.* ¶ 181.

94. *See also Peace With God the Creator, supra* note 17, ¶ 8 ("Today, the dramatic threat of ecological breakdown is teaching us the extent to which greed and selfishness – both individual and collective – are contrary to the order of creation, an order which is characterized by mutual interdependence."). As Pope John Paul II explains:

> Modern society will find no solution to the ecological problem *unless it takes a serious look at its lifestyle*. . . . [T]he seriousness of the ecological issue lays bare the depth of man's moral crises. If an appreciation of the value of the human

discussions of legal transformation as it is hard to mandate and harder to achieve consensus about. Yet, in the context of resolving disputes as to how to exercise responsible stewardship and care for creation, Pope Francis argues that this is essential.[95]

J. Principle Ten: Holy Love Is an Indispensable Motivation

Tenth, and finally, *Laudato Si'* expresses the hope that a holy love of God and others will motivate our dispute resolution.[96] Pope Francis warns that "communion with the rest of nature cannot be real if our hearts lack tenderness, compassion and concern for our fellow human beings."[97] In spite of a pessimistic analysis in *Laudato Si'*, Pope Francis holds out hope that "[f]or all our limitations, gestures of generosity, solidarity and care cannot but well up within us, since we were made for love."[98]

Love is not frequently discussed—at least not openly—in legal analysis. It is hard to quantify, identify, or generate in a meaningful way. Even the best of legal regimes cannot mandate it. Yet, *Laudato Si'* is not primarily a legal document. In the end, it is "primarily a work of moral theology focusing on the human relationships to God and nature. Its politics flow from its ethics . . . ."[99] *Laudato Si'* urges pursuit of holy love because all

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> person and of human life is lacking, we will also lose interest in others and in the earth itself. Simplicity, moderation and discipline, as well as a spirit of sacrifice, must become a part of everyday life, lest all suffer the negative consequences of the careless habits of a few.

Id. ¶ 13 (emphasis added). *See also Protect Creation, supra* note 17, ¶ 5 ("Humanity needs a *profound cultural renewal*; it needs to *rediscover those values which can serve as the solid basis* for building a brighter future for all. Our present crises—be they economic, food-related, environmental or social – are ultimately also moral crises, and all of them are interrelated. . . .[T]hey call for a lifestyle marked by sobriety and solidarity . . . ." (emphasis added)).

95. *See also* Montgomery, *supra* note 18 (describing Pope Francis' emphasis on "spiritual transformation"); Jamieson, *supra* note 18, at 125 ("The sharp distinction often drawn between public policy and private morality is a false one. Values inform our policy goals . . . ."); Monast et al., *supra* note 18, at 142 ("Pope Francis emphasizes the importance of individual responsibility and rejects overreliance on technology and markets as solutions to the world's ills. . . . Numerous provisions []reject technocratic decision-making and overreliance on technological advancements in place of taking personal responsibility for one's actions."); Edwards & Russell, *supra* note 23, at 342 ("The Pope frames the debate not in terms of a technical problem, but in terms of a moral challenge.").

96. Pope Benedict XVI suggested that this love could be a powerful motivation. *See Protect Creation, supra* note 17, ¶ 2 ("[S]eeing creation as God's gift to humanity helps us understand our vocation and worth as human beings.").

97. *Laudato Si', supra* note 17, ¶ 91.

98. *Id.* ¶ 58. *See also id.* ¶ 66 ("[H]uman life is grounded in three fundamental and closely intertwined relationships: with God, with our neighbor and with the earth itself. According to the Bible, these three vital relationships have been broken, both outwardly and within us. This rupture is sin."); Bodansaky, *supra* note 18, at 130 (commenting that "the encyclical is ultimately concerned not just with the environment but with the human soul").

99. Jamieson, *supra* note 18, at 122.

"need to be encouraged to be ever open to God's grace and to draw constantly from their deepest convictions about love, justice and peace."[100] With this love—for Creator, creation, and those who share "our common home" today and tomorrow—just and peaceful dispute resolution is still not easy. Without it, *Laudato Si'* proposes, it is impossible.

III. CONCLUSION

Lest this seem like an overly ambitious and frighteningly impossible set of goals for environmental dispute resolution, Pope Francis does hold out hope that "[h]uman beings, while capable of the worst, are also capable of rising above themselves, choosing again what is good, and making a new start, despite their mental and social conditioning."[101] This suggests, then, that in all environmental disputes being waged today, and in the days to come, there is hope for choosing the good. Too often, the scope of global disputes, the complexity of technically ambitious problems, and the seemingly intractable nature of environmental disputes can lead to discouragement. However, the final challenge from *Laudato Si'* is one full of hope and promise. Pope Francis says, "All it takes is one good person to restore hope!"[102] When the challenge of dispute resolution seems to be too great, the call to be that "one person" is even more compelling.

100. *Laudato Si', supra* note 17, ¶ 200. *See also* Raven, *supra* note 17, at 249 ("In our hope for world sustainability is a shared sense of hope and a love for one another that would result in equality and mutual respect.").

101. *Laudato Si', supra* note 17, ¶ 205.

102. *Id.* ¶ 71.

LAND USE REGULATION AND GOOD INTENTIONS

STEVEN J. EAGLE*

This Essay surveys contemporary issues in American land use regulation. Its central claim is that, despite good intentions, regulations often have either been ineffective or exacerbated existing problems. The problems underlying regulation include contested understandings of private property rights, continual economic and social change, and a political process prone to ad hoc deal making. Together, they result in regulation that is conceptually incoherent and continually provisional.

The Essay briefly reviews how land use philosophy has changed from early nuisance prevention, through Progressive Era comprehensive planning, to modern views of regulation as transactional. It examines our regulatory takings framework for delineating between private property rights and legitimate government regulation. The Essay reviews such contentious issues as affordable housing. Finally, it asserts that, in the absence of a generally agreed upon understanding of land use goals, comprehensive grand bargains among factions and public-private partnerships would facilitate entrenchment and favoritism. The ensuing uncertainty and lack of housing opportunities in cities where workers would be most productive harms individual advancement and the national economy.

Keywords

Land-use planning, zoning, property rights, Progressive Era, affordable housing, fair housing, housing subsidies, eminent domain, regulatory takings, transferable development rights.

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I. INTRODUCTION

This Essay broadly considers contemporary issues in American land use regulation. Its central claim is that, despite good intentions, regulations often have either been ineffective or exacerbated existing problems. This state of affairs results from contested understandings regarding the meaning and importance of private property rights, economic and social dynamism, and a political process prone to producing general aspirational statements and ad hoc dealmaking. Together, they result in regulation that is conceptually incoherent and

continually provisional. This leads to uncertainty, which undermines financial and social investment in communities.

As an initial illustration, Americans desire to live in communities with great economic prosperity, fine natural and manmade amenities, and low housing prices. Alas, on this vale of tears any two of those desirable things are available, but not all three. A common response has been for various interest groups to declare the states of affairs that they hope to achieve, and sheath them in terms that others would seem to be churlish to oppose, such as "affordable housing."[1]

The Essay briefly reviews how land use philosophy has changed from early nuisance prevention, through Progressive Era comprehensive planning, to modern views of regulation as transactional. It also examines our legal framework for delineating the boundary between private property rights and legitimate government regulation. Finally, it asserts that, in the absence of a generally agreed upon understanding of land use goals, suggestions for comprehensive grand bargains among factions and public-private partnerships would facilitate entrenchment and favoritism.

II. PROPERTY IN AMERICA

The extent to which property should be regulated by the State is predicated upon whether "property" primarily serves as a shield to protect individual autonomy, for which the accumulation of property protects against dependence on government, as well as enhancing many nonpecuniary values.[2] From this perspective, property is a prepolitical right, which government does not create, but rather protects.[3]

In contrast, Progressive Property focuses on property as entailing responsibilities to society. Professor Gregory Alexander, thus, refers to "governance property" as a construct where fragmentary and coincident rights to possess, use, and transfer assets require the creation of norms to govern

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1. *See infra* Part IV for discussion of affordable housing issues.

2. *See, e.g.*, Donald J. Kochan, *The Symbiosis of Pride & Property* (Jan. 17, 2017) (*available at* https://ssrn.com/abstract=2891716) (noting that authentic pride is evolutionarily useful, and may manifest itself through property ownership).

3. *See* Eric R. Claeys, *Takings, Regulations, and Natural Property Right*s, 88 CORNELL L. REV. 1549, 1568 (2003). "Property is a 'natural'—inherent, prepolitical, and prelegal—right because its pursuit secures a wide range of natural goods [, such as] self-preservation, the preservation of one's family, and the wealth needed to practice other virtues that require some minimum of material support." *Id.*

relations among interest holders.[4] "The moral foundation of governance property is human flourishing. This pluralistic conception of human flourishing means that property serves multiple values and that these values are incommensurable."[5]

A. The Lockean Tradition and Property Rights

After the English Glorious Revolution of 1688, the "new understanding" was that "ultimate political authority derived not from the divine right of kings, but from the consent of the governed."[6] English and Scottish Enlightenment authors were closely associated with the Glorious Revolution, and the best known of these to eighteenth-century Americans was John Locke, whose *Second Treatise of Government* declaimed, "lives, liberties, and estates, which I call by the general name, property." [7]

"By the late eighteenth century, 'Lockean' ideas on government and revolution were accepted everywhere in America; they seemed, in fact, a statement of principles built into English constitutional tradition."[8] The prepolitical nature of property rights[9] was reflected in the Preamble of the Virginia Constitution, which was drafted by George Mason and adopted on June 12, 1776. It declared, "All men are born equally free and independent and have certain inherent and natural rights . . . among which are the enjoyment of life and liberty, with the means of acquiring and possessing property, and pursuing and obtaining happiness and safety."[10] The right to private property was presupposed in the Fifth Amendment

4. Gregory S. Alexander, *Governance Property*, 160 U. PA L. REV. 1853, 1856 (2012).

5. *Id.* at 1876–77 (internal citations omitted) (citing as pluralistic values "personal autonomy, individual security, self-development or self-realization, social welfare, community and sharing, fairness, friendship, and love.").

6. Akhil Reed Amar, *Of Sovereignty and Federalism*, 96 YALE L.J. 1425, 1431 (1987).

7. JOHN LOCKE, THE SECOND TREATISE OF GOVERNMENT §123, at 204 (Peter Laslett ed., New York: New American Library 1965) (1690).

8. PAULINE MAIER, AMERICAN SCRIPTURE: MAKING THE DECLARATION OF INDEPENDENCE 87 (Vintage Books 1st ed. 1997).

9. *See generally*, Douglas W. Kmiec, *The Coherence of the Natural Law of Property*, 26 VAL.U. L. REV. 367 (1991); *See also*, Eric R. Claeys, *Labor, Exclusion, and Flourishing in Property Law*, 95 N.C. L. REV. 413 (2017) (focusing on the connection between human labor and flourishing).

10. PENNSYLVANIA GAZETTE, June 12, 1776, *as reprinted in* MAIER, *supra* note 8, at 126–27.

of the United States (U.S.) Constitution,[11] and memorably was described by Professor James Ely as the "guardian of every other right."[12]

B. Progressive Property and Societal Constraints

In contrast with the Framers' Lockean orientation, the noted historian Gordon Wood wrote that the revolutionary American form of Civic Republicanism "meant . . . more than eliminating a king and instituting an elective system of government; it meant setting forth moral and social goals as well. Republics required a particular sort of independent, egalitarian, and virtuous people . . . ."[13]

A contemporary manifestation of Civic Republicanism is progressive property,[14] particularly in its emphasis that property ownership entails owners' responsibility.[15] Professor Alexander emphasized that we should reject that property is a "black box" from which owners deal with outside non-owners and focus instead on the "internal life" of property; that is to say, the relationship among its stakeholders.[16]

Together with Professors Eduardo Peñalver, Joseph Singer, and Laura Underkuffler, Alexander issued a short manifesto entitled *A Statement of Progressive Property*,[17] which suggested, among other things, that property "implicates plural

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11. U.S. CONST. amend. V.

12. JAMES W. ELY, JR., THE GUARDIAN OF EVERY OTHER RIGHT: A CONSTITUTIONAL HISTORY OF PROPERTY RIGHTS (3d ed. 2008).

13. Robert W. Bennett, *Of Gnarled Pegs and Round Holes: Sunstein's Civic Republicanism and the American Constitution*, 11 CONST. COMMENTARY 395, 395 (1994) (reviewing CASS R. SUNSTEIN THE PARTIAL CONSTITUTION (1993)) (quoting Gordon S. Wood, *Republicanism, in* Leonard W. Levy, ed., ENCYCLOPEDIA OF THE AMERICAN CONSTITUTION 448, 449 (Supp I, MacMillan, 1992)).

14. *See*, *e.g.*, Gregory S. Alexander, *Property As Propriety*, 77 NEB. L. REV. 667 (1998).

> Attacking legally-created privileges as un-American was established as a common theme in political-legal tracts in the revolutionary era, and it continued to be prominent well into the nineteenth century, especially among Jacksonians. The Jacksonian interpretation of republicanism emphasized its democratic possibilities, in contrast with the Federalist-Whig interpretation, which stressed its belief in social hierarchy and political order.

Id. at 682.

15. *See* Gregory S. Alexander, *The Social-Obligation Norm in American Property Law*, 94 CORNELL L. REV. 745, 747–48 (2009).

16. Alexander, *supra* note 4, at 1854–55.

17. Gregory S. Alexander, et al., *A Statement of Progressive Property*, 94 CORNELL L. REV. 743 (2009).

and incommensurable values," including individual wants and needs, environmental stewardship and civic responsibility, and human dignity.[18]

Professor Lee Anne Fennell has challenged what she termed the "fee simple obsolete," which "most plainly gets in the way" of better reconfiguration and coordination of property rights.[19] She asserted that reliance on the fee simple as the predominant ownership vehicle made sense when "temporal spillovers loom large, interdependence among parcels is low, most value is produced within the four corners of the property, and cross-boundary externalities come in forms that governance strategies can readily reach."[20] Now, however, the fee simple's "rootedness" and "endlessness" augur for new ways to reconfigure urban land.[21]

III. THE TRADITION AND LAW OF LAND USE PLANNING

A. Planning and Common Law Nuisance

Since its colonial beginnings "land use planning" has grown from modest regulations akin to protection from common law nuisance to expert plans attempting to fine-tune the use of individual parcels for the benefit of society.

A study of Los Angeles, for instance, noted that regulations began in 1573, when laws promulgated by Philip II of Spain, "included detailed instructions for the location of 'slaughter houses, fisheries, tanneries, and other businesses which produce filth.'"[22] In nineteenth-century America, the location of livery stables was an important urban concern.[23] In modern times, zoning regulation attenuates such concerns, but does not eliminate them.[24]

"Dirty industrial activities in the middle of residential communities and unsightly and aesthetically offensive developments such as tanneries and slaughterhouses

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18. *Id*. at 743.
19. Lee Anne Fennell, *Fee Simple Obsolete*, 91 N.Y.U. L. REV. 1457, 1464 (2016).
20. *Id*. at 1457.
21. *Id*. at 1489–90.
22. James M. Anderson, et al., *Reducing Crime by Shaping the Built Environment with Zoning: An Empirical Study of Los Angeles*, 161 U. PA. L. REV. 699, 709–10 (2013) (internal citations omitted).
23. *E.g.*, *City of Chicago v. Stratton*, 44 N.E. 853 (Ill. 1896) (upholding ordinance requiring that neighbors consent to the siting of a livery stable in a residential block).
24. *See*, *e.g.*, OLIVER GILLHAM, THE LIMITLESS CITY: A PRIMER ON THE URBAN SPRAWL DEBATE 16 (2002) ("If you invest in building a house, you don't know for sure that a tannery or a pulp mill won't get built next door someday.").

depressed the values of adjacent business and residential properties."[25] There are scholars who have emphasized that colonial experience included broader land use controls, most notably Professor John Hart.[26] Historical experience was the subject of an exchange in *Lucas v. South Carolina Coastal Council*[27] between Justice Antonin Scalia, who alluded to the apparently Lockean "historical compact recorded in the Takings Clause that has become part of our constitutional culture,"[28] and Justice Harry Blackmun, who countered that "[i]t is not clear from the Court's opinion where our 'historical compact' or 'citizens' understanding' comes from, but it does not appear to be history."[29]

Reflecting the owners' affirmative rights of use in common and natural law, Justice Scalia, writing for the Court in *Nollan v. California Coastal Commission*,[30] declared that "the right to build on one's own property—even though its exercise can be subjected to legitimate permitting requirements—cannot remotely be described as a 'government benefit.'"[31] In recently quoting this language in *Horne v. Department of Agriculture*,[32] the Court made clear that the Fifth Amendment's protection against uncompensated takings is as applicable to personal property as to real property.[33]

Public nuisance was closely associated with modern comprehensive land use regulation from the beginning. In the seminal case upholding zoning, *Village of Euclid v. Ambler Realty Co.*,[34] the Supreme Court noted that, "[i]n solving doubts, the maxim '*sic utere tuo ut alienum non laedas*,' which lies at the foundation of so much of the common l[a]w of

25. Barbara Clark, *An Expanded Role for the State in Regional Land Use Control*, 70 CAL. L. REV. 151, 177 n.14 (1982).

26. *See* John F. Hart, *Colonial Land Use Law and Its Significance for Modern Takings Doctrine*, 109 HARV. L. REV. 1252 (1996) (asserting greater regulation than now generally assumed).

27. 505 U.S. 1003 (1992).

28. *Id.* at 1028.

29. *Id.* at 1055–56 (Blackmun, J., dissenting).

30. 483 U.S. 825 (1987).

31. *Id.* at 835 n.2.

32. 135 S. Ct. 2419 (2015).

33. *Id.* at 2430–31 (distinguishing *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986 (1984). In *Monsanto,* the mandatory disclosure of trade secrets was upheld, because the case involved "dangerous chemicals," whereas the raisins at issue in *Horne* were a "healthy snack." *Id.*

34. 272 U.S. 365 (1926).

nuisance, ordinarily will furnish a fairly helpful clew."[35] More recently, in *Lucas*,[36] the Court declared, with reference to "regulations that prohibit all economically beneficial use of land," that "[a]ny limitation so severe cannot be newly legislated or decreed (without compensation), but must inhere in the title itself, in the restrictions that background principles of the State's law of property and nuisance already place upon land ownership."[37] However, Justice Scalia's attempt in *Lucas* to devise a bright line rule was not successful, and, perhaps confounding his expectations, the principal role of the case has been to fortify municipalities' argument that stringent regulations are based on background principles.[38]

B. The Rise of Comprehensive Planning

While public land use planning in America has some earlier antecedents,[39] modern planning regulation began with New York City's comprehensive ordinance in 1916.[40] The Department of Commerce promulgated its model Standard Zoning Enabling Act (SZEA) in 1928.[41] The Act was extremely successful and serves as a basis for state enabling laws in all 50 states.[42] Section 3 of SZEA required that zoning ordinances be drafted "in accordance with a comprehensive plan."[43] In a landmark article,[44] Professor Charles Haar discussed that the "comprehensive plan" requirement appeared to be a "directive to put zoning on a base broader than and beyond itself . . . ."[45]

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35. *Id*. at 387 (stating the maxim "the use of one's property should be limited so as not to injure that of another").

36. Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992).

37. *Id*. at 1029.

38. *See* Michael C. Blumm & Lucus Ritchie, *Lucas's Unlikely Legacy: The Rise of Background Principles as Categorical Takings Defenses*, 29 HARV. ENVTL. L. REV. 321 (2005).

39. *See generally* JULIAN CONRAD JUERGENSMEYER & THOMAS E. ROBERTS, LAND USE PLANNING AND DEVELOPMENT REGULATION LAW (3d ed. 2013).

40. *Id*. at 41.

41. ADVISORY COMM. ON ZONING, U.S. DEP'T OF COMMERCE, A STANDARD STATE ZONING ENABLING ACT, S. Doc. No. 13-29 (1926) [hereinafter SZEA], https://planning-orguploadedmedia.s3.amazonaws.com/legacy_resources/growingsmart/pdf/SZEnabling Act1926.pdf.

42. *See* Gary D. Taylor & Mark A. Wyckoff, *Intergovernmental Zoning Conflicts Over Public Facilities Siting: A Model Framework for Standard State Acts*, 41 URB. LAW. 653, 683 (2009).

43. SZEA, *supra* note 41, § 3, at 6–7. Under §3 of the Standard Act, zoning was required to be "in accordance with a comprehensive plan."

44. Charles M. Haar, *In Accordance With a Comprehensive Plan,* 68 HARV. L. REV. 1154 (1955).

45. *Id*. at 1156.

Given that the comprehensive plan was the vehicle that associated the police power of the State with the details of local regulations, Haar subsequently referred to it as the "impermanent constitution" against which courts would measure disputed regulations.[46]

"A nuisance," Justice George Sutherland declared in *Euclid v. Ambler Realty Co*.,[47] "may be merely a right thing in the wrong place, like a pig in the parlor instead of the barnyard."[48] Thus, zoning was, at least in large measure, an attempt to assign incompatible land uses to different geographical areas.

Professor Haar stressed that "by [the comprehensive plan's] requirement of information gathering and analysis, controls are based on facts, not haphazard surmises—hence their moral and consequent legal basis; by its comprehensiveness, diminished are the problems of discrimination, granting of special privileges, and the denial of equal protection of the laws."[49] Another important proponent of the importance of the comprehensive plan was Professor Daniel Mandelker, who detailed why and how it should be implemented.[50]

State courts have interpreted the comprehensive planning requirement in different ways. A few continue to state that the comprehensive plan is to be found in the zoning ordinances and maps; the trend has been that the existence of a separate plan is at least a factor in judicial deference to zoning regulations, and in a few states there is a mandate for a separate comprehensive plan.[51] All of this recently led Professor Mandelker to note that in recent decades courts have considered spot zoning cases using "nebulous rules applied on an erratic basis."[52] "Wealth transfer and capture by developer or neighbor interests can occur," he added, and multifactor tests generally have been "not helpful."[53] Reiterating his earlier

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46. Charles M. Haar, *The Master Plan: An Impermanent Constitution*, 20 L. & CONTEMP. PROBS. 353, 353, 365–66 (1955).

47. 272 U.S. 365 (1926).

48. *Id*. at 388.

49. Harr, *supra* note 46, at 365–66.

50. *See generally* Daniel R. Mandelker, *The Role of the Local Comprehensive Plan in Land Use Regulation*, 74 MICH. L. REV. 899 (1976).

51. *See* Edward J. Sullivan & Jennifer Bragar, *Recent Developments in Comprehensive Planning*, 46 URB. LAW. 685, 687–97 (2014).

52. Daniel R. Mandelker, *Spot Zoning: New Ideas for an Old Problem* 48 URB. LAW. 737, 782–83 (2016).

53. *Id*. at 782.

view, Mandelker concluded: "Consistency with a comprehensive plan, as the only test for spot zoning, addresses these concerns."[54]

1. Expert Decision Makers in the Progressive Tradition

The rise of comprehensive zoning very much is part of the broader story of the Progressive Era in which professionalism came of age.[55] Professionalism "thrived in a time in which science and expertise occupied an exalted position in the collective imagination," and in which "government and society in general turned to the well-trained expert to help preserve fairness, justice, and progress in an increasingly complex industrial world."[56] Professor Michael Allen Wolf described zoning as a "quintessential Progressive concept," because it relied on experts to design and enforce regulations that would create a more pleasant environment that, in turn, would "foster healthy, responsible citizens[.]"[57]

Notably, Professor Bruce Ackerman wrote 40 years ago of "Scientific Policymakers" who would apply expert regulation in allocating rights in things among claimants,[58] as opposed to addressing the ownership of things from a more foundational and holistic perspective.[59] This was part and parcel of Ackerman's more general view of the Progressive Era, which applauded the "independent and expert administrative agency creatively regulating a complex social problem in the public interest."[60]

Ackerman's assertions might be viewed as a high-water mark of faith in expertise. The subsequent decline in the

54. *Id*. at 783.

55. *See* LEWIS MUMFORD, THE CITY IN HISTORY: ITS ORIGINS, ITS TRANSFORMATIONS, AND ITS PROSPECTS, 484–85 (1961).

56. Rebecca Roiphe, *The Decline of Professionalism*, 29 GEO. J. LEG. ETHICS 649, 650 (2016).

57. MICHAEL ALLAN WOLF, THE ZONING OF AMERICA: EUCLID V. AMBLER 30 (2008).

58. BRUCE A. ACKERMAN, PRIVATE PROPERTY AND THE CONSTITUTION 11 (1977).

59. *See* Eric R. Claeys, *Property 101: Is Property a Thing or a Bundle?*, 32 SEATTLE U. L. REV. 617, 619–20 (2009).

60. *See* BRUCE A. ACKERMAN & WILLIAM T. HASSLER, CLEAN COAL/DIRTY AIR, OR HOW THE CLEAN AIR ACT BECAME A MULTIBILLION-DOLLAR BAIL-OUT FOR HIGH-SULFUR COAL PRODUCERS AND WHAT SHOULD BE DONE ABOUT IT 1 (1981) ("The rise of environmental consciousness in the late 1960s coincided with the decline of an older dream the image of an independent and expert administrative agency creatively regulating a complex social problem in the public interest.").

concept of professionalism,[61] and distrust of authority, are reflected in the recent cultural awareness of the pervasiveness of "alternative facts" and the concept of a "post truth" society.[62]

A more immediately relevant problem is that planners themselves have lost their belief in long-term planning, and thus their work now focuses on the shorter-term.[63] The tendency to focus planning on "how a community might appear on a specific date far in the future" seemed to crest before 1980, when "virtually all planning professionals had come to recognize both the limits of rationality and the unpredictability of modern civilization. . . . [F]lexible, middle-range planning has come to replace long-range, end-state planning."[64] This seems sensible, given that "one thing that is certain about planning for the future is that the future is uncertain, whether because of unforeseen shifts in demographics, technological advancements, natural disasters, or other unpredictable events."[65] While this turn has made planning more flexible and pragmatic, it has reduced the stability that encourages development and lends doubt to regulatory decisions.[66]

Shorter time horizons do not necessarily change planners' normative perspectives. In 1963, one senior planner wrote that his colleagues regarded low-density development as "inherently evil," that they "assume[] that the city must have a high-density core," and that most "express a greater preference for row houses, garden apartments, and elevator apartments than for single-family houses."[67] Similarly, "[i]n the early 1990s, land use planners turned to the concept of 'smart growth' to help control the impacts of urban sprawl."[68]

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61. Roiphe, *supra* note 56, at 650 ("Professionalism was a casualty of the 1970s. It was lost in the shuffle as the culture shifted from one that emphasized the importance of the social and the value of a carefully coordinated national community to one that focused on the power of the individual and smaller more parochial groups.").

62. *See*, *e.g.*, S.I. Strong, *Alternative Facts and the Post-Truth Society: Meeting the Challenge*, 165 U. PA. L. REV. ONLINE 137, 137–38 (2017). [However], "social scientists from a variety of fields, most notably political science and psychology, have long been interested in how and why individuals and institutions adopt behaviors or beliefs that are patently at odds with observable reality." *Id.*

63. ROBERT C. ELLICKSON, ET AL., LAND USE CONTROLS: CASES AND MATERIALS 69–70 (4th ed. 2013).

64. *Id.*

65. Richard K. Norton, *Who Decides, How, and Why? Planning for the Judicial Review of Local Legislative Zoning Decisions*, 43 URB. LAW. 1085, 1090 (2011)

66. *Id.*

67. William L.C. Wheaton, *Operations Research for Metropolitan Planning*, 29 J. AM. INST. PLANNERS 250, 254–55 (1963), http://dx.doi.org/10.1080/01944366308978074.

68. Francesca Ortiz, *Biodiversity, the City, and Sprawl*, 82 B.U. L. REV. 145, 177 (2002).

While the strong policy preferences of many planners might yield to a pragmatic, short-term application of planning principles, they might be susceptible to weariness, or even cynicism. Professor Carol Rose has noted:

> Land use issues might to some degree be regarded as specialized matters, but on closer examination their specialized quality evaporates. It is true that local governments are advised by planning commissions, but the commissioners are normally ordinary citizens with no special expertise. Planning commission advisory staffs are professionals, but even professional planners have come to see their tasks as more political than technical.[69]

2. Regulation Expands Beyond Nuisance-Like Activity

The Supreme Court's emphasis in *Euclid* was that zoning could be viewed as a prophylactic, such as for prevention of contagious disease, as opposed to literal nuisance regulation.[70] Many subsequent cases have gone further, however, and have used zoning to fine tune the municipal tax base,[71] or the socioeconomic composition of neighborhoods.[72]

Low-density land use often is pejoratively labeled as "sprawl," and higher-density uses often are labeled as "smart growth." Dean Janice Griffith encapsulated that view:

> Many people in the United States prefer living in a rural environment with low density. They will keep moving farther and farther out from the central city when further development engulfs their suburban

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69. Carol M. Rose, *Planning and Dealing: Piecemeal Land Controls As Problem of Local Legitimacy*, 71 CAL. L. REV. 837, 868–69 (1983).

70. Vill. of Euclid v. Ambler Realty Co., 272 U.S. 365, 387–88 (1926). "[T]he law of nuisance[s] … may be consulted, not for the purpose of controlling, but for the helpful aid of its analogies" as to "exclude[] from residential sections … structures *likely to* create nuisances." *Id.* (emphasis added).

71. *See, e.g.*, 99 Cents Stores Only Stores v. Lancaster Redevelopment Agency, 237 F. Supp. 2d 1123, 1129–30 (C.D. Cal. 2001), dismissed by 60 F. App'x 123 (9th Cir. 2003) (finding pretextual condemnation to augment municipal tax revenue); Cottonwood Christian Ctr. v. Cypress Redevelopment Agency, 218 F. Supp. 2d 1203, 1209 (C.D. Cal. 2002) (involving church parcel condemned for re-transfer to a big box store that would generate sales taxes).

72. *See, e.g.*, Chinese Staff and Workers Ass'n v. Bloomberg, 26 Misc. 3d 979, 980 (N.Y. Sup. Ct. 2009) (holding that the State Environmental Quality Review Act necessitated a "hard look at the socioeconomic impact" of a proposed luxury high-rise in a socioeconomically diverse neighborhood).

> residences. North Americans value independence and freedom from public regulation. Before they are willing to adopt more compact living, they must come to believe that the benefits of smart growth outweigh the detriments of sprawl. Greater density living will not be palatable until the harms caused by sprawl-congested highways, air pollution, diminished water quality, and loss of open space-are viewed as unsolvable without the use of more smart growth techniques. Thus, even if planners and lawyers draw up a perfect smart growth code, political pressures may prevent its adoption or compromise its administration once adopted.[73]

At the same time as he apparently condescended in opining "even the most unenlightened realize [that sprawl] needs rethinking," Robert Burchell nevertheless described the fruits of low-density development in what most Americans would regard as almost rhapsodic terms.[74]

IV. FROM TRADITIONAL PLANNING TO "ZONING FOR DOLLARS"

A. Is Planning "Social Engineering"?

For better or worse, the past century of American land use planning has been marked by "social engineering,"[75] a phrase often used as a pejorative connoting overly-intrusive or unnecessary regulation.[76] The results often are mixed. The Federal Housing Administration (FHA), for instance, has been "one of the most important U.S. housing policy institutions of

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73. Janice C. Griffith, *Smart Governance for Smart Growth: The Need for Regional Governments*, 17 GA. ST. U. L. REV. 1019, 1024 (2001).

74. Robert W. Burchell, *The Evolution of the Sprawl Debate in the United States*, 5 HASTING W.N.W. J. ENVTL. L. & POL'Y 137, 159–60 (1999). "It provides safe and economically heterogeneous neighborhoods that are removed from the problems of the central city. In low-density, middle-class environments, life is lived with relative ease, and when residents wish to relocate, they typically leave in better financial condition-the result of housing appreciation." *Id.* at 160.

75. *See, e.g.*, Eric R. Claeys, *Takings, Regulations, and Natural Property Rights*, 88 CORNELL L. REV. 1549, 1635 (2003). "*Euclid* is now understood, in one leading casebook's characterization, 'as a generous endorsement of social engineering in the name of public health, safety, and welfare.'" *Id.* (*citing* Vill. of Euclid v. Ambler Realty Co., 260 U.S. 393, 415 (1922) and *quoting* JESSE DUKEMINIER & JAMES E. KRIER, PROPERTY 1010 (5th ed. 2002)).

76. *See, e.g.*, Harry W. Richardson & Peter Gordon, *The Implications of the Breaking the Logjam Project for Smart Growth and Urban Land Use*, 17 N.Y.U. ENVTL. L.J. 529, 543 (2008) (describing as "stunning" the notion that changes in land use regulation can remedy the obesity problem).

the 20th and 21st centuries,"[77] although for much of its history it affirmatively furthered racial segregation.[78] Likewise, the Interstate Highway System was the major impetus to suburbanization and all it entails.[79]

Claims of social engineering have arisen recently as a result of the Department of Housing and Urban Development (HUD) promulgation in 2015 of its final rule on "Affirmatively Furthering Fair Housing," that establishes the predicate for much stricter federal enforcement of fair housing laws.[80] Two weeks earlier, the Supreme Court made it easier to establish violations of the Fair Housing Act[81] in *Texas Department of Housing and Community Affairs v. Inclusive Communities Project*.[82] At that time, Dr. Ben Carson, now Secretary of HUD, castigated the regulation as social engineering, asserting that "government-engineered attempts to legislate racial equality create consequences that often make matters worse. . . . [B]ased on the history of failed socialist experiments in this country, entrusting the government to get it right can prove downright dangerous."[83]

B. Markets and Land Regulation

In *The Problem of Social Cost*,[84] Ronald Coase demonstrated that in a world without transaction costs the initial assignment of property rights would not matter, since rights easily could be acquired and recombined by the person placing the highest value upon them.[85] His conclusion

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77. James H. Carr, *The Complex History of the Federal Housing Administration: Building Wealth, Promoting Segregation, and Rescuing the U.S. Housing Market and the Economy*, 34 BANKING & FIN. SERVS POL'Y REP. 10, 10 (Aug. 2015) (noting that the FHA issued the first government-guaranteed mortgages in the U.S., which were "a major contributor to both the post-World War II housing boom, particularly in the suburbs, and accelerated home ownership" (internal citations omitted)).

78. *See infra* notes 297–299 and accompanying text.

79. *See* ARTHUR C. NELSON & JAMES B. DUNCAN, GROWTH MANAGEMENT PRINCIPLES AND PRACTICES 2–5 (1995) (noting that the system opened huge areas of rural land to development).

80. Affirmatively Furthering Fair Housing, 80 Fed. Reg. 42,272 (July 16, 2015) (codified at 24 C.F.R. pts. 5, 92, 92, 570, 574, 576, and 903). *See also* Steven J. Eagle, *"Affordable Housing" as Metaphor*, 44 FORDHAM URB. L. J., 1, 27 (2017).

81. Civil Rights Act of 1968, 42 U.S.C. §§ 3601–06 (2012).

82. 135 S. Ct. 2507, 2518 (2015) (upholding the use of "disparate impact" as a test for determining if local housing regulations or actions violate the Fair Housing Act).

83. Ben S. Carson, *Experimenting With Failed Socialism Again*, WASH. TIMES, July 23, 2015, http://www.washingtontimes.com/news/2015/jul/23/ben-carson-obamas-housingrules-try-to-accomplish-/ [https://perma.cc/KJ3C-49QT].

84. R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

85. *See id*. at 2–8.

depended upon the crucial assumptions that property rights were fully specified, and also that the cost of determining the existing ownership of rights and negotiating, contracting for, and monitoring their assignment was zero.[86]

A key insight of *The Problem of Social Cost* was that untoward results often result from the propinquity of land uses that are separately desirable, but also incompatible, and that each might be seen as inflicting harm (negative externalities) upon the other.[87] Professor David Spence observed that, in this Coasean framework, the "most efficient solution to externality problems is not regulation but a compensation agreement produced by private bargaining among the affected parties."[88]

As noted earlier,[89] the judicial imprimatur for comprehensive zoning in *Euclid v. Ambler Realty Co*.[90] was, at least in large measure, an attempt to assign incompatible land uses to different geographical areas. However, zoning on a citywide scale is by its nature too coarse-grained to take into account preferable uses of individual parcels of land. Thus, Professor Robert Nelson argued that zoning should be treated as collective rights of residents of individual neighborhoods.[91] He,[92] and also Professor William Fischel,[93] advocated that private bargaining could more efficiently achieve goals embodied in zoning. In *City Unplanning*,[94] Professor David Schleicher observed that "[t]he idea that a government planner should decide the best uses for private real property may seem like an odd economic theory, but it has a basis in the economics of property law."[95] He restated Nelson and Fischel's basic proposition:

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86. *Id.* at 15. Coase was building an economic model, and realized that a world of zero transactions costs was fanciful. Indeed, in such a world reallocations of resources would take place instantaneously. RONALD H. COASE, THE FIRM, THE MARKET, AND THE LAW 14–15 (1988).

87. Coase, *supra* note 84, at 2.

88. David B. Spence, *The Political Economy of Local Vetoes*, 93 TEX. L. REV. 351, 413 n.187 (2014).

89. *See supra* note 47-48 and accompanying text.

90. 272 U.S. 365 (1926).

91. *See* Robert H. Nelson, *Privatizing the Neighborhood: A Proposal to Replace Zoning with Private Collective Property Rights to Existing Neighborhoods*, 7 GEO. MASON L. REV. 827, 834 (1999).

92. ROBERT H. NELSON, ZONING AND PROPERTY RIGHTS: AN ANALYSIS OF THE AMERICAN SYSTEM OF LAND-USE REGULATION 39–511 (1977).

93. *See e.g.,* WILLIAM A. FISCHEL, THE ECONOMICS OF ZONING LAWS: A PROPERTY RIGHTS APPROACH TO AMERICAN LAND USE CONTROLS 72–149 (1985).

94. David Schleicher, *City Unplanning*, 122 YALE L.J. 1670 (2013).

95. *Id.* at 1681.

> If landowners have an absolute right to build, and a landowner wants to build something that has a negative effect on her neighbors, the transaction costs and collective action problems of getting all the neighbors together to pay the property holder not to build (or to build less) would be prohibitive. If, on the other hand, local governments, representing the interests of property holders in a city, have the ability to deny a landowner the right to build for any reason, the potential developer can simply pay the city for the right to build. The assignment of the right should not matter if transaction costs are low, as Coasean bargaining between the developer and the city should ensure that we get to the optimal amount of development.[96]

As Schleicher noted, some problems with this approach are that local officials represent what Fischel calls their "homevoter" constituents, who are concerned with the value of their homes.[97] Thus, these constituents try to raise property values through restricting the supply of homes,[98] and also try to avoid responsibility for paying taxes for the poor.[99]

From the perspective of private property rights, Schleicher's summary elides over two fundamental problems. First, transactional purchasers of rights pertaining to land are unwilling to pay for the subjective value placed on those rights by previous owners. In consensual transactions, those losses of idiosyncratic value are inframarginal, since the prior holders nevertheless are willing to sell.[100] However, that is not the case when government appropriates property through eminent domain, since the measure of compensation is only the objective "fair market" value.[101] That led Judge Richard Posner

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96. *Id.*at 1682 (internal citation omitted).

97. *See* WILLIAM A. FISCHEL, THE HOMEVOTER HYPOTHESIS: HOW HOME VALUES INFLUENCE LOCAL GOVERNMENT TAXATION, SCHOOL FINANCE, AND LAND-USE POLITICS (2001).

98. Schleicher, *supra* note 94, at 1684 (2013) (citing inter alia, Robert C. Ellickson, *Suburban Growth Controls: An Economic and Legal Analysis*, 86 YALE L.J. 385, 400 (1977)).

99. *Id.*

100. *See* James M. Buchanan and Wm. Craig Stubblebine, *Externality*, 29 ECONOMICA 371 (1962) (describing as irrelevant, changes that do not actually affect decision making).

101. United States v. 50 Acres of Land, 469 U.S. 24, 25–26 (1984) ("The Fifth Amendment requires that the United States pay 'just compensation'—normally measured by fair market value—whenever it takes private property for public use.") (citing United States v. Miller, 317 U.S. 369, 374, (1943) ("what a willing buyer would pay in cash to a willing seller")).

to observe that "[c]ompensation in the constitutional sense is . . . not full compensation."[102]

Second, if local government "represent[s] the interests of property holders in a city,"[103] the concept of representation apparently is based on one of two meanings. In the *parens patriae* sense, it refers to the police power of the state to protect its citizens, which is quite distinct from the takings power. From the other perspective, where the state is deemed to be the transactional agent of its citizens, the implicit suggestion is either that property owners in a city have identical interests with respect to local land use actions that affect some much more than others, which is at best an overstatement, or that local government otherwise will ensure that things even out through the concept of reciprocity of advantage. The phrase "average reciprocity of advantage" was famously used by Justice Holmes in *Pennsylvania Coal Co. v. Mahon*[104] to refer to the kind of implicit, in-kind compensation that might occur, for instance, when the benefit derived from neighbors being subject to a restriction at least offsets the loss that the restriction inflicts on any given property owner.[105]

Reciprocity of advantage is the basis for detailed private restrictions issued by homeowners' associations, and some commonplace public regulations, such as those requiring wide setbacks from the street for all houses on a boulevard.[106] The concept also is applicable within some well-defined districts, such as preservation of building facades within the French Quarter of New Orleans.[107] But the doctrine is inherently problematic where the unusual and valuable assets possessed by a few are restricted for the benefit of the many. A classic instance occurred in *Penn Central Transportation Co. v. City of New York*,[108] which upheld the landmarking of some 400 buildings in New York City, including Grand Central Terminal,

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102. Coniston Corp. v. Vill. of Hoffman Estates, 844 F.2d 461, 464 (7th Cir. 1988).

103. Schleicher, *supra* note 94, at 1682.

104. 260 U.S. 393, 415 (1922).

105. *See*, *e.g.*, RICHARD A. EPSTEIN, TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN 195–215 (1985).

106. *See, e.g.,* Richard A. Epstein, *Property Rights, State of Nature Theory, and Environmental Protection*, 4 NYU J.L. & LIBERTY 1, 30–31 (2009) (noting that height and setback restrictions can secure average reciprocity of advantage, thereby leaving "[a]ll group members . . . better off," with the regulation "overcom[ing] transactional obstacles that prevent cooperation").

107. *See* City of New Orleans v. Dukes, 427 U.S. 297 (1976).

108. 438 U.S. 104 (1978).

to benefit the City's millions of residents. Then-Justice William Rehnquist filed a vehement dissent invoking that tremendous disparity.[109]

Agglomeration was suggested by Professor Schleicher as the *deus ex machina* to deal with the problem of non-reciprocal reciprocity.[110] Through agglomeration, as Alfred Marshall observed nearly a century ago, workers skilled in a specialized trade gather where there are many potential employers, firms specialized in that industry gather where there are many suitable employees, and the "mysteries of the trade" are explicated and advanced through informal conversation everywhere.[111] As economist Robert Lucas memorably explained: "What can people be paying Manhattan or downtown Chicago rents for, if not for being near other people?"[112]

But if agglomeration increases the size of the pie of urban prosperity, it does not give the local government ownership of its slices. While Schleicher states that cities do redistribute income, "largely because of the existence of agglomeration economics,"[113] that does not confront the reciprocity problem. Perhaps, as the *Armstrong* principle sought to invoke, "public burdens" should not be disproportionately concentrated on the few.[114] As Dr. Samuel Johnson observed three centuries ago "[r]eciprocity long has been recognized as a necessity ingredient in human relations."[115]

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109. *Id.* at 140 (Rehnquist, J., dissenting) ("Where a relatively few individual buildings, all separated from one another, are singled out and treated differently from surrounding buildings, no such reciprocity exists. The cost to the property owner which results from the imposition of restrictions applicable only to his property and not that of his neighbors may be substantial—in this case—several million dollars-with no comparable reciprocal benefits.").

110. *See* David Schleicher, *The City as a Law and Economics Subject*, 2010 U. ILL. L. REV. 1507, 1515–29 (2010) (providing an overview of agglomeration economics).

111. ALFRED MARSHALL, PRINCIPLES OF ECONOMICS 156 (8th Ed. 1890). Other leading works on agglomeration include: EDWARD GLAESER, TRIUMPH OF THE CITY: HOW OUR GREATEST INVENTION MAKES US RICHER, SMARTER, GREENER, HEALTHIER, AND HAPPIER 186 (2011); EDWARD L. GLAESER & JOSEPH GYOURKO, RETHINKING FEDERAL HOUSING POLICY: HOW TO MAKE HOUSING PLENTIFUL AND AFFORDABLE 58 (2008).

112. Schleicher, *supra* note 94, at 1687 (quoting Robert E. Lucas, Jr., *On the Mechanics of Economic Development*, 22 J. MONETARY ECON. 3, 39 (1988)).

113. *Id.* at 1684 n.37 (citing CLAYTON P. GILLETTE, LOCAL REDISTRIBUTION AND LOCAL DEMOCRACY: INTEREST GROUPS AND THE COURTS 72-105 (2011)).

114. Armstrong v. United States, 364 U.S. 40, 49 (1960) (*quoted in* Penn Cent. Transp. Co. v. City of New York, 438 U.S. 125, 133–34 (1978)).

115. JAMES BOSWELL, THE LIFE OF SAMUEL JOHNSON, LL.D. 245 (London: 1830) (letter to James Boswell, ca. March 15, 1774) ("Life cannot subsist in society but by reciprocal concessions.").

If common-law ownership includes rights to reasonable development, then agglomeration does not make the takings issue superfluous. If agglomeration has the effect of making a community more prosperous, it could increase taxes, but the imposition of taxes must not be conflated with the arrogation of property rights. The Supreme Court recently observed that "[i]t is beyond dispute that '[t]axes and user fees ... are not "takings."'"[116]

Without formal theorizing, Chief Judge Breitel of the New York Court of Appeals built upon the premise that property rights are more valuable if the property is located within a thriving community. In that court's opinion in *Penn Central*,[117] he stated:

> [T]he extent to which government, when regulating private property, must assure what is described as a reasonable return on that ingredient of property value created not so much by the efforts of the property owner, but instead by the *accumulated indirect social and direct governmental investment in the physical property, its functions, and its surroundings*.[118]

Under Chief Judge Breitel's reasoning, as Professor Fischel noted, government is "entitled to appropriate to itself all of the advantages of civilization."[119]

C. Zoning for Dollars

The movement away from long-term comprehensive planning and Euclidean zoning, where designated uses are permissible "as of right,"[120] has given rise to a number of schemes to facilitate land use planning and bargaining.[121]

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116. Koontz v. St. Johns River Water Mgt. Dist., 133 S. Ct. 2586, 2600–01 (2013) (*quoting* Brown v. Legal Found. of Wash., 538 U.S. 216, at 243, n. 2 (2003) (Scalia, J., dissenting)).

117. Penn Cent. Transp. Co. v. City of New York, 366 N.E.2d 1271 (N.Y. 1977), *aff'd*, 438 U.S. 104 (1978).

118. *Id.* at 1272–73 (emphasis added).

119. WILLIAM A. FISCHEL, REGULATORY TAKINGS: LAW, ECONOMICS, AND POLITICS 50 (1995). For additional discussion of this point, see Steven J. Eagle, *Public Use in the Dirigiste Tradition*, 38 FORDHAM URB. L.J. 1023, 1071 (2011).

120. *See* Lee Anne Fennell, Eduardo M. Peñalver, *Exactions Creep*, 2013 S. CT. REV. 287, 342 (2013) (noting that "[i]n the usual Euclidean zoning law," within individual land use zones, "certain uses are permitted as of right, certain uses are prohibited, and others are permitted with special approval, provided certain conditions are met").

121. *See infra* Part V.B.

To a large extent local governments have asserted the right to control development on individual parcels. They might do so through comprehensive zoning but, as previously noted, many cities have concluded instead that a parcel-by-parcel bargaining process would be superior.[122] The result is that contemporary land use planning typically proceeds in "piecemeal fashion . . . [whereby] regulators have discretion to block a project or permit it to go forward, and they bargain with the landowner over the terms on which they will approve the project."[123]

In his classic article *Zoning for Dollars*,[124] Jerold Kayden described "incentive zoning" as the process by which "cities grant private real estate developers the legal right to disregard zoning restrictions in return for their voluntary agreement to provide urban design features."[125] While developer-funded amenities are beguiling, the concept has two obvious problems. One is that the invitation to "disregard" existing zoning calls the planning enterprise into question. As Kayden put it, it "intrinsically delegitimizes the entire regulatory system."[126] The other problem is that the lack of a stable and objective baseline for as-of-right development invites the sale and purchase of the police power and also corruption.[127]

Kayden tried to avoid those problems by asserting that developers are entitled to "first tier" zoning "without obligation" and that "[g]overnment invents *ex nihilo* development rights above the first tier and offers them strictly in its discretion . . . ."[128] However, government does not invent development rights *ex nihilo*—out of nothing. Those rights generally do not spring full-blown from the imagination of planners after the basic zoning is codified. Rather, they present a perhaps irresistible invitation to zoning authorities to

122. *See supra* notes 84–96, and accompanying text.

123. Fennell & Peñalver, *supra* note 120, at 300.

124. Jerold S. Kayden, *Zoning for Dollars: New Rules for an Old Game? Comments on the Municipal Art Society and Nollan Cases*, 39 WASH. U. J. URB. & CONTEMP. L. 3 (1991) (describing the growing use by municipalities of incentive zoning to fund various local needs and amenities).

125. *Id.* at 3 (including as examples affordable housing and parks).

126. *Id.* at 7.

127. *See, e.g.*, Nestor M. Davidson, *Values and Value Creation in Public-Private Transactions*, 94 IOWA L. REV. 937, 985 n.56 (2009).

128. Kayden, *supra* note 124, at 38.

downsize the first tier bundle with the expectation of selling the withheld rights to developers later.[129]

Local officials greatly influence the scope of development in many ways other than through zoning and permitting. For instance, they facilitate tax increment financing (TIF), which is the most widely used development tool in the country.[130] TIF projects are financed using bond financing subsidized by the federal government, and real estate taxes on the "incremental" value of the improved land is diverted from general local government to servicing the bond. [131]"Scant public reporting of TIF expenditures and revenues, 'guided by the invisible hand of lobbyists, political action committees and campaign contributions,' does nothing to allay suspicions of favoritism and corruption."[132]

As I have discussed elsewhere, "the execution of good public policy inherently is improvisational and opportunistic."[133] Unfortunately, this flexibility leaves officials with ample latitude to make off-the-record demands, benefitting the municipality, that are blunt and overbearing,[134] and perhaps inuring to their own benefit, as well. One example of the latter is the acquisition by a political leader of land adjacent to that upon which there soon would be built a desirable municipal improvement, a process that a Tammany chieftain referred to as "honest graft."[135] There are many alternatives to corrupt politicians accepting cash payments.[136]

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129. *See*, *e.g.,* Christopher Serkin, *Penn Central Take Two*, 92 NOTRE DAME L. REV. 913, 927 (noting that "[this] argument is undoubtedly correct" with regard to transferable development rights (TDRs)).

130. *See generally* Richard Briffault, *The Most Popular Tool: Tax Financing and the Political Economy of Local Government*, 77 U. CHI. L. REV. 65, 65 (2010).

131. *See* George Lefcoe, *Finding the Blight That's Right for California Redevelopment Law*, 52 HASTINGS L.J. 991, 998–99 (2001) (illustrating how TIF diverts substantial funds from schools and county services).

132. George Lefcoe, *Competing for the Next Hundred Million Americans: The Uses and Abuses of Tax Increment Financing*, 43 URB. LAW. 427, 473 (2011) (quoting Ike Wilson, *Study: Young Businesses Grow Faster*, FREDERICK NEWS-POST, Apr. 30, 2009, http://www.fredericknewspost.com/sections/archives/display_detail.htm?StoryID =96285).

133. Steven J. Eagle, *The Perils of Regulatory Property in Land Use Regulation*, 54 WASHBURN L.J. 1, 2 (2014).

134. *See infra* Part IV.

135. Eagle, *supra* note 133, at 6 (describing the activities of New York City's legendary leader of Tammany Hall, George Washington Plunkitt).

136. *See*, *e.g.*, Abraham Bell & Gideon Parchomovsky, *The Hidden Function of Takings Compensation*, 96 VA. L. REV. 1673, 1694 (2010) ("[I]n most contexts, even thoroughly corrupt politicians will be unable to or unwilling to take undisguised cash payments. Rather, corrupt politicians will seek to get paid indirectly. The payments may take a variety of forms, such as campaign contributions, business contracts with associates of the politician, and so forth."). This example was quoted in Gregory M.

Local officials do not want to harm their communities or their personal standing as a result of failed development projects, and it is difficult for them to acquire the foundational knowledgeable for astute bargaining without the expert assistance of experienced developers, who are apt to want a piece of the action as a quid pro quo.[137] As Professor George Lefcoe observed: "Politically connected developers confer informally with public officials about the possibility of striking a redevelopment deal long before the formal redevelopment process begins."[138]

Well-connected local developers who have done successful projects in the past have a large advantage because they are known to be reliable and discreet. This opens the possibility of "crony capitalism," which has been defined in this context as the "tendency of ostensible public-sector regulatory authorities reaching out to help their 'friends' in the private sector."[139] While it might be viewed from an economics perspective simply as a type of special interest regulation "by forcing us to see the particular cronies involved in shady deals, an emphasis on crony capitalism may be politically more useful than the more standard analysis."[140]

Finally, the "zoning for dollars" problem works two ways. State and local business development agencies might have to incentivize businesses to locate or remain in the area. This might involve provision of infrastructure or job training, but also could involve government condemnation of numerous small parcels, with the resulting "superparcel" made available for new commercial development.[141] I have argued that, if such

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Stein, *Reverse Exactions*, 26 WM. & MARY BILL OF RTS. J. *1, *8 (forthcoming 2017) (https://ssrn.com/abstract=2933013)(making counterpoint to assertion that dangers of corruption are low in the exactions context).

137. *See* Eagle, *supra* note 119, at 1079.

138. George Lefcoe, *After Kelo, Curbing Opportunistic TIF-Driven Economic Development: Forgoing Ineffectual Blight Tests; Empowering Property Owners and School Districts*, 83 TUL. L. REV. 45, 80 (2008).

139. Timothy A. Canova, *Banking and Financial Reform at the Crossroads of the Neoliberal Contagion*, 14 AM. U. INT'L L. REV. 1571, 1583 (1999) (reporting on American crony capitalism, conflicts of interest, and lack of transparency). *See also* Shawn Boburg, *How Kushner Funded a Luxury Tower*, WASH. POST, June 1, 2017, http://wapo.st/2qGLDSz?tid=ss_mail&utm_term=.66c57f8af25a (describing how Kushner consultants worked with New Jersey state officials to devise a map that connected the project location to an area including "some of the city's poorest and most crime-ridden neighborhoods" four miles away, while at the same time they excluded some wealthy neighborhoods only blocks away).

140. Paul H. Rubin, *Crony Capitalism*, 23 SUP. CT. ECON. REV. 105, 106–07 (2015).

141. Classic cases include Poletown Neighborhood Council v. City of Detroit, 304 N.W.2d 455 (Mich. 1981), *overruled by* County of Wayne v. Hathcock, 684 N.W.2d 765 (Mich. 2004) (upholding condemnation of entire ethnic neighborhood for construction of

practices are to occur, the former owners should have a realistic opportunity to acquire an equity stake in the resulting redevelopment.[142]

Notably, while government actions that discriminate *against* out-of-state firms run afoul of the "dormant Commerce Clause," the Supreme Court has not considered whether state incentives that operate *in favor* of out-of-state firms to relocate should be included.[143]

D. Exactions and Regulatory Property

1. The Pervasiveness of Exactions in Planning

How might we best view the demand of a municipality that a landowner provide a *quid pro quo* as a condition for obtaining a development permit? Exactions might range from dedicating land within a large subdivision for a new elementary school or a turn lane at the entrance, through providing funds to expand off-site infrastructure serving the project, to contributing for uses such as distant job retraining centers with only the most attenuated connection to the proposed development.[144] As Professors Lee Anne Fennell and Eduardo Peñalver have described, American land use planning has been replete with "exactions creep."[145]

The Supreme Court's analysis of exactions began with *Nollan v. California Coastal Commission*,[146] where it required that an "essential nexus" exist between a legitimate state

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Cadillac assembly plant); Kelo v. City of New London, 545 U.S. 469 (2005) (holding condemnation for regional economic revitalization to constitute valid "public use").

142. *See* Steven J. Eagle, *Assembling Land for Urban Redevelopment: The Case for Owner Participation*, *in* PROPERTY RIGHTS: EMINENT DOMAIN AND REGULATORY TAKINGS RE-EXAMINED 7 (Bruce L. Benson ed., 2010).

143. *See generally* Dan T. Coenen, *Business Subsidies and the Dormant Commerce Clause*, 107 YALE L.J. 965 (1998) (analyzing issues); Richard C. Schragger, *Cities, Economic Development, and the Free Trade Constitution*, 94 VA. L. REV. 1091, 1096 (2008) (noting that "cities are apt to engage in behavior that might be too solicitous of mobile capital, by forcing current residents to subsidize the entry of new or preferred arrivals").

144. *See* Kayden, *supra* note 124, at 3 ("[C]ities grant private real estate developers the legal right to disregard zoning restrictions in return for their voluntary agreement to provide urban design features such as plazas, atriums, and parks, and social facilities and services such as affordable housing, day care centers, and job training.").

145. *See* Fennell & Peñalver, *supra* note 120, at 342.

146. 483 U.S. 835 (1987).

interest and the "permit condition."[147] Next, where such a nexus did exist in *Dolan v. City of Tigard*,[148] the Court held that requirement to be a predicate to more penetrating inquiry, in which the municipality would have to demonstrate that there was a "rough proportionality" between the required exaction and the impact of the proposed development, and that this be supported by an "individualized determination" as opposed to a more general study of the area.[149]

Most recently, in *Koontz v. St. Johns River Water Management District*,[150] the Court applied the *Nollan-Dolan* principle to cases where the landowner was given the alternative of providing cash instead of an interest in real property, and also where the landowner refused to submit to the permit conditions. Writing for the Court, Justice Samuel Alito stated that the Court had "little trouble" distinguishing between the alternative of paying money in lieu of submitting to an exaction of real property and, as the respondents had suggested the case involved, exercising the "power of taxation."[151] In response to the contention that there was no taking where the permit conditioned upon an exaction was declined by the landowner, the Court responded:

> Extortionate demands for property in the land-use permitting context run afoul of the Takings Clause not because they take property but because they impermissibly burden the right not to have property taken without just compensation. As in other unconstitutional conditions cases in which someone refuses to cede a constitutional right in the face of coercive pressure, the impermissible denial of a governmental benefit is a constitutionally cognizable injury.[152]

Justice Alito further stated that government may not "engage[] in 'out-and-out ... extortion'" by ". . . leverag[ing] its legitimate interest in mitigation" of police power burdens

147. *Id.* at 837 (holding that the Commission's statutory powers to protect the view of the ocean from the public highway in front of a home did not justify a demand for an public easement of way behind the home, along the shore).

148. 512 U.S. 374, 376 (1994).

149. *Id.* at 391.

150. 133 S. Ct. 2586 (2013).

151. *Id.* at 2602.

152. *Id.* at 2596.

caused by the proposed development."[153] *Nollan, Dolan*, and *Koontz* all involved exaction demands "adjudicated" by agency administrators, rather than legislated by a city council. Notably, the Court has not yet extended *Nollan-Dolan* to legislative exactions, and Justice Thomas recently reiterated that he "continue[d] to doubt that 'the existence of a taking should turn on the type of governmental entity responsible for the taking.'"[154] Scholarly reaction to *Koontz* has been mixed, with some enthusiastically in favor,[155] some qualifying support to adjudicative exactions,[156] and some dismissing the idea that extortion plays a significant role in the exactions process.[157]

Professor Timothy Mulvaney has warned that scholars favoring a Progressive view of property should not be too quick to defend the adjudicative-legislative distinction, since conceding that legislative actions had greater legitimacy would have untoward effects.[158] First, "the argument to immunize legislative exactions from heightened scrutiny is necessarily imbued with a tacit criticism of administrative exactions," which might produce "spillover effects on the many eminent domain and regulatory takings situations that involve administrative acts unrelated to exactions."[159] In addition, it might result in "a pronounced shift in land use policy toward broad, unbending legislative measures to avoid . . . heightened scrutiny," which would preclude finer-grained administrative regulation would take into account "the personal, political, and economic identities of those persons or groups" affected by land use conflicts.[160]

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153. *Id*. at 2595.

154. *See* Cal. Bldg. Indus. Ass'n v. City of San Jose, 136 S. Ct. 928, 928 (2016) (Thomas, J., dissenting from denial of certiorari) (*quoting* Parking Assn. of Ga., Inc. v. Atlanta, 515 U.S. 1116, 1117 (1995) (Thomas, J., dissenting from denial of certiorari)).

155. *See, e.g.*, Christina M. Martin, *Nollan and Dolan and Koontz-Oh My! The Exactions Trilogy Requires Developers to Cover the Full Social Costs of Their Projects, but No More*, 51 WILLAMETTE L. REV. 39, 41–42 (2014) ("*Koontz* will protect property rights while also protecting the community by ensuring that developers bear the full costs of their projects.").

156. *See* Shelley Ross Saxer, *When Local Government Misbehaves*, 2016 UTAH L. REV. 105, 106 (2016) ("[L]egislative actions are subject to public hearings and are generally directed to resolving issues affecting the community as a whole. But when individual decision making is involved, there is considerable concern about self-dealing, special interests, and the potential for abuse of power.").

157. *See* Daniel P. Selmi, *Takings and Extortion*, 68 FLA. L. REV. 323 (2016) (rejecting the extortion narrative underlying the *Koontz* holding).

158. *See* Timothy M. Mulvaney, *Legislative Exactions and Progressive Property*, 40 HARV. ENVTL. L. REV. 137 (2016).

159. *Id*. at 141.

160. *Id*. at 142.

Also lending support to a broad view of exactions, but from more of an economic perspective, Professor Gregory Stein suggests that permitting exactions do not result from attempts to enhance the public fisc at the expense of developers and their buyers, but rather to offset the negative externalities that the proposed development would impose on other landowners.[161] In some cases, however, restrictions are imposed not to eliminate ostensible negative externalities imposed by the landowner, but rather to create positive externalities when bestowed on recipients favored by local officials.[162]

Undoubtedly, exactions do often offset negative externalities, a point readily acknowledged in *Koontz* by Justice Alito.[163] However, he also noted that "[s]o long as the building permit is more valuable than any just compensation the owner could hope to receive for the [property right taken], the owner is likely to accede to the government's demand, no matter how unreasonable."[164]

As I have elaborated upon elsewhere,[165] municipalities have informal mechanisms for demanding "volunteered" exactions from one-time applicants that elude the formal record, and many more ways of ensuring compliance from local developers who are repeat players. "Zoning for dollars" is not an academic exercise. Unless closely offsetting negative externalities that in fact are generated by the project, in a residential context it operates as a tax on homebuilders, the incidence of which

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161. Stein, *supra* note 136, at *3 ("[T]he objective of an exaction is not for the government to acquire a property right for its own use or to enrich itself in some other way. Rather, the government seeks to ensure that other stakeholders that will suffer as a result of the applicant's more intensive use do not bear an unfair portion of the cost of that new development.").

162. *See, e.g.,* George Lefcoe, *Redevelopment Takings After Kelo: What's Blight Got to Do with It?*, 17 S. CAL. REV. L. & SOC. JUST. 803, 841 (2008) (noting that in many subsidized redevelopment projects, "the local agency typically consults informally with private developers before going forward," and that "blatant cronyism or corruption might elude easy detection").

163. Koontz v. St. Johns River Water Mgt. Dist., 133 S. Ct. 2586, 2595 (2013) ("A . . . reality of the permitting process is that many proposed land uses threaten to impose costs on the public that dedications of property can offset.").

164. *Id.*

165. Steven J. Eagle, *Koontz in the Mansion and the Gatehouse*, 46 URB. L.J. 1, 28–29 (2014) (noting how developers or their attorneys may be engaged in undocumented informal bargaining or subject to blunt demands outside of the formal development application process). The title analogizes Yale Kamisar's *Equal Justice in the Gatehouses and Mansions of American Criminal Procedure*, *in* CRIMINAL JUSTICE IN OUR TIME 1 (A.E. Dick Howard ed., 1965) (comparing respect for defendants' rights in the "mansion" of the courtroom with abusive preliminary conduct in the "gatehouse" of the police station).

largely is passed on to homebuyers, thus ironically making housing less affordable.[166] That result would truly be a mark of good intentions gone astray.

2. Regulatory Property

If small-scale urban land use regulation often is marked by exactions from developers, important incentives for their cooperation are the awarding of "regulatory property" and entrenched rights Property rights are based on sources such as state law.[167] One type of asserted right that is particularly dubious is "regulatory property," which comprises grants of government authority to engage in conduct that is unlawful for others.[168] The monopoly on accepting street hails from passengers by New York City taxicabs that possess City-issued medallions is a classic example.[169]

An increasingly general and pervasive form of regulatory property is occupational licensure. While only some five percent of workers required licenses to pursue their occupations in the 1950s, nearly a third do today.[170] While ostensibly promulgated to improve product safety and quality, they do so only marginally, while increasing prices and reducing availability.[171] "[T]hanks to the doctrine of *Parker* antitrust immunity, the one entity that can most effectively engage in anti-competitive conduct—the government—may do so with impunity, and states may effectively nullify federal antitrust laws on behalf of private monopolists."[172]

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166. *See* Robert C. Ellickson, *The Irony of Inclusionary Zoning*, 54 SO. CAL. L. REV. 1167, 1170 (1981) (asserting that "most 'inclusionary' programs are ironically titled," since they "are essentially taxes on the production of new housing").

167. Bd. of Regents v. Roth, 408 U.S. 564, 577 (1972) ("Property interests, of course, are not created by the Constitution. Rather they are created and their dimensions are defined by existing rules or understandings that stem from an independent source such as state law—rules or understandings that secure certain benefits and that support claims of entitlement to those benefits.").

168. *See* Bruce Yandle & Andrew P, Morriss, *The Technologies of Property Rights: Choice Among Alternative Solutions to Tragedies of the Commons*, 28 ECOLOGY L.Q. 123 (2001) (coining term). *See also* Carol M. Rose. *The Several Futures of Property: Of Cyberspace and Folk Tales. Emission Trades and Ecosystems,* 83 MINN. L. REV. 129, 164–65 (1998).

169. *See generally* Katrina Miriam Wyman, *Problematic Private Property: The Case of New York Taxicab Medallions*, 30 YALE J. ON REG. 125, 168 (2013) (supplying details).

170. Aaron Edlin & Rebecca Haw, *Cartels by Another Name: Should Licensed Occupations Face Antitrust Scrutiny?*, 162 U. PA. L. REV. 1093, 1096 (2014).

171. *Id*. at 1096–98.

172. Timothy Sandefur, *Freedom of Competition and the Rhetoric of Federalism*: *North Carolina Board of Dental Examiners v. FTC*, CATO SUP. CT. REV. 195, 196 (2015)

Companies that have expended considerable sums in reliance upon governmental restrictions that subsequently are relaxed or eliminated may claim that, as a result, those costs are "stranded" (i.e., non-recoverable) and they have suffered "deregulatory takings."[173] Those arguments have not fared well in the courts.[174]

An assertion of regulatory property particularly germane to land use was a claim that the loss in value of the transferable development rights (TDRs) featured in the *Penn Central* case[175] constituted a taking. The TDRs were given to the railroad to "mitigate" what otherwise might have been a regulatory taking of its air rights above Grand Central Terminal.[176] Owners of the TDRs would be permitted instead to develop some 1.2 million square feet of air rights in the vicinity of Grand Central in excess of that permitted owners of those parcels under generally applicable zoning.[177]

As recounted by Professor Christopher Serkin, 40 years later the air rights were still unused, and had been purchased by Midtown TDR Ventures, which planned to sell them for a substantial sum in booming Midtown Manhattan real estate market.[178] However, a change in city zoning restrictions on nearby parcels, allegedly at the behest of a neighboring owner, deprived the TDRs of value, and Midtown TDR sued.[179] The action was dismissed after the neighboring owner paid what were described as nominal damages.[180]

(discussing Parker v. Brown, 317 U.S. 341, 350 (1943) (upholding anti-competitive compacts where they "derived its authority and its efficacy from the legislative command of the state").

173. *See* J. Gregory Sidak &Daniel F. Spulber, *Deregulatory Takings and Breach of the Regulatory Contract*, 71 N.Y.U. L. REV. 851 (1996) (coining term).

174. *See* U.S. Commodity Futures Trading Comm'n. v. Oystacher, 203 F. Supp. 3d 934, 941 (N.D. Ill. 2016) (explaining that businesses affected by regulation likely will know the law and seek clarification if necessary) (citing Cruz v. Town of Cicero, No. 99 C 3286, 2000 WL 369666, at *3 (N.D. Ill. Apr. 6, 2000).

175. Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104 (1978). For a discussion of TDRs, see *infra* Part III.E.3.

176. *Penn Cent. Transp. Co.*, 438 U.S at 137.

177. Serkin, *supra* note 129, at 914.

178. *Id.*

179. Complaint ¶ 5, Midtown TDR Ventures LLC v. City of New York, No. 1:15-cv-07647 (S.D.N.Y. Sept. 28, 2015); *see also* Charles V. Bagli, *Owner of Grand Central Sues Developer and City for $1.1 Billion Over Air Rights*, N.Y. TIMES, Sept. 28, 2015, http://www.nytimes.com/2015/09/29/nyregion/owner-of-grand-central-sues-developer-and-city-for-1-1-billion-over-air-rights.html (describing litigation).

180. Complaint for Notice of Dismissal, No. 1:15-cv-07647 (S.D.N.Y. Aug. 10, 2016); Charles V. Bagli, *Owners of Grand Central Drop Lawsuit, Clearing Way for a 1,401-Foot-Tall Skyscraper*, N.Y. TIMES, Aug. 10, 2016.

A somewhat similar attempt to assert that government benefits were entrenched as constitutional property occurred in *Kaufmann's Carousel, Inc. v. City of Syracuse Industrial Development Agency*.[181] There, the plaintiffs unsuccessfully resisted the condemnation of easements on grounds including that they had acquired their lease as the result of a previous condemnation, which they asserted was a determination of "public use," so that the subsequent condemnation could not be for a public use.[182]

While these cases might be deemed of passing interest, they point to a much more profound problem—that of recipients of government largesse attempting to entrench those benefits in the form of constitutionally protected property.[183] We are likely to see more attempts to treat stranded costs as "property," given the disruptions that new internet-based platform companies are having on established, regulated industries.[184]

Thus, there is a danger that what seem to be "mitigations" based on fairness, such as the award of TDRs, might be ossified as entrenched property with a harmful result.

E. Other New Land Use Regulatory Techniques

While development exactions as a condition for project approvals are perhaps the most common technique for localities seeking land use flexibility and revenue, others have played a prominent role, as well.

1. Grand Bargains

One device, building upon traditional local politics, urges the formation of transitory coalitions of disparate interest groups, assembled ad hoc to seize the moment and enact and entrench zoning grand bargains.[185] However, such a plan would create vested property rights on a grand scale and, one again, hinder future adaptation to change.[186] The argument for entrenchment is undermined by the fact that "uncertainty

181. 750 N.Y.S.2d 212 (N.Y. App. Div. 2002).

182. *Id.* at 221.

183. *See* Christopher Serkin, *Public Entrenchment Through Private Law: Binding Local Governments*, 78 U. CHI. L. REV. 879 (2011).

184. Orly Lobel, *The Law of the Platform*, 101 MINN. L. REV. 87, 112 (2016).

185. *See* Roderick M. Hills, Jr. & David Schleicher, *Planning an Affordable City*, 101 IOWA L. REV. 91 (2015).

186. *See* Steven J. Eagle, *On Engineering Urban Densification*, 4 BRIGHAM-KANNER PROP. RTS. CONF. J. 73, 78–79 (2015).

concerning government policy is analytically equivalent to general market uncertainty. The prevailing assumption in our society that market solutions for allocating risk are preferable to government remedies is therefore equally applicable when the risks to be allocated arise from legal transitions."[187]

2. Public-Private Partnerships

Public Private Partnerships for real estate development project are long-term contractual agreements between government agencies and private developers, whereby "the skills and assets of each sector are shared in delivering a development project."[188] The private entity might own a ground lease and manage the project, with the agency maintaining control through ownership of the fee simple and, perhaps, an equity interest.[189] One form of public-private partnership is a "business improvement district" (BID), in which businesses located in specified geographical areas consent to the assessment of taxes to pay for enhanced amenities such as security and sanitation.[190]

Public Private Partnerships have been attacked for alleged failures to provide adequate protection for individual rights and democratic values.[191] "The eclipse of traditional land use planning procedures by cities' wholehearted embrace of development agreements and similar bilateral negotiated approaches leaves next to no room for the public."[192] More specifically, BIDs have been criticized as resulting from "a

187. Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509, 520 (1986).

188. Thomas M. Gallas & Cheryl A. O'Neill, *Public Private Partnerships: Design and Finance Transforming Urban Neighborhoods*, 42 REAL ESTATE REV. J., Art. 2 (2013).

189. *Id.*

190. *See* Richard Briffault, *A Government for Our Time? Business Improvement Districts and Urban Governance*, 99 COLUM. L. REV. 365, 366 (1999) (describing BIDs as "one of the most intriguing and controversial recent developments in urban governance" and "[c]ombining public and private, as well as city government and neighborhood elements").

191. *See* Alfred C. Aman, Jr. & Joseph C. Dugan, *The Human Side of Public-Private Partnerships: From New Deal Regulation to Administrative Law Management*, 102 IOWA L. REV. 883 (2017).

192. David A. Marcello, *Community Benefit Agreements: New Vehicle for Investment in America's Neighborhoods*, 39 URB. LAW. 657, 661 (2007) (quoting Alejandro Esteban Camacho, *Mustering the Missing Voices: A Collaborative Model for Fostering Equality, Community Involvement and Adaptive Planning in Land Use Decisions, Installment One*, 24 STAN. ENVTL. L.J. 3, 36–37 (2005)).

series of flawed and contentious Supreme Court decisions preferring localism over equality and privatization over free speech."[193]

Furthermore, sales and long-term leases of municipal infrastructure to private entities that will run them often have proved ill-advised and used to temporarily buttress the finances of distressed cities.[194] "Unfortunately, all of these stabilization methods are characterized by short-term cash infusions that produce disproportionate future expenses or lost future revenue."[195]

3. Transferable Development Rights

TDRs are issued by government and permit the recipients to transfer development precluded by regulation of their existing parcels to other parcels they own or acquire. "Simply put, TDR programs separate the development potential of a parcel from the land itself and create a market where that development potential can be sold."[196] Thus, an owner in a "sending" zone receives TDRs in lieu of development in that area that government wishes to protect, and can utilize the TDRs to develop acquired property in a designated "receiving" zone more intensively than its former owner was permitted.[197]

The classic example of the use of TDRs was to "mitigate" what otherwise might have been a taking in *Penn Central*.[198] As the Court explained: "While these rights may well not have constituted 'just compensation' if a 'taking' had occurred, the rights nevertheless undoubtedly mitigate whatever financial burdens the law has imposed on appellants and, for that reason, are to be taken into account in considering the impact

193. Wayne Batchis, *Business Improvement Districts and the Constitution: The Troubling Necessity of Privatized Government for Urban Revitalization*, 38 HASTINGS CONST. L.Q. 91, 92 (2010).

194. *See, e.g.*, Michelle Wilde Anderson, *The New Minimal Cities*, 123 YALE L.J. 1118, 1168–69 (2014) (describing a problematic long-term lease of parking meters by a "desperate" city of Chicago, whereby an investment group would receive $11.6 billion from "a deal that paid the city $1.15 billion for a one-time budget fix").

195. Samir D. Parikh & Zhaochen He, *Failing Cities and the Red Queen Phenomenon*, 58 B.C. L. REV. 599, 610 (2017).

196. Julian Conrad Juergensmeyer et. al., *Transferable Development Rights and Alternatives After Suitum*, 30 URB. LAW. 441, 446 (1998).

197. *Id.* at 446–48.

198. Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 137 (1978). For discussion, see *supra* notes 175–177 and accompanying text.

of regulation."[199] Notably, the shifting of development rights considered in *Penn Central* were from one part of the same tract of land to another.[200]

I have elsewhere criticized TDRs as wrongfully depriving owners in the receiving zones of property without just compensation.[201] First, as in exactions schemes generally, the ability of localities to benefit from the sale of development approvals for what Jerold Kayden in *Zoning for Dollars* described as in excess of "first tier" rights encourages over-regulation and corruption.[202] In addition, if dense development is permissible on a certain parcel when the applicant owns TDRs, that development should have been permissible had the applicant for the same exact project been the original landowner.[203]

Professor Serkin has argued that, while my argument about over-regulation was "undoubtedly correct," the "strong form" of my argument "misconstrues the kinds of tradeoffs that are ubiquitous in land use controls."[204] He added that "zoning is much more fluid than this and frequently represents dynamic tradeoffs," so that a city may desire density limitations in the receiving area, but "may have an even greater interest in protecting a historic building."[205] Awarding TDRs in this situation "represents nothing more than a straightforward cost-benefit analysis."[206]

The division of a municipality into zoning districts does represent a judgment regarding relative value among permissible uses being situated in one area as opposed to another. Also, the establishment of new uses in one part of town might legitimately occasion rebalancing of other uses in a different part of town.

However, ad hoc decisions awarding TDRs also constitute ad hoc decisions reducing ownership rights. The point is that local officials are not making abstract decisions that historic features should be preserved and other abstract decision that

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199. *Id.*

200. *Id.* at 130–31 ("In deciding whether a particular governmental action has effected a taking, this Court focuses rather both on the character of the action and on the nature and extent of the interference with rights in the parcel as a whole—here, the city tax block designated as the 'landmark site.'")

201. Eagle, *supra* note 133, at 34–36.

202. *See* Kayden, *supra* note 124. For discussion, see *supra* notes 123–128, and accompanying text.

203. Eagle, *supra* note 133, at 34–36.

204. Serkin, *supra* note 129, at 926–27.

205. *Id.*

206. *Id.* at 927.

more development might be permissible in another area. Rather, as Professor Juergensmeyer and his colleagues more aptly put it, the idea is to "separate the development potential of a parcel from the land itself and create a market where that development potential can be sold."[207] The potential of "a parcel" is "sold" in essentially a barter transaction to the aggrieved owner of the historic site.

Concerns about TDRs mostly have involved the extent to which they were adequate substitutes for reductions in the rights of property owners.[208] However, I distinguish TDR schemes in which owners of land in the sending areas are compensated through reciprocity of advantage from those schemes in which the municipality arrogates to itself the benefits of restrictions giving value to the TDRs.

In *Barancik v. County of Marin*,[209] development in the Nicasio Valley north of San Francisco was stringently limited to preserve the "beautiful rural landscape" and agricultural use.[210] The TDR scheme "permitted ranchers in the valley to sell to other property owners in the valley the right to develop within the regulations of the community. A purchaser could accumulate more than one development right."[211] In response to the rhetorical question as to how the TDR scheme differed from the sale of the police power, the Ninth Circuit responded that buyers "are not being given a dispensation from zoning by payment of a fee to the state," but rather "are being permitted to accumulate development rights in the same area by a price paid to *the owner* of the rights."[212] The court added that the county "is rightly indifferent" as to who does the limited amount of development permitted, and "lets the market decide the price."[213]

In the prevalent *Penn Central* type of TDR scheme, the government is not at all indifferent as to who does the development, but rather insists that it be done by the entity to

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207. Juergensmeyer, *supra* note 196, at 446.

208. *See* Fred F. French Investing Co. v. City of New York, 352 N.Y.S.2d 762 (1973); Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104 (1978); *see also* Gideon Kanner, *Hunting the Snark, Not the Quark: Has the U.S. Supreme Court Been Competent in Its Effort to Formulate Coherent Regulatory Takings Law?*, 30 URB. LAW. 307, 356–57 (1998) (describing substantial practical problems faced by TDR recipients).

209. 872 F.2d 834 (9th Cir. 1988).

210. *Id.* at 835.

211. *Id.*

212. *Id.* at 837 (emphasis added).

213. *Id.*

which it has awarded rights or its assignee, for the purpose of staving off a possible need to pay just compensation for a restriction it imposed.

Professor Serkin correctly asserts that the protection of a "historic building" through use of TDRs might have greater benefit to society than the burden placed on owners in the receiving zone.[214] But conferring benefit on society is an attribute associated with both the police power *and* the takings power.[215] A feature implicit in *Penn Central* TDR schemes is that recipients who are singled out for worthiness are accorded special development rights in specified zones designed to be attractive to them. This seems counter to principles of fairness enunciated in *Armstrong*,[216] and the centuries-old observation reiterated in *Kelo v. City of New London*,[217] that "a law that takes property from A. and gives it to B . . . is against all reason and justice."[218]

Perhaps the best answer to preserving a "historic building" was enunciated just as TDRs first were coming into vogue: "Rather than utilizing unreliable methods of shifting preservation costs onto a select group (whether developers or ardent supporters of landmark preservation), as is done by TDR systems, the municipality itself should assume responsibility for saving landmarks."[219]

4. Land Use Regulation as Neighborhood Property

In *Fee Simple Obsolete*,[220] Professor Lee Anne Fennell suggested that government or another entity might be able to acquire a "callable fee," whereby property within a "callblock" would be available for subsequent repurposing.[221] While she would capture the value of large-scale redevelopment for the

214. Serkin, *supra* note 129, at 927.

215. *See*, *e.g.*, Nollan v. Cal. Coastal Comm'n., 483 U.S. 825, 853 (1987) (noting that a government action that is a "legitimate exercise of the police power does not, of course, insulate it from a takings challenge").

216. Armstrong v. United States, 364 U.S. 40, 49 (1960) (quoted in Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 123–24 (1978) (asserting that public burdens" should not be "disproportionately concentrated" on the few.")).

217. 545 U.S. 469 (2005).

218. *Id.* at 477 n.3 (quoting Calder v. Bull, 3 Dall. 386, 388 (1798)).

219. Note, *The Unconstitutionality of Transferable Development Rights*, 84 YALE L.J. 1101, 1122 n.14 (1975)

220. Fennell, *supra* note 19.

221. *Id.* at 1482–85. "Properties within these 'callblocks' would be sold subject to a call option. These call options would make each new possessory owner subject to having her property repurchased later, along with the other properties in the callblock[.]" *Id.* at 1484.

community, the economist Robert Nelson argued that zoning instantiates collective neighborhood property rights belonging to the individuals in the neighborhood.[222] He proposed that supermajorities of owners in neighborhoods they define be able to sell all parcels, thus reaping for existing owners the monetary value of the one consolidated parcel in excess of the aggregate value of the many parcels that comprised it.[223] A similar proposal for "land assembly districts" was made by Professors Michael Heller and Rick Hills.[224]

However, these proposals permit a self-selected group of owners to custom design an area in which a super-majority can arrogate to itself property interests of the dissenters. That might result in land having more pecuniary value, but it would be at the cost of the autonomy of the unwilling participants.[225]

V. GOOD INTENTIONS AND AFFORDABLE HOUSING

One area where good intentions have been notably ineffective has been the provision of affordable housing. As I have discussed elsewhere, the popularity of affordable housing results from its being a metaphor, not a policy or even a shared specific goal for reducing housing prices in areas enjoying economic prosperity and fine natural and cultural amenities.[226]

Economic prosperity largely results from the presence of a deep pool of talented workers and competing firms who can utilize their specialized skills, together with those with the wherewithal and tastes to add vibrancy.[227] The resulting agglomeration makes for great cities. However, expanding

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222. Robert H. Nelson, *A Private Property Right Theory of Zoning*, 11 URB. LAW. 713 (1979).

223. Nelson, *supra* note 91, at 834 (proposing that owners of land with supermajorities by number of parcels or fair market value in neighborhoods they define have powers to designate use or sale).

224. Michael Heller & Rick Hills, *Land Assembly Districts*, 121 HARV. L. REV. 1465, 1468 (2008).

225. *See generally* Steven J. Eagle, *Devolutionary Proposals and Contractarian Principles*, in THE FALL AND RISE OF FREEDOM OF CONTRACT 184–91 (F. H. Buckley, ed. 1999).

226. *See* Eagle, *supra* note 80.

227. *See generally* GLAESER *supra* note 111.

cities tend to become congested, which offsets agglomerations benefits.[228] Sometimes agglomeration enhances activities that are undesirable, as well.[229]

"Amenities" is an expansive term encompassing those attributes that make residential living aesthetically pleasing and vital. One way municipalities can jumpstart the process, which is associated with Richard Florida, is by providing the requisite amenities to lure the "creative class."[230] Some have been skeptical of the concept,[231] and others thought that in many cases causation worked in the other direction, with prosperity leading to amenities.[232]

In his 2017 book *The New Urban Crisis*, Florida acknowledged that the high level of prosperity that the creative class brought to a few cities that he celebrated 15 years earlier was not an urban panacea.[233] While our urban crisis of the 1960s and 1970s, he asserted, was marked by "economic abandonment of cities" and "white flight," "persistent poverty," and crime,[234] one element of our "new urban crisis" involves the "deep and growing economic gap" between a handful of "superstar" cities and technology hubs and other areas, which Florida calls "winner-take-all urbanism."[235] Closely associated are the "extraordinary high and increasingly unaffordable housing prices and staggering levels of inequality" in superstar cities.[236] But broader dimensions include the "growing inequality, segregation, and sorting" within all cities, the movement of "poverty, insecurity, and crime" into the suburbs, and the "crisis of urbanization in the developing world."[237]

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228. *See* Nestor M. Davidson & John J. Infranca, *The Sharing Economy As an Urban Phenomenon*, 34 YALE L. & POL'Y REV. 215, 225 (2016) (noting that congestion is the "inverse" of the "many benefits that accrue from the proximity and density").

229. *See* Schleicher, *supra* note 110, at 1529 (referring to "factors that have increasing returns to scale but a negative effect" as "negative agglomeration").

230. *See* RICHARD FLORIDA, THE RISE OF THE CREATIVE CLASS: AND HOW IT'S TRANSFORMING WORK, LEISURE, COMMUNITY AND EVERYDAY LIFE (2002).

231. *See* Steven J. Eagle, *The Really New Property: A Skeptical Appraisal*, 43 IND. L. REV. 1229, 1262 (2010).

232. *See* Richard C. Schragger, *Rethinking the Theory and Practice of Local Economic Development*, 77 U. CHI. L. REV. 311, 328 (2010) (noting that in many instances, such as Silicon Valley, it was economic prosperity that led to the creation of amenities).

233. RICHARD FLORIDA, THE NEW URBAN CRISIS: HOW OUR CITIES ARE INCREASING INEQUALITY, DEEPENING SEGREGATION, AND FAILING THE MIDDLE CLASS—AND WHAT WE CAN DO ABOUT IT (2017).

234. *Id.* at 5.

235. *Id.* at 5–6.

236. *Id.* at 6.

237. *Id.* at 7–8.

In outlying areas, the loss of manufacturing jobs has contributed to rural America being the "new inner city."[238] The plight of rural areas was highlighted by Anne Case and Angus Deaton's path breaking work on the increase in "deaths of despair"—death by drugs, alcohol and suicide.[239] "[F]or the first time, the Centers for Disease Control and Prevention (CDC) now reports declines in life expectancy among less-educated rural whites, especially in impoverished and remote counties of Appalachia."[240]

Recent evidence suggests that "[a]s young people and builders have shifted their focus toward trendier urban markets, overall housing construction has declined."[241] Recent census data indicates, though, that suburban growth is increasing again relative to growth in cities.[242] Some evidence suggests a mixed pattern, with increased growth in the urban core in some cities, and more sprawl in others,[243] with already-dense metropolitan areas becoming denser, and sprawling metro areas spreading out further.[244] "In some of the country's largest and most prosperous markets, such as New York, San Francisco, Boston and Los Angeles, housing construction has been stronger than normal in the urban core but weaker in the suburbs, where new housing can be built abundantly and more cheaply . . . "[245]

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238. *See* Janet Adamy and Paul Overberg, *Rural America is the New Inner City*, WALL ST. J., May 27, 2017 at A1, https://www.wsj.com/articles/rural-america-is-the-new-inner-city-1495817008.

239. Anne Case & Angus Deaton, *Rising Morbidity and Mortality in Midlife Among White Non-Hispanic Americans in the 21st Century*, 112 PROCEEDINGS NATIONAL ACADEMY OF SCIENCES 15078, 15078 (2015), http://www.pnas.org/content/112/49/15078. "This increase for whites was largely accounted for by increasing death rates from drug and alcohol poisonings, suicide, and chronic liver diseases and cirrhosis. Although all education groups saw increases in mortality from suicide and poisonings, and an overall increase in external cause mortality, those with less education saw the most marked increases." *Id*.

240. Daniel T. Lichter & James P. Ziliak, *The Rural-Urban Interface: New Patterns of Spatial Interdependence and Inequality in America*, 672 ANNALS AM. ACAD. POL. & SOC. SCI. 6, 20 (2017).

241. Laura Kusisto, *Why Millennials Are (Partly) to Blame for the Housing Shortage*, WALL ST. J., May 22, 2017, https://www.wsj.com/articles/why-millennials-are-partly-to-blame-for-the-housing-shortage-1495445403.

242. Thomas H, Frey, *City Growth Dips Below Suburban Growth, Census Shows*, BROOKINGS, May 30, 2017).

243. Jed Kolko, *Seattle Climbs but Austin Sprawls: The Myth of the Return to Cities*, N.Y. TIMES, May 22, 2017, https://nyti.ms/2rKDQ70.

244. *Id*. (contrasting dense cities such as New York, Chicago, and San Francisco with sprawling cities such as Austin and San Antonio).

245. Kusisto, *supra* note 241.

> This combination of faster population growth in outlying areas and bigger price increases in cities points to limited housing supply as a curb on urban growth, pushing people out to the suburbs. It's a reminder that where people live reflects not only what they want — but also what's available and what it costs.[246]

It is important to note that neither population growth nor diversity necessarily contributes to prosperity since, as Professor Lee Anne Fennell observed, prosperity has a function of "agglomeration-friendly and congestion-mitigating traits," and "[t]he challenge is to assemble participants together whose joint consumption and production activities will maximize social value."[247] Furthermore, even beyond the incompatibility of productive uses, a lack of proper controls of open city spaces can result in a "tragedy of the urban commons"[248] in which "chronic street nuisances" drive out other users.[249]

A. Preservation of Community

Political entitles have their own character, which is another way of saying that they favor the particular values and desires of existing residents over those of putative possible residents, or over what some might fancy to be the universal values of a better world. The perceptive land use practitioner and scholar Richard Babcock referred to this tendency as "municipal primogeniture."[250] Since *Euclid*, we have recognized that parochial interests sometimes must yield to the common good.[251] One basic problem, however, is discerning what the common good is.

While the term "intersectionality" generally is associated with problems pertaining to race that are complex, intertwined,

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246. Kolko, *supra* note 243.

247. Lee Anne Fennell, *Agglomerama*, 2014 B.Y.U. L. REV. 1373, 1375 (2014) (internal citations omitted).

248. Sheila R. Foster & Christian Iaione, *The City as a Commons*, 34 YALE L. & POL'Y REV. 281, 298–99 (2016).

249. Robert C. Ellickson, *Controlling Chronic Misconduct in City Spaces: Of Panhandlers, Skid Rows, and Public-Space Zoning,* 105 YALE L.J. 1165, 1169 (1996) (defining "chronic street nuisances" as protracted annoying behavior in public spaces, such as aggressive panhandling or graffiti, that drives out other users).

250. RICHARD BABCOCK, THE ZONING GAME 150 (1966).

251. Vill. of Euclid v. Ambler Realty Co., 272 U.S. 365, 389–90 (1926) ("It is not meant by this [upholding of local autonomy], however, to exclude the possibility of cases where the general public interest would so far outweigh the interest of the municipality that the municipality would not be allowed to stand in the way.").

and thus particularly difficult to solve,[252] many other land use problems have similar characteristics. The great environmentalist John Muir made the point over a century ago that "[w]hen we try to pick out anything by itself, we find it hitched to everything else in the universe."[253]

The ties that bind people within neighborhoods exemplify interrelationships. An especially valued amenity is preservation of neighborhood character. This term relates to the deep satisfaction that many people enjoy in being deeply rooted in a community.[254] Established communities are important to the creation and maintenance of what we now refer to as "social capital."[255]

In the affordable housing context, rootedness leads to preferences that often conflict. Upper-middle class neighborhoods cling tenaciously to preservation of their character as stable, low-density areas of handsome single-family homes, sometimes adjoining quaint shopping areas or scenic natural vistas.[256] Such residents, and the local officials they elect, seek to protect their way of life from those who would settle for housing that is less attractive, but more affordable.[257] The large inequality between the growing upper-middle class and the lower socioeconomic classes has a "physical dimension in that most metropolitan areas differ greatly by the size and price of the homes in their neighborhoods and communities."[258] Recent data analysis suggests that there is a growing disparity of incomes within

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252. *See* Kimberle W. Crenshaw, *Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory, and Antiracist Politic*s, 1989 U. CHI. LEGAL F. 139, 140 (1989) (introducing term into the legal literature).

253. JOHN MUIR, MY FIRST SUMMER IN THE SIERRA 110 (Sierra Club Books 1988) (1911).

254. *See generally*, JOHN BRINCKERHOFF JACKSON, A SENSE OF PLACE, A SENSE OF TIME (1994).

255. *See* ROBERT D. PUTNAM, BOWLING ALONE: THE COLLAPSE AND REVIVAL OF AMERICAN COMMUNITY 19 (2000) ("Whereas physical capital refers to physical objects and human capital refers to properties of individuals, social capital refers to connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them.")

256. For a pertinent example, see DAVID BROOKS, BOBOS IN PARADISE: THE NEW UPPER CLASS AND HOW THEY GOT THERE (2000) (describing the folkways of "bobos," the contemporary meld of bourgeoisie and bohemians, who lead expansive upper-middle class lifestyles while professing devotion to the verities of the simple life through consumption of very expensive kitchen equipment, primitive art, and eco-tourism).

257. *See* FISCHEL, *supra* note 97, at 18 (describing how the "mercenary concern with property values" of "'homevoters' and their elected representatives shape zoning in homogeneous communities").

258. Stephen J. Rose, *The Growing Size and Incomes of the Upper Middle Class* 14 (Urban Institute Income and Benefits Policy Center, June 2016).

neighborhoods of large American cities, and that this results in lifelong effects on international mobility and opportunity for children exposed to it.[259]

This proclivity of the upper-middle class to protect its position and pass its status on to its children, which largely takes the form of exclusionary zoning, with the ensuing exclusive school districts, recently was criticized by Richard Reeves in his book *Dream Hoarders*.[260] As Thomas Edsall recently added, upper-middle class Democrats might support redistributive taxation, but not affordable housing or having a child lose a place at Princeton to a poorer worthy student.[261]

In a similar manner, traditional working class neighborhoods, often built around shared ethnicity, faith, and extended family, cling to their heritage.[262] In both cases, neighborhood preservation has the effect of impinging upon fair housing, which might be looked at as intentional,[263] or alternatively resulting from the fact that "the very notion of community, however broadly conceived, depends on exclusion."[264]

Similar impulses for neighborhood preservation have led inner-city residents to protest "gentrification." Recent evidence suggests that gentrification might result in substantial part from an increase in the number of higher-income households with a reduced tolerance for commuting,[265] with recent lower

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259. Andreoli Francesco & Eugenio Peluso, *So Close Yet so Unequal: Spatial Inequality in American Cities*, (Luxembourg Inst. of Socio-Econ. Research (LISER) Working Paper Series 2017-11, July 13, 2017), https://ssrn.com/abstract=3003959 (using Geni-type indices investigate patterns and consequences of spatial inequality in American cities over the last 35 years).

260. RICHARD V. REEVES, DREAM HOARDERS: HOW THE AMERICAN UPPER MIDDLE CLASS IS LEAVING EVERYONE ELSE IN THE DUST, WHY THAT IS A PROBLEM AND WHAT TO DO ABOUT IT (2017) (asserting that "opportunity hoarding" among the upper middle class through devices such as zoning, occupational licensing, schooling and college application procedures, reduces mobility and results in a less open society and less competitive economy).

261. Thomas B. Edsall, Opinion, *Has the Democratic Party Gotten Too Rich for Its Own Good?,* N.Y. TIMES, June 1, 2017, https://nyti.ms/2sqAqXI.

262. *See generally*, ALAN EHRENHALT, THE LOST CITY: THE FORGOTTEN VIRTUES OF COMMUNITY IN AMERICA (1996).

263. Lior Jacob Strahilevitz, *Exclusionary Amenities in Residential Communities*, 92 VA. L. REV. 437, 437 (2006) ("Developers will select common amenities not only on the basis of which amenities are inherently welfare-maximizing for the residents, but also on the basis of which amenities most effectively deter undesired residents from purchasing homes therein.").

264. Kenneth A. Stahl, *The Challenge of Inclusion*, 89 TEMP. L. REV. 487, 492 (2017).

265. *See* Lena Edlund, et al., *Bright Minds, Big Rent: Gentrification and the Rising Returns to Skill* 2 (U.S. Census Bureau Ctr. for Econ. Studies, Working Paper No. CES-WP-16-36, 2016), https://www2.census.gov/ces/wp/2016/CES-WP-16-36.pdf.

urban crime rates also playing a role.[266] Residents who are homeowners may want to sell to upscale and often-young buyers at what they consider inflated prices. But inner-city tenants are squeezed out by dramatically higher rents, without the consolation of a handsome return.[267]

The interaction between urban displacement and gentrification can be "sensitive to income inequality, density, and varied preferences for different types of spatial amenities."[268] On the other hand, sometimes decaying neighborhoods are spruced up, and ensuing higher real estate tax collections permit often-strapped municipalities to make vitally-needed improvements to local schools, roads, and hospitals.[269]

In a more general sense, attempts at historic preservation of existing structures and patterns of human association can be at variance with urban culture itself, which might be "defined by dynamism, vitality, and an ability to adapt to and accommodate population and market shifts."[270] A recent study by Ann Owens found that "the geographic deconcentration of assisted housing, the result of several housing programs initiated since the 1970s, only modestly reduced metropolitan-area poverty concentration from 1980 to 2009. . . . Even though a substantial policy shift occurred, its effectiveness in reducing poverty concentration was tempered by the existing context of durable urban inequality."[271] As one supporter of fair and affordable housing concluded:

> [T]he road to the current land use regulatory context in the United States is a full century long. The first six decades of that process took on the appearance of a

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266. *See* Ingrid Gould Ellen, et al., *Has Falling Crime Invited Gentrification*? (U.S. Census Bureau Ctr. for Econ.Studies Paper No. CES-WP-17-27, 2017), https://ssrn.com/abstract=2930242.

267. *See generally*, Miriam Zuk, et al., *Gentrification, Displacement and the Role of Public Investment: A Literature Review* (Fed. Reserve Bank of San Francisco, Working Paper 2015–05, 2015).

268. Geoff Boeing, *The Effects of Inequality, Density, and Heterogeneous Residential Preferences on Urban Displacement and Metropolitan Structure: An Agent-Based Model* 1, (Dec. 20, 2015), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2939933.

269. *See* J. Peter Byrne, *Two Cheers for Gentrification*, 46 HOW. L.J. 405, 405–06 (2003).

270. Anika Sing Lemar, *Zoning as Taxidermy: Neighborhood Conservation Districts and the Regulation of Aesthetics*, 90 IND. L.J. 1525, 1525 (2015).

271. Ann Owens, *Housing Policy and Urban Inequality: Did the Transformation of Assisted Housing Reduce Poverty Concentration?*, 94 (1) SOC. FORCES 325, 326 (Sept. 2015).

> headlong race toward exclusionary policies while the last four decades have been marked by occasional but ultimately not transformative attempts to press the brakes and restore balance. None of those attempts have fundamentally reshaped how people in communities on the ground think about land use regulation.[272]

B. Assistance to the poor and inner cities

The clearest intentions regarding affordable housing relate to the provision of homes for low- and moderate-income families. Even here, however, a number of different goals work at cross-purposes. Government subsidies for the construction of low-income housing seems the most direct affordable housing device, with the major exception of public housing projects, which in many cases proved disastrous.[273]

In his reflections on the first 25 years of the Journal of Affordable Housing and Community Development, Professor Tim Iglesias advocated that fair housing was "joined at the hip" with the Journal's principal concerns, and that the Journal has a "unique opportunity to provide a forum for integrating fair housing issues" into its existing affordable housing and community development focus.[274] Another need for a holistic approach advanced by Professor Iglesias relates to whether racial and socioeconomic residential segregation should be dealt with the using "traditional integration model," which focuses on the community as a geographical and social unit, or using the "individual access to the opportunity structure model," which focuses on the location of households vis-à-vis good schools, workplaces, medical facilities, cultural amenities, and the like.[275]

One of the more successful affordable housing programs has been the Low Income Housing Tax Credit (LIHTC), which "is one of the few government resources dedicated to helping low

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272. Thomas Silverstein, *State Land Use Regulation in the Era of Affirmatively Furthering Fair Housing,* 24 J. AFFORD. HOUS. 305, 328 (2015).

273. *See* EUGENE J. MEEHAN, THE QUALITY OF FEDERAL POLICYMAKING: PROGRAMMED FAILURE IN PUBLIC HOUSING 66–87 (1979) (discussing the demolition of the infamous Pruitt-Igoe Housing Project and the St. Louis Housing Authority).

274. Tim Iglesias, *Affordable Housing, Fair Housing and Community Development: Joined at the Hip, We Need to Learn to Walk Together*, 25 J. AFFORDABLE HOUS. & CMTY. DEV. L. 195, 198 (2017).

275. Tim Iglesias, *Two Competing Concepts of Residential Integration* 24, (Univ. of S.F. Law Research Paper No. 2017-09, 2017), https://ssrn.com/abstract=2965214.

income families find safe, decent and affordable housing."[276] "In its simplest form, LIHTC 'subsidizes the acquisition, construction, and/or rehabilitation of rental property by private developers.'"[277] However, after its recent review of federal housing finance data, *The New York Times*, while noting that LIHTC is the nation's "biggest source of funding for affordable housing," concluded that in the largest metropolitan areas housing utilizing LIHTC is "disproportionately built in majority nonwhite communities."[278] Furthermore, the value of the tax credits is highly dependent on the level of corporate taxation, so that contemplated Trump administration reductions in rates already suggests significant cutbacks in their use.[279] Another popular program, which does not require subsidies for capital investment, is Section 8 housing,[280] which subsidizes rents in scattered private residential buildings. However, as Section 8 contracts expire, the housing might revert to market rate, and federal funding for the program might be cut substantially.[281]

Another major issue, largely intersecting with questions of race, is affordable housing in more affluent suburbs. In 1968, the Fair Housing Act (FHA) forbade the denial of housing opportunities on the basis of "race, color, religion, or national origin."[282] Yet in 2015, writing for the majority in *Texas Department of Housing and Community Affairs v. Inclusive*

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276. Lance Bocarsly & Rachel Rosner, *The Low Income Housing Tax Credit: A Valuable Tool for Financing the Development of Affordable Housing*, 33 THE PRAC. REAL EST. LAW. 29, 30 (2017).

277. Courtney Lauren Anderson, *Affirmative Action for Affordable Housing*, 60 HOW. L.J. 105, 140 (2016) (*quoting* Paul Duncan et al., *Tax Incentives for Economic Development: What is the Low-Income Housing Tax Credit?, in* TAX POLICY CTR, THE TAX POLICY BRIEFING BOOK (2009)).

278. John Eligon, et al., *Program to Spur Low-Income Housing is Keeping Cities Segregated*, N.Y. TIMES, July 2, 2017, https://nyti.ms/2tBQ06t (citing the claim of fair-housing advocates that "the government is essentially helping to maintain entrenched racial divides, even though federal law requires government agencies to promote integration.").

279. *See* Robert McCartney, *Trump's Budget Plans Have Already Cut Financial Support for Low-Cost Housing*, WASH. POST, July 1, 2017, http://wapo.st/2sz1cNj?tid=ss_mail&utm_term=.d1046d506a85 (noting that "the loss of tax-credit financing has had its most severe impact in rural areas, towns or small cities, where investors are wary of financing affordable housing in the first place").

280. *See generally* 24 C.F.R. § 982 (2015) (the program is more formally known as the Federal Housing Choice Voucher program).

281. *See* Jose A. DelReal, *Trump Administration Considers $6 Billion Cut to HUD Budget*, WASH. POST, March 8, 2017, http://wapo.st/2mDrIps?tid=ss_mail&utm_term=.3a9a5ccc0c9c ("Budgets for public housing authorities—city and state agencies that provide subsidized housing and vouchers to local residents — would be among the hardest hit. Under the preliminary budget, those operational funds would be reduced by $600 million, or 13 percent.").

282. Civil Rights Act of 1968, 42 U.S.C. §§ 3601–06 (2012).

Communities Project,[283] Justice Kennedy related that patterns of racial segregation had continued.[284] The petitioners had argued that Texas allocated tax credits intended to assist low-income families obtain affordable housing disproportionately to predominately black inner-city areas.[285] The 5-4 majority held that petitioners could utilize evidence of disproportionate impact on protected groups in establishing their case, and need not show discriminatory intent.[286] Three weeks later, the HUD issued rules on "Affirmatively Furthering Fair Housing" ("AFFH") that required localities to collect detailed statistical data as a prelude to stricter enforcement.[287]

However, as noted by Professor Kenneth Stahl, "[e]fforts to break down these zoning barriers have faced fierce political resistance,"[288] and "the issue of affordable housing threatens to break up the democratic party coalition between affluent white suburbanites and lower-income minorities."[289] Perhaps the best-known litigation involving the duty of localities accepting HUD funds to affirmatively further affordable housing involved Westchester County, N.Y., an affluent area north of New York City.[290] In July 2017, HUD reversed the long-asserted view it held during the Obama administration and during the first few months of the Trump administration that Westchester had not complied with the affordable housing promises it made as a condition of receiving HUD subsidies.[291]

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283. 135 S. Ct. 2507 (2015).

284. *Id.* at 2515–16.

285. *Id.* at 2514.

286. *Id.*

287. *See generally* "Affirmatively Furthering Fair Housing," 80 Fed. Reg. 42,272 (July 16, 2015) (codified at 24 C.F.R. pts. 5, 91, 92, et al.).

288. Kenneth A. Stahl, *The Challenge of Inclusion*, 89 TEMP. L. REV. 487, 491 (2017).

289. *Id.* at 491 n.16 (citing Thomas B. Edsall, Opinion, *Can Hillary Manage Her Unruly Coalition*, N.Y. TIMES, Aug. 18, 2016, http://www.nytimes.com/2016/08/18/opinion/campaign-stops/can-hillary-manage-her-unrulcoalition.html?smprod=nytcore-ipad&smid=nytcore-ipad-share).

290. *See, e.g.*, U.S. ex rel. Anti-Discrimination Ctr. of Metro N.Y., Inc. v. Westchester Cty., 668 F. Supp. 2d 548, 570 (S.D.N.Y. 2009) (holding that the county made false certifications to HUD to obtain federal funding for housing and community development, but that the fact issue of whether the falsity was intentional precluded summary judgment).

291. Sarah Maslin Nir, *For Westchester, 11th Time Is Charm In Fight Over Fair Housing*, N.Y. TIMES, July 21, 2017, https://www.nytimes.com/2017/07/21/nyregion/westchester-fair-housing-hud-trump.html. ("The agency's decision, delivered to the county in a July 14 letter, was based on a review of a zoning analysis, versions of which had been rejected 10 times under the Obama administration as insufficient proof that the problem had been fixed." A spokesman for County Executive Rob Astorino declared the new HUD position a "vindication for Westchester County.")

Dr. Ben Carson, the Trump administration HUD secretary, earlier had condemned "government-engineered attempts to legislate racial equality… ."[292] However, in July 2017 Carson resisted calls to rescind the AFFH rule, saying instead that HUD would "reinterpret" it.[293] "I probably am not going to mess with something the Supreme Court has weighed in on [in *Inclusive Communities*]," Carson said, "[i]n terms of interpreting what it means—that's where the concentration is going to be."[294]

1. Dignity

Human dignity is an important norm, but it is not well defined. For present purposes, a good beginning is "the Kantian injunction to treat every [person] as an end, not as a means."[295] More germane here, Professor Carol Rose recently explored the extent to which devices such as racially restrictive covenants running with the land, which were legally enforceable in the United States during the first half of the last century, deprived racial minorities of their dignity.[296] Furthermore, while the Federal Housing Administration (FHA) has had an "immense" impact in housing development, early on it equated neighborhood stability with racial segregation,[297] and in many ways its record with respect to the African-American community has been "terrible."[298] "The FHA began redlining

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292. Ben S. Carson, *Experimenting With Failed Socialism Again*, WASH. TIMES, July 23, 2015, http://www.washingtontimes.com/news/2015/jul/23/ben-carson-obamas-housingrules-try-to-accomplish-/.

293. Joseph Lawler & Al Weaver, *Ben Carson: HUD Will "Reinterpret" Obama Housing Discrimination Rule*, WASH. EXAMINER, July 20, 2017, http://www.washingtonexaminer.com/ben-carson-hud-will-reinterpret-obama-housing-discrimination-rule/article/2629178.

294. *Id.*

295. Oscar Schachter, *Human Dignity as a Normative Concept*, 77 AM. J. INTL. L. 848, 849 (1983) (adding that "[r]espect for the intrinsic worth of every person should mean that individuals are not to be perceived or treated merely as instruments or objects of the will of others").

296. *See* Carol M. Rose, *Racially Restrictive Covenants—Were They Dignity Takings?*, 41 L. & SOC. INQUIRY 939 (2016).

297. *See generally* John Kimble, *Insuring Inequality: The Role of the Federal Housing Administration in the Urban Ghettoization of African Americans*, 32 L. & SOC. INQUIRY 399 (2007). "If a neighborhood is to retain stability, it is necessary that properties shall continue to be occupied by the same social and racial classes. A change in social or racial occupancy generally contributes to instability and a decline in values." *Id.* at 405 (quoting 1938 FHA underwriting manual).

298. *See* David J. Reiss, *The Federal Housing Administration and African-American Homeownership*), A.B.A. J. AFFORDABLE HOUSING & COMMUNITY DEV. (forthcoming) (manuscript at 1), https://ssrn.com/abstract=2954157.

African-American communities at its very beginning. Its later days have been marred by high default and foreclosure rates in those same communities."[299]

In present-day New York City, critics have assailed the "poor door," a separate lobby for moderate-income units required in luxury buildings as a condition of tax subsidies, "as reminiscent of Jim Crow segregation and symbolic of the increasing and perverse levels of economic inequality in our cities."[300] Some elected officials have advocated legislation providing that lower-income tenants admitted to an apartment building through such considerations as the mandates of government subsidy programs have access to the same amenities as market-rate tenants.[301] The amenity-related policies of landlords to which they object were characterized by one state senator as a "form of apartheid,"[302] and the recent "poor door" controversy in Manhattan is a notable case in point.[303]

While dignity typically is regarded as a moral imperative, it need not be instantiated in the level of housing amenities one possesses. The philosopher Harry Frankfurt recently distinguished between equality and sufficiency.[304] Along the same lines, another philosopher, Michael Walzer, distinguished between those spheres where it was important that all possess the wherewithal for basic life activities (for example, transportation) and those in which the market should govern (for example, new luxury automobiles as opposed to well-worn used cars).[305]

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299. *Id.*

300. Kenneth A. Stahl, *The Challenge of Inclusion*, 89 TEMP. L. REV. 487, 530–31 (2017) (citing Tim Iglesias, *Maximizing Inclusionary Zoning's Contributions to Both Affordable Housing and Residential Integration*, 54 WASHBURN L.J. 585, 595 (2015)).

301 *See* Corinne Lestch, *Elected Officials Want to Ban 'Poor Doors' Approved by Bloomberg Administration*, N.Y. DAILY NEWS, July 26, 2014, http://www.nydaily news.com/new-york/elected-officials-ban-poor-doors-approved-bloomberg-administration-article-1.1880874 (noting demands for zoning change precluding the practice).

302. Lauren C. Wittlin, *Access Denied: The Tale of Two Tenants and Building Amenities*, 31 TOURO L. REV. 615, 616 (2015) (citation omitted).

303. *See* Mireya Navarro, *"Poor Door" in a New York Tower Opens a Fight Over Affordable Housing,* N.Y. TIMES, Aug. 26, 2014, https://www.nytimes.com /2014/08/27/nyregion/separate-entryways-for-new-york-condo-buyers-and-renters-create-an-affordable-housing-dilemma.html?mcubz=0 (discussing a proposed luxury apartment building in which mandated affordable units would have a separate entrance, lobby, and street address).

304. *See* HARRY G. FRANKFURT, ON INEQUALITY (2015).

305. *See* MICHAEL WALZER, SPHERES OF JUSTICE: A DEFENSE OF PLURALISM AND EQUALITY 10–17 (1983).

2. People or Places

There has been a lively debate as to whether government programs to relieve poverty should be people-based or place-based.[306] This conventional bifurcation, according to Professor Nestor Davidson, distinguishes between strategies to "invest in individuals, often with the explicit goal of allowing those individuals to move to a better life," and programs that "seek to reinvigorate distressed neighborhoods."[307] This problem pertains not only to distressed inner cities, but also to many parts of rural America that suffer from "the decline of manufacturing and farm consolidation."[308] However, "while lots of struggling residents see leaving as the best way to improve their lives, a surprising share remain stuck in place" because of high home prices in prosperous cities, reliance on locally-based social service networks and benefits, and cultural dissonance, so that "they no longer believe they can leave."[309]

Davidson asserts that the Manichean nature of the "people or places" debate presents an "unnecessary distraction," and that "[e]very policy that seeks to alleviate individual poverty is constrained by location and, if successful, alters communities. Every policy that seeks to respond to the spatial concentration of poverty works through individuals."[310]

From the perspective of Progressive Property, Professor Ezra Rosser stated that "targeted interventions in the ordinary workings of property law can be used to protect vulnerable populations by changing the power dynamics of the market," and discussed strategies for doing so for people in a "geographically defined space" (place-based) and "to particular parties who have shared characteristics" (people-based), and also a blend of strategies designed to achieve law reform.[311]

Some question the advantages of infrastructure expenditures in lagging communities. In discussing the aftermath of Hurricane Katrina, the land use economist

306. *See, e.g.,* Nestor M. Davidson, *Reconciling People and Place in Housing and Community Development Policy*, 16 GEO. J. ON POVERTY L. & POL'Y 1 n.1 (2009) (citing articles taking both positions). *See also infra* Part VI.B.

307. Davidson, *supra* note 306, at 1.

308. Janet Adamy & Paul Overberg, *Struggling Americans Once Sought Greener Pastures—Now They're Stuck*, WALL ST. J., Aug. 2, 2017, https://www.wsj.com/articles/struggling-americans-once-sought-greener-pasturesnow-theyre-stuck-1501686801.

309. *Id.*

310. Davidson, *supra* note 306, at 6.

311. Ezra Rosser, *Destabilizing Property*, 48 CONN. L. REV. 397, 455–56 (2015).

Edward Glaeser asked whether New Orleans residents would be better off having $200,000 in their pockets or $200 billion spent on city infrastructure, which would be unlikely to revive its economy in any event.[312] He added that "there is a big difference between rebuilding lives and rebuilding communities. Given limited funds, the two objectives may well conflict, and the usual lesson from economics is that people are better off if they are given money and allowed to make their own decisions, much as they are with car insurance."[313]

In what might spark renewed interest in the "people or places" debate, President Trump recently declared that "[w]hen you have an area that just isn't working like upper New York state . . . you can leave, it's OK, don't worry about your house."[314] Programs that offer extensive tax credits to companies creating jobs in upstate New York have been "pushed" by Gov. Andrew Cuomo, but "[these] measures have been criticized as "inefficient," and the state's population decreased by 2,000 in the year ending in 2016.[315]

VI. TAKINGS AND EXACTIONS

Until about the time of the Civil War, American courts regularly explained the power of eminent domain with reference to natural law principles.[316] John Locke provided the alternative explanation that, although the sovereign could not appropriate private property, the conveyance of property for public use could be done by the owner, or by the legislature through its power delegated by the owner.[317] In the U.S., the Fifth Amendment provides, among other limitations on government power, "nor shall private property be taken for public use, without just compensation."[318] This did not constitute a new power of the federal government, but rather a "tacit recognition of a preexisting power to take private property for public use."[319] In 1875, in *Kohl v. United States*,[320]

312. Edward L. Glaeser, *Should the Government Rebuild New Orleans, or Just Give Residents Checks?*, THE ECONOMISTS' VOICE (Sept. 2005), https://doi.org/10.2202/1553-3832.1121.

313. *Id* at 2.

314. Mike Vilensky, *Trump Remark Stings Upstate New York, Sparks Debate*, WALL ST. J., July 28, 2017, at A9A.

315. *Id.*

316. *See* J.A.C. Grant, *The "Higher Law" Background of the Law of Eminent Domain*, 6 WIS. L. REV. 67 (1931).

317. Locke, *supra* note 7, § 138.

318. U.S. CONST. amend. V.

319. United States v. Carmack, 329 U.S. 230, 241–42 (1946).

the Supreme Court declared that the eminent domain power "is essential to [the U.S. government's] independent existence and perpetuity."[321] Four years earlier, the Court made clear that the duty to compensate did not require an affirmative government appropriation of title, but could result from the government's actions, such as the authorization of a dam that would permanently flood private land upstream.[322]

In *Pennsylvania Coal Co. v. Mahon*,[323] Justice Holmes famously declared: "The general rule at least is that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking."[324] There, a state law had forbidden the company to mine seams of coal which would provide support for private structures, although earlier Mahon had purchased only surface rights and not the right of support.[325] Holmes opinion is very cryptic, and is not explicitly based either on the Takings Clause or on the company's right to due process of law.

In *Penn Central Transportation Co. v. City of New York*,[326] the Supreme Court's most important regulatory takings case, it evaluated a New York City historic preservation ordinance that precluded the railroad from constructing an office building on top of the architecturally acclaimed Grand Central Terminal. Justice Brennan, writing for the Court, observed that defining a taking "has proved to be a problem of considerable difficulty."[327] He declared:

> [T]his Court, quite simply, has been unable to develop any "set formula" for determining when "justice and fairness" require that economic injuries caused by public action be compensated by the government, rather than remain disproportionately concentrated on a few persons. Indeed, we have frequently observed that whether a particular restriction will be rendered invalid by the government's failure to pay for any losses

320. 91 U.S. 367 (1875).
321. *Id.* at 371.
322. *See* Pumpelly v. Green Bay Co., 80 U.S. 166 (1871) (private land permanently flooded in course of building government-authorized dam).
323. 260 U. S. 393 (1922).
324. *Id.* at 415.
325. *Id.*
326. 438 U.S. 104 (1978).
327. *Id.* at 123.

> proximately caused by it depends largely "upon the particular circumstances [in that] case."[328]

Justice Brennan then added what has become known[329] as the three-factor *Penn Central* ad hoc balancing test:

> In engaging in these essentially ad hoc, factual inquiries, the Court's decisions have identified several factors that have particular significance. [1] The economic impact of the regulation on the claimant and, particularly, [2] the extent to which the regulation has interfered with distinct investment-backed expectations are, of course, relevant considerations. So, too, is [3] the character of the governmental action. A "taking" may more readily be found when the interference with property can be characterized as a physical invasion by government than when interference arises from some public program adjusting the benefits and burdens of economic life to promote the common good.[330]

Since interference with "expectations" is a subset of "economic impact," and since the Court's enumeration is only of factors having "particular significance," there is no clear reason why a three-factor analysis was employed.[331] In any event, there is nothing talismanic about having three factors.[332]

Later, in *First English Evangelical Lutheran Church*,[333] the Court added that a temporary regulation might require compensation in an appropriate case, a proposition it elaborated upon in *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*.[334] There it declared that "we do not hold that the temporary nature of a land-use restriction precludes finding that it effects a taking; we simply recognize that it should not be given exclusive significance one way or the

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328. *Id.* at 124 (citation omitted).

329. *See*, *e.g.*, E. Enters. v. Apfel, 524 U.S. 498, 546 (discussing an earlier holding in which the Court had "applied the three-factor regulatory takings analysis set forth in *Penn Central*").

330. *Penn Central,* 438 U.S. at 124 (citations omitted).

331. See Thomas W. Merrill, *The Character of the Governmental Action*, 36 VT. L. REV. 649, 655 (2012) ("[T]he intellectual fashions of the day demanded three- and four-part tests.").

332. *See* Steven J. Eagle, *The Four-Factor* Penn Central *Regulatory Takings Test*, 118 PA. ST. L. REV. 601, 615–16 (2014) (discussing other enumerative schemes).

333. First English Evangelical Lutheran Church of Glendale v. County of Los Angeles, 482 U.S. 304 (1987).

334. 535 U.S. 302 (2002).

other."[335] The Court declared as well that *Penn Central* remained its "polestar" in regulatory takings cases.[336]

As I have elaborated upon elsewhere, the *Penn Central* doctrine has two principal flaws. First, although conventionally described as a three-factor test, as the brackets above indicate, the duration of a regulation is just as important a factor as the others.[337] Also the *Penn Central* doctrine "has become a compilation of moving parts that are neither individually coherent nor collectively compatible."[338] As Professor Gideon Kanner added: "The vagueness and unpredictability of [*Penn Central*'s] rules, or more accurately the 'factors' deemed significant by the Court which declined to formulate rules, have encouraged regulators to pursue policies that have sharply reduced the supply of housing and are implicated in the ongoing, mind-boggling escalation in home prices."[339] That said, some have found a virtue in *Penn Central*'s vagueness.[340]

Second, while the mechanics of *Penn Central* are ungainly, the more fundamental problem is that it purports to be based on the Takings Clause, whereas it fits better under the rubric of substantive due process.[341] "Takings" refers to the government's appropriation of property, for which the owner is entitled to just compensation. "Burdens," on the other hand, refers to the owner's deprivation, relative to the owner's overall wealth. "Investment-backed expectations" even more explicitly is concerned with the owner and not with the asset.[342] *Armstrong*, upon which *Penn Central* is predicated, states that "justice and fairness" abjure disproportionate burdens of government actions being placed on a few individuals.[343]

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335. *Id*. at 337.

336. *Id*. at 336.

337. *See* Eagle, *supra* note 332.

338. *Id.* at 602.

339. Gideon Kanner, *Making Laws and Sausages: A Quarter-Century Retrospective on Penn Central Transportation Co. v. City of New York,* 13 WM. & MARY BILL RTS J. 679, 681 (2005)

340. *E.g.,* Marc R. Poirier, *The Virtue of Vagueness in Takings Doctrine*, 24 CARDOZO L. REV. 93 (2002).

341. *See* Steven J. Eagle, *Penn Central and Its Reluctant Muftis*, 66 BAYLOR L. REV. 1 (2014); *see also*, Kenneth Salzberg, *"Takings" as Due Process, or Due Process as "Takings"?*, 36 VALPARAISO U. L. R. 413 (2002) (Advocating use of due process analysis in reviewing land use regulations); Peter A. Clodfelter & Edward J. Sullivan, *Substantive Due Process Through the Just Compensation Clause: Understanding* Koontz's *"Special Application" of the Doctrine of Unconstitutional Conditions by Tracing the Doctrine's History*, 46 URB. LAW. 569, 616–19 (2014) (asserting that *Koontz* engages in a heightened substantive due process style of judicial review under the guise of takings jurisprudence).

342. *See* Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978).

343. *Id.* at 123–24 (quoting Armstrong v. United States, 364 U.S. 40, 49 (1960)).

Pennsylvania Coal itself is much better viewed as a due process case than as a takings case.[344] However, the Court's conservative justices have been unwilling to look at deprivations of land use through what they have regarded as an unconstrained lens,[345] and its progressive justices have viewed it in terms of the Court's pre-New Deal emphasis on property and contract rights.[346] Takings law ought to refer to the property taken, and not to, as *Penn Central* had it, the "economic impact" upon the particular owner of that property, nor that person's "expectations," nor the "character" of the government's action (apart from whether it was arbitrary or not for a public use).[347]

In practice, the *Penn Central* ad hoc, multi-factor balancing test has not proved auspicious for property owners. For instance, the U.S. Court of Federal Claims, which has jurisdiction over takings claims against the federal government, "generally has relied on value losses 'well in excess of 85 percent' in finding takings."[348] As Professor Joseph Singer notes, "It turns out that it is really hard to win a regulatory takings claim."[349]

Penn Central's lack of definitiveness, together with the flight from meaningful long-term planning,[350] seems suited to produce a reign of bargaining and delay and an invitation to arbitrary conduct, which fulfills neither adherence to the rule of law nor the goal of an adequate supply of housing.

A. New Flavors of "Takings"

A permanent appropriation of private land for government use, deemed a "physical taking," requires just compensation.[351] Likewise, restrictions on property that have the effect of

344. Eagle, *supra* note 341, at 25–27.

345. *See, e.g.*, United States v. Carlton, 512 U.S. 26, 39 (1994) (Scalia, J., concurring) (describing substantive due process as an "oxymoron").

346. *See, e.g.*, Dolan v. City of Tigard, 512 U.S. 374, 406–07 (1994) (Stevens, J., dissenting) (warning that due process-based compensation for takings of property had an "obvious kinship" with Lochnerism).

347. *Penn Cent.*, 438 U.S. at 124.

348. Robert Meltz, *Takings Law Today: A Primer for the Perplexed*, 34 ECOL. L.Q. 307, 335 (2007) (quoting Brace v. United States, 72 Fed. Cl. 337, 357 & n.32 (2006) (collecting cases)).

349. Joseph William Singer, *Justifying Regulatory Takings*, 4 OHIO N.U. L. REV. 601, 606 (2015).

350. *See supra* notes 63–66 and accompanying text.

351. Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 426–35 (1982) (real property); Horne v. Dep't of Agric., 135 S.Ct. 2419, 2426–27 (2015) (personal property).

"forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole" may be deemed "regulatory takings" under *Penn Central*'s multi-factor, ad hoc, balancing test.[352] Restrictions that deprive an owner of all economically viable use of land constitute categorical regulatory takings since they do not require the application of a balancing test.[353]

In addition to these familiar, judicially established categories of compensable takings, new varieties have been proposed. Professors Abraham Bell and Gideon Parchomovsky have argued that physical and regulatory takings should be augmented by the category of "derivative takings,"[354] by which they define as "a hybrid of their more familiar close cousins" that occurs when a taking "diminishes the value of surrounding property."[355] More recently, Bell and Parchomovsky have proposed study of what might be styled a "Givings Clause."[356] Under this rubric, parallel to their three categories of takings, would be physical, regulatory, and derivative "givings." Those might require compensation be paid from the recipient to the government.[357]

Justice Elena Kagan's dissenting opinion in *Koontz v. St. Johns River Water Management District* articulated fears that increased Takings Clause liability would lead local governments to grant development approvals that would create negative externalities for the community. [358] In that event, Professor Gregory Stein recently postulated, members of the public should be able to sue for a "reverse exaction."[359] While this kind of citizen lawsuit might be effective with respect to

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352. *Penn Cent.*, 438 U.S. at 123–24 (1978) (quoting Armstrong v. United States, 364 U.S. 40, 49 (1960).

353. *See* Lucas v. S.C.. Coastal Council, 505 U.S. 1003, 1016 (1992).

354. Abraham Bell & Gideon Parchomovsky, *Takings Reassessed*, 87 VA. L. REV. 277 (2001).

355. *Id.* at 280–81. Derivative takings:

> resemble regulatory takings in that they reduce the value of property without physically appropriating it. Yet, they are distinct from regulatory takings in that they may arise as the result of a physical taking. And, unlike its cousins, the derivative taking never appears alone; it must always be preceded by a physical or regulatory taking.

Id. (footnote omitted).

356. Abraham Bell & Gideon Parchomovsky, *Givings*, 111 YALE L.J. 547 (2001).

357. *Id.* at 564–74 (setting forth their taxonomy).

358. Koontz v. St. Johns River Water Mgmt. Dist., 133 S. Ct. 2586, 2608 (2013) (Kagan, J., dissenting) (asserting that the majority "casts a cloud on every decision by every local government to require a person seeking a permit to pay or spend money").

359. Stein, *supra* note 136.

egregious cases of cronyism or outright corruption, the overall effect might be to empower local NIMBYs who simply do not want change nearby.

B. Contemporary Takings Issues

1. Varied Views of Regulatory Takings

Professor Christopher Serkin recently advocated that the Takings Clause does not merely provide property owners with negative rights, but rather might be the basis for compensation where government fails its affirmative duty to protect property, perhaps for permitting "passive takings" with respect to sea level rise.[360]

On the other hand, Professor Hanoch Dagan asserted that the "broad consensus" that the taking of private property generally deserves compensation does not apply to regulatory takings law.[361] There, "some progressive authors advocate a regime that sanctions, indeed expects, significant civic sacrifices extending to all economically beneficial uses of one's land. These authors perceive most government injuries to private property as ordinary examples of the background risks and opportunities assumed by property owners."[362]

2. Simple Disregard of Property Rights

Sometimes, the intent of administrators and court seems to be that state governments can reconfigure infrastructure more inexpensively by disregarding property rights. A recent example is *Bay Point Properties, Inc. v. Mississippi Transportation Commission*.[363] There, the state supreme court upheld the commission's determination that condemned land should be valued as if it were subject to an apparently abandoned highway easement, on the ground that state law gave the highway department the power to prevent legal

360. Christopher Serkin, *Passive Takings: The State's Affirmative Duty to Protect Property*, 113 MICH. L REV. 345 (2014).

361. Hanoch Dagan, *Eminent Domain and Regulatory Takings: Towards a Unified Theory* *4 (Oct. 31, 2016), https://ssrn.com/abstract=2861844.

362. *Id.* (footnote omitted).

363. 201 So.3d 1046 (Miss. 2016), *petition for cert. docketed*, Mar. 7, 2017, No. 16-1077.

abandonment as a matter of law. The dissenting justices argued that this would violate the owner's right to just compensation.[364]

3. Government Takings of Less (Or More) than the "Whole Parcel"

The archetypical takings case involves a parcel of land appropriated by the government. Thus, common law property and equity establish relationships of land to land, without any need to focus on the identity of the individuals involved.[365] However, especially in government infrastructure projects such as highway construction, less than a given owner's entire parcel is taken, and condemnation might have significant impacts on adjoining owners, as well.

Professors Bell and Parchomovsky recently have argued that the practical difficulties in dealing with the burdens and benefits of severance should lead to the affected owner having the right to demand that the government entity engaging in an "incomplete taking" be forced to acquire the owner's fee simple, instead.[366] While good intentions lead to "severance damages" when partial takings reduce the value of parts of the owner's parcel that were not taken, a countervailing concern is the benefits the owner derives from the project for which land is taken, which might inure particularly to the owner ("special benefits") or to the area generally. States have attempted to take these factors into account in differing ways.[367]

Another practical problem that affects land development involves the "relevant parcel" with regard to which the relationship between lot size and development rights, and also government takings liability, is to be measured. In *Penn Central*, the Supreme Court stated that: "In deciding whether a particular governmental action has effected a taking, this Court focuses rather both on the character of the action and on the nature and extent of the interference with rights in the parcel as a whole. . . ."[368] Unfortunately, there is no definitive

364. *See id.* at 1059–160 (Kitchens, J., dissenting).

365. *See* Steven J. Eagle, *The Parcel and Then Some: Unity of Ownership and the Parcel as a Whole*, 36 VT. L. REV. 549, 559 (2012).

366. Abraham Bell & Gideon Parchomovsky, *Incomplete Takings*, COLUM. L. REV. (forthcoming).

367. *See generally* NICHOLS ON EMINENT DOMAIN § 8A.03 (3d ed. 2015) (summarizing the different state and federal approaches to offsets).

368. Penn Cent. Transp. Co. v. City of New York, 438 U. S. 104, 130–31 (1978).

answer as to how the "relevant parcel" is determined.[369] The Supreme Court's recent decision in *Murr v. Wisconsin*[370] held that reasonable investment-backed expectations should be taken into account in determining the relevant parcel to which it and the other *Penn Central* factors should be applied.[371] The principal dissent, by Chief Justice Roberts, stressed that "in all but the most exceptional circumstances," the boundaries of deeded parcels should "determine the parcel at issue," and that "[c]ramming [the *Penn Central* factors] into the definition of 'private property' undermines the effectiveness of the Takings Clause as a check on the government's power to shift the cost of public life onto private individuals."[372] A separate dissent by Justice Thomas emphasized that the Takings Clause was not deemed to encompass "regulatory takings" before *Pennsylvania Coal Co. v. Mahon* in 1922, and that "it would be desirable for us to take a fresh look at our regulatory takings jurisprudence, to see whether it can be grounded in the original public meaning of the Takings Clause of the Fifth Amendment."[373]

VII. REGULATION, HOUSING PRICES, AND PROSPERITY

A. Regulation and High Housing Prices

A classic example of good intentions producing bad results is the tendency of regulations promulgated to provide better housing instead resulting in less housing and less affordability. California, particularly in its coastal cities, is facing a housing affordability crisis. "Median rents across the state have increased 24 percent since 2000, while at the same time median renter household incomes have declined 7 percent."[374] While these rising rents result from a number of factors:

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369. *See generally* Dwight H. Merriam, *Rules for the Relevant Parcel*, 25 U. HAW. L. REV. 353 (2003).

370. 137 S. Ct. 1933 (2017) (considering whether the statutory merger of two contiguous parcels under the same ownership constituted a regulatory taking).

371. *Id.* at 1945, 1949.

372. *Id.* at 1953–54 (Roberts, C.J., dissenting) (joined by Thomas and Alito, JJ.).

373. *Id.* at 1957 (Thomas, J., dissenting) (citing Pa. Coal Co. v. Mahon, 260 U.S. 393, 415 (1922)).

374. Cal. Hous. P'ship Corp., *Confronting California's Rent and Poverty Crisis: A Call for State Reinvestment in Affordable Homes*, (2016), https://www.issuelab.org/resource/confronting-california-s-rent-and-poverty-crisis-a-call-for-state-reinvestment-in-affordable-homes.html.

> [I]t is clear that supply matters, and there is an urgent need to expand supply in equitable and environmentally sustainable ways. Over the past three decades, California has added only about half the number of units it needs to keep housing costs in line with the rest of the United States.[375]

Overly stringent land use regulations account for much of this problem.[376]

B. Residential Mobility and National Prosperity

The issue of whether government should provide benefits to people or places, discussed earlier,[377] has broad implications for regional and national prosperity. From a macroeconomics perspective, Professor David Schleicher recently has asserted that people are "stuck" in place because state and local governments have created a "huge number of legal barriers to inter-state mobility," including land use laws, differing homeownership subsidies, and differing eligibility standards for public benefits.[378] Those collectively limit exit areas with less opportunity. He added that "public policies developed by state and local governments more interested in local population stability than in ensuring successful macroeconomic conditions."[379]

Those concerns are very much in line with the recent work of economists Chang-Tai Hsieh and Enrico Moretti, who point out that regional and national prosperity is enhanced by workers moving to areas where agglomeration would facilitate their higher productivity. [380] However, they might be discouraged from doing so, because the lower pay in cities where they would add less value to the economy would be more than offset by the lower housing prices there.[381]

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375. Carolina K. Reid et al., *Addressing California's Housing Shortage: Lessons from Massachusetts Chapter 40B*, 25 J. AFFORD. HOUS. & COMMUNITY DEV. L. 241, 241 (2017) (footnote omitted).

376. *See* Edward Glaeser, *Land Use Restrictions and Other Barriers to Growth*, CATO INST. (2014), https://www.cato.org/publications/cato-online-forum/land-use-restrictions-other-barriers-growth.

377. *See supra* Part IV.B.2.

378. David Schleicher, *Stuck! The Law and Economics of Residential Stability*, 127 YALE L.J. *1(forthcoming).

379. *Id.* at *1.

380. Chang-Tai Hsieh & Enrico Moretti, *Housing Constraints and Spatial Misallocation*, (May 18, 2017), http://eml.berkeley.edu//~moretti/growth.pdf.

381. *Id.* at 1–3.

VIII. CONCLUSION

The law of land use planning is marked with good intentions, from the faith of the original Progressives in objective and expert administration, through landowner-centered wariness of regulation of supporters of property rights, to the social-democratic views of the Progressive Property advocates. Yet none have created a substantive framework for regulation that receives general acclaim or even general support. Economic prosperity brings dislocation and inequality. Preserving community inherently is unwelcoming to substantial numbers of outsiders. Affordable housing is fine in the abstract, but different socio-economic groups have very different understandings of how it should work and whom it should benefit.

Likewise, legal mechanisms for policing the boundary between private property rights and permissible government regulation, most notably the Supreme Court's *Penn Central* doctrine, largely leave public officials and judges to their own devices. In the absence of any unifying vision, the particularities of time and place transcend earlier notions of expert long-term planning. Local officials often have imposed ponderous regulatory schemes that inhibit the production of housing and sometimes try to leverage the police power through public-private partnerships that are apt to benefit private participants more than the public.

The American public generally has good intentions, but in the absence of serious debate that might lead to the formation of coherent aspirations and goals based on the discrete needs of various segments of the population and also of places, land use regulation cannot be do other than reflect disarray.

POLICY MECHANISMS, PRECEDENT, AND AUTHORITY FOR STATE IMPLEMENTATION OF CLIMATE CHANGE AGENDAS

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In an era of heightened partisanship, animosity, and gridlock, the chances of federal action to combat climate change seem increasingly bleak at best. In response to the federal administrative machine slowing and eight years of regulatory schemes being altered, in regards to climate change, state governments have the ability, and precedent, to methodically begin to step in and fill the gap left by the administrative state. This note discusses the power and authority of state action to address climate change and later moves to a thorough examination of existing climate change initiatives at the state level. In addition, this note gathers and explores potential abilities of state governments to respond to climate change through their vested powers and instruments. Finally, this note illustrates and examines several examples of state actors already taking the helm. This note more broadly contends that (1) states themselves have increasingly significant capability to address climate change and (2) there exists ample bipartisan, and modern, precedent from various state actors in the environmental and climate change arena providing a framework for modern state action.

I. INTRODUCTION

November 6th, 2012, 11:15AM, hours before Governor Romney's defeat, President, then citizen, Donald J. Trump tweeted "The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.[1] The President has been unclear if he maintains this belief,[2] but the new EPA Administrator has made it unequivocally obvious the Trump

1. Donald J. Trump (@realDonaldTrump), TWITTER (Nov. 6, 2012, 11:15AM), https://twitter.com/realdonaldtrump/status/265895292191248385?lang=en.

2. *See generally* John Schwartz, *Trump's Climate Views: Combative, Conflicting and Confusing*, N.Y. TIMES, Mar. 10, 2017, https://www.nytimes.com/2017/03/10/climate/donald-trump-global-warming-views.html (examining statements made by President Trump regarding climate change).

Administration will not be spearheading climate change progress.[3] Indeed, it appears the federal arena is no longer the battlefield in the fight against climate change.

So, what is to be done? The existence of climate change has near universal consensus in the scientific community;[4] but public policy initiatives are no less needed now than they were previously. The Note argues our Republic's system of cooperative federalism provides the future for combating climate change. This Note works to show that states are afforded a wealth of opportunity to take action.

Common sense dictates that perhaps the last thing these initiatives need are legal quarrels challenging authority. Discussion and examination of various sources of authority for state action bring clarity to the occasionally tangled legal framework of dual sovereignty. Federal climate change and environmental action has long been the subject of derision from opponents;[5] conservatives have previously insisted state and local governments should have a larger role in environmental regulation than the federal government.[6] This Note illustrates that states, however, have distinct and at times more steadfast sources of authorization to fight climate change. How states are handed the power to make law regarding the environment and how states codify that authority within their various charters and constitutions warrant examination.

There has been climate change action seen at the state level, but what form does it take? State bodies have worked to implement, occasionally in a bipartisan fashion, various steps to address climate change. Further, it appears the state climate change initiatives already seen were not solely to pander to various demographics or electorates; state bodies empowered and implemented programs that made change and avoided politics.

First, the Note examines, illustrates, and cements authority for state action. After, this Note scrutinizes California's AB32, or the Global Warming Solutions Act of 2006, and discuss legislative action and precedent. Finally, the Note moves to examine tools the

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3. *See generally* Brady Dennis & Chris Mooney, *On Climate Change, Scott Pruitt Causes an Uproar—and Contradicts the EPA's Own Website*, WASH. POST Mar. 9, 2017, https://www.washingtonpost.com/news/energy-environment/wp/2017/03/09/on-climate-change-scott-pruitt-contradicts-the-epas-own-website/?utm_term=.8f42634e2dda (discussing EPA Administrator Pruitt's controversial comments on climate change).

4. Clare Foran, *Donald Trump and the Triumph of Climate-Change Denial*, THE ATLANTIC, Dec. 25, 2016, https://www.theatlantic.com/politics/archive/2016/12/donald-trump-climate-change-skeptic-denial/510359/.

5. Barton H. Thompson Jr., *Conservative Environmental Thought: The Bush Administration and Environmental Policy*, 32 ECOLOGY L.Q. 307, 344–45 (2005).

6. *Id.*

legislature has in tandem with the executive, and pertinent parallels to Governor Rockefeller's work in State of New York. Next, discussion of the Regional Greenhouse Gas Initiative and the Midwestern Greenhouse Gas Reduction Accord proves illuminating. Then, this Note dissects and elaborates on the Minnesota Office of Enterprise Sustainability, an inter-agency watchdog organization similar to the Office of Information and Regulatory Affairs. This Note moves to then examine the Washington State Carbon Tax initiative to illustrate another excellent tool at the disposal of states. Finally, this Note explores information-gathering commissions and committees.

Several sections and subsections are dedicated to potential tools at the disposal of state governments. While much precedent has been set, not every tool and resource has been exhausted. This Note works to broadly discuss the tools reserved by state governments between discussion of precedent and recent action.

The last subsection of this Note works to show the proposals argued in action, already. Several examples of state actors bucking the federal government's lead and taking action utilizing state authority warrant examination. These recent actions could create resounding precedent and work as a catalyst for further state action.

This Note serves not to provide politicized actors with a route to circumvent the President in a deceptive fashion, but to illustrate the *very real* and *very legal* authority and actions states have and can take to combat climate change. There can be no doubt many of the state actions witnessed are born of partisanship; nonetheless, these actions rely on steadfast authority. This Note advocates for an alternate path forward, the path of wanton legality, the path well-traveled, and the path that can serve to make a real difference in climate change.

II. THE AUTHORITY FOR STATE CLIMATE CHANGE INITIATIVES

A. The U.S. Constitution

> "The powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people."[7]

The promise of the Republic guarantees states a role as a sovereign in their individual realms, and thus, the ability to protect their lands and environment.[8] Chief Justice Taft famously opined,

7. U.S. CONST. amend. X.
8. *See* Alden v. Maine, 527 U.S. 706, 713–14 (1999).

"We have here two sovereignties, deriving power from different sources, capable of dealing with the same subject-matter within the same territory. Each may, without interference by the other, enact laws to secure prohibition, with the limitation that no legislation can give validity to acts prohibited by the amendment."[9] This section works to untangle the interwoven strings of authority granted to the states and federal government to regulate climate change and the environment.

Criticisms of climate change or environmental action, especially criticisms of a political nature, range from a larger role for states, overregulation, and even skepticism of the need for environmental protection.[10] Federal environmental regulations are still such a source of ire to some that as recently as February of 2017 a bill was drafted in the House of Representatives to abolish the Environmental Protection Agency altogether.[11] Federal environmental regulation has long been hobbled by the need for state and local cooperation to implement initiatives—geography, costs, and resources have required local governments to work with the federal government.[12]

The Supreme Court previously enumerated state interest and sovereignty, in regards to environmental and land use regulation, distinct from federal interests.[13] What has come to be known as the "quasi-sovereign" interest in protecting the land of the state or commonwealth was perhaps most notably observed in *Tennessee Copper*,[14] which served to solidify the state's role in environmental protection.[15] "[The state] has the last word as to whether its mountains shall be stripped of their forests and its inhabitants shall breathe pure air."[16] States witnessed their right to control and protect their land enumerated.[17]

Much of the legal analysis regarding the interests and controls vested in the states takes legal analysis and discussion from the nation's foundation into consideration. Opinions addressing state standing and sovereignty show justices considering what states

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9. United States v. Lanza, 260 U.S. 377, 382 (1922).

10. Thompson, *supra* note 5, at 312–13.

11. To Terminate the Environmental Protection Agency, H.R. 861, 115th Cong. (2017).

12. Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196 (1977).

13. Georgia v. Tennessee Copper Co., 206 U.S. 230, 327 (1907).

14. *Id.*

15. *See* Robert V. Percival, *The Frictions of Federalism: The Rise and Fall of the Federal Common Law of Interstate Nuisance* (U. of Maryland, Pub-Law Research Paper No. 2003-02, 2003), https://ssrn.com/abstract=452922 or http://dx.doi.org/10.2139/ssrn.452922 (discussing the quasi-sovereign interest doctrine and dogma).

16. *Tennessee Copper Co*., 206 U.S. at 237.

17. North Carolina *ex rel*. Cooper v. Tennessee Valley Authority, 439 F. Supp. 2d 486, 489 (W.D.N.C. 2006).

forfeited individually when joining the union and what powers they retained; Madison, The Federalist Papers or various framers of the Constitution end up cited in quasi-sovereign legal analysis.[18] *Blatchford v. Native Village of Noatak & Circle Village* would later discuss this in a 1991 Supreme Court ruling: "[t]he States entered the federal system with their sovereignty intact."[19] The principle iterated through Federalist No. 39, "a residuary and inviolable [state] sovereignty," recurs in state sovereignty discussion.[20]

The following section discusses how state constitutions have enshrined their own authority to regulate and take environmental action given the Federal Constitution's grant of power. Which state actors are granted which powers, and the manner in which states created the constitutional provisions guaranteeing the power to regulate is remarkably unique.

B. State Constitutions

> "The United States shall guarantee to every state in this union a republican form of government, and shall protect each of them against invasion; and on application of the legislature, or of the executive (when the legislature cannot be convened) against domestic violence."[21]

The Guarantee Clause promises each state an individualized government and constitution.[22] Still, some scholars and commentators raise questions on the validity of state constitutions and their constitutionality to even come in to existence at all.[23] Nevertheless, the strong federal interest for maintaining state charters and constitutions lies within the Guarantee Clause.[24]

Below, this Note discusses various state constitution provisions pertinent to climate change initiatives. Separate from uncertainty of the validity of state constitutions, some skepticism has been

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18. *See e.g.,* Principality of Monaco v. Mississippi, 292 U.S. 313, 322–23 (1934).

19. 501 U.S. 775, 779 (1991).

20. THE FEDERALIST NO. 39 (James Madison). For discussion of the use of this principle by the Supreme Court, see generally Michael J. Mano, *Contemporary Visions of the Early Federalist Ideology of James Madison: An Analysis of the United States Supreme Court's Treatment of the Federalist No. 39*, 16 WASH. U. J.L. & POL'Y 257, (2004).

21. U.S. CONST. art. IV, § 4.

22. *See* Thomas A. Smith, Note, *The Rule of Law and the States: A New Interpretation of the Guarantee Clause*, 93 YALE L.J. 561, 566 (1984) (broadly examining the Guarantee Clause).

23. Jack L. Landau, *Some Thoughts About State Constitutional Interpretation*, 115 PA ST. L. REV. 837, 839 (2011).

24. Jacob M. Heller, *Death by A Thousand Cuts: The Guarantee Clause Regulation of State Constitutions*, 62 STAN. L. REV. 1711, 1718 (2010) (analyzing the interplay between state constitutional doctrine and the Guarantee Clause).

sparked from the stark contrast in length, amendment process, and revision procedure among the individual states.[25] State constitutional revision and amendment is widely varied.[26] West Virginia's Constitution has a provision discussing lotteries, raffles, and bingo.[27] Minnesota's Constitution grants citizens the right to "peddle the products of a farm or garden" without a license.[28] This codification of varied and unusual provisions serves as a precedent working to the advantage of advocates for state action in climate change as several states guarantee environmental dignity to their citizens.

1. Provisions Inspired by Federal Actions

The initial passage of environmental legislation and the growth of the environmental movement in the late 1960s and early 1970s that began federal presence in preservation of the environment had resounding effects on state constitutions.[29] Public support for environmental safeguards, at the time, was relatively widespread,[30] and in the early stages of regulatory presence in the environment, a movement formed for environmental protection to be preserved in state constitutions; fortunately, support for initial environmental regulation was mildly more bipartisan.[31] Republican Governor Francis Sargent signed environmental protection bills into law and led Massachusetts when the provision was added to their Constitution in 1972.[32] Below, a sample of various state constitutional provisions is included, some of which are state bills of rights, all are a product of the early environmental movement.

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25. *E.g., id*.; Daniel B. Rodriguez, *Change That Matters: An Essay on State Constitutional Development*, 115 PA ST. L. REV. 1073, 1074 (2011).

26. Michael G. Colantuono, Comment, *The Revision of American State Constitutions: Legislative Power, Popular Sovereignty, and Constitutional Change*, 75 CAL. L. REV. 1473, 1477–78 (1987).

27. W. VA. CONST. art. VI, § 36. (subsection titled "Lotteries; Bingo; Raffles; County Option").

28. MINN. CONST. art. XIII, § 7. (subsection titled "No License Required to Peddle").

29. *See* Bruce Ledewitz, *The Challenge of, and Judicial Response to, Environmental Provisions in State Constitutions*, 4 EMERGING ISSUES ST. CONST. L. 33, 33–34 (1991) (broadly showing federal and state court confusion and reluctance in interpreting state constitutions).

30. *See generally* Chris Mooney, *When Did Republicans Start Hating the Environment?*, MOTHER JONES (Aug. 12, 2014), http://www.motherjones.com/environment/2014/08/republicans-environment-hate-polarization (illustrating historical context for political polarization in regards to environmental legislation, regulation, and law).

31. Jaime Fuller, *Environmental Policy Is Partisan. It Wasn't Always*, WASH. POST, June 2, 2014, https://www.washingtonpost.com/news/the-fix/wp/2014/06/02/support-for-the-clean-air-act-has-changed-a-lot-since-1970/?utm_term=.cc2f453b5527.

32. *See* Richard Evans, *Conservation Conveyancing: When Your Client Is Posterity*, 37 W. NEW ENG. L. REV. 201, 203 (2015) (discussing environmental litigation and early foundations).

> The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.[33]

> The people shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore, to which they have been heretofore entitled under the charter and usages of this state, including but not limited to fishing from the shore, the gathering of seaweed, leaving the shore to swim in the sea and passage along the shore; and they shall be secure in their rights to the use and enjoyment of the natural resources of the state with due regard for the preservation of their values; and it shall be the duty of the general assembly to provide for the conservation of the air, land, water, plant, animal, mineral and other natural resources of the state, and to adopt all means necessary and proper by law to protect the natural environment of the people of the state by providing adequate resource planning for the control and regulation of the use of the natural resources of the state and for the preservation, regeneration and restoration of the natural environment of the state.[34]

> The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment; and the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources is hereby declared to be a public purpose.
>
> The general court shall have the power to enact legislation necessary or expedient to protect such rights.
>
> In the furtherance of the foregoing powers, the general court shall have the power to provide for the taking, upon payment of just compensation therefor, or for the acquisition by purchase or otherwise, of lands and easements or such other interests therein as may be deemed necessary to accomplish these purposes.

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33. PA. CONST. art. I, § 27.
34. R.I. CONST. art. I, § 17.

> Lands and easements taken or acquired for such purposes shall not be used for other purposes or otherwise disposed of except by laws enacted by a two thirds vote, taken by yeas and nays, of each branch of the general court.[35]

> All persons are born free and have certain inalienable rights. They include the right to a clean and healthful environment and the rights of pursuing life's basic necessities, enjoying and defending their lives and liberties, acquiring, possessing and protecting property, and seeking their safety, health and happiness in all lawful ways. In enjoying these rights, all persons recognize corresponding responsibilities.[36]

Fortuitously, for activists and enthusiasts, these provisions, generally, have yet to be removed from state constitutions following the national hyper-politicization of environmental regulation. It should be noted, that when states begin to take the reigns and start to have a serious role in addressing climate change, and source their authority exclusively to these provisions, state actors of opposing stances likely have paths to remove these provisions.[37]

2. Recreation of Federal Authority

The Federal Constitution is remarkably concise when held in comparison to state constitutions.[38] As previously, stated, states share authority with the federal government to begin environmental regimes.[39] As with the prior subsection and the following subsections, excerpts from varied state constitutions illustrating this point have been included.

> "The Governor shall take care that the laws be faithfully executed."[40]

> "The supreme executive power of this state shall be vested in a governor, who shall be responsible for the enforcement of the laws of this state."[41]

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35. MASS. CONST. art. XCVII, §3.
36. MONT. CONST. art. II, § 3.
37. *See generally* Rodriguez, *supra* note 25; Colantuono, *supra* note 26.
38. Landau, *supra* note 23, at 839.
39. *See supra* notes 13–17 and accompanying text.
40. N.C. CONST. art. III, § 5.
41. KAN. CONST. art. I, § 3.

> ". . . and they shall have all other powers necessary for the Legislature of a free and sovereign State; but they shall have no power to add to, alter, abolish, or infringe any part of this Constitution."[42]

> "The General Assembly shall have the power to make all laws not inconsistent with this Constitution, and not repugnant to the Constitution of the United States, which it shall deem necessary and proper for the welfare of the state."[43]

These provisions echo the Federal Constitution's Necessary and Proper Clause for Congress and the Take Care Clause for the President—the two have enabled a great deal of federal environmental action,[44] alongside the Commerce Clause.[45] Thus, it can be inferred that granting similar powers to state legislatures, with minimal federalism principles binding states, enables climate change and environmental legislation from the statehouses.

3. Allocation of Power and Responsibility Within State Governments by Constitutional Provisions

This Note moves to now illustrate how state constitutions can begin to provide directives or mandates for which state actors are to draw instruction on how to act upon environmental issues. The provided provisions detail natural resources broadly and are absent climate change specific language. More generally, these provisions can be seen to create stability and allocate power deliberately and in a precise manner.

> The natural resources of the state, including air and water, and the healthful, scenic, historic, and esthetic quality of the environment shall be protected, conserved, and replenished insofar as possible and consistent with the health, safety, and welfare of the people. The legislature shall enact laws to implement this policy.[46]

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42. VT. CONST. Ch. II, § 6.

43. GA. CONST. art. III, § 6.

44. *See* Kate Andrias, *The President's Enforcement Power*, 88 N.Y.U. L. REV. 1031, 1064 (2013) (discussing the foundation for federal action in regards to the environment).

45. James R. May, *Healthcare, Environmental Law, and the Supreme Court: An Analysis Under the Commerce, Necessary and Proper, and Tax and Spending Clauses*, 43 ENVTL. L. 233, 245 (2013).

46. LA. CONST. art. IX, § 1.

> For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.
>
> All public natural resources are held in trust by the State for the benefit of the people.[47]

> "It shall be the policy of the state to conserve and protect its natural resources and scenic beauty. Adequate provision shall be made by law for the abatement of air and water pollution and of excessive and unnecessary noise and for the conservation and protection of natural resources."[48]

Crucial to the notion of modern separation of powers doctrine and jurisprudence is the preservation of powers within each individual branch of governance.[49] State constitution provisions assigning specific duty and authority over environmental or natural resource action are, essentially, a double-edged sword. Despite the precedential benefits, these prevent any government actor, aside from the constitutionally designated actor, from taking action when acting solely on the subject matter enumerated by the state constitution. Thus, these may benefit those actors who are opponents of climate change initiatives.

4. Self-Executing Environmental Provisions

The aforementioned provisions expressly address paths and concerns regarding law and rule making. However, this Note shifts to show that state constitutions retain the capacity to go beyond just preservation of power to regulate climate change or the environment, and almost begin to govern by dictating state action. The following examples are limited to pertinent constitutional provisions regarding the environment, but action through constitutional amendment and revision is by no means limited to environmental matters.

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47. HAW. CONST. art. XI, § 1.

48. FLA. CONST. art. II, § 7.

49. *See* Josh Blackman, *Donald Trump's Constitution of One*, THE NAT'L REV. (May 12, 2016), http://www.nationalreview.com/article/435296/donald-trumps-constitution-end-separation-powers.

> The fees, monies, or funds arising from the operation and transactions of said Commission and from the application and the administration of the laws and regulations pertaining to the bird, fish, game and wildlife resources of the State and from the sale of property used for said purposes shall be expended and used by said Commission for the control, management, restoration, conservation and regulation of the bird, fish, game and wildlife resources of the State, including the purchase or other acquisition of property for said purposes, and for the administration of the laws pertaining thereto and for no other purpose.[50]

> The people of the State of Colorado intend that the net proceeds of every state-supervised lottery game operated under the authority of Article XVIII, Section 2 shall be guaranteed and permanently dedicated to the preservation, protection, enhancement and management of the state's wildlife, park, river, trail and open space heritage, except as specifically provided in this article. Accordingly, there shall be established the Great Outdoors Colorado Program to preserve, protect, enhance and manage the state's wildlife, park, river, trail and open space heritage.[51]

Common sense dictates provisions akin to the listed examples are capable of being seen more frequently in states with constitutional amendment and revision schemes that allow for frequent plebiscite amendment and revision.[52] These provide an advantageous path for a motivated electorate, if state actors are unengaged in climate change or environmental issues.[53]

5. In Summation

Over half the states have addressed natural resources or other environmental concerns in their constitutions.[54] As climate change action begins to be taken on at the state level, a second environmental movement may lie, waiting to catch fire. The beauty of these provisions is that they wait in the shadows as a resource,

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50. OKLA. CONST. art. XXVI, § 4.
51. COLO. CONST. art. XXVII, § 1.
52. *See generally* Robert F. Williams, *Evolving State Constitutional Processes of Adoption, Revision, and Amendment: The Path Ahead*, 69 ARK. L. REV. 553, 554–62 (2016).
53. John C. Tucker, *Constitutional Codification of an Environmental Ethic*, 52 FLA. L. REV. 299, 325 (2000).
54. *Id.* at 307.

while the dangers and perils of climate change increase.[55] Some previously enumerated provisions listed in states' bill of rights—Pennsylvania's, as an example, "[t]he people have a right to *clean air, pure water*, and to the preservation of the natural, scenic, historic and esthetic values of the environment"—can be used as a source of action.[56] If President Trump's environmental non-enforcement regime and rollback of Obama-era climate change policies motivate state actors in Pennsylvania, they can claim the mandate provided by the Pennsylvania State Constitution. This provision *calls* for the state to preserve the people's right to natural rights like clean air or pure water.

The excerpts and examples provided are not an exhaustive list purporting to be absolute, rather an illustrative, substantive subset showing the varied nature of state constitution and environmental authority. Statehouses and capitols will likely emerge as the next battlefield for climate change initiatives, and fortunately, there is ample authority for them to act—both in the Federal Constitution and state constitutions—and no shortage of need.

III. THE GLOBAL WARMING SOLUTIONS ACT OF 2006

Below, this Note begins to examine and delicately elucidate California's AB32, or the Global Warming Solutions Act of 2006, and its potential inspirations. Not intended to sequester the efficacy of the legislature from the rest of this piece, later sections will touch on legislative power as well, but the following subsection focuses on the substantive power of the legislature when operating in tandem with the executive and the precedential ripples that can be created.

Governor Arnold Schwarzenegger signed Assembly Bill 32 (AB32) into law in September of 2006.[57] Among other reforms and initiatives, in short, AB32 implemented a state program to curb greenhouse gas emissions from statewide sources.[58] AB32 was partially foreshadowed by executive order S-3-05,[59] from Governor Schwarzenegger in 2005, that directed the California Air Resources Board to begin substantial initiatives to curb greenhouse

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55. *See generally* Alissa Scheller, *2 Degrees Will Change the World*, MOTHER JONES (Dec. 3, 2015), http://www.motherjones.com/environment/2015/11/2-degrees-will-change-world-paris-climate-change (broadly examining the future risks of climate change).

56. PA. CONST. art. I, § 27 (emphasis added).

57. Office of the Governor, *Governor Schwarzenegger Highlights California's Global Warming Accomplishments On Eve Of AB 32 Anniversary*, Sept. 25, 2008, https://www.gov.ca.gov/news.php?*id*=10632.

58. *See* CAL. HEALTH & SAFETY CODE § 38500 (2006).

59. *See* Mary D. Nichols, *California's Climate Change Program: Lessons for the Nation*, 27 UCLA J. ENVTL. L. & POL'Y 185, 198 (2009) (summarizing AB32 and discussing national climate change needs).

gases statewide and set substantial targets.[60] The California Air Resources Board needed more authority to enact the Governor's executive order from the state legislature.[61] AB32 creates long-lasting compliance plans that are still being monitored by the California Air Resources Board.[62] The timeline for AB32 extends to 2020 and creates a deadline for greenhouse gas emissions caps;[63] one of the stated goals of AB32 is to return California's emission levels to where they were in 1990.[64]

AB32 created an annual mandatory reporting requirement for emissions of greenhouse gases from private businesses.[65] AB32 authorized imposition of non-compliance penalties from AB32.[66] In addition, AB32 has provisions centered on creating a database at the governmental level of the largest producers and emitters of greenhouse gases, for better response and management from the state government.[67]

Separate from reporting requirements, administrative reform, or creation of large-scale plans for greenhouse gas emissions, AB32 also ushered in new advisory and regulatory boards.[68] The Environmental Advisory Justice Committee was created to meet with and advise the California Air Resources Board in long-term implementation of AB32.[69] In addition, an Economic and Technology Advancement Advisory Committee was created to further advise the board;[70] the committee submitted its investigatory findings to the Board on how best to implement measures and developments from AB32 immediately.[71]

Further, the California Air Resources Board pioneered a cap-and-trade scheme with the Provincial Government of Quebec.[72] On January 1st, 2014, Quebec and California formally began their program to trade greenhouse gas emission allowances.[73] The

60. Cal. Exec. Order S-3-05 (June 1, 2005), https://www.gov.ca.gov/news.php?*id*=1861.

61. *See* California Climate Change, *California Climate Change Executive Orders* (Mar. 20, 2017), http://www.climatechange.ca.gov/state/executive_orders.html.

62. Nichols, *supra* note 59, at 199–201.

63. *Id*. at 200–01.

64. *See*, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY–AIR RESOURCES BOARD, Assembly Bill 32: An Overview, (last visited Oct. 20, 2017) https://www.arb.ca.gov/cc/ab32/ab32.htm (describing AB32 generally).

65. *Id*.

66. *Id*.

67. *See* CAL. HEALTH & SAFETY § 38580 (2006).

68. *See generally* Nichols, *supra* note 59, at 198–202.

69. CAL. HEALTH & SAFETY § 38591 (2006).

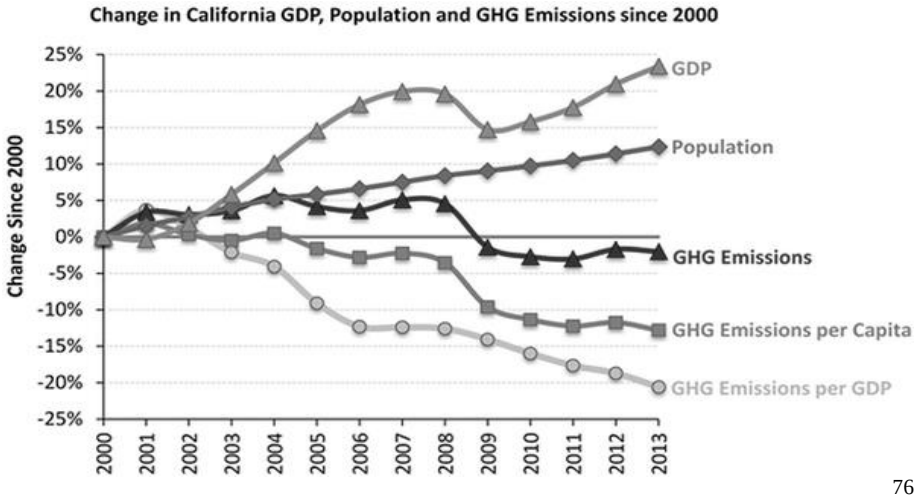
70. *Id*.

71. *Id*.

72. CENTER FOR CLIMATE AND ENERGY SOLUTIONS, *California Cap and Trade*, 13, (2014) https://www.c2es.org/us-states-regions/key-legislation/california-cap-trade#Revenue (last visited Nov. 3, 2017).

73. *Id*.

linkage program in 2015 saw a 2 percent decrease in emissions covered from the year before—California remains on track to reach 1990 level emissions by 2020.[74] The prominence and relative success of the program drew Ontario, Canada's most populous province, to join the cap-and-trade scheme with California and Quebec as well.[75]



76

Senate Bill 32 (SB32), passed in 2016, supplements AB32.[77] SB32 codifies a provision of Governor Brown's B-30-15 Executive Order.[78] With SB32 signed into law, by 2030 California's greenhouse gas emission levels must be 40 percent below 1990 levels and by 2050, 80 percent below.[79] SB32 also grants the California Air Resources Board additional authority to promulgate more regulations in order to meet the new standards.[80]

In a testament to the majesty of well-functioning, traditional law-making, Governors Schwarzenegger and Brown worked with the California Legislature to implement the programs. State

74. *Id.* at 6. *See also infra* note 76 and accompanying chart.

75. *See generally* Allison Martell & Mike De Souza, *Ontario Confirms it Will Join Quebec, California in Carbon Market* REUTERS, Apr. 13, 2015, http://www.reuters.com/article/us-climatechange-canada-*id*USKBN0N41X220150413 (examining recent decision by Ontario to join cap-and-trade scheme).

76. CLEAN OIL AND GAS FOUND., *California Extends Climate Change Bill, Seeks 40% Cut in GHGs Below 1990 Levels*, http://cleanoilgasfoundation.org/california-clinate-change.html (last visited Nov. 2, 2017).

77. S.B. 32, 2015-16 Reg. Sess. (Cali. 2016).

78. *See* Cal. Exec. Order No. B-30-15 (Apr. 29, 2015), https://www.gov.ca.gov/news.php?*id*=18938; Richard Gonzalez, *California Gov. Jerry Brown Signs New Climate Change Laws*, NAT'L. PUB. RADIO (Sept. 8, 2016), http://www.npr.org/sections/thetwo-way/2016/09/08/493191842/california-gov-jerry-brown-signs-new-climate-change-laws.

79. Cal. Exec. Order No. B-30-15.

80. *Id.*

agency, executive, and legislature thrived in tandem to apply one of the nation's largest climate change initiatives seen to date.[81] Indeed, as Professor Robert Stavins notes, "[t]his is a critical time for California's climate change policies."[82] These previous acts are wide-ranging bills setting regulatory standards until the year 2050, assuring the long-term stability of the plans enacted. It appears AB32 has garnered substantive results in fighting climate change. Perhaps there is merit to California Air and Resources Board Chairwoman, Mary Nichols', quote "What the nation needs now is a federal Global Warming Solutions Act, modeled after California's efforts, and building off of the time-tested 'cooperative federalism' framework."[83]

A. A Potential Product: The Global Warming Solutions Act of 2008

As noted, Chairwoman Nichols implored the federal government to recreate the California Global Warming Solutions Act.[84] Massachusetts, however, took the helm and instituted similar legislation. Democratic Governor Deval Patrick, and Republican Governor Charlie Baker each have taken proactive AB32-esque action. Without a doubt, the precedent shows bipartisanship works best to prompt state governments to address climate change.

Governor Patrick signed Massachusetts' Global Warming Solutions Act (GWSA) into law in 2008.[85] The GWSA requires that by "2020 statewide greenhouse gas emissions . . . be between 10 per cent and 25 per cent below the 1990 emissions level."[86] The GWSA sets a long-term goal of an 80% reduction by 2050, as well. Common sense dictates this gallant reform was, at least partially, inspired by AB32, even if in name only. At the time of signing, fans praised the GWSA for acting in the midst of uncertainty about the direction the nation would head in,[87] as the country was in the throes of the 2008

81. *See* David Siders, *This Is What The Climate Bill Jerry Brown Signed Means*, THE SACRAMENTO BEE, Sept. 8, 2016, http://www.sacbee.com/news/politics-government/capitol-alert/article100734142.html.

82. Robert N. Stavins, *California Steps Forward on Climate but Emphasizes a Poor Policy Choice*, 34 THE ENVTL. F. 2, 15 (2017).

83. Nichols, *supra* note 59, at 212 (citation omitted).

84. *See supra* note 83 and accompanying text.

85. Michael P. Norton, *Mass. Greenhouse Gas Emissions Down 21 Percent*, THE LOWELL SUN, Apr. 4, 2017, http://www.lowellsun.com/breakingnews/ci_30897427/mass-greenhouse-gas-emissions-down-21-percent.

86. Global Warming Solutions Act, 2008 Mass. Legis. Serv. Ch. 298 (S.B. 2540) (2008).

87. *See generally Global Warming Solutions Act Passes Legislature*, THE MARBLEHEAD REP., Aug. 1, 2008 http://marblehead.wickedlocal.com/x1566624572/Global-Warming-Solutions-Act-passes-Legislature (discussing recent environmental legislation from the Massachusetts State Legislature).

Presidential Election when the bill was signed.[88] Advocates have opined this bold reform has put Massachusetts "at the head of the pack" in the fight against climate change.[89]

Moving from *legislative* action mirroring California, Governor Baker's executive order seems starkly similar to Governor Brown's actions.[90] In 2016, Governor Baker signed Executive Order 569.[91] Executive Order 569 directed the Governor's executive agencies to start taking substantial steps to individually address climate change.[92] Executive Order 569 mandated the administration to begin drafting adaptation plans across the Commonwealth.[93] It should be noted, drawing staunch parallels to Governor Brown, Baker doubled down support of the initial Global Warming Solutions Act of 2008, signed into law by his predecessor—of an opposite party.[94] Executive Order 569 mandates that the administration make sure it is in compliance and on track to meet the long term requirements of the GWSA.[95]

The magnificence of AB32, it appears, is that it has created a ripple effect. California and Massachusetts stand as glistening examples of how climate change can be addressed across political lines. These two examples serve, more broadly, however, to illustrate the tools in the hands of statehouses to combat climate change.

B. Precedent: Governor Rockefeller's Administration

Governors Schwarzenegger and Brown's actions in fighting climate change in California were undoubtedly admirable and unique; yet, this is not to imply the two were the first governors to artfully implement environmental initiatives with the legislature's cooperation. Governor Nelson Rockefeller excelled, particularly, as

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88. *Id.*

89. Dav*id* Danielson, *Finally, a Good Energy Policy*, MIT TECH. REV. (Aug. 7, 2008), https://www.technologyreview.com/s/410570/finally-a-good-energy-policy/.

90. *See supra* note 78–80 and accompanying text.

91. Mass. Exec. Order. No. 569 (Sept. 16, 2016), http://www.mass.gov/eea/docs/executive-order-climate-change-strategy.pdf.

92. *Id.*

93. *See* Brook J. Detterman, *Massachusetts Governor Baker Signs Executive Order 569 On Climate Change*, THE NAT'L L. REV., Oct. 24, 2016, http://www.natlawreview.com/article/massachusetts-governor-baker-signs-executive-order-569-climate-change (examining Governor Baker's Executive Order 569's climate change efforts and affects).

94. *See generally* Michael P. Norton & Andy Metzger, *Baker Order Requires Climate Change Plan*, THE TELEGRAM, Sept. 16, 2016, http://www.telegram.com/news/20160916/baker-order-requires-climate-change-plan (broadly examining Executive Order 569 and climate change in Massachusetts).

95. Detterman, *supra* note 93.

a statesman and environmentalist, through implementation of his initiatives and creation of long term precedent.

Adirondack Park is a substantive part of the New York Forest Preserve,[96] Governor Rockefeller's legislative efforts worked to set up a commission to find a way to properly administer conservation and environmental management efforts.[97] Rockefeller spearheaded the creation of, and utilized his bully pulpit to lobby for, a bill he eventually signed it into law, the Adirondack Park Agency Act, which created a state agency to regulate the park properly with state resources.[98] Rockefeller also worked to create, with the legislature, a unified state environmental agency,[99] the New York Department of Environmental Conservation, one of the first of such measure and scope, in 1970.[100]

Perhaps Rockefeller's greatest environmental legacy was creating what some call the inspiration for the Clean Water Act by introducing the Pure Waters Bond Act in 1965.[101] Rockefeller lobbied hard for it's passage, and exhausted himself working towards passing the Act.[102] The Pure Waters Bond Act touted it's goals as making waters "swimmable and fishable" and, in addition, worked to increase the efficacy and quantity of wastewater management systems across the state.[103] The Pure Waters Bond Act still maintains a legacy of achieving environmental reform and cleaning up New York's waters.[104] Rockefeller has been heralded as an environmental trailblazer and noted for his precedent-setting

96. *See generally* Peter Bauer, *Governor Andrew Cuomo and the Boreas Ponds*, ADIRONDACK ALMANACK (Mar. 7, 2017), http://www.adirondackalmanack.com/2017/03/governor-andrew-cuomo-and-the-boreas-ponds-part-1.html (discussing New York's environmental state history).

97. Charles Gottlieb, *Regional Land Use Planning: A Collaborative Solution for the Conservation of Natural Resources*, 29 J. ENVTL. L. & LITIG. 35, 58–59 (2014).

98. Stacey Lauren Stump, *"Forever Wild" A Legislative Update on New York's Adirondack Park*, 4 ALBANY GOV'T L. REV. 682, 698 (2011).

99. Jeffrey Frank, *Big Spender: Nelson Rockefeller's Grand Ambition,* THE NEW YORKER, Oct. 13, 2014, http://www.newyorker.com/magazine/2014/10/13/big-spender-2.

100. *See* Patricia E. Salkin, *The Executive and the Environment: A Look at the Last Five Governors in New York*, 31 PACE ENVTL. L. REV. 706, 708 (2014).

101. James Tierney, *Celebrating 50th of the Pure Waters Act*, CLEAR WATERS, http://www.dec.ny.gov/chemical/105432.html.

102. *Id.*

103. *Id.*

104. Willie Janeway, Editorial, *Gov. Cuomo's Proposed Budget Fails to Invest Enough in Clean Water*, THE POST-STANDARD, Jan. 28, 2015, http://www.syracuse.com/opinion/index.ssf/2015/01/gov_cuomos_proposed_budget_fails_to_invest_in_clean_water_commentary.html.

action.[105] A governor set the path for federal action in the absence of proper legislation, and undoubtedly, a governor, or *governors* could do it again.

IV. MISCELLANEOUS LEGISLATIVE TOOLS

The examples above are sterling efforts by state governments to address environmental issues facing states. Yet, state legislatures possess several more tools to pursue or advocate for an agenda of their choosing. Next, is a brief illustration of several well-known tools state legislatures have that could apply to climate change initiatives and give a few modern examples illustrating how legislatures use these powers. These serve to prove that while traditional lawmaking, cooperation between branches, has its merits, many tools remain in the hands of the legislatures.

A. The Power of the Purse

Previously, this Note enumerated a subset of state constitution provisions that mirror the Federal Constitution's dispersal of power amongst the branches.[106] Statehouses themselves are typically anointed with the "power of the purse."[107] Governor Tom Wolf refused to sign the funding package the Pennsylvania General Assembly sent to him in 2015, leading to a budget impasse and the state operating without a budget for 266 days.[108] As illustrated, governors without line-item vetoes, face the choice of complying with oft seen omnibus appropriations bills or opposing them entirely. Riders, or small provisions packaged within larger legislation, are sent along in these bills that give legislatures power over the governor.[109] The executive is more politically accountable and thus faces greater risks if it vetoes appropriations and a

105. *See* Jeffrey Frank, *Big Spender: Nelson Rockefeller's Grand Ambitions,* THE NEW YORKER, Oct. 13, 2014, https://www.newyorker.com/magazine/2014/10/13/big-spender-2; Michael O'Donnell, *Fortune's Son*, THE NATION, Feb. 4, 2015, https://www.thenation.com/article/fortunes-son/.

106. *See supra* Part II.B.

107. Ronald Snell, *The Power of the Purse: Legislatures That Write State Budgets Independently of the Governor*, NAT'L. COUNCIL OF ST. LEGISLATURES, Mar. 2008, http://www.ncsl.org/research/fiscal-policy/the-power-of-the-purse-legislatures-that-write-st.aspx.

108. *See* Maria Panaritis & Kathy Boccella, *Ending Budget Impasse, Wolf Says: 'We Need to Move on'*, THE PHILA. INQUIRER, Mar. 24, 2016, http://www.philly.com/philly/news/20160324_Wolf_relents_on_budget__ends_historic_impasse.html (explanation of the 2015 Pennsylvania Budget discord and resolution).

109. *See* Sandra Beth Zellmer, *Sacrificing Legislative Integrity at the Altar of Appropriations Riders: A Constitutional Crisis*, 21 HARV. ENVTL. L. REV. 457 (1997); Brandon F. Denning & Brooks R. Smith, *Uneasy Riders: The Case for A Truth-in-Legislation Amendment*, 1999 UTAH L. REV. 957, 959–64 (1999).

government shutdown results. Omnibus riders are an invaluable tool in the hands of the state legislatures and could be used to implement conservation or environmental plans.

B. Censure and Impeachment

The impeachment and censure tools are one of the few methods the legislature has to grab headlines and attention statewide for a cause important to them at a level comparable to the state executive.[110] Further, impeachment and censure require little cooperation from other branches of government.[111] Wallace Hall was a member of the Texas Board of Regents, the governing body for the State University System of Texas.[112] In 2013, the Texas Legislature censured Regent Hall for "misconduct, incompetency in the performance of official duties, or behavior unbefitting [of a regent]."[113] Impeachment and censure are often relegated to the annals of history and not frequently used at the federal level,[114] the previous example served to illustrate state legislatures are still *very* capable of censure and impeachment. A state legislature, if held by ardent environmental activists, could censure or impeach a head of the state environmental agency, if the head refused to address climate change or environmental issues to the legislatures liking.

C. Redistricting

Common sense dictates that the political fruit of redistricting or gerrymandering are long-term investments. The demand for immediate climate change action is strong, so does redistricting deserve a place in the pantheon of tools state legislatures have? State legislatures still retain the ability to draw maps more sympathetic to their causes.[115] Some, not all, state legislatures hold the sole power to redistrict and apportion state and federal district

110. *See generally* John Nichols, *Censure and Impeachment*, THE NATION, July 23, 2007, https://www.thenation.com/article/censure-and-impeachment/ (general analysis of impeachment power).

111. *Id.*

112. *See* Ralph K.M. Haurwitz, *Panel Censures UT Regent Wallace L. Hall Jr.*, THE AUSTIN-AMERICAN STATESMAN (Aug. 11, 2014), http://www.statesman.com/news/state--regional-govt--politics/panel-censures-regent-wallace-hall/dTKKhqoALaXjN90qb6OnBM/ (discussion of Regent Hall impeachment scandal).

113. *Id.*

114. *See generally* Bill Schnieder, *A Historical Tutorial on Impeachment*, CNN (Mar. 11, 1998), http://www.cnn.com/ALLPOLITICS/1998/03/11/impeachment.censure/ (broad examination of history of impeachment power in America).

115. *See* Christopher Ingraham, *This is the Best Explanation of Gerrymandering You Will Ever See*, THE WASH. POST, Mar. 1, 2015, https://www.washingtonpost.com/news/wonk/wp/2015/03/01/this-is-the-best-explanation-of-gerrymandering-you-will-ever-see/ (explaining redistricting and Gerrymandering).

boundaries.[116] If these legislatures partake in gerrymandering practices, they have the capability to ensure districts are shaped to their liking, and to their potential political or policy inclinations.[117]

D. Joint Resolutions

Legislatures can also make broad statements, announce resolutions, and initiate symbolic gesturing—akin to the executive's use of press releases or utilization of state and national media outlets—often utilized by Joint Resolutions.[118] Utah State Senator Jim Dabakis introduced Senate Joint Resolution 9 (S.J.R.9), or the Joint Resolution on Climate Change in February of 2017.[119] S.J.R.9 is a statement of the legislature's intent to address climate change and its interest in better understanding the causes of climate change.[120]

> Whereas, if left unaddressed, the consequences of a changing climate have the potential to:
> - [A]dversely impact all Americans;
> - [A]ffect vulnerable populations the hardest;
> - [H]arm productivity in key economic sectors such as construction, agriculture, and tourism;
> - [S]addle future generations with costly economic and environmental burdens; and
> - [I]mpose additional costs on state and federal budgets that will further add to the long-term fiscal challenges that we face as a state and nation.[121]

The introduction of S.J.R.9 is a marked reversal from the previously passed House Joint Resolution 12 (H.J.R.12), adopted in 2010, which implored the EPA to reverse its current course of regulations on carbon dioxide reduction.[122] The utilization of a joint resolution to call attention to issues the legislature determines at

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116. *See* Christopher Ingraham, *This is Actually What America Would Look Like Without Gerrymandering*, THE WASH. POST, Jan. 13, 2016, https://www.washingtonpost.com/news/wonk/wp/2016/01/13/this-is-actually-what-america-would-look-like-without-gerrymandering/ (illustrating non-Gerrymander-ed districts).

117. *Redistricting*, THE NAT'L COUNCIL OF STATE LEGISLATURES, http://www.ncsl.org/research/redistricting.aspx.

118. *The Legislative Process*, UNITED STATES HOUSE OF REPRESENTATIVES, http://www.house.gov/content/learn/legislative_process/.

119. S.J. Res. 9 Joint Resolution on Climate Change, Utah State. Legis. Reg. Sess. (2017).

120. *See id*.

121. *Id*.

122. H.R.J. Res. 12, Climate Change Joint Resolution, Utah State Legis. Reg. Sess. (2010).

their discretion is a perceptive and resourceful tool the state legislatures have at their disposal.

V. THE REGIONAL GREENHOUSE GAS INITIATIVE AND THE MIDWESTERN GREENHOUSE GAS REDUCTION ACCORD

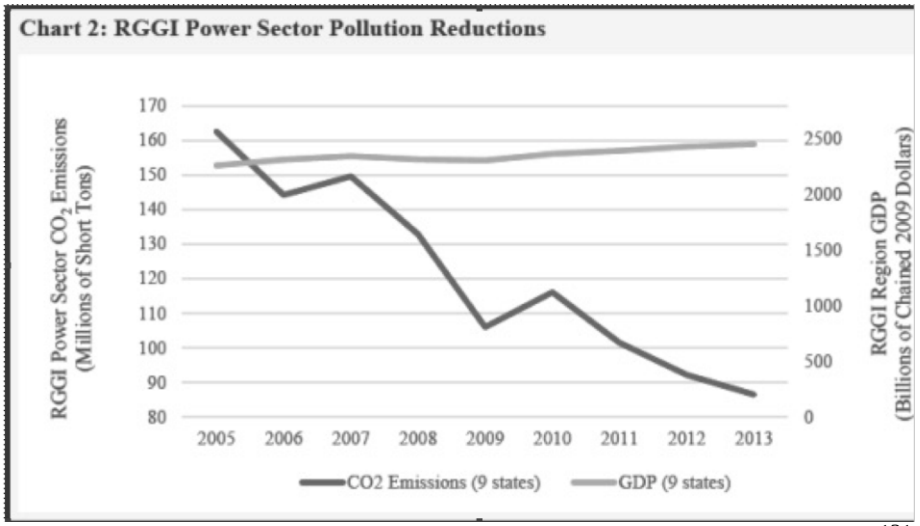
Below, this Note emphasizes two notable pacts between states led by governors. The listed examples are glistening demonstrations of the power a governor has. However, the Interstate Compact Clause limits the executive's agreement power.[123] The Supreme Court iterated in *Virginia v. Tennessee*, that not all agreements from states are subject by the bar established by the Interstate Compact Clause.[124] Later in the case, the Supreme Court noted that states may not enter into agreements that run afoul of the powers of the federal government.[125] As environmental and climate change regulation is soundly within the realm of dual sovereignty, which was examined earlier, interstate climate change agreements *should* be protected from vulnerability in regards to this clause, especially with the following two examples as precedent. However, this ought to implore governors to proceed warily and try not to tread on any authority or power so outside the realm of environmental and climate change precedent it encroaches on the *Virginia* limits and begins to lead to the "increase of political power in the states[;]" thus, encroaching "upon or interfere[ing] with the just supremacy of the United States."[126]

A. The Regional Greenhouse Gas Initiative

In 2003, a bipartisan group of northeastern governors began joint talks and information sessions that culminated with the creation and individual approval of the Regional Greenhouse Gas Initiative (RGGI).[127] In 2005, Rhode Island, Connecticut, Delaware, New York, Vermont, Maine, New Hampshire, New Jersey, Maryland, and Massachusetts began the program to implement a cap-and-trade scheme, and to focus on carbon dioxide emissions, among power plants within their states.[128] The RGGI was created largely in conformity with existing cap-and-trade frameworks;

123. U.S. CONST. art. I, §10, cl. 3.
124. 148 U.S. 503, at 518–521 (1893).
125. *Id.* at 519.
126. *Id.*
127. Note, *The Compact Clause and the Regional Greenhouse Gas Initiative*, 120 HARV. L. REV. 1958, 1959–60 (2007).
128. Lauren E. Schmidt & Geoffrey M. Williamson, *Recent Developments in Climate Change Law*, 37 COLO. LAW. 63, 70 (2008).

however, the program does not span the entire economies of each individual state, but focuses specifically on the energy sector.[129] This particular climate change program was born from the capacity the state executive has to barter, negotiate, and exercise political capital and function as a dignitary for the state to implement and enter agreements above the state level.[130]



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The RGGI is still functioning today and has produced positive results in reducing carbon dioxide emissions while also saving consumers millions.[132] New Jersey left the agreement in 2012, but a movement at the state level has developed advocating rejoining after several companies reported economic losses.[133] A 40% decrease in power sector carbon dioxide emissions has been reported since the RGGI's implementation in 2005.[134]

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129. Robert Zeinemann, *Emerging Practice Area: The Regulation of Greenhouse Gases*, 82 WIS. LAW, 6, 8 (2009).

130. *See generally* Commentary, *supra* note 127, at 1958.

131. Silvio Marcacci, *RGGI Carbon Market Invests $1 Billion in Clean Energy*, CLEAN TECHNICA, Apr. 22, 2015, https://cleantechnica.com/2015/04/22/rggi-carbon-market-invests-1-billion-clean-energy/.

132. Committee Report, *Report of the Climate Change & Emissions Committee*, 31 ENERGY L.J. 571, 594–95 (2010).

133. FACT SHEET, ACADIA CENTER, ENTER, NEW JERSEY AND RGGI: POTENTIAL BENEFITS OF RENEWED PARTICIPATION, http://acadiacenter.org/wpcontent/uploads/2014/09/Acadia Center_RGGI_NJ_FactSheet_032415.pdf.

134. Report, REGIONAL GREENHOUSE GAS INITIATIVE, INC., RGGI REPORT: INVESTMENTS PROVIDE $2.9 BILLION IN ENERGY BILL SAVINGS; 3.7 MILLION PARTICIPATING HOUSEHOLDS BENEFIT, (Apr. 21,2015), http://www.rggi.org/docs/ProceedsReport/2013Proceeds%20Report_PR_Final.pdf.

B. Midwestern Greenhouse Gas Reduction Accord

The Midwestern Greenhouse Gas Reduction Accord was created as an agreement between six midwestern governors and the Premier of Manitoba.[135] Each of the individual states have large agri-business sectors and are susceptible to climate change-induced disaster.[136] The Accord set up a blueprint for a multi-sector cap-and-trade system in the region, and various other mitigation efforts.[137] The Accord produced the Midwestern Greenhouse Gas Reduction Program, the formal write-up of the cap-and-trade program.[138] The Program included goals for curbing greenhouse gas emissions, and discussed a potential cap-and-trade program, the management and tracking of emissions, and regional incentives for implementing the programs.[139]

The Midwestern Greenhouse Gas Reduction Accord remains a high-profile verification of what can be done to combat climate change with willing state executives. While no sweeping action has been taken in the various statehouses of Accord members, and the current executives are not pursuing it,[140] the Accord put together an extensive study of how to implement regionally specialized climate change mitigation programs.[141] Should executives of any participating member-state seek to immediately take steps on climate change, expensive studies and delays to develop plans are not necessary, the Accord provides an on-demand blueprint.

VI. THE MINNESOTA DEPARTMENT OF ENTERPRISE SUSTAINABILITY

Administrative officers at the state level are employed at the pleasure of the Governor and the Governor, vested with executive authority, exercises mass influence over the organization of agencies and the substantive manner the agencies operate. This has proven true at the federal level and can function at the state level.

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135. Erin Benoy, Note, *Wanted: Farmer-Friendly Climate Change Legislation*, 16 DRAKE J. AGRIC. L. 147, 150 (2011).

136. *Id*. at 154.

137. *Id*.

138. *See* Press Release, Cal. Office of the Governor, Governor Schwarzenegger Applauds Nine Midwest States For Creating Regional Climate Partnership (Nov. 15, 2007), https://www.gov.ca.gov/news.php?*id*=8109.

139. *Id*.

140. Maria Gallucci, *Cap and Trade Resurrected? Some States Awaken to Its Economic Benefits*, INSIDE CLIMATE NEWS (July 12, 2012) https://ins*id*eclimatenews.org/news/20120708/cap-and-trade-rgg-states-california-economic-benefits-energy-efficiency-jobs-carbon-auctions-proceeds-deficits.

141. *See Midwest Greenhouse Gas Reduction Accord*, CENTER FOR CLIMATE AND ENERGY SOLUTIONS, https://www.c2es.org/us-states-regions/regional-climate-initiatives/mggra. (last visited Oct. 20, 2017).

For example, President Clinton's Executive Order 12898 set up an "Interagency Working Group on Environmental Justice."[142] Essentially, this group served as a watchdog organization spanning the majority of the executive branch and working with each agency to advance the goals of environmental justice pursuant to the governor's policy preferences and agenda.[143] Below a hefty illustration takes place of the steps the Governor of Minnesota has already begun to take, utilizing similar methodology to the one that President Clinton employed.

In 2016, Minnesota Governor Mark Dayton created the Office of Enterprise Sustainability (OES).[144] The OES is a watchdog accountability organization that monitors and works with the existing executive agencies in Minnesota.[145] Lieutenant Governor Tina Smith proclaimed, regarding Minnesota's climate change actions, "State government has many opportunities to fight climate change–by ensuring buildings are energy efficient, increasing our reliance on renewable energies, choosing more fuel-efficient fleet vehicles, and making more informed purchasing decisions."[146] Dayton's creation of OES was an effort to take immediate mitigation steps within his own administration.

> OES will provide agencies with the assistance needed to:
> - Reduce greenhouse gas emissions and water usage,
> - Increase energy efficiency and recycling, and
> - Support better coordination of sustainability efforts across state government.
> - Develop sustainability plans to reduce costs associated with operations while improving Minnesota's environment.[147]

OES celebrated its first anniversary in August of 2017.[148] Before the creation of OES, the Dayton Administration released a substantive report, titled "Climate Solutions and Economic Opportunities."[149] The report includes a brief manifesto of stated goals and explanations of what can be done to tackle climate

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142. Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 11, 1994).

143. *See generally id*.

144. Press Release, Minn. Office of the Governor, Minnesota Establishes New Office of Enterprise Sustainability to Fight Climate Change (July 20, 2016), http://mn.gov/governor/newsroom/?*id*=1055-249987.

145. *See id.*

146. *Id*.

147. MINNESOTA DEPARTMENT OF ADMINISTRATION, *Office of Enterprise Sustainability*, http://mn.gov/admin/government/sustainability/ (last visited Oct. 20, 2017).

148. *Id*.

149. MINNESOTA ENVIRONMENTAL QUALITY BOARD, *Climate Solutions and Economic Strategies: A Foundation for Minnesota's State Climate Action Planning* (2016).

change.[150] Direction and exercising of executive authority over state agencies to implement climate change is one of the easiest steps to be taken by the state executive to enact reform.[151]

VII. WASHINGTON STATE'S CARBON TAX

As touched on earlier, statehouses hold many of the same abilities as the federal government to make law regarding their province. [152] Laying and collecting taxes is one of the federal government's most obvious and infamous roles.[153] This ability is, of course, extended to the states as well. [154] Washington State's failed 2016 carbon-tax initiative, also known as I-732, serves as a staid example of carbon taxes as a method for states to combat climate change.

British Columbia's successful implementation of a carbon tax program served as the inspiration for the Washington carbon tax initiative.[155] If the measure had been successful starting on July 1, 2017, a tax rate, increasingly yearly, would have been placed on metric tons of carbon used.[156] CarbonWA, a Washington activist organization, sparked interest by garnering over 360,000 signatures on a petition,[157] without Democratic Governor, and noted climate change activist,[158] Jay Inslee's support, the initiative was sent to the ballots during the 2016 election cycle.[159]

The initiative suffered setbacks early on, with criticisms coming from varied sides of the political aisles.[160] Some environmentalists argued it did too little and harmed minority or impoverished communities, [161] while other opponents derided it's very nature, being an increased revenue collection method, anointed with "the

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150. *Id*. at 3.

151. MINNESOTA DEPARTMENT OF ADMINISTRATION, *supra* note 147.

152. *See supra* Part II, B, 2.

153. U.S. CONST. art. I, §8.

154. *See* Kathryn L. Moore, *State and Local Taxation: When Will Congress Intervene*?, 23 J. LEGIS. 171 (1997).

155. Cassandra Profita, *A Carbon Tax In Oregon?*, OR. PUB. BROAD., Jan. 8, 2013, http://www.opb.org/news/blog/ecotrope/a-carbon-tax-in-oregon/.

156. Ferdinand Hogroian, *2016 Election Roundup*, 26-FEB. J. MULTISTATE TAX'N 27, 2017 WL 117867.

157. Shi-Ling Hsu, *Environmentalists' Disdain for Washington's Carbon Tax*, SLATE (Oct. 16, 2016) http://www.slate.com/articles/health_and_science/science/2016/10/environmentalists_are_against_i_732_washington_s_carbon_tax.html.

158. Marianne LaVelle, *Washington State Voters Reject Nation's First Carbon Tax*, INSIDE CLIMATE NEWS, (Nov. 9, 2016), https://ins*id*eclimatenews.org/news/09112016/washington-state-carbon-tax-i-732-ballot-measure.

159. *Id*.

160. *See generally* Hsu, *supra* note 157.

161. William Yardley, *How A Tax On Carbon Has Divided Northwest Climate Activists*, THE L.A. TIMES, Oct. 13, 2016, http://www.latimes.com/nation/la-na-sej-carbon-tax-washington-20161011-snap-story.html.

dreaded word 'tax.'"[162] The Sierra Club, markedly, declined to endorse the initiative, alongside several other noteworthy activist organizations.[163] Truly, the infighting between environmentalists became well-known, and led to a Seattle Times Columnist calling it "a liberal pig pile."[164]

The election eventually came and I-732 failed by a 59%-41% margin.[165] The valiant effort remains the highest profile carbon tax initiative our nation has seen.[166] Through this example, lessons can be learned for other states; perhaps calling the potential programs a "price adjustment" or "fee implementation" to avoid labeling the carbon tax initiative with, the "t-word."[167] In addition, environmentalists ought to stress that cannibalizing the efforts from within will only serve to hinder the cause, long-run. Yet, despite all its problems, I-732 is a strong example of how states hold the quasi-dormant ability to take the mantle in the fight against climate change. Carbon taxes can originate from statehouses and be signed into law without a plebiscite in some states, while others may opt to place it on a ballot for a referendum. Regardless, states have significant power and precedent in carbon tax initiatives.

A. Influences and Precedents

While I-732 serves as the most recent and perhaps most well-known carbon tax initiative, it would be a disservice to not include several trailblazers. While British Columbia's carbon tax is the most notable, *successfully* passed initiative, it is necessary to include Vermont's and Oregon's attempts for implementation of carbon taxes. Not only did these three initiatives form precedent for states wishing to implement carbon taxes, they serve to prove that the issue of carbon taxation can leave the borders of Washington State. Hefty and intricate analysis of these plans may not be necessary, but some examination and explanation of their role, moving forward, as precedent, warrant examination.

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162. Hsu, *supra* note 157.

163. LaVelle, *supra* note 158.

164. Danny Westneat, *Audubon Backs I-732 To Fight Climate Change—It's Better Than Nothing*, THE SEATTLE TIMES, July, 13, 2016, http://www.seattletimes.com/seattle-news/audubon-backs-i-732-its-better-than-nothing/.

165. Matthew C. Boch, *A Green Headache? Thinking About The Practical Implications Of A State Carbon Tax*, 26-FEB J. MULTISTATE TAX'N 35, 2017 WL 117870, 1.

166. *Id.*

167. Hsu, *supra* note 157.

1. British Columbia

In February of 2008, British Columbia announced it would introduce and implement a carbon tax initiative.[168] The initiative drew fire and praise from the usual parties, some environmental activists showing support and some opposing industrialists levying criticisms.[169] While British Columbia's carbon tax met some hiccups, generally the program is viewed as a success, "[o]verall, [British Columbia]'s carbon tax has still returned more in reduced taxes to B.C. households and businesses than it has taken in—and will do so in the future."[170] The carbon tax proved so inspirational, the very columnist who described the I-732 as a "liberal pig pile," also credited British Columbia's carbon tax as a model for I-732.[171] Internationally, the United Nations and the World Bank have each praised the British carbon tax plan.[172] While some domestic dissent remains, and debate about the figures and results remain lively, the program is a steadfast example of a successful climate change initiative, and a carbon tax plan, taken at the state, or in this case, provincial, level.

2. Oregon

Rumblings of an Oregonian statewide climate change initiative began in 2009, but the pressures of the economic recession and varying intimating political waves sank the movement.[173] Later on, in 2014, the Legislature proposed a significantly more comprehensive and thorough carbon plan.[174] The Oregon Legislature's carbon tax plan was thorough to say the least, exemptions for certain classes of taxpayers were carved out, a study was commissioned, and hefty debate was held.[175] The study reported that the program, if implemented, would have

168. David G. Duff, *Carbon Taxation in British Columbia*, 10 VT. J. ENVTL. L. 87, 101 (2008).

169. *Id.*

170. Mark Cameron, *The Real Lesson Ontario Can Take Away from B.C.'S Carbon Tax*, MACLEAN'S. (Mar. 16, 2017), http://www.macleans.ca/economy/economicanalysis/the-real-lesson-ontario-can-take-away-from-b-c-s-carbon-tax/.

171. Westneat, *supra* note 164.

172. Mark Hume, *B.C. Carbon Tax: An Effective Model For National Climate Change Approach*, THE GLOBE AND MAIL, Dec. 10, 2014, http://www.theglobeandmail.com/news/british-columbia/bcs-carbon-tax-effective-in-reducing-greenhouse-gas-emissions-report/article22017313/.

173. Scott Learn, *Can Oregon's Climate Change Plan Survive A Down Economy?,* THE OREGONIAN, Jan. 17, 2009, http://www.oregonlive.com/environment/index.ssf/2009/01/can_oregons_climate_change_pla.html.

174. Nancy Shurtz, *Carbon Pricing Initiatives in Western North America: Blueprint for Global Climate Change Policy*, 7 SAN DIEGO J. CLIMATE & ENERGY L. 61, 123 (2016).

175. *Id.*

dramatically reduced greenhouse gas emissions, while avoiding harming the economy.[176] Regrettably, the plan never passed.[177] Yet, it can be inferred, that Oregon's neighbor to the North was not oblivious to the movement and likely looked to the precedent Oregon set. Oregon played a vital role in garnering momentum, one-by-one carbon tax plans seem to be popping up at the state level, these rumblings are significant and may eventually lead to a substantive carbon tax; however, one thing is certain, they have ample authority and precedent to back them up.

3. Vermont

Vermont also took the carbon tax battle by the horns through House Bill 412 (HB412).[178] The 2015 bill ultimately met its demise in committee,[179] yet, much like Oregon, Vermont's effort provides a blueprint and political momentum for further state initiatives. The bill brought discussion to carbon taxation and climate change initiatives to Vermont. [180] Vermont's climate change measure, developed as 2015 was waning, undoubtedly influenced or, at the least, was discussed by Washington's carbon tax activists during the public debate of I-732.

VIII. INFORMATION-GENERATING ORGANIZATIONS

States possess the ability to gather more concise, more relevant to local issues, assemblies to address pertinent issues in climate change or environmental policy. Climate change and even some environmental policy still carries a stigma amongst some political actors.[181] The information-finders listed below, present and gather information usually unique to their individual state to present to the executive or legislature. These groups usually present information in a vacuum off of the national stage. These assemblies, consisting either of private citizens or public state actors, can exercise significant clout by advising the governor

176. Wendy Culverwell, *The Cost Of Carbon: Tax Would Be 'A Small Drag' On Oregon Economy*, THE PORTLAND BUS. J., Dec. 8, 2014, http://www.bizjournals.com/portland/blog/sbo/2014/12/the-cost-of-carbon-tax-would-be-a-small-drag-on.html.

177. Shurtz, *supra* note 174, at 123.

178. H. 412, 2015-16 Gen. Assemb., Leg. Sess. (Vt. 2015).

179. *Id.*

180. Peter Hirschfeld, *Vermont GOP Targets Democrats in New 'Stop The Carbon Tax' Attack Ad*, VERMONT PUB. RADIO, (Aug. 17, 2016), http://digital.vpr.net/post/vermont-gop-targets-democrats-new-stop-carbon-tax-attack-ad#stream/0.

181. Fuller, *supra* note 31.

and recommending changes.[182] Yet, the common thread running between them is their substantive ability to gather information and produce research on and study the varied needs facing states.

A. Legislative Committees

Federal congressional committees usually control the fate of any given bill within their jurisdiction; they can issue subpoenas, hold hearings, compel witnesses to produce data, and hold parties in contempt.[183] Yet what can be done on the state level through these committees? The following section works to elucidate the capacities and abilities of these committees. Several state legislatures have taken action to create legislative committees or commissions solely addressed to climate change causes.

Alaska State Representative Andy Josephson introduced House Bill 173 (HB173), an attempt to codify the progress made through the Alaskan Climate Change Sub-Cabinet that Governor Palin had organized, in the form of a separately molded committee to monitor and address climate change.[184] The sub-cabinet, as common sense dictates, can be called or dismissed at the pleasure of the Governor.[185] HB173 attempts to distinctly codify and fund a commission addressed to climate change is a utilization of the legislatures tools to address climate change.[186]

The North Carolina Legislature organized a Legislative Commission on Global Climate Change in 2005.[187] The Commission was to conduct an in-depth examination and study of the nature of climate change, the danger it presents to North Carolina, and will make recommendations and publish its findings.[188] The Commission was not meant to be a standing committee, but to publish research and adopt findings; thus, after several extensions, the Commission dissolved.[189] The Bill creating the Commission was signed into law by Governor Easley; should an opposing party have taken power, the Commission would still have remained in existence.[190]

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182. *Governors' Use of Cabinets*, NATIONAL GOVERNORS ASSOCIATION 1, 11–13 (Oct. 26, 2006), https://www.nga.org/files/live/sites/NGA/files/pdf/06GOVCABINT.PDF.

183. *See generally The Role of Committees in the Legislative Process*, THE UNITED STATES SENATE, https://www.senate.gov/general/Features/Committees.htm.

184. *See* Alaska Legislative Assembly, *An Act establishing the Alaska Climate Change Response Commission*, H.R. 173 Alaska Legis. Assemb. Reg. Sess. (Mar. 10, 2017).

185. *See Governors' Use of Cabinets*, *supra* note 182, at 11–13.

186. *Id.*

187. 2005 N.C. Session L. 442 ("An Act to Establish the Legislative Commission on Global Climate Change").

188. *See id.*

189. *Id.* §11.

190. *Id.*

California and Massachusetts each organized within their state legislatures committees dedicated to addressing climate change. These committees, an exercise in legislative power and autonomy, hold massive power within their own states. The Commonwealth of Massachusetts organized a House and Senate Committee on Global Warming and Climate Change.

> It shall be the duty of the House Committee on Global Warming and Climate Change to consider all matters related to the Commonwealth's climate policy, including but not limited to greenhouse gas emissions, the climate impacts of renewable energy development and climate change adaptation and mitigation. The committee shall also serve in an advisory capacity to other joint committees that consider legislation with significant climate impacts, including but not limited to environment, natural resources and agriculture, transportation, energy, housing and economic development and emerging technologies. The committee may participate with other committees in joint hearings at the request of the Speaker or by agreement of the committee chairs.[191]

Massachusetts Governor Charlie Baker recently signed an executive order attempting to begin curbing greenhouse gas emissions within the commonwealth.[192] Baker had the findings or resources of the committees at the state government's disposal as well to aid his drafting of the executive order. The committees provide more research and resources than would be normally available otherwise.

The California State Assembly created a standing Joint Legislative Committee on Climate Change Policies that has been relatively active in state climate change action.[193] While legislative commissions wield substantial authority and power, they also hold a great deal of discretion to exercise that authority and power.[194] California's Climate Change Committee stated from its inception it seeks to take an active role in making findings and ascertaining facts related to climate change.[195]

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191. HOUSE COMMITTEE ON GLOBAL WARMING AND CLIMATE CHANGE, https://malegislature.gov/Committees/Detail/H51/About (last accessed Mar. 13, 2017).

192. Mass. Exec. Order No. 569 (Sept. 16, 2016), http://www.mass.gov/governor/legislationexecorder/execorders/executive-order-no-569.html.

193. *See* CALIFORNIA STATE ASSEMBLY, JOINT LEGISLATIVE COMMITTEE ON CLIMATE CHANGE, POLICIES, http://assembly.ca.gov/climatechangepolicies (last visited Oct. 20, 2017).

194. *See generally*, United States v. Armstrong, 517 U.S. 456, 464 (1996) (discussing prosecutorial discretion).

195. Cal. Gov't. Code §9147.10 (2016).

> The Joint Legislative Committee on Climate Change Policies is hereby created. The committee shall ascertain facts and make recommendations to the Legislature concerning the state's programs, policies, and investments related to climate change. Those recommendations shall be shared with other appropriate legislative standing committees, including the Assembly Committee on Budget and the Senate Committee on Budget and Fiscal Review.[196]

I assert these specialized climate change committees provide resources, funds, and attention to a totally unique and demanding field of legislation and hold an enviable vantage point. Their importance cannot be understated. These committees give legislatures a seat at the table in regards to power to enact climate change legislation.

B. Sub-cabinets, Commissions, and Advisory Groups

These assemblies, sub-cabinets, commissions, or advisory groups, wield significant influence and have varied power and influence. These committees, as demonstrated below, can be organized by the executive or can be created by legislature and signed into law by the executive, thus granting the resources the legislature can give. The discussion and analysis includes a brief, selected subset, not an absolute listing of state initiatives to create information-gathering organizations.

Montana Governor Steve Bullock assembled an interim Clean Power Advisory Group from various state actors and citizens to advise the Montana Department of Environmental Quality.[197] The Council's purpose was a one-time submission of recommendation to the executive's environmental agency regarding clean power options in Montana.[198] The governor, here, assembled experts in the field to help take informed action combating climate change in Montana.

In 2005, Arizona Governor Janet Napolitano signed an executive order creating the Climate Change Advisory Group.[199] Napolitano assembled thirty five individuals to form a team to advise her administration on how to address greenhouse gas emissions and

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196. *Id.*

197. *See* Press Release, Mont. Office of the Governor, Governor Steve Bullock Announces Interim Clean Power Plan Advisory Council Members, https://governor.mt.gov/Newsroom/Governor-Steve-Bullock-Announces-Interim-Clean-Power-Plan-Advisory-Council-Members.

198. *Id.*

199. Ariz. Exec. Order No. 2005-02 (Mar. 20, 2017), http://azmemory.azlibrary.gov/cdm/ref/collection/execorders/*id*/465.

to create a long-term plan to curb emissions in Arizona.[200] The executive order emphasized keeping jobs and natural resources preserved while doing everything possible to address Gases.[201] The Group also was to take inventory of Arizona's current greenhouse gas emissions.[202]

Illinois Governor Rod Blagojevich assembled the Illinois Climate Change Advisory Group through Executive Order.[203] Similar to other groups mentioned, the Committee was to gather research and present the executive with a climate change plan he could enact.[204] The executive order also mandated the Illinois Environmental Protection Agency to submit an annual report tracking greenhouse gas emissions across the state and forecast new trends.[205]

In 2007, Governor Sarah Palin signed an administrative order creating the Alaska Climate Change Sub-Cabinet.[206] The Sub-Cabinet was dedicated to creating a climate change plan for Alaska and publishing a high-profile plan for mitigation of risks.[207] The Sub-cabinet was solely organized under the role of the executive.[208]

These commissions or committees have vast power. They can attempt fact-finding missions; draw attention to issues; maneuver more flexibly than the governor across the state and communicate with various actors; they can bring in varied voices from across the spectrum; and finally, they can assess the needs of the state and make findings in a manner political actors cannot.[209] Commissions and advisory groups *are not* merely figurehead displays; they have unique abilities and can achieve real results.

IX. RECENT ACTION

By most metrics, it can be noted that the Trump Administration has moved resoundingly fast in instituting reform within the regulatory state.[210] In addition, the President has withdrawn from

200. *Id.*

201. *Id.*

202. *Id.*

203. Ill. Exec. Order No. 2006-11 (Mar. 13, 2017), https://www2.illinois.gov/Pages/government/execorders/2016_11.aspx.

204. *See id.*

205. *Id.*

206. Alaska Admin. Order No. 238 (Mar. 13, 2017), https://gov.alaska.gov/admin-orders/238.html.

207. *Id.*

208. Rick Steiner, *Gov. Parnell Must Revive Alaska Climate Change Cabinet*, ALASKA DISPATCH NEWS, Mar. 7, 2013, https://www.adn.com/commentary/article/gov-parnell-must-revive-alaska-climate-change-cabinet/2013/03/08/.

209 *See generally The Role of Committees in the Legislative Process, supra* note 183.

210. Chris Cillizza, *President Trump Likes To Move Fast. The Public Isn't Thrilled.*, WASH. POST, Feb. 3, 2017, https://www.washingtonpost.com/news/the-fix/wp/2017/02/03/the-trump-administration-is-very-proud-of-how-fast-its-moving-the-public-is-less-

the Paris Climate Accord, sparking passionate responses on both sides of the aisles. Below, responses from state actors advocating for climate change policy already seen in the Trump Administration are included.

A. The Paris Climate Accord

Even in the lead-up to President Trump withdrawing from the Paris Climate Accord, governors, other state actors, and even large companies were putting pressure on the President to reconsider withdrawal and making preliminary plans should the Administration do so.[211] Nonetheless, the attempts to lobby the President were unsuccessful and in the wake of the announcement, pacts and groups began to form amongst state actors.[212] The U.S. Climate Alliance (USCA) was launched immediately after the White House made the announcement.[213] A state-led group materialized before the President's eyes as governors pledged their commitments to the principles of the Paris Climate Accord and vowed their membership to the USCA.[214] USCA's stated goals mirror the Paris Climate Accord; members vow to reduce emissions from 26-28%.[215] While primarily populated by Democratic governors, the USCA boasts Republican Governors Charlie Baker of Massachusetts, and Phil Scott of Vermont as well.[216]

In response, the White House seemed uncharacteristically complacent in regards to this step. As demonstrated by White House Press Secretary Sean Spicer statement that,

> If a mayor or a governor wants to enact a policy on a range of issues, they are accountable to their own voters, and that's what they should do. We believe in states' rights, so if

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thrilled/?utm_term=.a903155dac3e; Richard Pierce, *Is Trump Moving Too Fast? Checks and Balances Will Slow Him Down*, THE HILL, (Feb. 12, 2017), http://thehill.com/blogs/pundits-blog/the-administration/319083-is-trump-moving-too-fast-checks-and-balances-will-slow.

211. *See* Marianne Lavelle, *Climate Action Will Thrive on State and Local Level, Leaders Vow After Trump Order*, INSIDE CLIMATE NEWS (Mar. 29, 2017), https://ins*id*eclimatenews.org/news/29032017/climate-change-mayors-states-donald-trump-executive-order.

212. *Id.*

213. Doyle Rice, *More States Sign on to U.S. Climate Alliance to Honor Paris Agreement*, USA TODAY (June 8, 2017), https://www.usatoday.com/story/news/nation/2017/06/08/more-states-sign-us-climate-alliance-honor-paris-agreement/102629160/.

214 *See id.*

215. *Id.*

216 *See* Timothy Luetkemeyer, *Fighting Climate Change in Post-Paris Agreement America: Reducing Livestock Emissions*, 94 DENV. L. REV. ONLINE 418, 422 (2017); David Abel, *Mass. Joins Other States to Fulfill US Pledges On Carbon,* THE BOSTON GLOBE, June 2, 2017, https://www.bostonglobe.com/metro/2017/06/02/climate/qELM7JPNpKnORMMqkzi2XJ/story.html.

> a locality, a municipality or a state wants to enact a policy, that their voters or American citizens believe in, then that's what they should do.[217]

From the statement alone it appears the Trump Administration goes as far as to give validation to the USCA, as long as it's the will of member states' constituents.

Perhaps most curious is the response on the city and municipality level. Beyond the statehouses, U.S. mayors reacted strongly to the President's actions regarding the Climate Accord and vowed that they would step up the fight through action in their respective city halls.[218] The Mayors of Chicago and Boston have been notably passionate in their responses.[219] In an act seemingly mirroring the USCA, 365 Mayors across the nation have founded an organization, nicknamed "The Climate Mayors," or the "Mayors National Climate Action Agenda."[220] These Mayors have vowed to take steps to fight climate change and created new goals and deadlines to reduce their emissions, and appear to be working in tandem with a similar effort through the Governor's USCA. Though, it should be noted, Mayoral action was included for thoroughness of explanation and bears little resounding consequence of federalist action in climate change.

B. The Clean Power Plan

The Trump Administration's only foray in to the climate change arena was not solely the Paris Climate Accord. The Trump Administration has released a slew of memoranda, notices, policy shifts, and drafts all working to adjust the previous Administration's climate policy.[221] The Executive Order instructing the EPA to begin review or revision of the Clean Power Plan, however, drew significant drawback from State Actors. Indeed, much like the decision to abandon the Paris Climate Accord, state officials were vowing to meet standards alone. Governors Cuomo

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217. Benjamin Storrow, *Governors Face Pressure to Distance Themselves from Trump on Climate*, THE SCIENTIFIC AMERICAN (June 5, 2017), https://www.scientificamerican.com/article/governors-face-pressure-to-distance-themselves-from-trump-on-climate/.

218. *See generally id*.

219. *Id*.

220. Lizette Alvarez, *Mayors, Sidestepping Trump, Vow to Fill Void on Climate Change*, NEW YORK TIMES, June 26, 2017, https://www.nytimes.com/2017/06/26/us/mayors-trump-climate-change.html.

221. Robinson Meyer, *Trump's EPA Repeals a Landmark Obama Climate Rule*, THE ATLANTIC (Oct. 9, 2017), https://www.theatlantic.com/science/archive/2017/10/the-trump-administration-repeals-obamas-central-climate-rule/542403/; Alex Guillén & Eric Wolff, *5 Big Things Trump Is Doing To Reverse Obama's Climate Policies*, POLITICO (Oct. 10, 2017), https://www.politico.com/story/2017/10/10/trump-obama-climate-clean-energy-243655.

and Brown, New York and California, each promised their commitment to the Clean Power Plan, despite the Trump Administration's actions.[222] New York Attorney General Eric Schneiderman vowed to lead a coalition of State Attorneys General challenging the action, going so far as to say he would take it to the Supreme Court.[223] The beauty of these actions is not merely opposing or advocating for a policy that may or may not be favorable, but the ability vested in the states to take action on climate change.

X. CONCLUSION

Climate change is an overtly politicized matter, and the analysis has not shied away from this; it is no secret that states with opposing heads of government to President Trump will relish taking climate change action first and allocating resources in defiance of the Trump Administration. If de-politicization of climate change is to occur effectively, states must act evenly and remove personal or political animus from the equation, to administer and create climate change initiatives uniformly. Each state carries a varied and distinct risk of climate change harm or benefit; state governments can react in a way the most environmentally friendly federal government could not. Professor Felix Mormann summarizes the merits of federal versus state government initiatives as follows:

> Those who argue for implementation at the federal level point to the better fit with the inter-state nature of the U.S. electricity grid, efficiency gains from a unified, national market for trading RECs and the reduced risk of regulatory leakage. Proponents of state-level renewable portfolio standards, on the other, hand, argue that existing state policy activism displaces the need for federal action, states are better positioned to account for local renewable resources, and have historically been tasked with determining their own energy portfolios.[224]

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222. Governor Andrew Cuomo (@NYGovCuomo), TWITTER (Mar. 28, 2017, 10:06PM), https://twitter.com/NYGovCuomo/status/846770535619055617.

223. New York Attorney General Eric Schne*id*erman (@AGSchniederman), TWITTER (Mar. 28, 2017, 12:20PM), https://twitter.com/AGSchne*id*erman/status/846804128282107905.

224. Felix Mormann, *Constitutional Challenges and Regulatory Opportunities for State Climate Policy Innovation*, 41 HARV. ENVTL. L. REV., (forthcoming Mar. 7, 2017) (University of Miami Legal Studies Research Paper No. 17–9; Stanford Public Law Working Paper No. 2928840), *available at* SSRN: https://ssrn.com/abstract=2928840.

State governments are too capable and too talented at responding to climate change to let it remain subject to the inert political dangers it faces at the national level.

The analysis and explanation above was meant to provide a framework, or blueprint, of sorts, illustrating authorized, legal action that states can take to combat climate change. There is much at stake in the fight against climate change and the actions taken by states cannot be mired in complex legal challenges and adjudicatory actions. Beyond legality of action, extensive precedent and example for states to act were provided, and the ability to, at times, go past the state legislatures was explored as well. Be it negotiating with foreign leaders or entering compacts with various states within the union, states have more capacity now than ever before to take up arms the climate change fight.

GEOENGINEERING: A PROMISING WEAPON OR AN UNREGULATED DISASTER IN THE FIGHT AGAINST CLIMATE CHANGE?

J. BRENT MARSHALL*

"It seems almost preposterous to buck the trends of holistic systems management and suggest running like the Sorcerer's Apprentice from symptom to symptom. It may also seem as though driving less or cutting fewer trees is simpler than scattering dust particles in the stratosphere. It is certainly more elegant. But when the Damocles' sword of massive biotic disruption is hanging over our heads, we should choose what works."[1]

I. INTRODUCTION

Climate change is increasingly moving towards becoming the most devastating force humanity has ever had to deal with, but legislative and regulatory entities are not keeping pace with the danger.[2] International action has primarily created emission goals,

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1. Jay Michaelson, *Geoengineering and Climate Management: From Marginality to Inevitability*, *in* CLIMATE CHANGE GEOENGINEERING: PHILOSOPHICAL PERSPECTIVES, LEGAL ISSUES, AND GOVERNANCE FRAMEWORKS 81, 114 (Wil C.G. Burns & Andrew L. Strauss eds., 2013).

2. Edward A. Parson & Lia N. Ernst, *International Governance of Climate Engineering,* 14 THEORETICAL INQUIRIES L. 307, 308 (2013) ("There is a large and growing gulf between the gravity of threats posed by climate change and the seriousness with which the issue is being addressed. Politically motivated attacks on climate science and scientists notwithstanding, evidence continues to mount of rapid climate changes underway, their predominant cause in human emissions of carbon dioxide (CO2) and other greenhouse gases (GHGs), the likelihood of more extreme changes over coming decades, and the potential of serious and disruptive impacts — many already observable." (footnotes omitted)).

very little has addressed potential efforts to remedy anthropogenic (man-made) climate change, as it increases in severity. Reduction of emission of greenhouse gasses will lessen the progression of climate change. It is also necessary to counteract greenhouse gasses already in the atmosphere through processes called geoengineering.[3] As the domestic and international communities begin to realize the importance of mitigation techniques, implementation must be regulated. Geoengineering technologies are advancing rapidly—the debate must pivot quickly from *the existence of climate change*, to *how to safely regulate its cure*.

This note will first address the most popular types of proposed geoengineering, including the dangers, and the possible outcomes. Second, it will outline regulation of geoengineering: the current laws in place; the policy needs of geoengineering regulation; and finally a proposal which bridges the gap between these.

Anthropogenic climate change began halfway through the eighteenth century during the industrial revolution.[4] Human activities have increased the airborne concentrations of greenhouse gasses, such as carbon dioxide (CO_2), methane, and nitrous oxide, to exceed levels the planet has seen for at least 800,000 years.[5] These changes have been primarily caused by the burning of fossil fuels, the changing ways land is utilized, and agriculture emissions.[6] Some argue that climate change is not anthropogenic, that the warming is natural–gradual occurrence–as a result of the last major glaciation, 18,000 years ago.[7] This claim is disproven by

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3. *See* Zahra Hirji, *Removing CO2 From the Air Only Hope for Fixing Climate Change, New Study Says*, INSIDE CLIMATE NEWS (Oct. 6, 2016), https://insideclimatenews.org/news/04102016/climate-change-removing-carbon-dioxide-air-james-hansen-2-degrees-paris-climate-agreement-global-warming.

4. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Climate Change 2013: The Physical Science Basis* 467 (Thomas F. Stocker et al. eds., 2013), http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf [hereinafter IPCC Climate Change 2013].

5. *Id.*; *Climate Change: How Do We Know?*, NASA GLOBAL CLIMATE CHANGE & GLOBAL WARMING: VITAL SIGNS OF THE PLANET, https://climate.nasa.gov/evidence/ (last updated Oct. 30, 2017).

6. IPCC CLIMATE CHANGE 2013, *supra* note 4, at 2.

7. *See* PATRICK MOORE, *Climate of Fear, in* CONFESSIONS OF A GREENSPACE DROPOUT: THE MAKING OF A SENSIBLE ENVIRONMENTALIST (2014) 342, 348, *available at* https://www.epw.senate.gov/public/_cache/files/415b9cde-e664-4628-8fb5-ae3951197d03/22514hearingwitnesstestimonymoore.pdf. *But see Climate Change: How Do We Know?*, *supra* note 5 (attributing modern global-warming trends to human activity); *see also* B.D. Santer et al., *A Search for Human Influences on the Thermal Structure of the Atmosphere*, 382 NATURE 39 (1996); Gabriele C. Hegerl, *Detecting Greenhouse-Gas-Induced Climate Change with an Optimal Fingerprint Method*, 9 J. CLIMATE 2281 (1996); V. Ramaswamy et al., *Anthropogenic and Natural Influences in the Evolution of Lower Stratospheric Cooling*, 311 SCIENCE 1138 (2006); B.D. Santer et al., *Contributions of Anthropogenic and Natural Forcing to Recent Tropopause Height Changes*, 301 SCIENCE 479 (2003).

ice core samples formed over the last 400,000 years.[8] These show that levels of CO_2 historically fluctuate between roughly 180 parts per million (PPM) at the end of an ice age and 280 PPM after a warming period that follows.[9] Temperatures hold a direct correlation to this fluctuation in CO_2 and other greenhouse gasses with linked trends.[10] The earth reached 280 PPM around the turn of the century, but the global levels have now soared over 400 PPM. Thus, the hypothesis that we are currently being subjected to the natural warming of the planet is not viable or intellectually honest. The political argument does not substantially permeate into the scientific community.[11] The earth has been warming drastically since 1880,[12] with the vast majority of warming

8. *Climate Change: How Do We Know?*, *supra* note 5 (providing evidence of increased atmospheric CO2 in ice cores since the start of the Industrial Revolution, which are well-above historical, maximum levels).

9. *See id.*

10. *Id.*

11. *See id.*; *see also* John Cook et al., *Consensus on Consensus: A Synthesis of Consensus Estimates on Human-Caused Global Warming*, 11 ENVTL. RES. LETTERS 4, 1–2 (2016), http://iopscience.iop.org/article/10.1088/1748-9326/11/4/048002/pdf (verifying the consensus through six independent studies conducted by the author and co-authors concluding that 90-100% of publishing climate scientists agreed with a 97% consensus previously studied); *Scientific Consensus: Earth's Climate Is Warming*, NASA GLOBAL CLIMATE CHANGE & GLOBAL WARMING: VITAL SIGNS OF THE PLANET, https://climate.nasa.gov/scientific-consensus/ (last updated Oct. 30, 2017) (clarifying that the scientific community is in 97% agreement of the above climate change numbers on an individual basis and worldwide scientific organizations have endorsed this position extensively); *Human-Induced Climate Change Requires Urgent Action*, AM. GEOPHYSICAL UNION: SCI. POL'Y, http://sciencepolicy.agu.org/files/2013/07/AGU-Climate-Change-Position-Statement_August-2013.pdf (last updated Aug. 2013) ("Humanity is the major influence on the global climate change observed over the past 50 years. Rapid societal responses can significantly lessen negative outcomes. . . . Climate models predict that global temperatures will continue to rise, with the amount of warming primarily determined by the level of emissions."); *Climate Change: An Information Statement of the American Meteorological Society*, AM. METEOROLOGICAL SOC'Y, https://www.ametsoc.org/ams/index.cfm/about-ams/ams-statements/statements-of-the-ams-in-force/climate-change/ (last updated Aug. 20, 2012) ("It is clear from extensive scientific evidence that the dominant cause of the rapid change in climate of the past half century is human-induced increases in the amount of atmospheric greenhouse gases, including carbon dioxide (CO2), chlorofluorocarbons, methane, and nitrous oxide."). This note will not address the argument against anthropogenic climate change, the sources in this footnote state the thorough and well documented evidence for it, and the reason why the theory of global warming must now be approached as fact.

12. *See Global Climate Change Indicators: Warming Climate*, NOAA NAT'L CTR. FOR ENVTL. INFO., https://www.ncdc.noaa.gov/monitoring-references/faq/indicators.php (last visited Oct. 30, 2017).

occurring in the past thirty-five years,[13] and temperatures continue to rise even in the face of a solar minimum.[14]

Temperatures themselves do not pose the only threat to the planet. Sea levels rose 6.7 inches in the last century from melting ice.[15] If trends continue as they have for the last two decades, they will rise by 11 to 13.5 inches more in the next eighty years.[16] These rising oceans have also taken on the majority of the heat increase, soaking up as much as 90% of excess heat, and between 0.5 and 1 watt of energy per square meter over the last decade.[17] This heat uptake of oceans is equal to more than 2 X 10^{23} joules of energy, "the equivalent of roughly five Hiroshima bombs exploding every second . . . ."[18] The discussion and discourse in the political sphere can no longer afford to address the existence of scientifically proven anthropogenic climate change. Instead, the domestic and international communities must focus on discussions that address the problems humanity is facing and attempt to address these directly.

There are three primary ways to address anthropogenic climate change. First, initiatives reducing new greenhouse gasses added to the atmosphere. Second, technology aiming to remove those gasses. Third, scientists are researching ways to cool the climate in lieu of the greenhouse gasses released.

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13. *See* T.C. Peterson & M.O. Baringer, *State of the Climate in 2008*, 90 BULL. AM. METEOROLOGICAL SOC'Y 8, S12 (2009), http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-90-8-StateoftheClimate (explaining that while there have been some outlier years, such as the cool 2008 when the report was written, given the context of the last three decades, the earth has risen in temperature at an astronomical and dangerous rate).

14. Joe Kunches, *We're Entering a 'Solar Minimum' – What it Means, and How It Influenced 2015*, WASH. POST, Dec. 22, 2015, https://www.washingtonpost.com/news/capital-weather-gang/wp/2015/12/22/were-entering-a-solar-minimum-what-it-means-and-how-it-influenced-2015/ (explaining the declining solar output that is associated with a solar minimum, and the implied lower temperatures it would normally bring if not for anthropogenic climate change); *2009: Second Warmest Year on Record; End of Warmest Decade*, NASA GODDARD INSTITUTE FOR SPACE STUDIES (Jan. 21, 2010), https://www.giss.nasa.gov/research/news/20100121/ ("In 2009, it was clear that even the deepest solar minimum in the period of satellite data hasn't stopped global warming from continuing."); J. Hansen et al., *Global Surface Temperature Change*, 48 REVS. GEOPHYSICS RG4004, https://pubs.giss.nasa.gov/docs/2010/2010_Hansen_ha00510u.pdf.

15. *See* John A. Church & Neil J. White, *A 20th Century Acceleration in Global Sea-Level Rise*, 33 GEOPHYSICAL RES. LETTERS L01602, 1 (2006), http://onlinelibrary.wiley.com/doi/10.1029/2005GL024826/epdf.

16. *See id.*

17. Cheryl Katz, *How Long Can Oceans Continue to Absorb Earth's Excess Heat?*, YALE ENV'T 360 (Mar. 30, 2015), http://e360.yale.edu/features/how_long_can_oceans_continue_to_absorb_earths_excess_heat.

18. *Id. See generally* S. Levitus, *Global Ocean Heat Content 1955–2008 in Light of Recently Revealed Instrumentation Problems*, 33 GEOPHYSICAL RES. LETTERS L07608 (2009) http://onlinelibrary.wiley.com/doi/10.1029/2008GL037155/epdf (providing estimates of world ocean warming).

The first method is by far the most popular and most researched, with the United Nations (U.N.) committing to reduced emissions in 2005 via the Kyoto Protocol,[19] and 195 nations adopting the first universal global climate treaty at the Paris Agreement in 2015.[20] These attempts, contrary to the current climate trends, are not failing entirely. The global economy has grown by over 6.5% in the past three years, but the CO_2 emissions stemming from energy generation and transport have stayed level.[21] Global emissions since 1975 have risen every year there was a positive global economy except the late 2010s.[22] Global CO_2 emissions have failed to substantially increase since 2013, the first time a growing global economy has not been met with growing emissions since the start of the industrial revolution.[23] This "decoupling" of emissions and economic growth has been led by the United States (U.S.) and China, who were both able to lower emissions by approximately 1.5% during this time frame.[24] The largest factor in this phenomenon comes from the growths in the renewable energy sector.[25] Renewables only deliver about 10% of global electricity, but as these technologies continue to compete with fossil fuels in economic efficiency, this number will grow quickly.[26]

These trends paint an optimistic picture of humanity solving problems as they are recognized. Unfortunately, these successes are simply not enough. Emissions from fuel combustion have reached a plateau as 32.325 gigatonnes of CO_2 were released in 2014.[27] This can be compared to 13.942 gigatonnes in 1971.[28]

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19. *See Kyoto Protocol*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/items/2830.php (last visited Oct. 10, 2017).

20. Conference of the Parties, *Adoption of the Paris Agreement,* U.N. Doc. FCCC/CP/2015/L.9/Rev.1 (Dec. 12, 2015). *See also Paris Agreement*, EUR. COMMISSION: CLIMATE ACTION, https://ec.europa.eu/clima/policies/international/negotiations/paris_en (last updated Oct. 30, 2017).

21. Fred Pearce, *Can We Reduce CO2 Emissions and Grow the Global Economy?*, YALE ENV'L 360, (Apr. 14, 2016), http://e360.yale.edu/features/can_we_reduce_co2_emissions_and_grow_global_economy.

22. *Decoupling of Global Emissions and Econ. Growth Confirmed*, INT'L ENERGY AGENCY (Mar. 16, 2016), https://www.iea.org/newsroom/news/2016/march/decoupling-of-global-emissions-and-economic-growth-confirmed.html (explaining that emissions have failed to grow from year to year only during four global events: the oil shock in the late 1970s, the failure of the Soviet Union in the early 1990s, the global economic crisis of the late 2000's, and now the global emission reduction initiatives of the mid 2010s).

23. *Id.*

24. Pearce, *supra* note 21.

25. *See id.*

26. *Id.*

27. INT'L ENERGY AGENCY, *Summary Tables*, *in* CO2 EMISSIONS FROM FUEL COMBUSTION: HIGHLIGHTS 2017, 93, 94 (2017), http://www.iea.org/publications/freepublications/publication/CO2EmissionsfromFuelCombustionHighlights2017.pdf.

28. *Id.*

Reducing and even eliminating release of greenhouse gasses will not reverse damage done up to this point. These cooperative initiatives are also in jeopardy of collapsing. In July of 2017, the U.S. announced withdrawal from the Paris Climate Agreement.[29] Ten governors have renounced this move, and 382 mayors across the nation have vowed to uphold the agreement.[30] This is promising for domestic actions, but internationally it may unravel as the largest CO_2 producer per capita exits. In addition, reduction initiatives may also lack viability, even if they are able to survive. For example, the current average temperatures are caused by emissions in the 1970s, due to a forty-year delay between emissions and climate effect; thus, today's impact will not be felt until the 2050s.[31] It is time for a shift in focus towards the second and third options for addressing anthropogenic climate change, which instead aim at reversal. Carbon dioxide removal (CDR) technologies and solar radiation management (SRM) techniques are conceptual methods of reducing global temperatures–referred to collectively as geoengineering–and may be the only viable options.[32]

II. GEOENGINEERING

Climate policy since the 1980s has focused on mitigation and emission control, but it is nearly impossible for these methods to correct the climate on their own.[33] Geoengineering aims to deliberately manipulate the climate and reverse damage. Efforts to remove CO_2 and directly manage solar radiation are more realistic, long-term goals for addressing this threat.[34]

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29. Michael D. Shear, *Trump Will Withdraw U.S. From Paris Climate Agreement*, N.Y. TIMES, June 1, 2017, https://www.nytimes.com/2017/06/01/climate/trump-paris-climate-agreement.html.

30. Pam Wright, *More Than 200 Mayors, 10 Governors Denounce Trump's Withdrawal from the Paris Climate Agreement*, THE WEATHER CHANNEL (June 5, 2017, 7:15 AM), https://weather.com/science/environment/news/mayors-governors-denounce-trump-climate-accord-decision; *Climate Mayors Commit to Adopt, Honor and Uphold Paris Climate Agreement Goals*, CLIMATE MAYORS (June 1, 2017), https://medium.com/@ClimateMayors/climate-mayors-commit-to-adopt-honor-and-uphold-paris-climate-agreement-goals-ba566e260097 (with updated signatories as of Oct. 17, 2017).

31. Alan Marshall, *Climate Change: The 40 Year Delay Between Cause and Effect*, SKEPTICAL SCI. (Sept. 22, 2010), https://skepticalscience.com/Climate-Change-The-40-Year-Delay-Between-Cause-and-Effect.html.

32. THE ROYAL SOC'Y, GEOENGINEERING THE CLIMATE: SCIENCE, GOVERNANCE AND UNCERTAINTY 1 (2009).

33. *Id.* at 4 ("[T]here is no realistic scenario under which it would be possible for greenhouse gas emissions to be reduced sufficiently to lead to a peak and subsequent decline in global temperatures this century . . . .").

34. *See id.* at 1.

Geoengineering is not always met with support. The National Academies of Sciences, Engineering, and Medicine have urged lawmakers and the public to continue to reduce emissions, arguing that a dramatic reduction of emissions is necessary, and that there is no replacement for this mitigation.[35] Others lack faith in this potential technology, stating that these "schemes" aiming to reverse or minimize climate changes aren't likely to be successful and could actually worsen the situation.[36] Climate scientists are skeptical of the long-term results from geoengineering, finding that carbon dioxide removal efforts, when modelled over time, will not be able to sequester more than a small amount of CO_2 compared to the cumulative emissions in the atmosphere.[37] Further, even if hypothetical solar radiation management efforts end up causing the necessary change, they have the potential to damage the sky and disrupt ecosystems.[38] Scientists further assert that in order to succeed, SRM efforts would need to be perpetual to combat unsafe levels of greenhouse gasses.[39] If intervention was suddenly discontinued, it could cause a global catastrophe, as carbon is released from the soil rapidly when the temperature rapidly increases.[40] The potential dangers of geoengineering efforts and the dire outlook for the earth if these potential solutions are ignored require action. International regulations need to address risk and exercise caution in the deployment of geoengineering efforts based on the deployment.

A. Carbon Dioxide Removal (CDR)

The most significant greenhouse gasses are: water vapor, CO_2, methane, nitrous oxide, ozone, halocarbons, carbon monoxide, nitrous oxides, non-methane volatile organic compounds, and aerosols.[41] The most commonly released greenhouse gas is CO_2.[42]

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35. *Climate Intervention is Not a Replacement for Reducing Carbon Emissions; Proposed Intervention Techniques Not Ready for Wide-Scale Deployment*, NAT'L ACAD. SCI. ENGINEERING & MED. (Feb. 10, 2015), http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=02102015.

36. Charles Q. Choi, *Geoengineering Ineffective Against Climate Change, Could Make Worse*, LIVE SCI. (Feb. 25, 2014 11:40AM), http://www.livescience.com/43654-geoengineering-ineffective-against-climate-change.html.

37. David P. Keller et al., *Potential Climate Engineering Effectiveness and Side Effects During a High Carbon Dioxide-Emission Scenario*, NATURE COMM., (Feb. 25, 2014), at 1, 9, http://www.nature.com/articles/ncomms4304.pdf.

38. *Id.*

39. *Id.* at 6–8.

40. *Id.*

41. U.S. ENVTL. PROT. AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2014, at 1–6 to –8 (Apr. 15, 2016).

42. *Id.* at 2–1 to –9.

Efforts seeking to reduce greenhouse gasses in the atmosphere focus on CO_2 because of the substantial role it plays, and because it remains in the atmosphere for a long time once emitted, unlike many of these other gasses.[43] It is possible to at least reduce the speed the planet is warming, even reverse climate change, if CO_2 levels are reduced.[44]

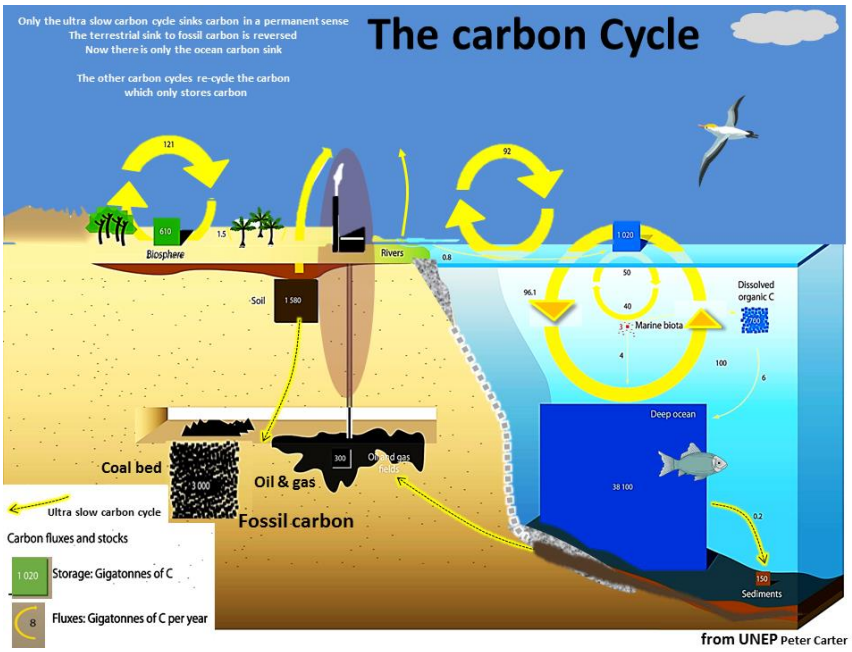
There are two separate categorizations of CDR methods, based on the type of CO_2 being removed and the methods being employed.[45] First, CDR techniques are divided into land-based and ocean-based technologies; second, these methods are biological, physical or chemical in nature.[46] Both methods of categorization are a crucial distinction for a climate scientist, but less important for the devising of regulatory schemes—where the first categorization is far more important.

Land-based systems mimic the natural system of vegetation constantly storing CO_2, which removes approximately 30% of emissions, and semi-permanently stores over twice the carbon in the atmosphere (see Figure 1 below).[47] Some biological land-based CDR systems can be created gently, through implementation of: new policy instruments, economic incentives, and regulatory mandates to foster land-use decisions that sequester CO_2.[48] If emissions are dramatically reduced, then it would be possible for a substantial portion of excess CO_2 to be removed from the atmosphere through natural processes.[49] Nurturing these natural CDR systems could lend a massive help to the battle against climate change. Deforestation and other emissions from land use account for 20% of greenhouse emissions.[50] Widespread utilization of natural systems seems unlikely. Instead, individuals are quickly designing technologies that will serve as CDR systems without the need for biological processes, and without the limits the natural system creates. These technologies will instead capture CO_2 from the ambient air using machines, but are not yet economical or available on a widespread level.[51] Air capture techniques such as

43. THE ROYAL SOC'Y, *supra* note 32, at 1.
44. *Id.* at 9.
45. *Id.*
46. *Id.*
47. *Id.* at 10.
48. Mercedes Bustamante et al., *Co-benefits, Trade-offs, Barriers and Policies for Greenhouse Gas Mitigation in the Agriculture, Forestry and Other Land Use (AFOLU) Sector*, 20 GLOBAL CHANGE BIOLOGY 3270, 3270 (2014).
49. Hirji, *supra* note 3 (citing James Hansen et al., *Young People's Burden: Requirement of Negative CO2 Emissions*, 8 EARTH SYS. DYNAMICS 577 (2017)).
50. THE ROYAL SOC'Y, *supra* note 32, at 10.
51. *Id.* at 15; *see* Eli Kintisch, *Can Sucking CO2 Out of the Atmosphere Really Work?*, MIT TECHNOLOGY REVIEW (Oct. 7, 2014), https://www.technologyreview.com/s/531346/can-

these are very safe and are unlikely to require much in the way of regulation,[52] but are also unlikely to be viable in the near future.[53] Looking past land-based systems, ocean-based systems show an alternative.

Figure 1. The Carbon Cycle[54]



Oceans are absorbing most of the heat trapped in Earth's atmosphere from climate change.[55] The oceans are also absorbing

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sucking-co2-out-of-the-atmosphere-really-work/ (reporting on a Columbia University scientist who has raised twenty-four million dollars in investments for his company, Global Thermostat, to create CO2 sucking towers); Chris Mooney, *The Suddenly Urgent Quest to Remove Carbon Dioxide From the Air*, WASH. POST, Feb. 26, 2016, https://www.washington-post.com/news/energy-environment/wp/2016/02/26/weve-reached-the-point-where-we-need-these-bizarre-technologies-to-stop-climate-change/ (discussing a direct air-capture system that pulls air via fans though a web-like substance that serves as an absorbent membrane for CO2, which is then converted into a carbonate solution and trapped).

52. *See* THE ROYAL SOC'Y, *supra* note 32, at 16 (contrasting ambient air capture from biological methods; biological methods create energy through the generation of fuel, but ambient air methods conversely use energy introduced from an outside source in order to function—this creates a severe economic inequity between the two).

53. Kevin Bullis, *What Carbon Capture Can't Do*, MIT TECHNOLOGY REVIEW (June 16, 2013), https://www.technologyreview.com/s/516166/what-carbon-capture-cant-do/ (explaining that ambient air capture is not just limited by the economic costs of the actual process, but also the infrastructure that would be needed to store the volume of CO2 once it has been sequestered from the air).

54. *Only Zero Carbon Emissions Can Result in the Stabilization of Atmospheric CO2*, ONLY ZERO CARBON, http://www.onlyzerocarbon.org/carbon_dioxide.html (last visited Jan. 1, 2018).

as much as half of the CO_2 released by humans.[56] Some estimate that the areas of the oceans with the most marine life will be more acidic than they have been in five million years.[57] Removing CO_2 from the ocean allows the oceans to absorb more CO_2 from the air, decreases greenhouse effects, and serves to correct pH imbalances.[58] Ocean fertilization is often the first ocean-based solution suggested, largely, because it has been field tested on a big enough scale that some promising results have been measured.[59] This method seeks to hijack the standard cycle of CO_2 circulation between the air, land, water and organisms, in order to force the splitting of CO_2 into carbon and oxygen—creating a decrease in CO_2.[60]

Ocean fertilization methods can be cost-effective, but could create serious safety issues. Ocean fertilization is designed to intentionally manage the marine ecosystem, a complex and misunderstood system of geological, chemical, and biological structures spanning the globe.[61] These efforts could affect weather systems and jeopardize at least a hundred million tons of food a

55. *See supra* note 17 and accompanying text.

56. John Pickrell, *Oceans Found to Absorb Half of Man-Made Carbon Dioxide*, NAT'L GEOGRAPHIC NEWS (July 15, 2004), http://news.nationalgeographic.com/news/2004/07/0715_040715_oceancarbon.html.

57. *Id.*

58. *Id.*

59. *See* Ralph Bodle, *Geoengineering and International Law: The Search for Common Legal Ground*, 46 TULSA L. REV. 305, 305 (2010). *See also* THE ROYAL SOC'Y, *supra* note 32, at 16, 18.

60. THE ROYAL SOC'Y, *supra* note 32, at 16–17 ("Carbon dioxide in the surface ocean rapidly exchanges with the atmosphere, while the transfer of CO2 into the deep sea is much slower. Most of the CO2 being released today will eventually be transferred into the deep sea given an elapsed time of order 1,000 years. [Ocean fertilization aims] to increase this rate of transfer by manipulating the ocean carbon cycle . . . . Carbon dioxide is fixed from surface waters by photosynthesisers—mostly, microscopic plants (algae). Some of the carbon they take up sinks below the surface waters in the form of organic matter composed of the remains of planktonic algal blooms, faecal material and other detritus from the food web. As this material settles into the deep ocean by gravity, it is used as food by bacteria and other organisms. They progressively consume it, and as they respire they reverse the reaction that fixed the carbon, converting it back into CO2, that is re-released into the water. The combined effect of photosynthesis in the surface followed by respiration deeper in the water column is to remove CO2 from the surface and re-release it at depth. This 'biological pump' exerts an important control on the CO2 concentration of surface water, which in turn strongly influences the concentration in the atmosphere. If this mechanism were suddenly to stop operating for example, atmospheric CO2 would increase by more than 100 ppm in a few decades . . . . *The ability of the biological pump to draw carbon down into deeper waters is limited by the supply of nutrients available that allow net algal growth in the surface layer. Methods have been proposed to add otherwise limiting nutrients to the surface waters, and so promote algal growth, and enhance the biological pump. This would remove CO2 faster from the surface layer of the ocean, and thereby, it is assumed (sometimes incorrectly) from the atmosphere.*" (emphasis added) (citations omitted)).

61. *Id.* at 17.

year.[62] Ocean fertilization threatens to increase anoxic regions of the ocean and acidification of the deep ocean (which currently has not been affected nearly as much as the surface).[63] The cheap and dangerous nature of ocean fertilization has led to fears that rogue states or private parties may pursue unregulated implementation.[64] The relative lack of constraints on an individual or organization that would like to begin an ocean fertilization initiative, coupled with the severe implications, highlights the need for some kind of legal oversight of its use.

Another method designed for managing the transfer of atmospheric CO_2 to the deep sea is known as oceanic upwelling and downwelling (see Figure 1).[65] As part of these methods, CO_2 is naturally absorbed at the surface of the ocean, then transferred to the deep sea where it is sequestered.[66] Some proposals aim to force this process at an increased rate, piping water from the deep sea to the surface and vice versa.[67] Unfortunately, increasing the downwelling of water by a million cubic meters is estimated to still have only a marginal effect on CO_2 sequestration and relies on undeveloped piping technologies.[68] The best outcome is only estimated to be approximately 0.02 gigatons of carbon sequestration a year.[69] Regulation is needed not only because funds may be wasted on a fruitless endeavor, but these processes could also have the opposite effect of the intent—instead releasing CO_2 from the deep ocean.[70] A lot more research needs to be completed before these processes can be effectively and safely implemented and regulated.[71]

CDR techniques are already being implemented, and the dangers are tangible, but both the risks and the results are long-

62. FISHERIES & AQUACULTURE DEP'T, FOOD & AGRIC. ORG. OF THE U.N. [FAO], THE STATE OF WORLD FISHERIES AND AQUACULTURE 2006, 3 (2007), (showing in Table 1 that total marine production in 2005 was estimated to be 103.1 million tonnes).

63. THE ROYAL SOC'Y, *supra* note 32, at 17–18.

64. Joshua B. Horton, *Geoengineering and the Myth of Unilateralism: Pressures and Prospects for International Cooperation*, *in* CLIMATE CHANGE GEOENGINEERING, *supra* note 1, 168, 168, 171–74; *see generally* Conference of the Parties to the Convention on Biological Diversity [CBD], Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity at its Tenth Meeting, Biodiversity and Climate Change, U.N. Doc. UNEP/CBD/COP/DEC/X/33 (Oct. 29, 2010) [hereinafter CBD Decision X/33], https://www.cbd.int/doc/decisions/cop-10/cop-10-dec-33-en.pdf; PLANKTOS ECOSYSTEMS, http://www.planktos.com/ (last visited Oct. 31, 2017) (outlining the goals of a private party created solely to implement ocean fertilization techniques).

65. THE ROYAL SOC'Y, *supra* note 32, at 19.

66. *Id.*

67. *Id.*

68. *Id.*

69. *Id.*

70. *See id.*

71. *Id.*

term in nature. In the future, removal of non-CO_2 gases, such as methane, may even become researchable goals.[72] The law needs to catch up to progress in order to prevent irreparable harm and propel concepts that are proven to show promise. Currently, many researchers have instead turned their attention to insolation management directly—possibly due to the lack of economic viability of these CDR methods.

B. Solar Radiation Management (SRM)

Benjamin Franklin made an observation in 1784 while in Paris. He noticed that the preceding summer was extremely cold both in Europe and back home.[73] This was the result of the Laki volcanic eruptions, which produced an ash cloud in the form of aerosol that likely stretched all the way into the stratosphere and blocked the sun's rays creating record low temperatures during 1783 and 1784.[74] Triggering a volcanic eruption is hardly an answer to climate change, as eruptions also release large amounts of CO_2, ultimately increasing warming.[75] However, the effect of these aerosols binding to water molecules and counteracting the effects of the sun[76] are promising, when addressed separately. Forced SRM efforts have yet to be instituted, but even lawmakers are beginning to take notice of the possibilities. Budget makers in 2016 directed the Department of Energy to begin researching ways to reflect sunlight into space.[77] *The New York Times* has even gone as far as stating that SRM techniques can serve as politicians' "Plan B" after failing to adequately respond to greenhouse gas emissions.[78] However, viewing mainstream and lawmaker attention being drawn to SRM techniques as a saving grace fails to highlight the potential issues: both the danger these various techniques could cause and the harm created by a false hope.[79]

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72. *Id.* at 21.

73. Benjamin Franklin, *Meteorological Imaginations and Conjectures*, *in* 2 MEMOIRS OF THE LITERARY AND PHILOSOPHICAL SOCIETY OF MANCHESTER 373, 373–77 (2d ed. 1784); Karen Harpp, *How Do Volcanoes Affect World Climate?*, SCI. AM. (Apr. 15, 2002), https://www.scientificamerican.com/article/how-do-volcanoes-affect-w/.

74. Franklin, *supra* note 73 at 373–77; Harpp, *supra* note 73.

75. Harpp, *supra* note 73.

76. *Id.*

77. Adrian Cho, *To Fight Global Warming, Senate Calls for Study of Making Earth Reflect More Light*, SCI. MAG. (Apr. 19, 2016, 4:00 PM), http://www.sciencemag.org/news/2016/04/fight-global-warming-senate-calls-study-making-earth-reflect-more-light.

78. Clive Hamilton, *The Risks of Climate Engineering*, N.Y. TIMES, Feb. 12, 2015, https://www.nytimes.com/2015/02/12/opinion/the-risks-of-climate-engineering.html.

79. *Id.*

The first terrestrial approach of SRM is to increase the albedo of the earth's surface. This essentially means altering the surface of the planet so that instead of absorbing the sun's rays and warming the planet, more of that energy is reflected back into outer space.[80] The leading surface-reflecting SRM approaches have been modelled to potentially reduce the temperature of the planet by up to 1.46°C *after* the global CO_2 level has been doubled and the average surface air temperature increased by 3.0°C above pre-industrial levels.[81] There are a few proposed ways of increasing this albedo and each brings unique regulatory and technological hurdles.

Urban albedo geoengineering is the theoretical outfitting of roofs and roads to reflect energy.[82] In sunnier regions, this reflection could essentially triple-dip by rejecting heat transfer; lowering the energy costs and greenhouse additions from air conditioning;[83] and reducing the petroleum needed to produce asphalt.[84] Approximately three billion people live in urban areas, about 1.2% of the land area.[85] Standard roof materials have an albedo of roughly 0.1–0.25, but different methods and types of roofs can be employed to bring this average to 0.55–0.6.[86] These roofing methods could create the equivalent CO_2 offset of 44 gigatonnes, more than is released yearly at this time.[87] Urban albedo geoengineering would require the appropriate technology and long-term upkeep of the surfaces, but would be equal to $1,100 billion in today's CO_2 trading markets.[88] However, the installment and upkeep costs could be astronomical, and the low coverage would make this method completely unfeasible with today's

80. THE ROYAL SOC'Y, *supra* note 32, at 24 n.10 (defining albedo as a value between 0 and 1, with 0 being zero reflectivity and a surface with a value of 1 being perfectly reflective).

81. *See* Peter J. Irvine et al., *Climatic Effects of Surface Albedo Geoengineering*, 116 J. GEOPHYSICAL RES. D24112, 6 (2011), http://onlinelibrary.wiley.com/doi/10.1029/2011JD016281/epdf.

82. *Id.* at 2.

83. THE ROYAL SOC'Y, *supra* note 32, at 25.

84. Kelsi Bracmort & Richard K. Lattanzio, CONG. RESEARCH SERV., R41371, GEOENGINEERING: GOVERNANCE AND TECHNOLOGY POLICY 17 (2013).

85. Hashem Akbari et al., *Global Cooling: Increasing World-Wide Urban Albedos to Offset CO2*, 94 CLIMATIC CHANGE 275, 276 (2009) (verifying estimates with data from Global Rural-Urban Mapping Project's Urban Extent Mask); *see* Ctr. for Int'l Earth Sci. Info. Network et al., *Urban Extents Grid*, *in* GLOBAL RURAL-URBAN MAPPING PROJECT, VERSION 1 (GRUMPV1) (SOCIOECON. DATA & APPLICATIONS CTR.), http://sedac.ciesin.columbia.edu/data/set/grump-v1-urban-extents (last visited Nov. 1, 2017).

86. Akbari et al, *supra* note 85, at 277.

87. *Id.* at 283.

88. *Id.*

technology.[89] Therefore, the regulatory hurdle will be making sure resources are spent on researching cheaper and more practical methods.

Aside from increasing the albedo of homes and roads, some scientists are actively researching attempts to increase natural sources of reflectivity. Reforestation is generally considered for CDR, but forests (and specifically tropical rain forests) can have significant regional cooling effects.[90] However, forests do not hold the most promise, because when trees are replaced with crops, the surface albedo is, generally speaking, increased because of the increased reflective nature of the leaves themselves.[91] This effect can be amplified through legal and regulatory efforts to influence the growing of crops that have a higher albedo effect.[92] Using standard crops, optimizing all cropland on the planet could result in as much as a 0.02–0.08 albedo increase without co-opting non-cropland.[93] Researchers worry that growing of crops simply for albedo benefits could influence the economy or access to food, but some have optimistic views, arguing that a change in the variety of crops could see significant difference.[94] Research into these methods does not have a regulatory body standing in its way or an international body to foster further efforts. Isolating which crops will cool the planet and how is only the first step. Legal bodies are needed to make sure that whenever this "spectral

89. THE ROYAL SOC'Y, *supra* note 32, at 25 (calculating the cost of urban albedo to be roughly $300 billion a year, and "one of the least effective and most expensive methods [of geoengineering] considered").

90. *Id.* at 26.

91. *See* H. Damon Matthews et al., *Radiative Forcing of Climate by Historical Land Cover Change*, 30 GEOPHYSICAL RES. LETTERS 2, 4 (2003), http://onlinelibrary.wiley.com/doi/10.1029/2002GL016098/pdf (concluding that the natural spread of agriculture by humanity and the increased albedo that brought has decreased the worldwide temperature by approximately 0.17°C); *see also* Irvine, *supra* note 81, at 2 ("Crop albedo is often higher than the albedo of natural vegetation, for example, barley, at European latitudes, has a higher albedo (0.23) than deciduous (0.18) or coniferous (0.16) woodland.") (referencing JOHN L. MONTEITH & MIKE H. UNSWORTH, PRINCIPLES OF ENVIRONMENTAL PHYSICS (2d ed. 1990)).

92. *See* JOHN L. MONTEITH & MIKE H. UNSWORTH, PRINCIPLES OF ENVIRONMENTAL PHYSICS: PLANTS, ANIMALS, AND THE ATMOSPHERE 337 (4th ed. Elsevier 2013) (showing that, independent of the solar radiation barley is exposed to, carbon sequestration remains constant throughout the day, converting a forest to barley, only as an example, would likely serve to both increase albedo and add a secondary CDR effect).

93. Irvine, *supra* note 81, at 2.

94. Joy S Singarayer et al., *Assessing the Benefits of Crop Albedo Bio-Geoengineering*, 2 ENVTL. RES. LETTERS 045110, 2 (2009), http://iopscience.iop.org/article/10.1088/1748-9326/4/4/045110/pdf ("There also need not be deleterious implications for yield, as increasing the fraction of incoming photosynthetically active radiation (PAR) reflected back by the canopy does not necessarily imply a reduction in total photosynthesis and by inference, productivity.") (referencing Adolfo Rosati et al., *Effects of Kaolin Application on Light Absorption and Disruption, Radiation Use Efficiency and Photosynthesis of Almond and Walnut Canopies*, 99 ANNALS OF BOTANY 255 (2007)).

characterization," aimed at growing "climate-friendly" crops, becomes possible it is able to be integrated into a complete approach.[95] Outside of utilizing the albedo effect of crops, proposals and research are currently looking into methods that won't affect human housing or food supplies.[96]

Systems are being developed and proposed that would increase the albedo of deserts and oceans.[97] Proposals include covering deserts with reflective metal surfaces,[98] and even creating microbubbles placed below the surface of the ocean to raise albedo.[99] Very little has been published regarding ocean methods so far.[100] Some argue however that deserts are perfect for albedo enhancement.[101] Unlike urban centers, deserts are relatively empty; very few people live in these locations, and there is a high solar flux with very low humidity.[102] Deserts make up approximately 2% of the total surface of the Earth,[103] approximately 7.5 million square miles, 4.5 million of which is possibly suited for covering by a reflective surface.[104] Deserts are already the second most reflective surfaces after ice caps,[105] yet covering desert surfaces is estimated to bring their average albedo from 0.36 to approximately 0.8, if done correctly.[106]

Once again, the technology needed to actually carry this out presents a dangerous mix of ineffectiveness, unaffordability, and unpredictability.[107] Only 75% of deserts are "gravel plains, dry lakebeds and mountains," and while deserts such as the Sahara, Arabian, Australian, and Gobi could be potentially used to great benefit, that leaves approximately 1.875 million square miles of

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95. *Id.* at 8.

96. *See generally* THE ROYAL SOC'Y, *supra* note 32, at 23–36 (outlining the various SRM methods being developed).

97. *Id.*

98. *Id.* at 26.

99. CAO Long et al., *Geoengineering: Basic Science and Ongoing Research Efforts in China*, 6 ADVANCES IN CLIMATE CHANGE RES. 188, 190 (2015), http://www.sciencedirect.com/science/article/pii/S1674927815000829.

100. THE ROYAL SOC'Y, *supra* note 32, at 26.

101. ALVIA GASKILL, SUMMARY OF MEETING WITH U.S. DOE TO DISCUSS GEOENGINEERING OPTIONS TO PREVENT ABRUPT AND LONG-TERM CLIMATE CHANGE (June 29, 2004), http://www.homepages.ed.ac.uk/shs/Climatechange/Geo-politics/Gaskill%20DOE.pdf.

102. *Id.* (noting that because of the lower humidity in deserts, heat is absorbed much less by water vapor, acting as a greenhouse gas, than in most other places in the world).

103. THE ROYAL SOC'Y, *supra* note 32, at 26.

104. GASKILL, *supra* note 101.

105. *Id.*

106. *Id.*; *see* T.M. Lenton & N.E. Vaughan, *The Radiative Forcing Potential of Different Climate Geoengineering Options*, 9 ATMOSPHERIC CHEMISTRY AND PHYSICS 5539 (2009).

107. THE ROYAL SOC'Y, *supra* note 32, at 26.

desert which we lack the technology to utilize for this approach.[108] In addition to the constraints on which deserts can actually be covered, the costs approach that of urban painting and covering, and could completely disrupt worldwide air circulation and habitat management.[109] In order to completely offset the radiation forcing from post-industrial anthropogenic climate change, approximately 7.9 million square miles would need to be covered.[110] Just to offset proposed climate change from 2010–2070 would require four million square miles of desert, more than can realistically be covered,[111] and would have a price tag of several trillion dollars per year.[112] Nevertheless, this *is* one way that climate change could be seriously mitigated; it would just require worldwide cooperation, for which there is neither precedent nor a governing body. Not all methods of albedo reduction require global cooperation, and this is where governments should begin to worry about regulation.

Benjamin Franklin observed temperature change as a result of volcanic eruption over two hundred years ago,[113] but scientists today are able to study this phenomenon far more in depth. Some experts go as far as to argue that aerosols mimicking volcanoes are one of the only methods of geoengineering that have the potential to cool the planet economically enough be to implemented.[114] Volcanoes inject huge levels of sulfur dioxide (SO_2) gas into the atmosphere between six and thirty-one miles from the surface, in a section of the atmosphere known as the stratosphere.[115] This SO_2 turns into sulfuric acid and forms a cloud of droplets that is able to reflect sunlight back into space.[116] The majority of studies have been done on sulphate aerosols such as SO_2 and hydrogen sulphide (H_2S).[117] Other aerosol techniques are likely to be promising, but at this time the level of research makes discussion on them, let alone implementation, premature.[118] The goal of these sulphate releases is to increase overall albedo of the earth.[119] Scientists estimate that

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108. *See* GASKILL, *supra* note 101.

109. THE ROYAL SOC'Y, *supra* note 32, at 26.

110. GASKILL, *supra* note 101.

111. *Id.*

112. THE ROYAL SOC'Y, *supra* note 32, at 26.

113. *See supra* note 73 and accompanying text.

114. Alan Robock, *Stratospheric Aerosol Geoengineering*, 38 ISSUES ENVTL. SCI. & TECH. 162, 163 (2014) (citing Lenton & Vaughan, *supra* note 106, at 5539–41).

115. *Id.* at 164.

116. *Id.*; Alan Robock, *Volcanic Eruptions and Climate*, 38 REV. GEOPHYSICS 191, 193–94 (2000), http://onlinelibrary.wiley.com/doi/10.1029/1998RG000054/epdf.

117. THE ROYAL SOC'Y, *supra* note 32, at 29.

118. *See id.*

119. *Id. See also* B. Govindasamy et al., *Geoengineering Earth's Radiation Balance to Mitigate Climate Change from a Quadrupling of CO2*, 37 GLOBAL & PLANETARY CHANGE

reducing solar input by 2% would be able to balance out the warming effect of doubling CO_2 levels, even as CO_2 levels continue to rise.[120]

Regulatory issues surround aerosol deployment, because it is the most discussed dangerous geoengineering technique. Aerosol deployment is unique in that it is likely to be effective, affordable and quick.[121] This worries regulators, because these potentially huge benefits are coupled with potentially catastrophic safety issues.[122] Stratospheric aerosols are predicted to run the risk of hydrologic impacts, stratospheric damage, shifting in tropospheric structures, and damage to biological productivity; however, the technology is so untested that these are merely hypothetical issues.[123] As technology progresses the world will have access to affordable aerosol deployment techniques, and there will exist no practical prerequisite of cooperation before deployment commences.[124] The fear of unilateral deployment by a state is lessened by international law and the way it naturally creates restraints on state actors.[125] However, these restrictions do not apply to non-state actors—they would do little to stop a billionaire "philanthropist" who aims to release sulfates into the air.[126] With

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157 (2003) [hereinafter *Quadrupling CO2*] (examining the potential of reducing solar luminosity in order to counteract temperature increases from increasing CO_2).

120. THE ROYAL SOC'Y, *supra* note 32, at 29. *See also* Bala Govindasamy & Ken Caldeira, *Geoengineering Earth's Radiation Balance to Mitigate CO2-Induced Climate Change*, 27 GEOPHYSICAL RES. LETTERS 2141, 2141 (2000) [hereinafter *CO2 Climate Change*] (concluding that doubling CO2 would warm the earth by approximately 1.75 K; the same model shows that a 1.8% reduction of solar luminosity could cool the earth 1.88 K in this "doubled CO2 state"); B. Govindasamy et al., *Impact of Geoengineering Schemes on the Terrestrial Biosphere*, 29 GEOPHYSICAL RES. LETTERS 22, at 18-2 (2002) [hereinafter *Terrestrial Biosphere*] (increasing the estimate from the 2000 levels to a 2.42 K increase from a "doubled CO2 state," curiously though, the same 1.8% reduction in luminosity was modelled to cancel these effects, showing promise for a scalable solution using aerosols).

121. THE ROYAL SOC'Y, *supra* note 32, at 31.

122. *Id.*

123. Robock, *supra* note 114, at 177–81.

124. *Id.* at 165–66.

125. *See* Horton, *supra* note 64, at 171–74 (arguing that states are strongly discouraged from implementing unilateral deployment postures due to a "web of technical and political constraints").

126. David G. Victor, *On the Regulation of Geoengineering*, 24 OXFORD REV. ECON. POL'Y 322, 324 (2008) ("Geoengineering may not require any collective international effort to have an impact on climate. One large nation might justify and fund an effort on its own. A lone Greenfinger, self-appointed protector of the planet and working with a small fraction of the Gates bank account, could force a lot of geoengineering on his own. Bond films of the future might struggle with the dilemma of unilateral planetary engineering."). *See also* Horton, *supra* note 64, at 171–74; David Appell, *The Ethics of Geoengineering*, YALE CLIMATE CONNECTIONS (Dec. 13, 2012), https://www.yaleclimateconnections.org/2012/12/the-ethics-of-geoengineering/ ("For one, it's now clear that deploying SRM by injecting aerosols into the upper atmosphere (stratosphere) would be quite cheap. . . . the anticipated extra climate forcing over the next 50 years could be offset with existing technology at a cost of less than $8 billion per year.").

today's technologies, this deployment could be performed in the ten billion dollar range, a cost predicted to drop drastically in the upcoming decades.[127] The need for continuous injection means that the dangers are not limited to the biosphere. Discontinuation could cause war, and illuminates the need to regulate.[128] Scientist's solutions to this need for continuous injection have begun to look even higher, outside of the atmosphere, at methods that would require only deployment and upkeep.[129]

High above the atmosphere and beyond the reach of any aerosol injections, space-based solar methods of geoengineering would effectively reduce solar radiation by preventing it from ever reaching the atmosphere.[130] As the most theoretical type of geoengineering, many methods have been proposed at low-earth orbit. However for the most part, they attempt to simulate a target solar radiation reduction of 1.7% in order to offset the proposed doubling of CO_2.[131] These hypothetical reflectors must balance the cost of deployment, because the larger they are, the more expensive deployment and launch costs are; but the more these reflectors shrink, the more of them are lost from solar radiation forcing them out of orbit.[132] The most effective methods at reaching this 1.7% goal may be sun-shade deployment at the L_1 Lagrange equilibrium;[133] a spot about a million miles from earth, which has an uninterrupted view of the sun and currently houses the Solar

127. THE ROYAL SOC'Y, *supra* note 32, at 32.

128. Gordon MacKerron, *Costs and Economics of Geoengineering* 23 (Climate Geoengineering Governance, Working Paper No. 013, 2014).

129. *See* Joan-Pau Sánchez & Colin R. McInnes, *Optimal Sunshade Configurations for Space-Based Geoengineering Near the Sun-Earth L1 Point*, 10 PLOS ONE 1, 2 (2015), http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0136648&type=printable ("Space-based proposals however are not seen as affordable and timely as compared to terrestrial geoengineering techniques, such as stratospheric aerosols. Yet, they do have the fundamental advantage that they do not involve direct manipulation of either the Earth's atmosphere or its surface properties.").

130. THE ROYAL SOC'Y, *supra* note 32, at 32.

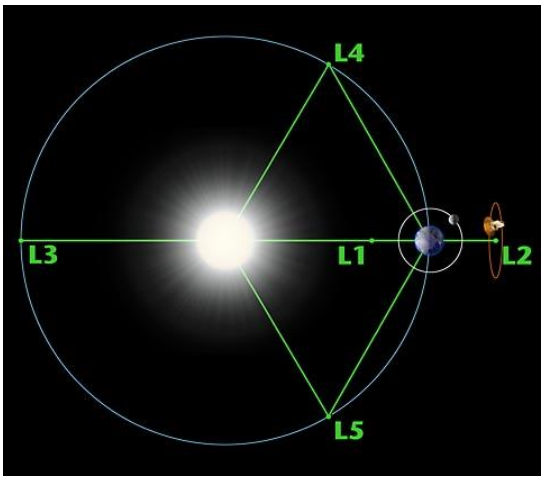
131. *CO2 Climate Change*, *supra* note 120, at 2141; *see* Sánchez & McInnes, *supra* note 129, at 2–3 (listing hypothetical space-based techniques such as: an artificial ring of particles to scatter solar radiation, either synthetized on earth or taken from space objects; and unprocessed space particles which are forced in to clouds circling the earth). *See also* THE ROYAL SOC'Y, *supra* note 32, at 32 (expanding on these potential techniques by including: mirrors circling in random orbits around the earth, deploying as many as 55,000, all with an area as large as 100 m2; a refractor built on the moon using lunar glass; a superfine mesh of metal threads a millionth of a millimeter thick; trillions of thin reflecting discs 50cm in diameter, built from near-earth asteroids; and ten trillion highly refracting discs about 60cm launched into space a million at a time, with one stack every minute for thirty years).

132. *See* THE ROYAL SOC'Y, *supra* note 32, at 32.

133. Sánchez & McInnes, *supra* note 129, at 2–3 (placing a sun-shade at this equilibrium could effectively shade the earth the necessary amount).

and Heliospheric Observatory (see Figure 2[134]) and the Deep Space Climate Observatory.[135] It is theoretically possible to balance the pressure of solar radiation by pushing a sun-shade-structure away from the sun and towards us with the gravitational forces of both the earth and sun in order to keep it balanced and orbiting the sun in the perfect location.[136] The technology to keep such a structure at an ideal location is not contemporaneously available, but the scale of construction is not unheard of—the structure would need to be approximately the size and mass of the Chinese Three Gorges Dam.[137]

Figure 2. Earth's Lagrange Points.



An endeavor such as this could theoretically end anthropogenic climate change, but the regulatory issues shift from protection against reckless development (as seen with aerosols and ocean fertilization) towards a need to foster cooperation and collection of economic, intellectual, and human capital.[138] However, these

134. Neil J. Cornish, *The Lagrange Points*, NASA: WMAP MISSION, https://map.gsfc.nasa.gov/mission/observatory_l2.html (last updated Aug. 18, 2012).

135. Elizabeth Howell, *Lagrange Points: Parking Places in Space*, SPACE.COM (Aug. 21, 2017, 9:30 PM), http://www.space.com/30302-lagrange-points.html.

136. THE ROYAL SOC'Y, *supra* note 32, at 32 (further explaining that, unlike other space-based methods, this would not endanger satellites in low-earth orbit).

137. Sánchez & McInnes, *supra* note 129, at 2.

138. *See generally* Shi-Ling Hsu, *Capital Transitioning: An International Human Capital Strategy for Climate Innovation*, 6 TRANSNAT'L ENVTL. L. 153 (2017) (proposing a global, two-pronged strategy of climate change cooperation, the second prong of which aims to build human capital geared towards climate system research to facilitate geoengineering; this strategy can be emulated for the development of a system, such as an L1 located sun-shade in hopes of enabling international cooperation that is deeper than mere economic infusions, and justifiable in the face of the universal threat humanity faces).

methods still need to be regulated in the name of safety, because an L1 sun-shade would require constant adjustment, which would dramatically affect the climate on different regions of earth and potentially create one more level of disagreement.[139] With the various risks and benefits of SRM methods, it is easy to forget that each has one commonality (besides the reflection of solar radiation)—to circumvent the release of fossil fuels. This creates both a risk of, and a regulatory need to, prevent world leaders from either slowing down current measures or reversing them entirely.

There are many possible issues with SRM deployment. These methods could destabilize the biome or the climate; and could damage the economy[140]—both factors that can lead to political unrest.

Aside from these hypothetical issues, the first regulatory need is to device a system that will allow the technology to progress to the stage where these methods work, while not diverting efforts and economic capital from current climate change solutions. One fear is that reversing the *effects* of climate change will make the current emphasis on CO_2 reduction a less important goal.[141] State actors may begin to shift focus away from these efforts as public opinion sees them as less and less urgent.[142] As long as fossil fuels remain the cheapest method of producing energy, the threat of climate change is needed to continue reducing emissions.[143] Geoengineering successes may end up being a detriment if an international regulatory body is not in place to remind lawmakers of the real need; the world could end up a far worse place even if geoengineering efforts are safe and successful.[144] In order to truly discuss a solution, any regulatory body seeking to fulfill this goal must contend with laws already in place.

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139. Sánchez & McInnes, *supra* note 129, at 10.

140. *See* THE ROYAL SOC'Y, *supra* note 32, at 34-36.

141. The Editors, *The Hidden Dangers of Geoengineering*, SCI. AM. (Nov. 1, 2008), https://www.scientificamerican.com/article/the-hidden-dangers-of-geoengineering//.

142. *Id.*

143. *Id.*

144. *Id.*; *see* Garrett Hardin, *Tragedy of the Commons*, THE CONCISE ENCYCLOPEDIA OF ECON. (July 19, 2006), http://www.econlib.org/library/Enc/TragedyoftheCommons.html (explaining the concept of tragedy of the commons). The tragedy of the commons provides a backbone for environmental regulation, there is economic incentive to use up everything that is shared, or common; environmental regulations step in to prevent this "tragedy" from occurring. The original problem could be greatly exacerbated by successful geoengineering. Nations and individuals would no longer be incentivized to reduce carbon emissions, if the result of those emissions has been corrected. This could lead to an *increase* of emissions into the atmosphere making geoengineering less effective or impossible. This could put the climate in a far worse position than it currently is.

III. CURRENT GOVERNANCE

A. Domestic Regulations

Geoengineering as a regulatory concept has gone largely ignored, both internationally and domestically; if focus ever shifts within climate change policy however, current laws will initially be used by courts and litigants challenging these actions.[145] Current U.S. environmental strategies focus primarily on mitigation, adaptation, or both.[146] CDR techniques are analogous to mitigation strategies, whereas SRM methods resemble those ideas seeking to adapt.[147] Legislators have begun to evaluate the risks and benefits of geoengineering, at least to peripherally research how the government should proceed, but existing laws will be the first barrier for challenges.[148] Most environmental laws and regulations could allow challenges to these techniques, but the Clean Air Act, Clean Water Act, and Endangered Species Act are the most likely to be called upon.[149]

When Congress passed the Clean Air Act, the emission of aerosols reduced significantly.[150] The Act will still likely open the door for challenges to geoengineering deployment.[151] The Clean Air Act does not offer direct challenges—past challenges to activities that promote healthier atmospheric conditions have not been allowed by the courts.[152] It may nevertheless create a framework and guide for challenges, especially considering the EPA always could amend regulations to allow or discourage these types of actions.[153]

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145. Tracy Hester, *Remaking the World to Save It: Applying U.S. Environmental Laws to Climate Engineering Projects*, *in* CLIMATE CHANGE GEOENGINEERING, *supra* note 1, at 263, 266.

146. *Id.* at 268 nn.15–16; *see* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT, 56–58 (2007), https://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_full_report.pdf (explaining the two primary goals of climate change *response*, which naturally are mirrored by regulatory concerns and priorities).

147. *See* Hester, *supra* note 145, at 268 (explaining the nature of CDR and SRM methods).

148. Press Release, House Sci. Space & Tech. Comm. – Democrats, Geoengineering Research Needed, Members Hear (Nov. 5, 2009), https://democrats-science.house.gov/news/press-releases/geoengineering-research-needed-members-hear.

149. Hester, *supra* note 145, at 287.

150. Brett Cherry, *Air Pollution, Geoengineering and Climate Change*, INST. OF HAZARD, RISK AND RESILIENCE BLOG (May 29, 2012), http://ihrrblog.org/2012/05/29/air-pollution-geoengineering-and-climate-change/.

151. Hester, *supra* note 145, at 287–89.

152. *Id.* at 287–92.

153. *Id.*

The Clean Water Act could also affect U.S. based geoengineering techniques. Dispensing of or discharging any pollutants into navigable waters requires a permit under the National Pollutant Discharge Elimination System.[154] While it is technically unclear whether or not iron fertilization in the oceans would classify as a "discharge,"[155] the regulations allow for heat to be included, so there is legislative precedent for a broad interpretation.[156] Further, the guidelines for determining water degradation for ocean discharge specifically list the effect on plankton as part of the measuring criteria, without specifying that the effect be *negative*.[157] Other methods could potentially trigger the Clean Water Act as well, such as the creation of wetlands to sequester CO_2, or the discharge of chemically sequestered carbon in gas or liquid form.[158] The effect on waters may not be important however, if an attempt at geoengineering is going have wide effects on habitats. If this is the case, laws protecting organisms will be the most stringent.[159]

The Endangered Species Act creates strict rules on any actions which may harm an endangered species or destroy habitat.[160] Individuals and agencies hoping to engage in geoengineering are intentionally altering climate patterns, which lessens the burden of proving standing, one aspect of the Endangered Species Act which sometimes makes litigation difficult.[161] Those hoping to challenge actions would still have to prove that the impact actually constituted a "taking" under the Act's language, and show a nexus between the options, but this burden is likely to be satisfied.[162] According to the Government Accountability Office, agencies would be required to consult with at least the Fish and Wildlife Service and NOAA to evaluate any potential impacts in accordance with, not only the Endangered Species Act, but also the local state implementation plan of the Clean Air Act.[163]

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154. *Id.* at 293.

155. 33 U.S.C. § 1362(16) (2012) ("The term 'discharge' when used without qualification includes a discharge of a pollutant, and a discharge of pollutants.").

156. Hester, *supra* note 145, at 293 ("Notably, the EPA has construed the definition of 'pollutant' to include the addition of heat to water bodies."). *See* 33 U.S.C. § 1342 (2012) (requiring permits for discharge of pollutants); 40 C.F.R. § 122.2 (2017) (defining "pollutant" to include heat).

157. *See* 33 U.S.C. § 1343(c)(1)(A).

158. Hester, *supra* note 145, at 293.

159. *Id.* at 294.

160. *Id.*

161. *Id.*at 295.

162. *Id.*

163. U.S. GOV'T ACCOUNTABILITY OFF., GAO-10-903, CLIMATE CHANGE: A COORDINATED STRATEGY COULD FOCUS FEDERAL GEOENGINEERING RESEARCH AND INFORM GOVERNANCE EFFORTS 30 (2010).

There are many other federal laws which may be used to justify challenges, such as the National Environmental Policy Act and the Marine Protection, Research and Sanctuaries Act.[164] While a wide berth of federal laws touch peripherally on geoengineering concepts, nothing speaks directly, and it appears as if these acts may be the only remedy.

Attempts could be made to challenge geoengineering activity under federal common law, but following the Supreme Court's decision in *American Electric Power Company v. Connecticut*,[165] these challenges may not be possible. The Court ruled that the passing of the Clean Air Act displaced federal common law and prevented any suits for greenhouse gas emissions against corporations under a federal public nuisance claim.[166] As geoengineering becomes more viable and mainstream, it will be important to see how the courts interpret this case. Can reversal of global warming ever be considered a nuisance? If so, how much has this common law been displaced by legislative action? Even if claims are brought, can damages be attributed to these actions? Will a certain amount of nuisance be tolerable for the greater good? These are questions that will need answering as common law challenges are brought and considered. At this time, the admittedly thin network of international regulations is more comprehensive than domestic law.

B. International Regulations

Geoengineering has the possibility and likelihood to influence the climate of the entire planet. Domestic regulations serve only to address those actions with some kind of tie to the U.S. Instead, international law is the obvious solution to regulating these kinds of actions. It has been established that there are no current binding constraints or regulations on the specific actions constituting geoengineering.[167] Currently there are three types of international law that touch on geoengineering: 1) treaties that may apply generally; 2) treaties whose application may depend on

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164. Hester, *supra* note 145, at 287.

165. 564 U.S. 410 (2011).

166. *Id.* at 424.

167. THE ROYAL SOC'Y, *supra* note 32, at 40 ("At present international law provides a largely permissive framework for geoengineering activities under the jurisdiction and control of a particular state, so long as these activities are limited in their scope and effects to that state's territory." *But* even without these *specific* restrictions on the actions themselves, ". . . further obligations for environmental protection (i.e., air pollution control, or species and habitat conservation) may apply depending on the nature, size and location of such [geoengineering] activities.").

the method or medium; and 3) customary international law and legal norms that may shape CDR and SRM deployments.[168] The purpose of this note is to propose a fourth category of international law, a form of regulation that would serve not only to apply generally, but also to specific methods and foster new customary international norms.

First, there are a few international treaties that are likely to influence decision-makers regarding research and deployment of geoengineering techniques in a very general sense; these treaties are the starting point for the proposal found here.[169] The most comprehensive and universal attempt to address climate change by the international community can be found in the United Nations Framework Convention on Climate Change (UNFCCC).[170] The UNFCCC has 195 signatory states who have agreed to stabilize greenhouse gas emissions in order to prevent further danger to the climate.[171] These states returned to the discussion table in Kyoto to slabel specific targets just five years later.[172] The members of the UNFCCC have already come together to establish these goals, even if attempts at meeting them have been difficult.[173] The UNFCCC does not explicitly regulate geoengineering methods, but it does serve to offer a foundation for more specific agreements. This function could be easily utilized by a future geoengineering-specific treaty.[174] The goal of the UNFCCC clearly encompasses geoengineering efforts,[175] and while the individual objectives it produces in its current form do not, it may serve as one stepping stone towards a proper framework.

Second, unlike general treaties, more specific treaties may force the international community to prevent implementation of some techniques. The two most feared methods of geoengineering are ocean fertilization methods[176] and aerosol deployment

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168. Albert C. Lin, *International Legal Regimes and Principles Relevant to Geoengineering*, *in* CLIMATE CHANGE GEOENGINEERING, *supra* note 1, at 182, 182.

169. *See id.* at 182–83.

170. *See id.* at 182–85.

171. Karen N. Scott, *International Law in the Anthropocene: Responding to the Geoengineering Challenge*, 34 MICH. J. INT'L L. 309, 314 (2013).

172. *Id.* at 314–15.

173. *Id.* at 316–17 (describing the politics involved as "nasty, brutish and endless," and emphasizing the difficulty in convincing the heaviest emitters to agree to binding emission targets).

174. Lin, *supra* note 168, at 183.

175. United Nations Framework Convention on Climate Change art. 2, May 9, 1992, 1771 U.N.T.S. 107 ("[UNFCCC's objective is to effect] stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.").

176. *See supra* text accompanying note 64.

techniques.[177] The United Nations Convention of the Law of the Sea (UNCLOS) is in place to codify international customary law surrounding the oceans. The UNCLOS requires members to take all measures to prevent the oceans from any pollution harm.[178] This may prevent any ocean fertilization measures that could hurt the ocean, or could compel states to engage in geoengineering methods in order to protect the ocean from the damage of greenhouse gas pollution.[179] In contrast to this undefined obligation, the London Convention (LC) and London Protocol (LP) were designed to regulate the dumping of waste into the ocean,[180] but have been expanded to ban ocean fertilization following attempts at implementation in 2007 and 2012.[181] The danger is that both treaties lack the power to stop a private actor from implementation and lack the ability to force implementation to save the planet.

Like ocean fertilization, aerosol release techniques are particularly dangerous as they are cheap to implement and could catastrophically damage the planet. The Convention on Long-Range Transboundary Air Pollution (LRTAP) is a framework encompassing fifty-one nations.[182] It aims to reduce air pollution, and has been broadly defined to include substances or energy which could have negative effects on air quality.[183] The Montreal Protocol to the Vienna Convention for the Protection of the Ozone Layer (MPVCPOL) requires the member parties to review control measures aimed at restoring the ozone layer every four years.[184] The MPVCPOL restricts the use and production of substances which will deplete the ozone layer.[185] Both treaties fail once again to prevent unilateral aerosol deployment. LRTAP (besides from only having fifty-one member states) will likely fail to regulate aerosol deployment, as studies have shown it will not have an

177. *See supra* text accompanying note 121.

178. United Nations Convention on the Law of the Sea, art. 194, Dec. 10, 1982, 1833 U.N.T.S. 397.

179. Lin, *supra* note 168, at 191.

180. *Id.* at 190.

181. Press Release, Umwelt Bundesamt, Geo-Engineering: Commercial Fertilization of Oceans Finally Banned, (Dec. 30, 2013), http://www.umweltbundesamt.de/en/press/pressinformation/geo-engineering-commercial-fertilization-of-oceans (explaining that negotiations were triggered after a corporation named Planktos submitted a 2007 proposal to fertilize the oceans near the Galapagos, which resulted in non-binding controls; in 2012, implementation occurred off the coast of Canada, triggering a ban a year later).

182. Convention on Long-Range Transboundary Air Pollution, art. 1, Mar. 16, 1983, 1302 U.N.T.S. 217.

183. *See id.*

184. Lin, *supra* note 168, at 196.

185. *Id.*

overwhelmingly negative effect on ecosystems.[186] Likewise, the MPVCPOL fails to regulate sulfate aerosols projected for use in geoengineering methods because these chemicals do not reduce ozone; the overall effect *may* reduce ozone slightly through chemical processes, but these chemicals themselves are unlikely to qualify.[187]

Two popular treaties to discuss with regard to geoengineering are the 1967 Outer Space Treaty (OST) and the Convention on Biological Diversity (CBD).[188] Predictions that these will be major road blocks are largely unfounded. [189] The OST is easily navigated regularly with peaceful satellite deployment. The CBD (which notably has banned ocean fertilization techniques like the LC/LP) is non-binding and unlikely to trigger any actual response on its own.[190] The more likely candidate for international response to geoengineering will be through the triggering of international regulatory norms through customary law.[191]

Third, the class of laws containing these norms, known as customary law.[192] Unlike treaties, these norms could create a complete and direct response to unwanted geoengineering deployment. These norms are subjectively deployed (unless established via treaty), but can sometimes restrict behavior of state actors more significantly than treaty-made restrictions when the threat of military deployment becomes a factor.[193] The breathtaking web of international customary law is outside the scope of this note, but there are some international norms most

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186. Ben Kravitz et al., *Sulfuric Acid Deposition From Stratospheric Geoengineering with Sulfate Aerosols*, 114 J. GEOPHYSICAL RES. D14109, 7 (2009), http://onlinelibrary.wiley.com/doi/10.1029/2009JD011918/epdf ("Analysis of our results and comparison to the results of [other studies] lead to the conclusion that the additional sulfate deposition that would result from geoengineering will not be sufficient to negatively impact most ecosystems, even under the assumption that all deposited sulfate will be in the form of sulfuric acid. . . . Furthermore, our results show that additional sulfate deposition tends to preferentially occur over oceans, meaning the chance of such a sensitive ecosystem receiving enough additional sulfate deposition to suffer negative consequences is very small.").

187. Lin, *supra* note 168, at 195–96.

188. *See generally* Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty]; Convention on Biological Diversity, Dec. 29, 1993, 31 I.L.M. 818, 1760 U.N.T.S. 79.

189. Mika Klaus, *The International Regulation of Geo-Engineering*, SECJURE (Oct. 17, 2016, 12:00 PM), http://www.secjure.nl/2016/10/17/the-international-regulation-geo-engineering/.

190. *Id.*

191. Lisa Dilling & Rachel Hauser, *Governing Geoengineering Research: Why, When and How?*, 121 CLIMATE CHANGE 553 (2013).

192. *See* Lin, *supra* note 168, at 197.

193. *See id.*

likely to be triggered.[194] The obligation to prevent transboundary harm includes an obligation to notify states that may be affected and to consult with them;[195] this concept has been confirmed by the International Court of Justice has a foundation of international law as a whole,[196] and specifically environmental law.[197]

In addition to this general transboundary harm principle, states have a separate obligation to not cause environmental harm to others, and to create necessary safeguards to control any unavoidable harm.[198] If a nation is responsible for causing harm, environmental or otherwise, it is also responsible for mitigating and compensating these harms, and any costs associated.[199] Using domestic environmental and land use law as a guide, this norm may be satisfied by requiring the setting up of a fund in order to settle compensation claims, before any geoengineering deployments even take place.[200] This note has addressed international norms with the least extensive discussion of the three types; this is only due to the sheer complexity of international law, any international solution will need to take into account a web of laws so complex and elusive, it merits its own separate analysis.

IV. REGULATORY NEEDS

A solution to geoengineering regulation will need to: define geoengineering, address crucial policy areas, and foster international cooperation. The most effective solution to this issue is the creation of an international regulatory body, reminiscent of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in

194. *See id.* at 197–98; Bodle, *supra* note 59, at 305–06. *See generally* Parson & Ernst, *supra* note 2 (explaining thoroughly the concepts of geoengineering and the general regulations regarding implementation, both contemporaneously and in the future); Scott, *supra* note 171; Jay Michaelson, *Geoengineering: A Climate Change Manhattan Project*, 17 STAN. ENVTL. L.J. 73 (1998); Adam D.K. Abelkop & Jonathan C. Carlson, *Reining in Phaëthon's Chariot: Principles for the Governance of Geoengineering*, 21 TRANSNAT'L L. & CONTEMP. PROBS. 763 (2013).

195. Lin, *supra* note 168, at 197–98; THE ROYAL SOC'Y, *supra* note 32, at 40.

196. Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 226, ¶ 29 (July 8).

197. Scott, *supra* note 171, at 333.

198. Lin, *supra* note 168, at 197–98 (citing Stockholm Declaration of the United Nations Conference on the Human Environment, Principle 21, U.N. Doc. A/CONF.48/14/Rev.1 (June 16, 1972)).

199. *Id.* at 198.

200. *Id.*

structure,[201] and drawing from the goals, economic strength, and human capital of the United Nations and specifically the UNFCCC.[202]

A. Defining Geoengineering

There is no universal definition of geoengineering or climate engineering stemming from the fragmented regulatory scheme governing their use. The ban on ocean fertilization by the Convention of Biological Diversity[203] was later followed up with the most comprehensive international legal definition of geoengineering to date.[204] The CBD clarified in the footnote of a later decision that:

> Without prejudice to future deliberations on the definition of geo-engineering activities, understanding that any technologies that deliberately reduce solar insolation or increase carbon sequestration from the atmosphere on a large scale that may affect biodiversity (excluding carbon capture and storage from fossil fuels when it captures carbon dioxide before it is released into the atmosphere) should be considered as forms of geo-engineering which are relevant to the Convention on Biological Diversity until a more precise definition can be developed. It is noted that solar insolation is defined as a measure of solar radiation energy received on a given surface area in a given hour and that carbon sequestration is defined as the process of increasing the carbon content of a reservoir/pool other than the atmosphere.[205]

This definition correctly defines both CDR and SRM techniques, which is essential to any thorough definition; especially when used by any kind of legislative or regulatory organization. Two key issues arise with this definition as a global benchmark though.

First, the inclusion of the word "deliberate" could potentially exclude efforts which aim to accomplish one goal, but unintentionally accomplish another, leaving those unregulated.[206]

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201. *See infra* text accompanying note 221.
202. *See infra* text accompanying note 220.
203. *See supra* text accompanying note 190.
204. Bodle, *supra* note 59, at 315–17.
205. CBD Decision X/33, *supra* note 64, at 5 n.3.
206. Bodle, *supra* note 59, at 316.

This is a fine solution for the purposes of the COP, but once again, when implemented by a different, hypothetical regulatory body with more control, this exclusion could create unnecessary loopholes. This should be removed, but with care.

The definition of solar insolation is overly broad, and relies on the inclusion of "large-scale," which some scholars have argued is not restrictive enough.[207] The exclusion of small-scale efforts, however, is necessary, and this is illuminated by the definition of solar insolation. There are an incredibly diverse number of activities that could theoretically reduce solar insolation or sequester carbon while affecting biodiversity—from installing solar panels to planting trees, many of these concepts are entirely innocuous. What necessarily forces this definition within the realm of reason is the inclusion of either large-scale or deliberately.

Second, the COP does not address when and how a more precise definition will be developed. The future of this definition is addressed within the decision itself,[208] but not with any kind of closure. This is not an issue that directly impacts future definitions created by the international community. However, it does show the problem with defining geoengineering in this manner. The primary goal in creating a legal framework for geoengineering is to actually authorize a body to define, regulate, and control its use, and this should be the very first step of cooperation.

B. Policy Considerations

To effectively regulate geoengineering, the international community must consider ethical and fairness considerations as well as the need for research management.

The British Royal society consulted a team of ethicists to discuss the ethical implications of geoengineering deployment. The panel identified three main ethical considerations: "consequentialist," holding the value of the outcomes as the

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207. *Id.*

208. CBD Decision X/33, *supra* note 64, at 1, 5, 7 ("The Conference of the Parties . . . 9. *Request*s the Executive Secretary to: . . . (l) Compile and synthesize available scientific information, and views and experiences of indigenous and local communities and other stakeholders, on the possible impacts of geo-engineering techniques on biodiversity and associated social, economic and cultural considerations, and options on definitions and understandings of climate-related geo-engineering relevant to the Convention on Biological Diversity and make it available for consideration at a meeting of the Subsidiary Body on Scientific, Technical and Technological Advice prior to the eleventh meeting of the Conference of the Parties . . . .").

primary consideration and ethical determinant; "deontological," considering primarily the "right" behavior and less the outcome; and "virtue-based," measuring actions based on the context of arrogance and hubris.[209] Regardless of the label placed on these ethical standpoints, the unifying concepts seem to be consequence and justice. Most concerned parties focus on: how much research is needed before deployment is justifiable; how much harm is acceptable; and whether methods with unequal results are acceptable.[210] The way these questions are answered brings up the issue of fairness. There will necessarily be a power struggle regarding how much decision-making power each state should. Customary international law could solve these power struggles with military action and economic sanctions,[211] but a more reasonable and equitable solution will be needed. A framework to address geoengineering will have to be flexible enough to address these issues of ethics and fairness, but must also be concrete enough to foster appropriate deployment.

It is crucial to regulate the research of geoengineering methods in order to make sure funds are spent appropriately and an organized network of development is achieved. An international framework will need to efficiently decide which methods are justifiable and bring them to deployment. Beyond the efficiency issues is the regulation of large-scale field testing, which crosses the line back into ethical considerations.

Testing geoengineering methods for global deployment is a dangerous endeavor, and could lead to catastrophic damage without even the chance of thorough success. For example, China's Weather Modification Office made the decision to seed clouds with silver iodide to trigger rain, hoping to end a drought. This accidentally triggered the worst blizzard China had seen in five decades, causing $650 million in damage and the deaths of at least forty people.[212] These regional ramifications of climate engineering gone-wrong could easily spread to other countries. An international framework for geoengineering cooperation cannot settle for simply ensuring safe deployment, it must also provide measures for unilateral and multilateral actions with harmful effects. This key policy purpose starts with research management,

209. THE ROYAL SOC'Y, *supra* note 32, at 39.

210. *See id.*

211. Lin, *supra* note 168, at 182.

212. Erica C. Smit, Note, *Geoengineering: Issues of Accountability in International Law*, 15 NEV. L.J. 1060, 1060–61 (2015).

ensuring that only the safest technologies are used. This goal ends with a monetary safeguard for when geoengineering ultimately goes wrong.

C. International Cooperative Solution

In the early 2010's the idea started to be suggested that some kind of international treaty may need to be developed, but simply that the time was not yet right.[213] A lot has changed in the past decade: geoengineering has become far more accepted,[214] technologies have advanced considerably,[215] and anthropogenic climate change has become far more severe.[216] Suggested solutions based on developing current norms into a viable framework no longer have a chance at success.[217] Current international law can no longer deal with the looming threat of untested geoengineering, or the current danger of climate change. Notwithstanding these inadequacies, international law *can* be used as a guiding force in creating a functional solution.

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) is a near-universal treaty, constructed as a sign of cooperation between member states.[218] There is a clear analogy between the need for nuclear regulation and the need to regulate climate engineering; both dangers are catastrophic in nature, and require the cooperation of large first-world countries, who are predominately responsible for creating the problem in the first place.[219] A second, crucial element of this institution is the economic and structural complexities. The UNFCCC is unique as

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213. *See generally* Parson & Ernst, *supra* note 2.

214. Michaelson, *supra* note 194, at 77–78.

215. *See generally* THE ROYAL SOC'Y, *supra* note 32.

216. *See supra* text accompanying notes 11–14.

217. *See* Jesse Reynolds, *The International Regulation of Climate Engineering: Lessons from Nuclear Power*, 26 J. ENVTL. L. 269, 273–74 (2014).

218. Treaty on the Non-proliferation of Nuclear Weapons, Mar. 5, 1970, 7 I.L.M. 8809, 729 U.N.T.S. 161. *See* U.S. DEP'T OF STATE, U.S. DELEGATION TO THE 2010 NUCLEAR NON-PROLIFERATION TREATY REVIEW CONFERENCE [hereinafter U.S. DELEGATION WHITE PAPER] https://www.state.gov/documents/organization/141503.pdf (last visited Nov. 3, 2017).

219. Reynolds, *supra* note 217, at 275–76. *But see* THE ROYAL SOC'Y, *supra* note 32, 37 (suggesting that other collaborations—aimed at positive change rather than averting catastrophe—may be a better match as a guide) ("To overcome this problem, some commentators have suggested forming an international consortium to explore the safest and most effective options, while also building a community of responsible geoengineering researchers, along the lines of other international scientific collaborations, such as the European Organisation [sic] for Nuclear Research (CERN) and the Human Genome Project." (citing WALLACE S. BROECKER & ROBERT KUNZIG, FIXING CLIMATE: WHAT PAST CLIMATE CHANGES REVEAL ABOUT THE CURRENT THREAT – AND HOW TO COUNTER IT, (2009)); David G. Victor, *The Geoengineering Option: A Last Resort Against Global Warming?,* 88 FOREIGN AFF. (2009)).

an international cooperation in eliminating climate change. Further, the UNFCCC, already has an institutionalized procedure for passing further amendments.[220] Many suggest that using this procedure to approve a new protocol is an extreme approach to the issue, but as the world heads toward the end of the decade, the situation needs an extreme solution.[221]

This institution, under the auspices of the U.N., would be able to manage member-state funds to accomplish policy goals through regulation and direct involvement. The issue, while potentially more complex than nuclear non-proliferation, will be well served with a similarly structured solution. The NPT has what is referred to as "three pillars," non-proliferation, peaceful uses, and disarmament.[222] This geoengineering institution similarly needs three pillars to stand on: deployment, research, and response.

First, a committee of member-state representatives need to be responsible for a democratically chosen solution in the face of deployment opportunities. A framework will be necessary to objectively decide when an action should be taken, but even individual deployments should be based on compromise and agreement. This requirement is also needed to promote fairness. International norms currently in place will allow these decisions to be made by the most powerful states. Contemporary treatment of climate change issues by the U.S. shows that single nations cannot be trusted to save the world, no matter how powerful. Serving as a gateway to geoengineering creates potential road blocks to dangerous implementation strategies, but more actions must be taken to reverse climate change.

Second, this institution should have access to a pool of funds to foster research that has the highest viability to cost-effectiveness ratio, to steer academic and human capital towards geoengineering. Like the Paris Accord, this requires a pledge from the developed world to contribute funds; Sections 8 and 9 of Article 9 of the Accord outline how these funds are to be distributed, a very similar procedure can be used to propel geoengineering.[223] The UNFCCC and specifically the Paris Accord are essential models for the development of this second prong, but even with these guides, there is no solution for those affected after inadvertent damage has been done.

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220. United Nations Framework Convention on Climate Change, *supra* note 175, at art. 15.

221. *See* Reynolds, *supra* note 217, at 273.

222. U.S. DELEGATION WHITE PAPER, *supra* note 218.

223. Paris Agreement art. 9, Dec. 12, 2015, T.I.A.S. NO. 16-1104.

Third, a separate pool of funds should be available and managed by the committee. Serving as an insurance of sorts, state and non-state actors who wish to engage in geoengineering can be compelled to contribute. Of all proposals contained in this Note, this is simultaneously the most novel, and the most likely to be dismissed. It is however also the most important. Increasing the cost of geoengineering through contribution to this fund will serve three purposes. First, it will deter those without the financial strength to properly research and implement technology. Second, it will serve to alleviate public fears of geoengineering gone wrong. Third, it will restore some level of power that the first pillar removed from the most developed of nations. This institution removes a certain amount of decision-making from the most powerful states at the regulatory review step. Through this requirement, this institution will also restore some level of power to those states with deep pockets. Only parties able to afford the proposals to be reviewed will even have the option to deploy, and with that option the power to shape geoengineering progress.

This is not the first proposal to suggest that the UNFCCC, or the NPT, could be used as a framework for geoengineering regulation.[224] Commentators have been careful in the past to avoid pushing for such a radical solution to geoengineering regulation to leave room for gradual change.[225] Gradual change has not come, norms have not shifted into trends, and states have barely reached any agreements on geoengineering. It is time now for drastic action—as the largest economy in the world pulls out of the most successful climate change agreement, the international community no longer has the option to conservatively save the planet.

V. CONCLUSION

The current efforts to regulate climate change are in the process of failing because they require worldwide cooperation and unselfish change in behavior,[226] a situation that the world has arguably never been able to achieve. It is difficult to imagine any level of unanimous cooperation, but the earth stands on a precipice, and the only possible chance at recovery will be a meeting of the minds. Emission reform on its own simply cannot reverse anthropogenic climate change for at least a millennium.[227]

224. Reynolds, *supra* note 217, at 273.

225. *See generally id.;* Michaelson, *supra* note 194.

226. Michaelson, *supra* note 194, at 75–76.

227. Abelkop & Carlson, *supra* note 194, at 764 (citing ROBERT L. OLSON, WOODROW WILSON INT'L CTR. FOR SCHOLARS, GEOENGINEERING FOR DECISION MAKERS 2 (2011).

It is with this fact that humanity stands on its own ledge, lawmakers around the world must make the risky choice to jump—to shape, utilize, research and control geoengineering as a positive force. Any chance at preventing the climate change the world is already condemned to struggle with required the entire planet to have begun cooperating decades ago; the reversal will conversely require action from only a small minority, but cooperation from all. The concept of geoengineering is no longer a pipe dream, or a concept within the realm of science fiction.[228] The continuing convergence of climate-altering technologies and the dire need for a planetary cure *will* lead to geoengineering deployment, and sooner rather than later. The real challenge with geoengineering will be balancing the danger of unregulated efforts with the guaranteed destruction should progress be halted. Humanity has one last, but fortunately optimistic chance to cooperate to save the planet—lawmakers need to muster the courage to jump off that ledge, and the foresight to prepare in every way to make sure it's a jump forward, to safety and a continued future. The solution proposed herein, while dramatic and costly, is one way a continued future can be guaranteed.

228. *See* Michaelson, *supra* note 194, at 77; Michaelson, *supra* note 1, at 81, 113, 114 ("In 1998, I wrote the first law review article advocating geoengineering as a climate change mitigation strategy . . . . At the time, geoengineering was both unknown and unpopular – a seemingly impossible combination, but as soon as anyone heard of it, they disliked it. Twelve years later, the political economy of geoengineering . . . has shifted . . . . Geoengineering is, as the New American Foundation dubbed it, 'a horrifying idea whose time has come.' As Scott Barrett said, geoengineering's "future application seems more likely than not.' It is a matter of simple economics: 'the incentives for countries to experiment with geoengineering, especially should climate change prove abrupt or catastrophic, are very strong. It is also because the incentives for countries to reduce their emissions are weaker.' . . . 'In the end, the debate about geoengineering is largely a debate about what sorts of environmental policies to pursue in an imperfect world. It seems almost preposterous to buck the trends of holistic systems management and suggest running like the Sorcerer's Apprentice from symptom to symptom. It may also seem as though driving less or cutting fewer trees is simpler than scattering dust particles in the stratosphere. It is certainly more elegant. But when the Damocles' sword of massive biotic disruption is hanging over our heads, we should choose what works.'").