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CONTAINING URBAN SPRAWL: IS REINVIGORATION OF HOME RULE THE ANSWER?

Terrence S. Welch*

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INTRODUCTION

With an explosive increase in scholarly research and a multiplicity of articles in the media about urban sprawl in the United States and attendant public awareness of the topic, several state legislatures around the country have addressed or attempted to address the issue of urban sprawl. The

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result of such efforts, however, has often been the stark reduction of local government authority to aggressively address and resolve the problems of urban sprawl. Comprehensive land use planning and local government self-determination are concepts that have not always coexisted peacefully. The development community often argues that self-determination leads to inadequately or inappropriately planned communities, and local government advocates argue that residents are entitled to live in communities of their choosing, regardless of whether those communities are the product of perceived-sound planning practices. Indeed, at least in the case of Texas, the result has been that local governments have found their local land use powers to address urban sprawl emasculated by the state legislature, effectively negating proposed local and regional solutions to the problems of urban sprawl.

It is the purpose of this Article to address the legal underpinnings of home rule authority and to suggest various local governmental responses to the issue of urban sprawl. Next, in the case of Texas, this Article discusses actions by the Texas Legislature to effectively constrain home rule authority when addressing urban sprawl issues and concludes that the concept of home rule authority, at least in relation to local land use decision making, has been taken away in large part from local governments, resulting in urban sprawl becoming legislatively sanctioned in Texas. Last, several options are presented that address the concerns of local governments and state legislative bodies by reclaiming home rule powers rather than reducing them.

I. A BRIEF HISTORY OF HOME RULE

The U.S. Constitution allocates powers between the federal government and the various states with no mention being made of local governments. The Tenth Amendment to the Constitution provides that “[t]he 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.”1 Due to the lack of mention of any local governmental units, the States necessarily define the relationship between state government and local government. As a consequence, this relationship varies from state to state, and often from one municipality to another in the same state. According to the latest U.S. Census, there are 19,372 municipalities and 16,629 towns or townships in

1. U.S. CONST. amend. X.
the United States. These local governments derive their powers, not from the U.S. Constitution, but from state constitutions and state statutes. The U.S. Supreme Court noted this source of authority more than eighty years ago:

In the absence of state constitutional provisions safeguarding it to them, municipalities have no inherent right of self government which is beyond the legislative control of the State. A municipality is merely a department of the State, and the State may withhold, grant or withdraw powers and privileges as it sees fit. However great or small its sphere of action, it remains the creature of the State exercising and holding powers and privileges subject to the sovereign will.

As a consequence of municipalities being arms of the State, issues arose about how municipal acts should be viewed: did cities have only those powers expressly conferred by the State upon cities; or could cities legislate even in the absence of express statutory authorization? The seminal case on this topic was a decision by Judge John F. Dillon of Iowa in Clark v. City of Des Moines, a case involving the issuance of bonds by the city of Des Moines where such bonds had not been authorized by the Iowa legislature. The receiving party sold the bonds to a bona fide purchaser and the city of Des Moines refused to honor them. Judge Dillon, one of the nation’s foremost authorities on municipal law at the time, relied on his rule of statutory interpretation in holding that the city lacked the authority to issue the bonds and that the holder of the bonds could not compel payment by the city. Judge Dillon wrote:

It is a familiar and elementary principle that municipal corporations have and can exercise such powers, and such only, as are expressly granted, and such incidental ones as are necessary to make those powers available and essential

5. Id.
6. RICHARDSON ET AL., supra note 2, at 8.
to effectuate the purposes of the corporation; and these powers are strictly construed.\(^7\)

It has been noted that Judge Dillon was “deeply troubled by not only the corruption, but more fundamentally by local government involvement in private economic activity—especially the promotion of the railroad industry. Local governments often trampled private property rights when they pursued railroad facilities, stations, and lines in an early display of competition for economic development.”\(^8\) Several years after the *Clark* decision, Judge Dillon again opined on the extent of municipal authority, this time in a case involving a railroad’s use of city streets. He stated:

Municipal corporations owe their origin to, and derive their powers and rights wholly from, the legislature. It breathes into them the breath of life, without which they cannot exist. As it creates, so it may destroy. If it may destroy, it may abridge and control. Unless there is some constitutional limitation on the right, the legislature might, by a single act, if we can suppose it capable of so great a folly and so great a wrong, sweep from existence all of the municipal corporations in the States, and the corporation could not prevent it. We know of no limitation on this right so far as the corporations themselves are concerned. They are, so to phrase it, the mere tenants at will of the legislature.\(^9\)

It is clear from the foregoing that Judge Dillon’s view of municipal authority is one that may only be defined with reference to those powers delegated from the state legislature. Thus, “Dillon’s Rule” is one of strict construction. Local governments possess only those powers that could be traced to specific and express delegations from the state and, in the absence of such delegations, local governments are powerless to act.\(^10\)

Many states adopted Dillon’s Rule of construction and the courts generally characterize Dillon’s Rule as a rule of strict construction that gives as little power as can be reasonably intimated by the state legislature’s grant of authority. “Others argue that the history of Dillon’s Rule dictates a ‘fair and reasonable’ construction of grants of power to local

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7. *Clark*, 19 Iowa at 212.
governments.”\textsuperscript{11} Nevertheless, absent specific constitutional authorization, the state legislature retains the ultimate authority to eliminate the use and effect of Dillon’s Rule.\textsuperscript{12} Dillon’s Rule does not counsel the legislature with regard to the extent of local governmental power; rather, the state legislature may act as it deems fit, either giving local governments broad powers or severely restricting local authority.\textsuperscript{13}

Not surprisingly, Dillon’s Rule was viewed by many authorities as too restrictive and severely limiting the authority of local governments to address local conditions. One of the proponents of a broader interpretation of local government powers was Justice Thomas M. Cooley of the Michigan Supreme Court. First enunciated in an 1871 case, Justice Cooley wrote in favor of an approach that encompassed broader local authority:

And the question, broadly and nakedly stated, can be nothing short of this: Whether local self-government in this state is or is not a mere privilege, conceded by the legislature in its discretion, and which may be withdrawn at any time at pleasure? I state the question thus broadly because, notwithstanding the able arguments made in this case, and after mature deliberation, I can conceive of no argument in support of the legislative authority which will stop short of this plenary and sovereign right.

. . . .

. . . The state may mould [sic] local institutions according to its views of policy or expediency; but local government is [a] matter of absolute right; and the state cannot take it away. It would be the boldest mockery to speak of a city as possessing municipal liberty where the state not only shaped its government, but at discretion sent in its own agents to administer it; or to call that system one of constitutional freedom under which it should be equally admissible to allow the people full control of their local affairs, or no control at all.\textsuperscript{14}

Justice Cooley, reaffirming this position several years later in \textit{Port Huron v. McCall},\textsuperscript{15} wrote that even though municipalities derive their

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\textsuperscript{11} Richardson \textit{et al.}, \textit{supra} note 2, at 9.
\textsuperscript{12} \textit{Id.}
\textsuperscript{13} \textit{Id.}
\textsuperscript{14} People v. Hurbut, 24 Mich. 44, 94, 96, 108 (1871).
\textsuperscript{15} \textit{Port Huron v. McCall}, 10 N.W. 23 (Mich. 1881).
\end{flushleft}
authority from the state legislature,

when a power is conferred which in its exercise concerns only the municipality, and can wrong or injure no one, there is not the slightest reason for any strict or literal interpretation with a view to narrowing its construction. If the parties concerned have adopted a particular construction not manifestly erroneous, and which wrongs no one, and the state is in no manner concerned, the construction ought to stand. That is good sense, and it is the application of correct principles in municipal affairs.\(^{16}\)

In response to the effects of Dillon’s Rule on interpreting the scope of municipal authority, and energized by the Cooley Doctrine, states began to enact constitutional amendments to protect the autonomy of local governments. The home rule movement gathered steam in 1875 when the State of Missouri adopted a home rule provision granting charter-making power to any city with a population greater than 100,000.\(^{17}\) Several states followed suit: California in 1879, Washington in 1889, Minnesota in 1896, Colorado and Virginia in 1902, Oregon in 1906, Oklahoma in 1907, Michigan in 1908, and Texas, Ohio, Nebraska, and Arizona in 1912.\(^{18}\) Although not necessarily constitutional responses to Dillon’s Rule, these home rule provisions “attempted to give local governments broad authority to legislate and allow local governments to control local matters unimpeded by the state legislature.”\(^{19}\)

But what is home rule? Although interpretations may vary, as has been noted by several commentators, home rule generally refers to a state constitutional provision or other legislative action that grants local governments the full power of self-government not inconsistent with the constitution or laws of the state.\(^{20}\) This allows local governments the power to manage local affairs as well as the ability to avoid interference from the state.\(^{21}\)

In Texas, the 1912 constitutional amendment authorizing cities to adopt a home rule charter has been characterized as “without question, the most

\(^{16}\) Id. at 26.
\(^{17}\) See Barron, supra note 10, at 2289–90.
\(^{18}\) Richardson et al., supra note 2, at 10.
\(^{19}\) Id. (citing Richard Briffault, Our Localism: Part I—The Structure of Local Government Law, 90 Colum. L. Rev. 72 (1990)).
\(^{20}\) Richardson et al., supra note 2, at 10; Barron, supra note 10, at 2290.
\(^{21}\) Richardson et al., supra note 2, at 11 (citing Michele Timmonset et al., County Home Rule Comes to Minnesota, 19 WM. Mitchell L. Rev. 811 (1993)).
significant event in Texas jurisprudence regarding municipal government.” The home rule amendment to the Texas Constitution, found in article XI, section 5, was approved by the electorate with a three-to-one margin and was codified in 1913 by the legislature. Generally, the Home Rule Amendment has been recognized by the Texas Supreme Court as granting to home rule cities, which are those municipalities with more than 5000 inhabitants and in which the electorate has adopted the home rule form of government, the full powers of local self-government. Texas courts repeatedly have held that home rule municipalities derive their authority from the state constitution and look to the state legislature only for a limitation on that authority:

It was the purpose of the Home-Rule Amendment [to the Texas Constitution] . . . to bestow upon accepting cities and towns of more than 5000 population full power of self-government, that is, full authority to do anything the legislature could theretofore have authorized them to do. The result is that now it is necessary to look to the acts of the legislature not for grants of power to such cities but only for limitations on their powers.

Consequently, it appears that Texas municipalities, like other home rule cities around the nation, possess plenary powers when considering local land use issues. This is not the case, and innovative local initiatives relative to local land use regulations are thwarted.

II. HOME RULE: FOSTERING URBAN SPRAWL?

How is a municipality to respond to the multifaceted challenges presented by urban sprawl? Does home rule result in a multitude of municipalities each applying different sets of rules with different priorities in each municipality? Does home rule exacerbate urban sprawl? Is
regionalism the answer, even with the understanding that regional solutions to urban sprawl are the exception and not the rule in the United States?

Several responses to urban sprawl have evolved over the years, yet none have been terribly successful. The first response is that local government autonomy is the cure for the pressures of metropolitan growth. This approach, however, seems to contradict the fact that local government autonomy often hinders effective growth management efforts and that pressures presented by growth are usually regional in nature and not confined to one or a few municipalities. Thus, rather than fostering a consistent response to the tremendous pressures associated with urban sprawl, the result is the opposite, with a defense of home rule instead being linked to a defense of the legal status quo and continued sprawl.

Local governments are assumed to be unlikely and ineffective sources of effective reformist policymaking. They are at once too insular, focused as they are on the needs of those people inside the boundary, and too expansive, unaccountable as they are to those people outside the boundary whom their policies inevitably affect. As a result, American local government law’s recognition of home rule, broadly understood, seems to be on a collision course with meaningful anti-sprawl reform.

While reliance upon home rule governments to “cure” the problems associated with urban sprawl is unrealistic due to the magnitude of the problem and the multiplicity of governmental entities involved, the second response to address urban sprawl has been a coordinated regional approach that involves state oversight and initiative. The regional approach to urban sprawl, however, has been similarly unavailing, whether the regionalist approach is one of regional government or regional governance.

26. RICHARDSON ET AL., supra note 2, at 22.
27. Id.
29. Id. at 2268.
30. RICHARDSON ET AL., supra note 2, at 31.
31. Barron, supra note 10, at 2270 n.34. Although the distinction between the terms is somewhat fuzzy, regional government implies the creation of independent governmental entities with powers to regionally address urban sprawl; whereas, regional governance implies cooperative solutions to regional sprawl among existing governmental entities without the creation of new governmental entities.
Adherents of this view [regional governance] contend that it is in the interests of all localities within a metropolitan region to cooperate—not only on technical matters of system maintenance, like sewage treatment, but also on ones that affect interlocal equity and thus sprawl—to ensure that the region as a whole can compete effectively in the broader marketplace.\(^{32}\)

The regional governance solution should result in voluntary, mutually agreeable responses between or among different governmental entities. What the regional governance approach fails to recognize is that what is in the best interest of one suburban community may not be in the interest of another suburban community or the central city. Often these governmental entities are in competition with one another for economic development projects, housing projects, state and federal tax money, and grants for community development projects. This results in head-to-head competition by neighboring municipalities, rendering ineffective the regional governance approach. As noted by Professor Barron, “most anti-sprawl reformers are appropriately skeptical” of this approach and “rightly contend that, under the current legal regime, voluntary regional cooperation is not in the interest of all communities within a metropolitan area.”\(^{33}\)

Similarly, the regional government response has its drawbacks. There are two approaches to this concept. The first is regional consolidation, which would replace existing municipalities with a full-fledged regional government. The second is two-tiered regionalism, “which would establish new regional governance structures that wield powers over policy areas that transcend local borders . . . while leaving local governments a reduced but meaningful sphere of local authority.”\(^{34}\)

This regional government response, regardless whether a regional consolidation or two-tiered regional approach is selected, is replete with political problems. As a result, local governments are weakened or seemingly rendered insignificant. Traditional home rule powers—such as land use controls and budgetary authority—are shifted away from local (usually more politically accountable) decision-makers to a sub-state regional entity. The voters of one area of the region may impact the makeup of or the policies of the regional government more than the voters of other areas in the region; the loss of “local control” is a difficult concept to sell to the public and the

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32. *Id.* at 2270–71.
33. *Id.* at 2271.
voters, particularly if it is perceived that regional “solutions” will be imposed unilaterally. Furthermore, concerns arise about the inequitable distribution of benefits and projects throughout the region, with certain areas benefiting and other areas lagging behind, and centralized government historically has never, or has rarely, been favored in this nation over local government.

The literature is replete with strong skepticism about the viability of regional governance and regional government. As Professor Laurie Reynolds of the University of Illinois College of Law writes, the likelihood of voluntary action to eliminate regional disparities (in such areas as affordable housing, unemployment, inequality of educational opportunities, and municipal services) has been described as “fanciful.”

Other scholars have written that “[a]s long as cooperation is voluntary, no locality will cooperate with another unless it sees that it will benefit from such cooperation” and “Americans . . . resist regionalism . . . when it redistributes resources, promotes racial and class mixing, and limits local land use options.” Other assessments are more blunt, stating that it is much more likely that local governments will act opportunistically to preserve their “parochial enclaves.” Furthermore, voluntary intergovernmental cooperation and agreements “are not stepping stones toward comprehensive regional solutions but successful methods of avoiding them.”

As long as home rule authority remains the predominant local government model in this country, are there any ways to address the problem of urban sprawl while recognizing Americans’ preference for home rule (or at least autonomy) at the local level? A third approach, suggested by Professors Gerald Frug and David J. Barron of Harvard Law School, reclaims, rather than reduces, the powers associated with home rule, and offers hope for coordinated local and regional responses to urban sprawl.

According to Professor Barron, home rule, as presently constituted, “is a more substantive legal structure that promotes certain kinds of local

36. Id. at 497 (quoting Richard Briffault, The Local Government Boundary Problem in Metropolitan Areas, 48 Stan. L. Rev. 1115, 1149 (1996)).
37. Id. (quoting Janice C. Griffith, Regional Governance Reconsidered, 21 J.L. & Pol. 505, 522 (2005)).
38. Id. (quoting Richard Thompson Ford, The Boundaries of Race: Political Geography in Legal Analysis, 107 Harv. L. Rev. 1841, 1863 (1994)).
39. Id. (quoting Gerald E. Frug, Beyond Regional Government, 115 Harv. L. Rev. 1763, 1787 (2002)).
actions while foreclosing others.\textsuperscript{40} Thus, in an effort to change the scope of home rule, he generally suggests

that a more substantive understanding of the law of home rule initiative can redirect anti-sprawl reform. Specifically, this understanding suggests the need to expand the scope of current state constitutional grants of home rule initiative to include matters of greater-than-local concern as an alternative to the confinement of such grants to those matters with little impact on neighboring jurisdictions. Similarly, this understanding suggests the advantages of curbing state preemption in some respects, rather than enhancing the power of higher-level actors to veto local decisions.

Implementation of these suggestions ... would help overcome the isolation of individual localities that the legal structure promotes. Providing individual localities with enhanced initiative authority ... would promote effective interlocal cooperation to curb the costs of sprawl.\textsuperscript{41}

This third “new regionalism” or “democratic localism” approach emphasizes that regional problems may be solved “by empowering cities with greater inherent authority so that they can truly compete in the marketplace; by creating more permeable municipal boundaries, by creating rights of regional citizenship, and by exploring new notions of cross border rights and responsibilities.”\textsuperscript{42} According to this approach, the stark reality is that local authority is restricted and that many municipalities have little, if any, discretion over taxes, fees, education, land use, and borrowing due to state controls over these areas. Thus, because municipalities lack control over their own affairs, they often resist efforts to bring them into regional strategies for issues that are truly regional in scope.

In response, one solution is to reclaim home rule by encouraging greater regional cooperation. “By giving [municipalities] greater capacity, in some cases as a carrot for working together, local governments will not only be able to solve more local problems locally, but also be better able to join with neighboring communities on issues of mutual concern.”\textsuperscript{43}

\begin{thebibliography}{9}
\bibitem{40} Barron, supra note 10, at 2362.
\bibitem{41} Id. at 2366.
\bibitem{43} \textsc{David Barron et al.}, \textit{Dispelling the Myth of Home Rule: Local Power in Greater Boston}, at x (2004), \textit{available at} http://www.ksg.harvard.edu/rappaport/downloads
\end{thebibliography}
The possibilities are numerous. Virtually every municipal official we interviewed emphasized the lack of local power. . . [In the land use context, the state could address the requirement] that developers be allowed to operate under existing zoning while the municipality considers changes. Since any move to alter its land use rules would presumably spur, in fire-sale fashion, just the kind of development local officials are hoping to discourage, this state requirement serves as a powerful disincentive against rethinking development guidelines. The state could encourage regional growth management by relaxing this rule for cities and towns that enter into regional land use planning agreements.

. . . But the mythology of home rule—which blames localities for exercising power they don’t really have—is impeding progress toward regionalism more than the reality is.

We need a new way of thinking about home rule, one that would empower cities and towns to work together to solve regional problems, not just go to the state with hat in
hand—or dig in their heels against changes they have little power to control.\textsuperscript{45}  

A variant of Professor Barron’s approach has been put forth by Professor Reynolds. Her proposal builds upon Professor Barron’s concept and includes participation by elected officials in jointly owned and jointly governed entities. It differs from Professor Barron’s approach in that “the potential he identifies for home rule cooperative regionalism is seriously eroded by the continual splicing off of new special purpose government units.”\textsuperscript{46}  Hers is a program of strengthening regionalism by strengthening localism and does not call for the creation of any new governmental entities.  

[It] recognizes the devotion of residents to their local governments and seeks to achieve more regionalism without changing or diluting that relationship. In the process, it has the potential to strengthen existing local governments while at the same time building regional citizenship and awareness. It is, no doubt, a more difficult course of action because it requires sustained involvement and governance by the region’s constituent multi-purpose government units, it prohibits general purpose entities from “passing the buck” on difficult policy issues by creating a new unit of government to deal with regional problems, and it requires the integration of regional issues into the agenda of local government officials. Ultimately . . . the increased effort is well worth it, because it is likely to enhance regional equity while at the same time strengthening localism.\textsuperscript{47}  

III. WELCOME TO TEXAS, WHERE SPRAWL IS KING  

Texas, not unlike many other states, has statutorily sanctioned urban sprawl and unduly imposed restrictions on home rule authority to address the problem. While often couched in seductive phrases such as “protecting private property rights” and “allowing low income Texans affordable housing,” the Texas Legislature has enacted restriction upon restriction in an effort to curb home rule and municipal authority to regulate local land
uses. The result is that Texas’s metropolitan areas—Houston, Dallas/Fort Worth, San Antonio, and Austin—are sprawling in every direction as municipalities across the state are impeded by the Texas Legislature from adequately and comprehensively responding.

A. The Flower Mound Smart Growth Plan: Texas’ First Growth Management Plan

The Town of Flower Mound, Texas, a suburban community incorporated in 1961 located just north of the Dallas/Fort Worth International Airport, is an example of a municipality that successfully attempted to address unbridled suburban residential growth. While the Flower Mound experience to curb growth generally has been perceived as positive by its residents, similar actions by other Texas communities are now effectively impossible due to recently enacted state statutory constraints.

The Flower Mound story is not strikingly different from that of many suburban communities across the nation. Flower Mound was undergoing rapid and intense urbanization during the ten-year period from 1990 to 2000:

The Town’s population grew from 15,527 to 50,702, a total population increase of 35,175 or 226.5%;

48. In Texas, there are two general classifications of municipalities: Home Rule Cities and General Law Cities. Home Rule Cities generally are those cities with more than 5000 inhabitants and which have adopted a charter. See TEX. LOC. GOV’T CODE ANN. ch. 9 (Vernon 1999) (authorizing home rule municipalities); BROOKS, supra note 22 (defining home rule cities as those with more than 5000 inhabitants). General Law Cities are those whose powers theoretically are constrained by the grants of power from the state legislature. See TEX. LOC. GOV’T CODE ANN. chs. 5–8 (Vernon 1999) (organizing Types A, B, and C general law municipalities). It is the author’s opinion that the distinction between the authority of general law cities to enact ordinances is not radically different from the authority of home rule cities to do likewise since section 51.001 of the Texas Local Government Code allows all municipalities, whether general law or home rule, to adopt ordinances, rules, or police regulations that are “for the good government, peace, or order of the municipality or for the trade and commerce of the municipality; and [are] necessary or proper for carrying out a power granted by law to the municipality or to an office or department of the municipality.” TEX. LOC. GOV’T CODE ANN. § 51.001 (Vernon 1999). Thus, the distinction between the authority granted to both types of cities to enact laws is blurred, with literally every law enacted by a general law city being based on “the government, interest, welfare, or good order of the municipality as a body politic.” Id. § 51.012 (for Type A general law cities); see also § 51.032 (permitting Type B general law cities to adopt ordinances “that the governing body considers proper for the government of the municipal corporation”); §§ 51.051, 51.052 (permitting Type C general law cities to adopt ordinances applicable to either Type A or Type B cities, depending upon the number of inhabitants in the municipality).
The average number of residential building permits issued annually was 1,170;

The average annual increase in population was 3,518;

The average annual growth rate was 12.8%; and

The United States Census Bureau identified Flower Mound as the nation’s tenth fastest growing community within its population category.\textsuperscript{49}

The Flower Mound Town Council was concerned that the historical development patterns since 1990 were evidence to the fact that the development pressures associated with Flower Mound’s rapid and intense urbanization would ultimately consume and destroy many of the community’s irreplaceable natural and cultural resources, community character, and quality of life. The Council opted to adopt a growth management plan, denoted the Flower Mound SMARTGrowth Management Plan. The basic purpose of the SMARTGrowth Management Plan, among others, was to “mitigate the ill effects of rapid and intense urbanization in Flower Mound.”\textsuperscript{50} The plan also purported to “promote a vigorous, diversified and regionally competitive economy” and to “foster a balanced tax base to ensure Flower Mound’s long-term financial ability to respond to the service demands of both new and existing development without placing a disproportionate tax burden on existing homeowners.”\textsuperscript{51}

Originally adopted on January 11, 1999, Flower Mound’s SMARTGrowth Program was designed as a strategic initiative to manage both the rate and character of development in Flower Mound, with the “SMARTGrowth” acronym representing “Strategically Managed And Responsible Town Growth.”\textsuperscript{52} The Town’s position paper at that time noted that though “smart growth” is sometimes “used synonymously with ‘sustainable growth,’ which generally encompasses growth that does not


\textsuperscript{50} Id. at 4–5.

\textsuperscript{51} Id.

damage or deplete the natural environment nor contribute to urban sprawl, SMARTGrowth in Flower Mound is a broader concept that speaks to our community vision and values and other intangible aspects of our quality of life.”

Although Flower Mound’s SMARTGrowth Program was comprised of four distinct components, the most controversial components were: (1) a temporary moratorium on residential master plan (comprehensive plan) amendments, zoning amendments, and development plans (preliminary plats); (2) amendments to the town’s building code to preclude the “banking” of and speculation in residential building permits in response to the temporary moratorium; and (3) the announced intent to consider “the need and feasibility of a plan to manage and equitably apportion residential building permits in a manner that ensures the town’s ability to maintain a defined level of service while accommodating reasonable and sustainable residential and non-residential growth.”

B. The Development Community’s Response

Shortly after Flower Mound announced its intent to consider a limitation on the issuance of residential building permits, Texas State Representative Bill Carter of Fort Worth, at the request of the Home Builders Association of Greater Dallas, the Home and Apartment Builders Association of Greater Dallas, and the Texas Association of Builders, requested that Texas Attorney General (now United States Senator) John Cornyn opine “whether a home-rule municipality may limit the number of residential building permits issued in a given time period while not limiting the number of nonresidential building permits.” In a surprising setback to the development community, Attorney General Cornyn concluded that since nothing in state law prohibited a home rule municipality from enacting such a provision,

[a] home-rule municipality may implement a growth-management plan that apportions, or ‘caps,’ the number of building permits the municipality will issue in a specified

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54. FLOWER MOUND, TEX., RESOLUTION NO. 1-99 § 3 (Jan. 11, 1999). Town approval of record plats (final plats) was not included in the moratorium due to concerns about vested rights under Texas law. With regard to residential building permits, the validity of a building permit was reduced from 180 days to forty-five days, with one additional renewal period of fifteen days. See FLOWER MOUND, TEX., ORDINANCE NO. 3-99 § 1 (Jan. 11, 1999) (detailing expiration of residential building permits).
period of time even in the absence of an emergency. The municipality must provide appropriate substantive and procedural due process, and the municipality may not attempt to apply its growth-management plan to building permits filed prior to the adoption of the plan.\footnote{56}{Id. at 9.}

While noting that a growth management plan may impact state and federal constitutional protections, Attorney General Cornyn further wrote that “[a] home-rule municipality may adopt a growth-management plan that limits the number of residential building permits, and not the number of nonresidential building permits, the municipality will issue in a given time period.”\footnote{57}{Id.}

While officials in Flower Mound celebrated the Attorney General’s opinion on the residential building permit limitation issue, the development community, wary of what other rapidly growing suburban cities might do in response, sought assistance from the Texas Legislature. Not surprisingly, residential development interests received their customary warm welcome in Austin.\footnote{58}{While a detailed analysis of campaign contributions by the Texas development community to individual state legislators is beyond the scope of this article, a review of campaign finance reports clearly indicates that the Texas legislative committees that usually consider zoning and land use matters (House Committee on Land and Resource Management and Senate Committee on Intergovernmental Relations) certainly are not strangers to developer and development-related contributions. See generally Texas Ethic Commission, Campaign Finance and Lobby Reports, http://www.ethics.state.tx.us/main/search.htm (last visited Feb. 9, 2008) (providing a research portal).}

C. The Texas Legislature Responds

The 2001 session of the Texas Legislature responded to the Attorney General’s Flower Mound growth management opinion by approving legislation that virtually made it either impossible or extremely difficult to enact a moratorium on residential development. Senate Bill 980, now codified as subchapter E of chapter 212 of the Texas Local Government Code, established stringent regulatory controls on moratoriums in Texas. Specifically, Senate Bill 980 circumscribes the authority of municipalities to adopt moratoriums and mandated certain procedural requirements for a city to adopt a moratorium on residential development. This legislation generally provides that before a moratorium is adopted, a city must give notice of public hearings at least four days in advance of the public hearings;\footnote{59}{TEX. LOC. GOV’T CODE ANN. § 212.134(b) (Vernon 2007).} there must be at least two public hearings on the question of...
adopting a moratorium (one before the planning and zoning commission and one before the governing body); and it further provides that on the fifth business day after a public hearing notice is published, a temporary moratorium takes effect. Thereafter, within twelve days after the first public hearing, a city must decide whether to impose a moratorium. If the moratorium is not imposed, the temporary moratorium ends. However, if a moratorium is adopted, the ordinance must be given at least two readings separated by at least four days. The ordinance imposing the moratorium must be finally adopted upon a second reading thereof within the twelve-day window from the first public hearing. Most importantly, the legislation provides that a moratorium may be imposed only if there is a need, supported by written findings, to prevent a shortage of essential public services (water, wastewater, drainage facilities, or street improvements) or significant need (one that would endanger public health and safety) for other public facilities, including police and fire services. Any such moratorium is limited to 120 days in length, unless a city extends the moratorium by going through another process of required notices, hearings and adoption of written findings. Additionally, any moratorium is not valid if it does not provide a “waiver” procedure. Amendments to this statute in 2005 included both residential and commercial moratoriums being included within the purview of this law, not just residential moratoriums.

The effect of this legislation has been very clear—few cities in Texas currently enact moratoriums for any zoning and land use-related purposes. Consequently, rather than fight the moratorium battle in city after city around Texas, the expedient way for the development community to address the moratorium issue was to enact state legislation, yet again thwarting cities in their attempts to address local growth issues. With cities unable to impose zoning and land use moratoriums without following the stringent notice requirements imposed by Senate Bill 980, the practical implications of the legislation are apparent—any notice of a proposed moratorium by a city will result in a mad dash to city hall to acquire

60. Id. § 212.134(d).
61. Id. § 212.134(e).
62. Id. § 212.134(f).
63. Id.
64. Id. § 212.135.
65. Id. § 212.1351. This provision was recodified from section 212.135(b) to the current section as a result of a 2005 amendment to the statute.
66. Id. § 212.136.
67. Id. § 212.137.
68. Id. § 212.1352.
appropriate permits to vest development rights prior to city council consideration of the moratorium, thus allowing developers to “beat” the moratorium.69

D. The Texas Legislature’s Handcuffing of Home Rule Powers to Address Growth and Urban Sprawl Issues

As noted by Professors Barron and Frug, state governments often shackle local governments and effectively prevent them from dealing with inherently local land use issues.70 Consequently, the “toolbox” of land use techniques, options, and procedures simply are not available to local governments in addressing the multitudinous problems attendant to rapid and intense urbanization. Texas is no exception to this general principle. Indeed, the Texas Legislature, in response to development concerns (and I dare say development special interest money) has enacted a series of land use laws that have been designed to limit local government control over local land use issues. Besides the moratorium statute referenced above, these include:

- limitations on municipal land use activities in the extraterritorial jurisdiction;71
- super-majority voting requirements in certain instances;72
- extremely pro-developer, early vesting requirements;73
- municipal infrastructure cost-sharing provisions that favor developers and grant developers who challenge municipal

69. That is exactly what occurred in Flower Mound in early May 1994. At that time the Flower Mound Town Council posted an agenda item that it would consider the possible implementation of a proposed growth management plan that capped the number of residential building permits that would be issued by the Town. The development community appeared at the Town Council meeting in question and agreed that its members would “self police” relative to the issuance of building permits, contending that building permit caps would be therefore unnecessary. The Town Council did not implement the proposed growth management plan at that time; however, in May 1994 alone, the Town issued in excess of 600 building permits and residential developers “banked” those building permits in anticipation of the adoption of a growth management plan that would cap such permits.

70. See supra note 44 and accompanying text.


72. Id. §§ 211.006(d)–(e), 212.015(c)–(d).

73. Id. ch. 245 (chapter 245 sets out the issuance of local permits for land developments in Texas).
infrastructure cost apportionment and who subsequently prevail, court costs, attorney’s fees, and expert fees;\textsuperscript{74} municipal annexation provisions that often are unwieldy and allow for protracted annexation battles, both in court and out of court,\textsuperscript{75} and a plethora of special districts (created under state law and special legislative acts) that often are used by developers to circumvent municipal annexation and develop property, the costs of which are funded by bonded indebtedness, paid by future residents of the project.\textsuperscript{76}

The result of this handcuffing has been obvious. Municipalities are unable to adequately address growth issues and, as a result, costs addressing these issues skyrocket. The legislature then steps in and adopts legislation to aid the development community if business and development interests are threatened by local initiatives. The result is that local government control over local land use issues is severely circumscribed.

IV. A PROPOSAL FOR CHANGE

If there is any solution—or at least an attempt at one—to the problems associated with urban sprawl, legislative incursions into municipal home rule powers are not the answer. Indeed, as reflected in this Article, such incursions have the effect of exacerbating urban sprawl issues. Local autonomy is a non-factor in the Texas land use model, leaving only the minutiae of land use decisions to home rule municipalities and other Texas local governments.

First, while regional cooperation, particularly in suburban and exurban environments, is often viewed as untenable or as just another layer of government and bureaucracy, there are indeed communities of interest in metropolitan areas. Transportation is one such area where regional cooperation has effectively addressed major transportation and

\begin{itemize}
\item \textsuperscript{74} Id. § 212.904.
\item \textsuperscript{75} Id. ch. 43 (encompassing the provisions for municipal annexations in Texas).
\item \textsuperscript{76} These include, but are not limited to, water control and improvement districts, fresh water supply districts, municipal utility districts, water improvement districts, county development districts, drainage districts, levee districts, irrigation districts, navigation districts, stormwater control districts, and other special utility districts. While all of these special districts do not have the legal authority to engage in land development activities, some of them do have such authority when the Texas Legislature specifically allows such activities in enabling legislation.
\end{itemize}
transportation funding issues, particularly in the Dallas/Fort Worth Metroplex. Efforts on a regional basis should continue, whether there is discussion of transportation or clean air and water issues. The various Texas Councils in often have been the conduit for such discussions. This effort should be fostered with the regional councils taking more proactive roles in addressing truly regional issues.

Second, while many local officials are skeptical of regional cooperation, there often is a direct financial cost associated with a “go-it-alone” approach. Suburbs in particular are without the financial resources to address region-wide traffic congestion problems, and any effort to do so without the involvement of the state or other local governments would be viewed as preposterous. While apparently little support exists for a new layer of government at the regional level,77 a better alternative may be as Barron has suggested:

> to promote regionalism by responding seriously to the widespread sentiment that the state has unduly limited home rule. The idea would be for the state to enhance local power—and relax existing limitations on that power—as a carrot to induce greater regionalism. In this way, the state would help overcome the sense of opposition between home rule and regionalism . . .78

In the land use context, the state could relax the early vesting requirements of state law.79 In an effort to promote regionalism, the state could relax such requirements only for municipalities that enter into regional land use planning agreements. If this concept were enacted, it may increase municipal power to manage growth as municipalities agree to work together to devise a greater-than-local land use strategy. “Cooperation would make planning strategies possible that now are effectively foreclosed.”80

Third, land use issues could be addressed on a sub-region basis: a northern tier of suburban cities may have unique land use issues that are not problematic in other sub-regions. While such sub-regions could fracture

77. BARRON ET AL., supra note 43, at 84.
78. Id. at 85 (addressing concerns expressed by Boston-area local government officials).
79. TEX. LOC. GOV’T CODE ANN. §§ 212.049–.171 (Vernon 2007). As it currently stands in Texas, a development right may be vested by simply dropping a hand-written “development plan” on a cocktail napkin in the mail to a municipality, as long as the municipality has “fair notice” of the project and the nature of the permit sought. TEX. LOC. GOV’T CODE ANN. § 245.002(a-1) (Vernon 2007). Most local government officials find such an early vesting provision ludicrous, as does the author.
80. BARRON ET AL., supra note 43, at 86.
regional cooperation, sub-regional cooperation could be “incentivized” by the state allowing consideration of other financing options for joint projects. For example, the state could allow funds from one municipality to be utilized in another to address an area or sub-regional problem.

Additionally, relaxation of land use controls contained in state law could be relaxed on a sub-regional basis for those cities that join together to address projects of regional concern. This also could take the form of multi-jurisdictional economic development projects—although one city might be the site of a large corporate relocation, large scale corporate projects often impact neighboring communities. Thus, neighboring cities could enjoy enhanced home rule authority by entering into such regional economic development agreements. Another alternative could be statutory authorization to impose a sub-regional impact fee for projects that traverse municipal boundaries, such as major roadways, water, and wastewater projects that are multi-jurisdictional in scope. Alternatively, the legislature could allow cities or counties to impose impact fees for one hundred percent of the cost of roadway facilities or expansions necessitated by new development outside of a city’s corporate limits, within its extraterritorial jurisdiction, or in other unincorporated areas of a county. Such statutory authorization would have the effect of fostering regional cooperation between and among the affected entities, requiring them to address those infrastructure issues that impact them all.81

Last, the legislature should place a moratorium on the creation of new special purpose districts. While those that already have been created obviously cannot be dissolved, the state “should recognize that regional special districts are not a quick, efficient solution for region-wide problems, but rather a contributor to further regional inequality.”82 The proliferation of special purpose districts impedes regionalism and it is time to reconsider “state and local attitudes that see [the creation of special purpose districts] as an unabashedly positive phenomenon in metropolitan regions.”83 As Professor Reynolds notes,

[N]o tremendous overhaul of the status quo is proposed. The shift would be one of governance, not government, taking the locus of power away from the existing regional

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81. Chapter 395 of the Texas Local Government Code authorizes municipalities to impose impact fees in their corporate limits and certain impact fees in their extraterritorial jurisdictions; however, nothing in chapter 395 addresses the concept of regional or sub-regional impact fees. TEX. LOC. GOV’T CODE ANN. § 395.011(b) (Vernon 2007).
82. Reynolds, supra note 35, at 526.
83. Id. at 527.
special district and redistributing it among the constituent units of multi-purpose local government within its territory.

... For starters, most general purpose local governments are already well aware of the local impacts of regionalism, because many regional issues also have easy to identify and narrowly local impacts. Being forced to act on a regional scene, however, would allow local governments to seek solutions that respect both the local government’s more narrow self-interest, as well as to recognize how their own self-interest is tied up with the region’s interest, thus making a consensual regional solution more likely.84

CONCLUSION

Urban sprawl is a problem of gargantuan proportions around the nation. Many cities, and most metropolitan areas, feel helpless to address the issue. Sadly, when attempts are made to do just that, it is not unusual, as is the case in Texas, for the state legislature to immediately step in to protect development interests, almost uniformly at the cost of municipalities by stripping them of home rule powers to comprehensively address the issue of sprawl.

One solution is greater regional cooperation. The goal of regional cooperation, however, is not to create new governmental entities and new bureaucracies with new layers of approvals, but to empower local governments to work together and cooperate regionally, enhancing their home rule powers to do so, rather than hindering them from doing so, as is the current state of affairs in Texas. While the concept of regional cooperation often is resisted at first, with appropriate statutory incentives from the state, the concept of regional cooperation may flourish and allow cities, particularly with regard to urban sprawl and land use issues, to mutually and cooperatively address the serious growth issues that confront our country.

84. Id. (footnotes omitted).
Floods are ‘acts of God,’ but flood losses are largely acts of man.

Gilbert F. White

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† This article is dedicated to our friend and mentor, Jon Kusler, Esq., Ph.D., and to the Association of State Floodplain Managers. Dr. Kusler’s pioneering legal work served as the inspiration for this article, and helped form the foundation of much of the modern floodplain and wetland management operating across the nation today. The Association of State Floodplain Managers, through its members and staff, works daily to prevent and reduce the awful misery to individuals, communities, taxpayers, and the environment associated with the improper management of areas subject to flooding. This article incorporates and builds on previous research contained in an unpublished organizational white paper, Jon Kusler & Edward A. Thomas, No Adverse Impact and the Courts: Protecting the Property Rights of All (Nov. 2007) (prepared for the Ass’n of State Floodplain Managers), available at http://www.floods.org/pdf/ASFPM_NAI_Legal_Paper_1107.pdf.

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1. Gilbert F. White, Human Adjustment to Floods (June, 1942) (Ph.D. dissertation, University of Chicago) (on file with Department of Geography, University of Chicago).
INTRODUCTION

In 1543, when Hernando De Soto’s expedition observed the earliest recorded significant flood of the Mississippi River, they noted that the indigenous communities “built their houses on the high land, and where there is none, they raise mounds by hand and here [took] refuge from the great flood.” Human settlement patterns tracked inland water courses, coasts, and natural ports as avenues for trade and transportation, setting the stage for flooding to become the most widespread and destructive hazard in the United States today.

For more than thirty years, the National Flood Insurance Program (NFIP) has provided federal guidance to local jurisdictions working to manage floodplain development. As a result, land use and other development review standards adopted by more than 20,000 communities across the country are saving the nation more than “$1.1 billion a year in prevented flood damages.” Even so, in the last century flood damages in the United States have increased fourfold, approaching $6 billion annually. Obligations through the Federal Disaster Relief Fund ballooned from $2.8 billion in 1992 to $34.4 billion in 2005 due to damages associated with the 2004 and 2005 hurricane seasons. Hurricane Katrina alone caused at least 1500 deaths and more than $81 billion in property damage.

The loss of life and property along with severe social and economic disruption associated with flood disasters continues to occur despite, and

2. CHAMP CLARK, PLANET EARTH: FLOOD 65 (1982).
7. U.S. GOV’T ACCOUNTABILITY OFFICE, supra note 4, at 12.
8. Id. at 7.
apparently in some cases because of, billions of dollars spent on large-scale structural flood control works. While some communities and states lead the way in applying watershed-scale and nonstructural strategies to mitigate future flood damages, these initiatives are often met with resistance that can take the form of threatened or actual litigation.

The purpose of this Article is to dispel certain myths regarding the use of the Takings Doctrine in the public safety context, and to provide floodplain managers—and their lawyers—with insights regarding strategies to prevent harm, withstand legal challenge, and prepare their constituents for future floods. Part I provides background information regarding federal, state, and local initiatives to address flood damages. Part II examines the sources and application of common law liability theories associated with flood damages. Finally, Part III identifies specific mitigation strategies, reports on successfully achieved flood damage reductions, and legal liabilities associated with takings claims.

I. FEDERAL ACTIVITIES IN FLOOD DAMAGE REDUCTION AND FLOODPLAIN MANAGEMENT

A. Short History of Flood Control in the United States

The importance of managing the nation’s waterways and floodplains has been long recognized. It has historically fallen to the U.S. Army Corps of Engineers (Corps) to interpret and apply federal water law consistent with Congress’s intent to prevent pollution and flood damages.\(^\text{10}\) The Corps was first given authority to regulate dredging, filling, or obstructing “navigable waters” under the Rivers and Harbors Appropriation Act of 1899 (RHA).\(^\text{11}\) Section 13 of the RHA, commonly known as the “Refuse Act,” prohibits the unpermitted discharge of any refuse of any kind “into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water, . . . either by ordinary or high tides, or by storms or floods.”\(^\text{12}\)

\(^{10}\) See, e.g., Rivers and Harbors Appropriation Act of 1899, 33 U.S.C. § 401 (2000) (requiring plans for any “dam, or dike over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States” to be approved by the Corps).

\(^{11}\) Id.

\(^{12}\) Id. § 407.
Although the early aim of the RHA was to preserve the nation’s waterways for purposes of navigation, the Corps’ construction program, which dates back more than 150 years, also reflects its mission to protect lives and property from floods. The 1936 Flood Control Act declared flood control to be a proper federal activity, in conjunction with states and local government, in response to the “menace to national welfare” that floods had become. The Corps’ program emphasized major structural approaches to flood damage reduction, resulting in construction of more than 380 lakes and reservoirs and 8500 miles of levees. However, the Corps’ mission has evolved in recent years to provide greater emphasis on ecosystem restoration and stewardship.

The principal federal law regulating development of wetlands and floodplains is the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act. Section 404 of the Act provides the primary federal authority for protecting the nation’s waters from discharges that would have “an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas, wildlife, or recreational areas.” The Corps’ regulatory program is charged with administering section 404 with oversight from the Environmental Protection Agency.

In addition to the Corps’ role overseeing structural flood control works, ecosystem restoration, and wetlands, the Water Resources Development Act of 1996 required that the state or local partner in a federal flood control project “participate in and comply with applicable Federal floodplain management and flood insurance programs.” Moreover, the local partner must develop plans to “reduce loss of life, injuries, damages to property and facilities, public expenditures, and other adverse impacts associated with flooding and to preserve and enhance natural floodplain values.” Thus, any community wishing to cost-share or participate in a major federal flood control project must participate in the NFIP and undertake land use planning to preserve the floodplains in their jurisdiction.

13. Id. § 403.
15. Id.
19. Id. § 1344(c).
20. Id. § 1344 (b)(1).
22. Id. § 701b-12(c)(2)(A).
B. The National Flood Insurance Program

A floodplain is any comparatively low-lying land that is subject to inundation due to the accumulation or runoff of surface waters from a waterway, lake, or coast. The Federal Emergency Management Agency (FEMA) defines floodplains, for NFIP purposes, according to the frequency with which a given area will be inundated. For example, Special Flood Hazard Areas (SFHAs) shown on Flood Insurance Rate Maps (FIRMs) are those floodplain areas that are “subject to a one percent or greater chance of flooding in any given year,” traditionally known as the “100-year-flood.”

“The National Flood Insurance Act of 1968 was enacted by Title XIII of the Housing and Urban Development Act of 1968 to provide previously unavailable flood insurance protection to property owners in flood-prone areas.” The NFIP requires that participating communities “review all permit applications to determine whether proposed building sites will be reasonably safe from flooding.” In addition, the flood program regulations specifically provide for states and communities to adopt and enforce standards that “exceed the minimum criteria . . . by adopting more comprehensive floodplain management regulations.” Moreover, “any floodplain management regulations adopted by a State or a community which are more restrictive than the criteria set forth in this part are encouraged and shall take precedence.”

Identified flood-prone communities choosing not to participate in NFIP are disqualified from receiving federal flood insurance and financial assistance to mitigate flood damages. Additionally, “if a presidential disaster declaration occurs . . . in a non-participating community, no federal financial assistance can be provided” to assist with flood recovery.

One of the challenges our nation faces is the problem of externalization of the costs associated with poorly engineered or planned development. The United States provides an extensive system of disaster relief through a

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23. Adapted from definitions of “floodplain” and “flooding” under regulations of the National Flood Insurance Program, 44 C.F.R. § 59.1 (2006).
24. Id.
25. Id. (definition of “area of special flood hazard”).
27. 44 C.F.R. § 60.3(a)(3).
29. Id.
31. Specifically, non-participating communities are not eligible for grants under the Pre-Disaster Mitigation Grant Program or the Hazard Mitigation Grant Program. Sandra Leon & Sandy Lubin, *FEMA: Federal Disaster Relief*, 17 ABA GEN. PRAC., SOLO & SMALL FIRM DIV. MAG. 5 (2000).
network of public and private programs, including the Internal Revenue Service Casualty Loss Program; FEMA Grants and direct assistance; disaster related, below market loans from the Small Business Administration; and flood insurance from the NFIP.32 The NFIP provides federally-backed flood insurance at rates less—and in some cases, far less—than actuarially-based premiums.33 Critics argue that this arrangement artificially reduces the perception of risk associated with occupying floodplains, while spreading the costs of catastrophic floods among all U.S. taxpayers.34 A recent report from the Georgetown Environmental Law and Policy Institute singles out the NFIP as “a public policy disaster, both because of the burden it has imposed on the federal taxpayer and because it has failed to stem the tide of development in hazardous floodplains.”35 Despite errors in the author’s assumptions about the NFIP,36 the federal flood insurance program intended to “provide the necessary funds promptly to assure rehabilitation or restoration of damaged property to pre-flood status,”37 and not to federalize the nation’s floodplains.

Some knowledgeable observers have noted that the NFIP is one of the only federal programs that encourages land use planning to guide new

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35. Id. at 7.

36. For example, although Pidot reports that “the NFIP had not suffered a catastrophic loss year prior to 2005,” id. at 15, this statement overlooks the enormous payouts from the flood insurance program associated with Hurricane Ivan in 2004 (more than 27,000 claims were paid, totaling more than $1.5 billion), Tropical Storm Allison in 2001 (over 30,000 claims were paid, totaling more than $1.1 billion), and the Louisiana flood of May 1995 (over 31,000 claims were paid, totaling more than $585 million) to name only a few of the more catastrophic loss years for the NFIP. Fed. Emergency Mgmt. Agency, Significant Flood Events 1978 to Jan. 31, 2008, available at http://www.fema.gov/business/nfip/statistics/sign1000.shtm. Additionally, Pidot fails to address the following points: (a) “FEMA reports the [NFIP] has been self-supporting for 20 years”; (b) other, more expensive subsidies for the occupancy of hazardous locations exist, such as federal tax deductions for casualty losses, Small Business Admin. (SBA) loans, Dep’t of Housing and Urban Development (HUD) special CDBG Appropriations; and (c) there is a cornucopia of other post-disaster subsidy programs described in Thomas, supra note 32, at 2–20.

development away from flood-prone areas. A conflict arises because, although the federal government administers the NFIP, land use and development decisions are made at the state and local level. The NFIP was designed so that the floodplain management mission would be carried out at the state and local levels. Local communities are given minimal guidelines on how to plan for local infrastructure, permit development, and administer permit programs. Thus, the NFIP provides the major federal land use regulatory regime, but the authority to enact floodplain zoning is contained in the states’ “general grant of power to zone for the public health, safety, and welfare.”

Local officials, who make land use decisions, often rely on development to increase tax revenue and may not always be as concerned about regulating to prevent comparatively rare flood events as they are about increasing the property tax base. Since the property owner, the NFIP, and the federal taxpayer pay for mistakes in these decisions, and the decision-making local government and developers receive the benefits of development, a fundamental problem of externality results.

The NFIP has proven to be one of the most cost-effective hazard mitigation programs in history, saving the nation more than $1 billion in flood losses annually, preventing untold misery to disaster victims, and damage to the environment. Throughout the thirty-year history of the NFIP, many communities have often relied on its minimum requirements to set floodplain development criteria, and frequently adopted and enforced these standards grudgingly. Even so, more than 20,000 communities have joined the NFIP and implemented local standards to reduce flood losses.

However, the minimum NFIP standards do not prohibit diversion of floodwaters onto other properties, nor do they prevent the loss of channel

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40. Id.
41. Id. § 60.3.
43. CAMILO SARMIENTO & TED R. MILLER, AM. INST. FOR RESEARCH, COSTS AND CONSEQUENCES OF FLOODING AND THE IMPACT OF THE NATIONAL FLOOD INSURANCE PROGRAM 8 (2006), http://www.fema.gov/library/viewRecord.do?id=2577. In the personal opinions of the Authors the NFIP is the most cost effective program of harm prevention and disaster mitigation in history.
conveyance and storage or increases in erosive velocities. As a result, communities that manage floodplain development based solely on the minimum standards of the NFIP perform some valuable regulation, but do allow development to encroach and constrict the floodplains, subjecting property owners and downstream neighbors to greater flood frequency and severity than would result had the entire floodplains been left to convey flood waters.

C. The NFIP Community Rating System

The NFIP Community Rating System (CRS) provides incentives and strategies to promote even safer development practices than those required by the minimum standards for participation in the NFIP. Participating communities receive ratings based on their floodplain management program; the more robust the program and better the rating, the greater reduction in flood insurance premiums available to policyholders in that community. Credited activities are designed to improve public safety, reduce damage to property and public infrastructure, avoid economic disruption and losses, reduce human suffering, and protect the environment. Activities can be grouped into four categories: public information, mapping and regulation, flood damage reduction, and flood preparedness.

More than 1000 communities participate in the CRS today, providing 66% of all NFIP policyholders with premium discounts and the benefits of living in communities better prepared to weather their next flood. Moreover, communities that participate in the CRS have an increased incentive to maintain their flood programs and to preserve their NFIP discounted insurance policies, since a community’s CRS status would be

45. See 44 C.F.R. § 60.3(d) (allowing significant modifications to the hydrologic profile resulting in increased velocities, loss of valley storage and erosion).

46. See Larry Larson & Doug Plasencia, No Adverse Impact: New Direction in Floodplain Management Policy, 2 NAT. HAZARDS REV. 167, 171 (2001) (“[M]ost communities do little more than comply with the minimal standards of the NFIP, leading to the creation of increased future flood losses.”).


49. Id.

50. ASS’N OF STATE FLOODPLAIN MANAGERS, NATIONAL FLOOD PROGRAMS AND POLICIES IN REVIEW 19 (2007).
affected by the elimination of a hazard mitigation activity or a weakening of the regulatory requirements for new development.

D. No Adverse Impact Floodplain Management

In addition to the NFIP and the CRS, No Adverse Impact (NAI) floodplain management provides tools for flood-prone communities. The NAI help to ensure a higher level of protection for citizens and to prevent future flood damage. NAI is a managing principle developed by the Association of State Floodplain Managers (ASFPM) to augment the typical local floodplain management program. NAI floodplain management is an approach that ensures the action of any community or property owner, public or private, does not adversely impact the property and rights of others. Adverse impact can be “measured by an increased flood peak, flood stages, flood velocity, and erosion and sedimentation,” as well as degradation of water quality and increased cost of public services. NAI floodplain management extends beyond the floodplain to include managing development in the watersheds where increased runoff of storm water and floodwaters originate.

NAI relies on a combination of development planning, standards, and review to ensure that proposed and anticipated development will not adversely impact other property interests through increased runoff, velocities, or degradation. Since each community is unique, NAI provides the flexibility to adapt strategies to fit community interests, watershed dynamics, political will, vision, and goals. Under the NAI approach, the developer and community work together to: identify the impacts of proposed development; explore design alternatives; notify potentially impacted property owners; and develop appropriate mitigation measures that are acceptable to the local government and community. NAI, with the support of incentives though the CRS program, is designed to provide some incentive to address the fundamental problem of externality described above.

52. Id.
53. Id.
54. Id. at 6–7.
II. COMMON LAW THEORIES OF LIABILITY FOR FLOOD DAMAGES

As population has increased, men have not only failed to devise means for suppressing or for escaping this evil of floods, but have a singular short-sightedness, rushed into its chosen paths.


Floods are one of the most common and costly natural hazards in the United States. When flooding or erosion damages property, owners may consider suing developers whose projects may have created local drainage or erosion problems. Property owners may sue the community that permitted development, alleging that the impacts of flooding or erosion were more severe than would otherwise have occurred without the development. At common law, the maxim sic utere tuo ut alienum non laedes teaches that no landowner has the right to use her land in a manner that injures the property of others. Activities associated with development that may increase runoff and exacerbate flood damages include grading, placement of fill, stream modifications (such as dams, dikes, channelization, and levees), and other land or shoreline alternations that may increase flood heights and velocities. In most states, landowners are not permitted to block the flow of diffused surface waters, increase that flow, or divert that flow from its natural discharge point, where doing so would substantially harm other landowners. Landowners may also bring trespass actions where flooding or drainage problems manifest a physical invasion onto their property. Courts apply these standards, where applicable, to both private and public defendants, and have even held governments to more stringent standards of care.

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55. Portions of this section are adapted from Kusler & Thomas, supra note 51.


58. See, e.g., Sandifer Motor, Inc. v. City of Rodland Park, 628 P.2d 239, 242–44 (Kan. 1981) (holding that flooding due to city dumping of debris into a ravine that blocked sewer system was a nuisance).

59. Kusler & Thomas, supra note 51, at 10, 15–16.

60. Id. at 10.


62. See, e.g., Wilson v. Ramacher, 352 N.W.2d 389, 394 (Minn. 1984) (finding that a local government that diverts water as part of a drainage project is liable for damage caused by that diversion of waters since it is acting not as a property owner, but in the exercise of sovereign authority).
Under a negligence theory, those who undertake flood control methods may be liable for the incorrect design of structures that reduce flood damage, ineffective flood warning systems, and defective inspections and permitting. The government may be liable for damages due to insufficient lateral support that resulted from the construction of roads, bridges, and other public projects. In some states, statutes have been enacted which create a separate legal action. For example, section 11.086 of the Texas Water Code has made it illegal to change the natural flow of water in a way that damages other people’s property.

Successful liability suits based upon natural hazards have become increasingly expensive to governments, not only because of the increasing awards for flood and erosion damages, but because of increasing attorney fees, expert witness fees, and court costs. For example, in City of Watauga v. Tayton, the trial court awarded only $3000 for damages to a home flooded by city actions and $6800 for destruction of personal property and fixtures. However, the court also awarded $19,500 for mental anguish and $15,000 for attorney’s fees, more than three and one half times the amount of the physical damages. In West Century 102 Ltd. v. City of Inglewood, the court awarded a judgment of $2.4 million against the city for water damage, including $493,491 in attorney’s fees.

63. See, e.g., Kunz v. Utah Power & Light Co., 526 F.2d 500, 504–05 (9th Cir. 1975) (finding that undertaking flood control efforts and “materially alter[ing] . . . water-flow patterns . . . establish[es] a relationship” and creates a duty to try to control floods).

64. Cf. Blake Constr. Co. v. United States, 585 F.2d 998 (Ct. Cl. 1978) (holding that the U.S. Government would be liable for “reasonably anticipated and foreseeable . . . damages to structures on adjacent land that result from negligence of [hired] independent contractor in excavating [Government’s] land if adjacent building shares party walls with building of its excavating neighbor”) (emphasis added).

65. TEX. WATER CODE § 11.086 (Vernon 2007). See Miller v. Letzerich, 49 S.W.2d 404, 407 (Tex. 1932), for an early application finding violation of TEX. STAT. ANN. art. 7589a (Supp. 1930), which reads:

That it shall hereafter be unlawful for any person, firm or private corporation to divert the natural flow of the surface waters in this State or to permit a diversion thereof caused by him to continue after the passage of this Act, or to impound such waters, or to permit the impounding thereof caused by him to continue after the passage of this Act, in such a manner as to damage the property of another, by the overflow of said water so diverted or impounded, and that in all such cases the injured party shall have remedies, both at law and equity, including damages occasioned thereby.


67. Id. at 201.

Modern courts have adopted the rule of “reasonable use.” The “reasonable use” doctrine works to avoid the constraints of the “common-enemy” doctrine and to determine the rights of the parties by considering all the relevant factors, as the controlling principle in determining rights with respect to interference with the drainage of surface waters. The rule of “reasonable use” requires landowners to act reasonably in consideration of how drainage modifications may affect other landowners. Generally, any drainage modification that increases the flows, erosive velocities, or heights of surface waters could be found to be unreasonable and subject the landowner who caused the modifications to liability.

As engineering models of floods and hazard mapping have improved, flood events may become more legally foreseeable. Advances in hazard-loss reduction measures create an increasingly high standard of care for reasonable conduct. As technology advances, so too must the techniques and approaches of engineers and others, because their reasonableness is judged by the advancements of the profession. As the techniques for reducing flood and erosion losses are disseminated through magazines, technical journals, and reports, the concept of “region” may have been broadened to the point of a national standard for determining “reasonableness.”

In the past, landowners may have had difficulty proving that activities on adjacent lands increased the risk of flooding damages. Proving fault was challenging because the flooding could have been the result of aggregating factors on neighboring lands. However, current hydrologic and hydraulic modeling techniques can prove causation and allocate fault more exactly, although actual proof may still pose a challenge. As a result of increasingly documentable foreseeability of flooding, most natural hazard

70. See, e.g., County of Clark v. Powers, 611 P.2d 1072, 1075 (Nev. 1980) ("[A] landowner may make reasonable use of his land as long as he does not injure his neighbor.").
71. See, e.g., Lombard Acceptance Corp. v. San Anselmo, 114 Cal. Rptr. 2d 699, 708 (App. 2001) (granting an injunction against a town for unreasonable increases in surface water which caused a landslide).
72. See, e.g., Barr v. Game, Fish & Parks Comm’n, 497 P.2d 340, 344 (Col. Ct. App. 1972) ("The trial court found that by modern meteorological techniques defendant could have foreseen this storm.").
74. See, e.g., Souza v. Silver Dev. Co., 210 Cal. Rptr. 146, 149 (1985) (stating that proof may be difficult in circumstances involving more than one party because “there must be a showing of ‘a substantial cause-and-effect relationship excluding the probability that other forces alone produced the injury’") (citations omitted).
related liability suits against governments result from flood or drainage damages.  

Courts have held that after a government unit chooses to act, even when there is no affirmative duty to take such action, the government unit must exercise reasonable care.  

As recently as 1993, the State of Missouri abrogated the “common enemy” doctrine in no uncertain terms in *Heins Implement v. Missouri Highway & Transp. Comm’n*, stating:

> The principal issue raised by this appeal is whether the modified common enemy doctrine should be applied to bar recovery by landowners and tenants whose property was flooded because a culvert under a highway bypass was not designed to handle the normal overflows from a nearby creek. We conclude that the common enemy doctrine no longer reflects the appropriate rule in situations involving surface water runoff and adopt a doctrine of reasonable use in its stead.

On the other hand, Arizona reaffirmed that the “common enemy” doctrine was still in effect as recently as 1989 in *White v. Pima County*:

> Arizona follows the common enemy doctrine as it applies to floodwaters. Under this doctrine a riparian owner may dike against and prevent the invasion of his premises by floodwaters. If, thereby the waters which are turned back damage the lands of another, it is a case of *damnnum absque injuria*. This common enemy doctrine was not abrogated by the floodplain statutes is available to those who comply with or are exempt from the floodplain regulations, and is likewise available to a condemning authority when it is protecting its property like any other riparian owner.

Courts have considered a variety of factors in determining the reasonableness of actions that result in drainage modifications of surface waters. Where severe harm may result from an action, the reasonable

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75. *See, e.g.*, Coates v. United States, 612 F. Supp. 592, 599 (C.D. Ill. 1985) (holding the federal government liable for failure to give adequate flash flood warning to campers in Rocky Mountain National Park and to develop an adequate emergency management plan); *Barr*, 497 P.2d at 344 (finding the “act of God” defense inapplicable because of the foreseeability of the hazard.).

76. *See, e.g.*, Indian Towing v. United States, 350 U.S. 61, 69 (1955) (stating that once the Coast Guard undertook operation of a lighthouse it “was obligated to use due care”).


person must exercise great care. Custom often drives what is considered reasonable, so evidence of usual or customary conduct has been found to be relevant and admissible. Even so, liability arises only for harms that the reasonable person knew about or could have reasonably foreseen. As noted by the Illinois Supreme Court in Advincula v. United Blood Serv., “evidence that a defendant’s conduct conformed with local usage or general custom indicates due care, but may not be conclusive of it. Such evidence may be overcome by contrary expert testimony . . . that the prevailing professional standard of care, itself, constitutes negligence.”

Courts may apply the emergency doctrine, which provides for a sudden and unexpected situation. When confronted with a sudden peril, the reasonable person is not held to the exercise of the same degree of care as she would be with time for careful reflection. However, public officials may have a ministerial duty when existing danger is known and compelling.

Courts may also consider the status of the injured party and whether a special relationship exists, as between a citizen and her government. For example, some courts have held that a landowner owes reasonable care to invitees, licensees, and trespassers alike. Most jurisdictions require a lesser standard of care as to trespassers. However, where a special relationship creates a higher duty of care, breach of this duty creates liability. For example, the Ninth Circuit found in Kunz v. Utah Power &

79. See Blueflame Gas, Inc. v. Van Hoose, 679 P.2d 579, 587 (Colo. 1984) (noting “that the greater the risk, the greater the amount of care required to avoid injury to others”).
81. See, e.g., Scully v. Middleton, 751 S.W.2d 5, 6 (Ark. 1988).
82. See generally The T.J. Hooper, 60 F.2d 737 (2d Cir. 1932) (finding tug boat companies liable for failing to provide proper weather radios, despite the fact that the tug industry lacked a trade custom of providing such radios).
84. See Regenstreif v. Phelps, 142 S.W.3d 1, 4 (Ky. 2004) (“The common-law doctrine of ‘sudden emergency’ attempts to explain . . . how to judge the allegedly negligent conduct of a person . . . who is suddenly confronted with an emergency situation that allows no time for deliberation.”).
85. Id.
86. See, e.g., Lodl v. Progressive N. Ins. Co., 646 N.W.2d 314, 321 (Wis. 2002) (“There is no immunity against liability associated with . . . known and compelling dangers that give rise to ministerial duties on the part of the public officers or employees.”).
88. See, e.g., Rice v. Sabir, 979 S.W.2d 305, 308 (Tenn. 1998) (finding an owner “has a duty to exercise reasonable care with regard to social guests or business invitees on [her] premises”); Mallet v. Pickens, 522 S.E.2d 436, 446 (W. Va. 1999) (“[A] landowner or possessor need only refrain from willful or wanton injury.”).
that a utility operating a lake breached its duty to provide flood control upon which downstream property owners had come to rely.\(^8^9\)

Lastly, statutes, ordinances, and other regulatory measures often impose particular duties on the governments charged with their execution or implementation.\(^9^0\) Moreover, violation of a regulation creates the presumption of negligence,\(^9^1\) and may also be relevant to arguments of nuisance and trespass.\(^9^2\) For example, the Oklahoma Supreme Court found in *Boyles v. Oklahoma Natural Gas Co.* a negligence per se violation—the harm was the sort the ordinance was intended to prevent and the injured party was among the class of people the ordinance was intended to protect.\(^9^3\) Moreover, although violation of an ordinance creates the presumption of negligence, compliance with that ordinance does not preclude action.\(^9^4\)

Generally, barring some statutorily created requirement, governments have no duty to adopt regulations, and incur no liability for failing to do so.\(^9^5\) However, legislatures in many states have enacted statutes requiring local governments to adopt at least the minimal NFIP standards.\(^9^6\) Thus, where the State Legislature has required local governments to manage floodplain development, failure to do so creates the basis for liability and a finding of negligence.\(^9^7\)

Most courts have found governmental entities to be immune from liability for the issuance or denial of building permits because development

\(^8^9\) Kunz v. Utah Power & Light Co., 526 F.2d 500, 504 (9th Cir. 1975).

\(^9^0\) *See*, e.g., Hundt v. LaCrosse Grain Co., 425 N.E.2d 687, 695 (Ind. Ct. App. 1981) (finding that the plaintiff "was entitled to rely on any applicable regulations").


\(^9^2\) *See*, e.g., Tyler v. Lincoln, 527 S.E.2d 180, 182 (Ga. 2000) (seeking punitive damages and attorney fees under state law in a nuisance and trespass case).

\(^9^3\) *Boyles*, 619 P.2d at 618.

\(^9^4\) *See*, e.g., Corley v. Gene Allen Air Serv., Inc., 425 So.2d 781, 784 (La. Ct. App. 1983);

\(^9^5\) The New York appellate court held that the State of New York was not liable for failing to assure the participation of towns in the NFIP and, similarly, that the town of Jewett was not liable for failing to participate in and meet the minimum standards of the NFIP, which would make federally-backed flood insurance available in the town. *See also* Urban v. Vill. of Inverness, 530 N.E.2d 976 (Ill. App. Ct. 1988) (holding that village did not have an affirmative duty to prevent flooding through the adoption and enforcement of regulations on development). *But cf.* Sabina v. Yavapai County Flood Control Dist., 993 P.2d 1130, 1135 (Ariz. Ct. App. 1999) (flood control district might be liable for failing to regulate floodplain development).

\(^9^6\) County of Ramsey v. Stevens, 283 N.W. 2d 918, 924–25 (Minn. 1979).

review and permit issuance is a discretionary function. Although, this immunity may extend to local government inspections, some courts have found negligence in certain instances.

III. NO ADVERSE IMPACT STRATEGIES FOR PROTECTING THE PROPERTY RIGHTS OF ALL

As of yet there are no adequate engineering plans for the prevention of floods and for the associated utilization of excess water. . . . If the floods have taught us anything, it is the need of something more than a dam here and a storage reservoir there. We must think of drainage areas embracing the whole country.

Editorial, After the Deluge

A. NAI & the Fifth Amendment

The Fifth Amendment to the U.S. Constitution, and similar provisions in state constitutions, prohibits governmental units from taking private property without payment of just compensation. Courts have held that unconstitutional takings may occur in two principal flood hazard contexts.

The first occurs when a governmental unit increases flood or erosion damage on other lands through fills, grading, construction of levees, channelization, or other activities as discussed. The second occurs when the governmental unit adopts regulations that deprive a property owner of all economic value, particularly where the regulation serves no clearly established public purpose. In such situations landowners sometimes claim “inverse condemnation” of their lands. However, very few of these suits

98. See, e.g., Wilcox Assoc. v. Fairbanks North Star Borough, 603 P.2d 903, 905 (Ala. 1979) (“A majority of the federal decisions involving government tort liability for negligence in granting permits and licenses have held the decision to be discretionary functions.”).

99. See, e.g., Radach v. Gunderson, 695 P.2d 128, 130 (Wash. Ct. App. 1985) (holding the city was liable for expense of moving an oceanfront house that failed to meet the zoning setback, but was constructed pursuant to a permit issued by city, which was aware of the violation during construction); State v. Outagamie County Bd. of Adjustment, No. 94-2353, 1995 Wisc. App. LEXIS 258, *6–8 (Wisc. Ct. App. Feb. 28, 1995) (finding a successful suit by the State of Wisconsin, which sued a local board of adjustment for exceeding its authority in issuing a variance that allowed construction of a residence in the floodway).


101. Portions of this section are adapted from Kusler & Thomas, supra note 51.

102. U.S. CONST. amend. V.
have succeeded where communities expressed the public safety benefit of the regulation.

There have been only a handful of successful challenges to floodplain regulations as a taking. Those few cases invariably involved the nearly complete prohibition of building on property having no clearly demonstrated unique or quasi-unique hazard associated with the sites in question. While hundreds of cases have upheld hazard-based regulations, fewer than a dozen appellate cases have found similar regulations to result in an unconstitutional taking of private property. As we shall see, the trend in the courts is to sustain government regulation of hazardous activities for the prevention of harm.

Nevertheless, local governments are often concerned about the possibility of a successful takings challenge to their regulations. These concerns stem from misreading several Supreme Court decisions over the last decade. These decisions, addressing regulations of natural hazard areas, suggest local and state regulations may constitute a taking in certain, very narrow and easily avoidable circumstances. However, all of these decisions expressed overall support of hazard-based regulation.

The U.S. Supreme Court recently issued a ruling in the case of Lingle v. Chevron U.S.A Inc. The Court’s unanimous opinion sets forth four ways to pursue a regulatory taking cause of action:

1. Physical invasion—as in Loretto v. Teleprompter Manhattan CATV Corp. The Loretto case involved a New York City requirement that all residential buildings must permit a cable company to install cables and a cable box the size of a cigarette pack. The Court held that any physical invasion must be considered a taking.

2. The total or near-total regulatory taking—as exemplified by Lucas v. South Carolina Coastal Council. In that case, the plaintiff was prohibited from building on the only vacant lots left on an otherwise fully developed barrier beach just outside Charleston, South Carolina. In 1988, the State enacted the
Beachfront Management Act, which prevented the landowner from building any permanent habitable structures on his two parcels.\textsuperscript{110} The landowner asserted the effect of the Act on the value of the lots constituted a taking under the Fifth and Fourteenth Amendments.\textsuperscript{111}

3. A significant, but not nearly total taking—exemplified in \textit{Penn Central Transportation Co. v. New York City}.\textsuperscript{112} In that case, the Penn Central Company was not permitted to build above Grand Central Station in New York City to the full height permitted by the overlay zoning in the area because of Historic Preservation reasons, but was provided transferable development rights, which therefore left considerable value to the owner in the air rights in dispute. The Court used a three part test: (a) economic impact, (b) regulatory influences on “investment-backed expectations,” and (c) character of the government action.\textsuperscript{113}

4. Land use exactions that are not really related to the articulated government interest—as in \textit{Nollan v. California Coastal Comm'n}.\textsuperscript{114} In that case, the California Coastal Commission conditioned a permit to expand an existing beachfront home provided that the owner grant an public easement to cross his land.\textsuperscript{115} The articulated government interest was that the lateral expansion of the home would reduce the amount of beach and ocean the public on the roadside of the home could see, as well as reduce public access to and along the shorefront.\textsuperscript{116} The Court indicated that preserving public views from the road really did not have an essential nexus with allowing the public to cross a beach.\textsuperscript{117}

In \textit{Lingle}, the Court indicated that it would no longer use the first part of the two-part test for determining a taking set forth in \textit{Agins v. City of Tiburon}: whether the regulation (a) substantially advances a legitimate state

\begin{itemize}
    \item \textsuperscript{110} Id. at 1006.
    \item \textsuperscript{111} Id. at 1009.
    \item \textsuperscript{113} Id. at 124, 125–38.
    \item \textsuperscript{114} Nollan v. Cal. Coastal Comm’n, 483 U.S. 825 (1987).
    \item \textsuperscript{115} Id. at 829.
    \item \textsuperscript{116} Id.
    \item \textsuperscript{117} Id. at 836–37.
\end{itemize}
interest and (b) denies owner an economically viable use of land.\textsuperscript{118} The removal of this “substantially advances a legitimate state interest” prong of a takings test is a boon to floodplain managers and communities working to incorporate NAI principles. In essence, the question of whether an action by a legislative body “substantially advances a legitimate state interest” had provided a mechanism for judicial second-guessing of the relative merits of legislative action. The Supreme Court signaled that it will defer to legislative decisions unless there is no real relationship between what the legislative body desires and the action taken, or there is some other due process or equal protection issue.\textsuperscript{119} This clear statement by the nation’s highest court supports both the principles of the NFIP and NAI-based floodplain and stormwater management. Both the NFIP and NAI seek to require the safe and proper development of land that is subject to a natural hazard. Neither the NFIP nor NAI floodplain and stormwater management require or support government regulations which would oust people from their property. Previously, in \textit{San Antonio River Authority v. Garrett Bros.}, a Texas court expounded on the importance of local police powers:

It is clear that in exercising the police power, the governmental agency is acting as an arbiter of disputes among groups and individuals for the purpose of resolving conflicts among competing interests. This is the role in which government acts when it adopts zoning ordinances, enacts health measures, adopts building codes, abates nuisances, or adopts a host of other regulations. When government, in its roles as neutral arbiter, adopts measures for the protection of the public health, safety, morals or welfare, and such regulations result in economic loss to a citizen, a rule shielding the agency from liability for such loss can be persuasively defended, since the threat of liability in such cases could well have the effect of deterring the adoption of measures necessary for the attainment of proper police power objectives, with the result that only completely safe, and probably ineffective, regulatory measures would be adopted.\textsuperscript{120}

In \textit{Gove v. Zoning Board of Appeals}, the Town of Chatham zoned several areas, including its Special Flood Hazard Areas, in such a way that

\textsuperscript{119} Id. at 547–48.
a variance would be required before building took place.\textsuperscript{121} Gove sold a 1.8-acre parcel of land on the condition that a building permit for a single-family home would be issued.\textsuperscript{122} The Town declined to issue the permit, and Gove sued, alleging a taking.\textsuperscript{123} In this decision, Massachusetts’ highest court emphasized that the Town of Chatham had identified unique hazards on this erosion-prone coastal A-Zone property.\textsuperscript{124} The court found that the plaintiffs had not sufficiently shown that they could construct a home in this area without potentially causing harm to others.\textsuperscript{125} The Town made a good case that this was not just any A-Zone property in a Special Flood Hazard Area.\textsuperscript{126} It is on the coast adjacent to the V-Zone, in an area which has experienced major flooding, and is now exposed to the open ocean waves due to a breach in a barrier beach just opposite the site.\textsuperscript{127} Further, it is subject to accelerated “normal” erosion, and storm related erosion.\textsuperscript{128}

The 1991 storm flooded the area around lot 93 [Gove’s parcel] to a depth of between seven and nine feet above sea level, placing most, if not all, of the parcel underwater. The 1944, 1954, and 1991 storms, while significant, were less severe than the hypothetical “hundred year storm” used for planning purposes, which is projected to flood the area to a depth of ten feet. According to another expert called by Gove . . . , during storms, roads in Little Beach can become so flooded as to be impassable even to emergency vehicles, and access to the area requires “other emergency response methods,” such as “[h]elicopters or boats.” The same expert conceded that, in an “extreme” event, the area could be flooded for four days, and that, in “more severe events” than a hundred year storm, storm surge flooding in Little Beach would exceed ten feet.\textsuperscript{129}

The court upheld the regulations and unequivocally affirmed local interests in preventing harm and protecting the property rights of all.\textsuperscript{130} This

\textsuperscript{121} Gove v. Zoning Bd. of Appeals, 831 N.E.2d 865 (Mass. 2005).
\textsuperscript{122} Id. at 867.
\textsuperscript{123} Id.
\textsuperscript{124} Id. at 871–75.
\textsuperscript{125} Id.
\textsuperscript{126} Id.
\textsuperscript{127} Id.
\textsuperscript{128} Id.
\textsuperscript{129} Id. at 868.
\textsuperscript{130} Id. at 875.
decision by the Massachusetts Supreme Judicial Court validates and supports the NFIP, the concept of No Adverse Impact floodplain, and stormwater management, as well as hazards-based regulation in general. While the decision is binding only on Massachusetts courts, it should have a persuasive effect in other jurisdictions.

In the important case In re Woodford Packers Inc., the Vermont Supreme Court reviewed a challenge to a state regulation that established a methodology—based on fluvial erosion for the designation of floodways—much broader than the FEMA minimum standard. 131 This case is a huge win for sensible NAI-type regulation based on local conditions and applied to all property owners equally based on the application of a standard methodology to an individual property.

Floodplain managers breathed a collective sigh of relief when the New Jersey Supreme Court reversed and remanded a lower court ruling that a denial of a permit for floodway development was a taking in Mansoldo v. State. 132 To date, the authors have been unable to discover any case in this country that reached such a conclusion and involved a floodway. Such a determination could be enormously detrimental to floodplain management and to the fundamental principles of the NFIP.

Courts have upheld, against takings claims, a broad range of regulations designed to stabilize flood risk beyond the minimum standards set forth under the NFIP. For example, in Hansel v. City of Keene the New Hampshire Supreme Court considered whether the city’s “no significant impact” standard intended to prevent development unless it could be demonstrated “that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevations of the base flood at any point within the community.” 133 In upholding the regulation, the court observed that the floodplain ordinance revealed “an understandable concern among city officials that any water surface elevation increase in the floodplain could, at minimum, strain city resources and impose unnecessary hardship on city residents.” 134

This case could be used by floodplain managers when considering whether to issue permits for structures in the floodway, where engineers have submitted “no-rise” certification. Such certification is often done considering only the proposed structure, not appropriately considering “that the cumulative effect of the proposed development, when combined with all

134. Id. at 1354.
other existing and anticipated development, will not increase the water surface elevations of the base flood . . . at any point within the community.”

B. Civil Rights Claims & Section 1983

A 42 U.S.C. § 1983 claim provides a vehicle for seeking redress for an alleged deprivation of a litigant’s federal constitutional and federal statutory rights by an official’s abuse of position. Landowners and developers may use § 1983 to elevate a claim to federal court, requiring local officials to defend their ordinances or permitting decisions in venues often hundreds of miles away.

To establish a prima facie case under § 1983, plaintiffs must successfully allege two elements: (1) the action occurred “under color of state law” and (2) the action is a deprivation of a constitutional right or a federal statutory right.

The first element involves a fact-specific inquiry wherein the court must examine the relationship between the challenged action and the government. When a plaintiff sues a governmental entity, such as a city or county, for a constitutional violation arising from its policy or custom, action under color of law is present because the entity was created by state law. Because a governmental entity generally acts only through its agents or employees, all regulatory actions associated with development review, approval, and enforcement occur under color of law. The second element involves the alleged deprivation of selected

135. 44 C.F.R. § 60.3(c)(10) (2007).
137. Section 1983 reads as follows:
Every person who, under color of any statute, ordinance, regulation, custom, or usage, of any State or Territory . . . subjects, or causes to be subjected, any citizen of the United States or other person within the jurisdiction thereof to the deprivation of any rights, privileges, or immunities secured by the Constitution and laws, shall be liable to the party injured in an action at law, suit in equity, or other proper proceeding for redress . . . .

Id.
139. See Brentwood Acad. v. Tenn. Secondary Sch. Athletic Ass’n, 531 U.S. 288, 295–96 (2001) (“Thus, we say that state action may be found if, though only if, there is such a ‘close nexus between the State and the challenged action’ that seemingly private behavior ‘may be fairly treated as that of the State itself.’ What is fairly attributable is a matter of normative judgment, and the criteria lack rigid simplicity.”) (citation and footnote omitted).
140. See, e.g., Monell v. Dep’t of Soc. Servs., 436 U.S. 658, 690–91 (1978) (“[T]he Civil Rights Act of 1871 compels the conclusion that Congress did intend municipalities and other local government units to be included among those persons to whom § 1983 applies.”).
When a plaintiff asserts the violation of a right specifically enumerated in the Bill of Rights or protected under the Due Process Clause, the violation occurs at the time of the challenged conduct and the § 1983 remedy is available.142 Governments may exercise eminent domain authority in ways that give rise to actions under § 1983. While liberty interests may be derived directly from the Due Process Clause or created by state law, property interests “are created . . . from an independent source such as state law.”143 In *La Raza Unida v. Volpe*, plaintiffs sought to halt the acquisition of land for highway construction that would displace them from their homes.144 Plaintiffs based their claim, in part, on provisions of the Uniform Relocation Assistance and Real Property Act of 1970, which entitled those displaced by federal construction projects to various forms of assistance in relocation.145 The court held that under the Act, state officers were obligated “to determine that, comparable, decent, safe, and sanitary replacement housing will be available for displaced persons prior to displacement,” and their failure to do so was actionable under § 1983.146

Section 1983 operated in the floodplain context in *Wozniak v. County of Du Page*, where county officials denied a permit for proposed development on the grounds that the property was prone to flooding.147 On appeal, the court reversed the zoning board’s decision and granted the property owners’ permit request.148 Subsequently, the property owners alleged in federal court that the county violated their due process rights, not based on mere mistake of floodplain determination, but as part of a conspiracy to preserve their property for a future public roads project.149 The district court concluded that, since it was “conceivable that if the Wozniaks were successful in proving that the flood plain decision was a sham, was in violation of applicable standards and appropriate guidelines, and was made only to improperly preserve the land for another purchaser, their federal claim could proceed to judgment.”150

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145. *Id.*
148. *Id.* at 814 n.1.
149. *Id.* at 814–15.
150. *Id.* at 816.
In another case, A.A. Profiles, Inc. v. City of Fort Lauderdale, the landowner sought “relief under 42 U.S.C. § 1983 for the taking of property without just compensation in violation of the fifth amendment and the deprivation of property without due process in violation of the fourteenth amendment.” The Eleventh Circuit first held that the case was ripe for adjudication under § 1983, because city’s action was final. The court then distinguished between the finality of the administrative action and the exhaustion of administrative remedies. No adequate remedy, administrative or otherwise, was available to appellant. The court also considered that the city had previously approved development of the land, and the owner had expended a great deal of time and money in pursuing the development. The court concluded that the city’s rezoning of his land was an unconstitutional taking.

Municipalities can be held liable under § 1983 for failure to adequately train its officials, employees, and agents. The U.S. Supreme Court reached this conclusion in the 1989 decision Collins v. City of Harker Heights, noting that:

[I]f a city employee violates another’s constitutional rights, the city may be liable if it had a policy or custom of failing to train its employees and that failure to train caused the constitutional violation. In particular, we held that the inadequate training of police officers could be characterized as the cause of the constitutional tort if—and only if—the failure to train amounted to “deliberate indifference” to the rights of persons with whom the police come into contact.

Subsequently, lower courts have considered property interests in the context of § 1983 claims, and reinforced the importance of due process, transparency, notice, and consistency in the application of local standards for communities wishing to avoid civil rights challenges. In Staubes v. City of Folly Beach, the South Carolina Court of Appeals considered whether the city’s denial of permits for reconstruction of a substantially damaged

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152. Id. at 1486–87.
153. Id.
154. Id.
155. Id. at 1488.
156. Id.
structure manifested a taking and whether the city’s action violated the property owner’s procedural due process rights under § 1983. The court held that even though the City had revoked the property owner’s building permit for repairing the damage following Hurricane Hugo, the City “did not deprive owner of all economically viable use” of his land. The court reasoned that the owner may have rented the residential building had he taken steps to comply with applicable building codes. Since the owner could have profited without the permit, the court found that the City had not temporarily taken the property owner’s land.

However, the City did not substantiate revoking Staubes’ building permit with evidence that the estimated cost of repairs exceeded fifty percent of the building’s pre-Hugo market value. As a result, the Court remanded to the trial court for determination as to whether the City’s actions were sufficiently negligent to support Staubes’ claim under the South Carolina Torts Claims Act. Oddly, Staubes’ claims were dismissed in 2001 because he was not able to demonstrate that he owned the property. Even so, Staubes v. City of Folly Beach still provides support for landowner claims of gross negligence where a city fails to support actions with clear, meaningful, and expert evidence where needed.

Floodplain mapping and determination can be controversial subjects of litigation. States, through enabling legislation, often grant discretion to municipal authorities to regulate land use in order to prevent injury to people and damage to property. Since local governments that participate in the NFIP adopt, enforce, and help maintain Flood Insurance Rate Maps (FIRMs), they may regulate flood hazard areas beyond the boundaries shown on an effective FIRM.

Courts have upheld this local practice where it is congruent with enabling statutes and designed to secure safety from hazards like flooding. The District Court for the District of Connecticut affirmed this principle in Ravalese v. Town of East Hartford, when the plaintiff landowner claimed that the town’s use of a more restrictive floodplain map deprived him “of his property without due process of law and without compensation and that the actions of [the town], therefore, constituted violations of the Fifth and

159. Id. at 165.
160. Id. at 165–66.
161. Id. at 168.
162. Id.
164. Staubes I, 500 S.E.2d at 168.
Fourteenth Amendments redressable under 42 U.S.C. § 1983.” The court upheld the town’s authority to regulate from its own maps, rather than those of the state or federal governments, and concluded that the ordinance “simply regulates construction and use so that development in such a zone does not increase the potential for personal and economic harm from a flood.”

More recently, in *Ahern v. Fuss & O’Neill, Inc.*, a developer filed a § 1983 action against a Connecticut town in connection with its adoption of a revised floodplain map that reflected a higher flood elevation for the redevelopment site. “The map revision resulted from the belated discovery of a discrepancy in previously existing documents describing the floodplain,” and required that the developer modify the proposed development in such a way that, in the developer’s view, rendered the site unsuitable. The court concluded that the town’s adoption of the revised map was not its own policy decision; it was an adoption of federal flood elevation levels in accord with the town’s policy of participation in the NFIP.

The Floodplain Administrator for Canadian County, Oklahoma was sued individually and in her official capacity by a plaintiff landowner who claimed violations of the takings clause of the Fifth Amendment, and his right to procedural and substantive due process under the Fourteenth Amendment. The plaintiff claimed a taking of his property due to the county’s action of declaring his land a floodplain. In addition, the plaintiff also brought a state law claim against the county and its officials for inverse condemnation, intentional interference with contractual relations, and civil conspiracy against the officials as individuals. The district court found the claims not ripe for review, since the landowner had not filed a complete permit application and the county had rendered no final decision. The court relied on a Supreme Court case to conclude that “the economic impact of the challenged action and the extent to which it interferes with reasonable investment-backed expectations . . . cannot be evaluated until the administrative agency has arrived at a final, definitive position regarding how it will apply the regulations at issue to the particular

166. Id. at 580.
168. Id. at 1225.
169. Id. at 1231–32.
171. Id. at 6–7.
172. Id. at 9.
land in question.”  

Since the federal takings claim was not ripe, the court considered all of the related constitutional claims to be “coextensive” and also not ripe.

In *York v. Cedartown*, the plaintiffs filed a § 1983 claim that the city’s negligently designed and erected street and drainage system diminished the value of their property and constituted a continuing nuisance. The Fifth Circuit held that the damages may be actionable in tort, but did not suggest the level of abuse of governmental power necessary to elevate the claim to a constitutional civil rights violation.

Courts have consistently found that state compensation procedures may be available and must be exhausted for landowners to pursue their action in federal court. For example, “[i]nverse condemnation actions brought under Fifth Amendment are subject to this ripeness requirement . . . . [i]f and only if a [landowner] is unable to obtain remedy at the administrative and state court level, [landowners] may pursue action in federal court for taking without just compensation.”

However, a Minnesota court held that damages were appropriate where the county’s negligent construction of a public project altered the flow of water causing severe structural damage to a home. “Because appellant’s residence was present prior to the enactment of the [city’s floodplain management] ordinance, it could remain as a nonconforming use, but the ordinance prohibit[ed] reconstruction of a nonconforming use . . . destroyed to an extent of fifty percent or more of its assessed value.” When the city condemned the home on grounds it was a hazardous building under Minnesota law, the plaintiff homeowner vacated and eventually defaulted on his mortgage. The court found that the city exercised its authority under the state’s safe building laws, “but it effectively applied a standard enacted as part of the floodplain ordinance [and] used that standard without

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173. *Id.* at 10 (citing *Williamson County Reg’l Planning Comm’n v. Hamilton Bank of Johnson City*, 473 U.S. 172, 191 (1985)).
174. *Id.* at 13.
176. *Id.* A Georgia court has followed the Fifth Circuit’s ruling in *York*. *Baranan v. Fulton County*, 299 S.E.2d 722 (Ga. 1983).
179. *Id.* at 245.
180. *Id.* at 244.
the determination it would necessarily make if it exercised force openly under the ordinance.\footnote{181}

In addition to due process grounds, the U.S. Constitution provides for claims of violations of equal protection rights, as in \textit{Willowbrook v. Olech}.

\footnote{182} Mrs. Olech’s complaint alleged that the municipality demanded a thirty-three foot easement as a condition of connecting her property to the municipal water line, whereas only a fifteen foot easement was required from other property owners in her subdivision.

\footnote{183} Further, she claimed that the municipality’s demand for additional footage was irrational and wholly arbitrary and that the village ultimately connected her property after receiving a clearly adequate fifteen foot easement.

\footnote{184} On certiorari, the Supreme Court held that Mrs. Olech had successfully stated a cognizable equal protection claim.

In the recent case of \textit{O’Mara v. Town of Wappinger}, property owners and their property management company filed an action against defendant town and asserted a claim for declaratory judgment of ownership free and clear of restriction, a claim under § 1983 for violation of their substantive due process rights, and state law claims for fraud and negligent misrepresentation.

\footnote{186} Prior to closing on a purchase, the property owners had a title search done, but the search made no mention of open space or “no build” restrictions on either parcel.

\footnote{187} It was brought to the Town’s attention by one of the heirs of the original owner of the property that the property was not supposed to be developed, and the town zoning administrator issued a stop work order to the property owners.

\footnote{188} The town offered to grant the property owners a certificate of occupancy upon the contingency that the rest of the two parcels of property would be designated as open space.

\footnote{189} The court found that because the development restriction on the property was not properly recorded, the restriction was not enforceable against bona fide purchasers, such as the property owners.

In \textit{Neifert v. Department of Environment}, plaintiff landowners “sought damages and attorneys’ fees from the Department and, pursuant to 42 U.S.C. § 1983, from the officials responsible for the permit denials

\begin{footnotes}
\footnote{181}{Id. at 247.}
\footnote{182}{Village of Willowbrook v. Olech, 528 U.S. 562 (2000).}
\footnote{183}{Id.}
\footnote{184}{Id.}
\footnote{185}{Id. at 564.}
\footnote{186}{O’Mara v. Town of Wappinger, 485 F.3d 693, 699–700 (2d Cir. 2007).}
\footnote{187}{Id.}
\footnote{188}{Id. at 696.}
\footnote{189}{Id.}
\footnote{190}{Id.}
\end{footnotes}
claiming the denial of equal protection and an unconstitutional taking under both the United States and Maryland Constitutions. The court denied the equal protection and takings claims, noting that:

although the septic denials rendered appellants’ lots undevelopable, the denials did not constitute a taking because they fall within the takings ‘nuisance exception’ recognized by the Supreme Court in Lucas. Nuisances that are recognized at common law and prohibit all economically beneficial use of land do not constitute a taking.  

As the body of property-rights related § 1983 jurisprudence continues to mount, public officials can take comfort in the continued support from the courts for NAI principles.

“Procedural due process imposes constraints on governmental decisions [that] deprive individuals of ‘liberty’ or ‘property’ interests within the meaning of the Due Process Clause of the Fifth and Fourteenth Amendment.” Procedural due process requires that a deprivation of a property interest “‘be preceded by notice and opportunity for hearing appropriate to the nature of the case.’”

Communities working to incorporate NAI principles into their planning and development review processes should assure their citizens’ opportunity to be heard “at a meaningful time and in a meaningful manner.” Changes to development codes, plans, or standards of review benefit from informed public participation and buy-in. Additionally, when proposed development may impact adjacent or downstream neighbors, NAI principles call for their advanced notification and opportunity to voice concerns.

While the primary concern of procedural due process is that government officials provide public notice and opportunity to be heard, substantive due process is concerned with whether the government’s deprivation of life, liberty, or property is justified by a sufficient purpose. “[S]ubstantive due process is a constitutionally imposed limitation . . . [designed] . . . to prevent government from abusing [its] power, or

191. Neifert v. Dep’t of Env’t, 910 A.2d 1100, 1109–10 (Md. 2006).
192. Id. at 1119 (citations omitted).
employing it as an instrument of oppression.”

Violations of substantive due process may take the form of either arbitrary and capricious decisions or of those decisions that fall beyond the standards of decency.

Courts have determined that substantive due process is violated when a government action lacks any reasonable justification or fails to advance a legitimate governmental objective. To withstand a claim that principles of substantive due process have been violated, communities applying NAI principles must ensure that the proposed actions (1) serve a legitimate governmental objective; (2) use means that are reasonably necessary to achieve that objective; and (3) are not unduly oppressive.

C. Katrina-Related Litigation

Poor naked wretches, wheresoe’er you are, That bide the pelting of this pitiless storm,

How shall your houseless heads and unfed sides, Your loop’d and window’d raggedness, defend you

From seasons such as these?

William Shakespeare, KING LEAR, act 3, sc. 4.

“As of May 2007, approximately 250,000 people seeking over $278 billion in Katrina-related damages have had lawsuits filed on their behalf against the U.S. government alone.” Numerous other organizations, corporations, public officials, levee boards, insurance companies, and others are being sued for additional billions of dollars in damages—the list of attorneys involved in some of these cases goes on for pages.

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196. Norton v. Vill. of Corrales, 103 F.3d 928, 932 (quoting Sylvia Dev. Corp. v. Calvert County, 48 F.3d 810, 827–28 (4th Cir. 1995)).


198. Id.

199. Id.


202. See, e.g., In re Katrina Canal Breaches Consol., No. 05-4182, 2008 WL 314396 (E.D. La. Jan. 30, 2008) (dismissing the consolidated claims of approximately 65,000 of the more than 300,000 property owners claiming harms associated with the failures of levees in New Orleans in Hurricane Katrina).
Under the doctrine of sovereign immunity, “the United States may not be sued without its consent.” The Federal Tort Claims Act (FTCA) waives this immunity in certain situations, providing that: “[t]he United States shall be liable, respecting the provisions of this title relating to tort claims, in the same manner and to the same extent as a private individual under like circumstances.” However, section 3 of the Flood Control Act of 1936 (FCA) states that “[n]o liability of any kind shall attach to or rest upon the United States for any damage from or by floods or flood waters at any place.” As such, the United States is normally immune from suit for failed flood control works.

On February 2, 2007, many of the plaintiffs in a massive lawsuit against the U.S. government—In re Katrina Canal Breaches Consol. Litigation—made progress in their claims that the Mississippi River Gulf Outlet (MRGO) “caused the catastrophic damage to the Lower Ninth Ward, New Orleans East, and St. Bernard Parish.” The plaintiffs pointed to at least two defective conditions known by the U.S. Army Corps of Engineers for decades—(1) the destruction of the marshlands surrounding the MRGO which intensified an east-west storm surge which resulted in the flooding of much of New Orleans and (2) the funnel effect stemming from the MRGO’s faulty design which accelerated the force and strength of that surge.

Therefore, the plaintiffs argued that the devastating flooding would not have occurred had the MRGO not been breached. The United States argued that it was immune under the FCA because the water that caused the damage was “flood waters.” The government also asserted immunity under the FCA because “the damages alleged were caused by flood waters that federal works failed to control.” The district court ruled that because the plaintiffs are suing for damages caused by the MRGO—"the decimation of wetlands over a long period of time [that] created the hazard that resulted in flooding [that] . . . could not have been controlled by any flood control

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208. Id. at 2.
209. Id.
210. Id.
project”—"the plaintiffs are not seeking damages for the failure of the levees or flood projects." The court also rejected the government’s claim that the “due care” and “discretionary function” exceptions to the FTCA warrant dismissal at this early stage of the litigation.212

The MRGO canal had previously been the subject of a suit against the United States following Hurricane Betsy in 1965.213 The courts ruled in Graci v. United States that the federal immunity from lawsuits due to “floods or flood waters at any place” referred only to flood control, not navigation projects, and that the MRGO was a navigation project.214 The final court ruling in Graci held that the United States was not immune to suit from damages allegedly caused by the MRGO eight years after Hurricane Betsy.215 It may well take as many or more years of legal wrangling before a final decision is made in In re Katrina.216 Sustaining such a suit against the federal government is extremely difficult.217 However, the difficulty usually faced by a plaintiff in proving a causal link between the harm and the government’s action or inaction could be more easily overcome in the Hurricane Katrina context given pre-existing studies on both the levee and floodwall failures.218

CONCLUSION

Courts recognize the public hazard created by developing floodprone areas, to the occupants, to upstream and downstream owners, and to the public generally, because of increased costs. Where threats to life are involved, the legislature may take the “most conservative course which

211. Id. at 15.
212. Id. at 3.
214. Id. at 20, 23.
215. Id. at 27.
216. In re Katrina Canal Breaches.
217. See Graci, 456 F.2d at 28 (“We call attention to the final paragraphs of the [lower court’s] opinion. There [the court] pointed out that despite [its] refusal to dismiss the action, the plaintiffs bear a heavy burden in proving that the United States was negligent in the construction of the [MRGO] and that such negligence was the cause of their injuries. We go along with this note of caution. In starting the plaintiffs on the journey of proving that the Government’s negligence was the cause of their injuries from a hurricane such as ‘Betsy’, we feel compelled to say that the plaintiffs are a long way from home.”) (citation omitted).
science and engineering offer.” In the Massachusetts case of Turner v. Walpole, the court held that a floodplain zoning district did not result in a taking of property since the evidence established that the land was floodprone and that the plaintiff had not been deprived of all beneficial uses of the land. In 2006, the New Jersey Supreme Court reversed a lower court decision finding that denial of permits for residential construction in a mapped floodway constituted a taking.

Where a landowner argues that regulation to reduce the risk of harm in floods has rendered her property undevelopable or valueless, the court would likely impose on her the burden to show a deprivation of all economically beneficial use. However, the Court in Lucas emphasized that even where regulation deprives land of all economically beneficial use, no compensation may be due if the purpose is to prevent a dangerous use. Moreover, courts frequently find at least some economic value in land preserved as open space, for stormwater detention, as a viewshed amenity to adjacent property owners, or similar uses other than brick and mortar development.

Developers and landowners may attempt to use takings litigation—or the mere threat of litigation—to persuade government officials to relax or abandon land use controls designed to regulate development in a flood hazard area. However, state and local governments are more likely to be successfully sued for engaging in activity or even allowing development that causes or exacerbates damage in future floods than for prohibiting such development. In fact, modern law supports a preventive approach as part

\[219.\] Queenside Hills Realty Co. v. Saxl, 328 U.S. 80, 83 (1946); see also First English Evangelical Lutheran Church v. County of Los Angeles, 258 Cal. Rptr. 893, 906 (1989), reh'g denied and opinion modified, (June 23, 1989) (finding it "entirely reasonable to [temporarily] ban the construction or reconstruction of any structures for" a study "compatible with the preservation of life and health").


\[222.\] See Lucas v. S. C. Coastal Council, 505 U.S. 1003, 1016 (1992) (“As we have said on numerous occasions, the Fifth Amendment is violated when land-use regulation ‘or denies an owner economically viable use of his land.’”).

\[223.\] Id. at 1022.


\[225.\] See, e.g., Bragg v. City of Rutland, 41 A. 578 (Vt. 1898) (holding city was liable for damages resulting from drain obstruction where city was responsible for inspecting the work and
of local “police powers” to protect the health, safety, and welfare of all members of your community. Thus, community leaders working to implement NAI principles can help prevent successful challenges by following the guidance of the courts regarding land use and takings. It is important to clearly relate proposed regulations to the prevention and mitigation of harm.

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226. See, e.g., Turnpike, 284 N.E.2d at 236–37 (holding that a decrease in property value was not sufficient to invalidate floodplain requirement); Fortier v. City of Spearfish, 433 N.W.2d 228, 231 (S.D. 1988) (upholding a floodplain ordinance limiting construction as a reasonable exercise of the local police power).
# Trusting the Public Trust: Application of the Public Trust Doctrine to Groundwater Resources

*Jack Tuholske*

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INTRODUCTION

A recent New York Times story proclaimed Beneath Booming Cities, China’s Future is Drying Up, detailing a profound example of groundwater depletion that threatens to tear the fabric of Chinese society. China’s roiling economic expansion over the past two decades has created water shortages of enormous magnitude. China is trying to alleviate the problem with a sixty-two billion dollar trans-basin water transfer scheme to its booming North Plain—an arid, rapidly developing part of the country that has depleted its groundwater at unprecedented rates to support economic growth. Scientists predict that in the North China Plain, 200 million people will simply run out of groundwater in thirty years.

The situation in China, while extreme, is not unlike groundwater extraction problems in the American Southwest. Like the North China Plain, the Southwest is arid, yet burgeons with recent population growth, and lives beyond its local water availability. The groundwater problem in the Southwest is also attacked with technological fixes. Rather than limit growth, the Southern Nevada Water Authority proposes massive groundwater pumping from hundreds of miles away to fuel its continued boom.

Our groundwater problems are not limited to desert lands in the United States. Florida, one of the wettest states in the nation, has severe local subsidence problems due to groundwater pumping. Groundwater supplies for some metropolitan areas along the East Coast are threatened by saltwater invasion due to both rising seas and sinking water tables. Water bottling companies seek exclusive rights for springs, to the chagrin of local residents. The Ogallala Aquifer in the Great Plains, which supplies 30% of all irrigation water for the nation’s agriculture, has in some areas dropped

2. Id. The rate of growth is difficult to comprehend. The city of Shijiazhuang grew from a few farming villages in 1900, to a city of 335,000 people in 1950, to a metropolitan area today with over nine million residents. Id.
3. Id.
4. Yardley, supra note 1. The Central Arizona Project is another example of fixing groundwater by massive interbasin transfer instead of limiting growth or enacting sustainability legislation. This taxpayer-subsidized project brings Colorado River water some 300 miles to central Arizona. See Central Arizona Project, http://www.cap-az.com (addressing frequently asked questions about the Central Arizona Project).
6. See infra notes 81–93 and accompanying text.
more than 150 feet due to groundwater pumping for irrigation. In Montana, coal seam aquifers that have supplied domestic and stock water for generations may be pumped dry for coal bed methane development. Chicago area aquifers have dropped 900 feet. Serious looming groundwater shortages are predicted in some parts of the Great Lakes. California overdraws its water by one to two million acre-feet per year. Las Vegas refuses to cap population growth and looks to pump groundwater from rural areas; local ranchers vow to fight the water grab. While not as immediately severe as China’s groundwater problems, the United States faces groundwater challenges on many fronts.

We are a nation dependent upon groundwater for both agriculture and domestic water supplies. Groundwater use increased from thirty-eight million acre-feet to ninety-three million acre-feet in just thirty years, from 1950 to 1980. Groundwater accounts for 40% of all water for irrigated agriculture, and provides about 40% of our domestic water needs. While the United States has locally abundant groundwater resources, the most rapidly growing areas, where extraction is greatest, are often the most arid parts of the country, where recharge is slow. For example, the Ogallala Aquifer, our nation’s richest groundwater source, is being depleted at a rate conservatively estimated to exceed ten times the rate of natural recharge. Groundwater mining is a problem that must be confronted sooner rather than later.

Changes in snowfall, snow melt, temperature, and precipitation related to global climate change exacerbate groundwater recharge problems. In just two decades, dramatic changes in hydrological patterns have been documented in the Northeast and Rocky Mountain West. Mountain snow packs are diminished, spring runoff is earlier and quicker, and reservoirs

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8. See infra p. 15.
10. See infra note 45–51 and accompanying text.
12. Id.
designed to capture snow melt do not fill. All of these factors increase pressure for more groundwater extraction. In addition, the rise in sea levels attributed to climate change has already caused saltwater to invade some East Coast aquifers.

Confounding groundwater management are myriad disparate, often outdated laws, relics of nineteenth-century common law doctrines ill-suited for today’s problems. Yet, despite our dependence on groundwater for agriculture and municipal water, we sanction over-drafting of aquifers in many places even while climate change may substantially alter the long-term water balance. Common law groundwater doctrines and state statutory schemes for groundwater often do little to prevent groundwater mining. If we are to maintain our nation’s preeminence in agriculture and ensure quality domestic water supplies where people need them, then a fresh look at how to best approach groundwater conservation is needed.

Part I of this Article begins with an overview of problems stemming from overuse and poor management of groundwater in the United States. These problems are likely to increase over time as our population expands, economic growth continues, and global warming alters the hydrologic cycle. Part II touches upon past and current legal groundwater management regimes. Common law doctrines are rooted in arcane concepts, vary widely across the states, and provide little incentive for sustainable use of groundwater. Statutory overlays have improved groundwater management in recent years, but have not alleviated the pervasive problems.

A new paradigm is needed to avoid the devastating effects of squandering such a precious resource. Part III of this Article suggests that the public trust doctrine offers an appropriate path to long-term protection of groundwater. The public trust doctrine is a widely cited, but often misunderstood mechanism for protecting public resources like water. Though the doctrine has been traditionally applied to the bed and banks of streams, tidelands, and navigable waters, in the last two decades courts have used state constitutions to more broadly apply it to water.

15. SAX, supra note 11, at 11–12.
17. The United States has led the world in many measures of agricultural productivity. Some contend that maintaining or increasing that productivity is now a matter of national security. See, e.g., R. James Woosley, U.S. Agriculture and National Security, in TRENDS IN NEW CROPS AND NEW USES, (J. Janick & A. Whipkey eds., 2002) (advocating an increase of American cellulosic biomass production for use in transportation fuel and chemical production), reprint available at http://www.hort.purdue.edu/newcrop/nccu02/pdf/woolsey.pdf.
The public trust doctrine is not a panacea, but it is well suited to groundwater and need not be constrained by out-dated tests of state ownership of land or navigability of surface water. State implementation of trusteeship principles will inform groundwater management decisions so that preservation of the resource for future generations can be accomplished to counter long-term aquifer depletion. Whether accomplished by common law, statute, or state constitution, the application of public trust principles to groundwater is an idea whose time has come.

I. AN OVERVIEW OF GROUNDWATER PROBLEMS IN THE UNITED STATES

Groundwater is a major source of water for domestic, municipal, and agricultural uses. Twenty-two percent of all freshwater used in the United States comes from groundwater. One half of the country relies upon groundwater for drinking water. Irrigated agriculture in some of the country’s most productive areas—California’s Central Valley, the Great Plains, and the Upper Midwest—rely extensively on groundwater.

Groundwater mining, also known as overdrafting, occurs when groundwater is removed from an aquifer at rates that exceed natural recharge. Nationwide groundwater problems from overdrafting are well documented. An overview of some of our nation’s groundwater hotspots illuminates the failures of the present regulatory system. Over-pumping of groundwater, coupled with increasing demands on the resource, is not a rare or geographically isolated phenomenon. Groundwater depletion is a pervasive, nation-wide problem.

A. Running Low in the High Plains

The Ogallala Aquifer is illustrative of the problem. Stretching from Texas through the entire Great Plains to just below the Canadian border, the Ogallala contains approximately three billion acre-feet of relatively pure groundwater—the nation’s richest source. Extensive pumping, mostly for

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18. Groundwater extraction problems have been studied in great detail. For one of the best and most comprehensive discussions of the problem, see generally ROBERT GLENNON, WATER FOLLIES: GROUNDWATER PUMPING AND THE FATE OF AMERICA’S FRESH WATERS 31 (2002). Parts of this Article draw from Professor Glennon’s work.
19. Id. at 31.
20. Id.
21. Groundwater contamination from pollution is another significant threat to groundwater, but is beyond the scope of this article.
agriculture, has already lowered Ogallala’s water table substantially—in some places by over 150 feet.\textsuperscript{23}

Northwest Texas sits atop the southern end of the Ogallala Aquifer. This rich agricultural area is now threatened by groundwater depletion. According to a study done by the U.S. Department of Agriculture (USDA) and regional state universities, the Ogallala continues to decline despite conservation efforts.\textsuperscript{24} The study projects that in little more than sixty years the saturated thickness of the aquifer will decline by 41%, and annual net returns will decrease by sixty dollars per acre in this agriculturally dependent region.\textsuperscript{25} Irrigated acreage is already declining while policy analysts struggle to save the economy without drying up the aquifer completely.\textsuperscript{26} One study labels the dewatering of the Ogallala as a “one-time experiment, unrepeatable and irreversible.”\textsuperscript{27}

But agriculture is not the only use threatening to dewater the Ogallala. T. Boone Pickens, best known for his successful oil production in Texas, plans to sell up to 200,000 acre-feet of the aquifer each year to one of the state’s major cities for high prices.\textsuperscript{28} How can he do that? Texas is one of the only states that still recognize the rule of capture,\textsuperscript{29} a centuries-old doctrine that allows unrestrained pumping by a surface owner.\textsuperscript{30} The basic idea is “first come, first served”—the person with the deepest well or biggest pump can capture all the groundwater. The State has delegated some responsibility for water allocation to about eighty Underground Water Conservation Districts (UWCDs), many in West Texas, but most have not changed the rule of capture or enforced their own restrictions.\textsuperscript{31} Texas’s groundwater problems, however, extend far beyond the Ogallala.\textsuperscript{32}

\begin{itemize}
\item \textsuperscript{23} ALLEY ET AL., supra note 7.
\item \textsuperscript{24} Kay Ledbetter, Communities, Not Just Crops, Depend on Irrigation, SW. FARM PRESS, June 14, 2006, available at http://southwestfarmpress.com/news/061406-irrigation-communities/.
\item \textsuperscript{26} Ledbetter, supra note 24.
\item \textsuperscript{27} GURU & HORNE, supra note 14, at 6.
\item \textsuperscript{30} The fight in Texas over the southern segment of Edwards Aquifer that serves San Antonio and surrounding areas is another example of unsustainable pumping, in this case primarily by municipal water districts. The trials and tribulations of those seeking to protect this unique aquifer and its resources are recounted in GLENNON, supra note 18, at 87.
\end{itemize}
The Ogallala is decreasing in the west of Kansas as well. In 1948 you could tap the water at 105 feet, but today the water table is down to 175 feet in some places.\textsuperscript{33} Water levels may continue to drop two to three feet a year.\textsuperscript{34} The lowered water table is forcing some farmers to leave. In Wichita County, the number of irrigated acres dropped from 100,000 to 40,000 in the past twenty years.\textsuperscript{35}

Feedlots further compound groundwater depletion. West Kansas is a hot spot for the agricultural industry, including feedstock and meatpacking, which is highly dependent on irrigation.\textsuperscript{36} Agribusiness brought jobs and economic development, which the state relies on for most of its income; but the industry is also the largest stress on the water supply.\textsuperscript{37} Parts of the aquifer will be consumed within an estimated twenty-five years.\textsuperscript{38} If not dealt with soon, the impending shortage will burden agribusiness and limit the potential to maintain economic stability in the region.

\textit{B. A Garden in the Wilderness}

Clark County, Nevada, home to Las Vegas, is one of the nation’s fastest growing counties.\textsuperscript{39} Las Vegas is located in one of the most arid parts of the country. Last year, Nevada issued permits that allocated 102\% of the region’s freshwater yield.\textsuperscript{40} Just in Las Vegas Valley, permits exist for 376\% of available water.\textsuperscript{41}

Las Vegas’s primary water source, the fully-allocated Colorado River, cannot serve its expanding population.\textsuperscript{42} As a supplement, Nevada has to purchase 1.25 million acre-feet of the Colorado River from Arizona.\textsuperscript{43} To

\begin{itemize}
\item[34.] See id. (reporting such drops despite adoption of dryland crops and no-till farming techniques).
\item[35.] Id.
\item[36.] Id.
\item[37.] Id.
\item[41.] Id.
\item[43.] Deacon et al., supra note 40, at 688.
\end{itemize}
meet its long-term water demands, the Southern Nevada Water Authority proposes to pump 200,000 acre-feet per year of groundwater from distant rural counties and pipe it to Las Vegas by withdrawing water from a carbonate aquifer that stretches to Utah and California.44 Some fear the pumping will drain springs and wetlands, rare commodities in the desert.45 Impacts may extend across state lines.46 Ranching communities and others dependent on increasingly scarce water supplies fear the big city water grab as reminiscent of Los Angeles’s depletion of Owens Valley water nearly a century ago.47 Las Vegas predicts that the pumping will not affect surface waters or cause subsidence, but some fear the city is relying on poor science. Land subsidence, higher pumping costs, lowered water table, and decreased interbasin transfer are all assumed costs of the project.48

But problems stemming from municipal depletion of groundwater are not limited to arid regions. Though Florida has more groundwater available for its residents than most states, demand from skyrocketing growth has already stressed aquifers. To supply its burgeoning population, the West Coast Regional Water Supply Authority, serving the Tampa-St. Petersburg area, has increased its groundwater pumping by 400% since 1960, to more than 255 million gallons per day.49 Ninety-five percent of the area’s lakes have been degraded by groundwater pumping, which is expected to double by 2020 in order to meet the region’s ever-growing population.50

44. Id. at 688–89.
45. Id.
46. An investigation by the state of Utah concluded that one small part of the pumping project in the Snake Valley, where 25,000 acre-feet are slated to be shipped to Las Vegas, will extend into Utah with disastrous effects. Stefan Kirby & Hugh Hurlow, Report of Investigation 254 Utah Geological Survey, Hydrogeologic Setting of the Snake Valley Hydrologic Basin, Millard County, Utah, and White Pine and Lincoln Counties, Nevada: Implications for Possible Effects of Proposed Water Wells 1, 32 (2005), available at http://ugs.utah.gov/online/ri/ri-254.pdf. The investigation concluded that “[t]his magnitude of the drawdown would adversely affect both existing and future spring, surface, and groundwater uses in Utah” and further concluded that “[t]he decline in groundwater levels could produce lasting and irreversible effects on both the agriculture and native vegetation of the Snake Valley.” Id.
48. Deacon et al., supra note 40, at 693.
49. Glennon, supra note 18, at 74.
50. Id. at 77.
C. Land Subsidence

Land subsidence is another serious consequence of groundwater mining. The U.S. Geological Survey documents land subsidence problems attributable to groundwater pumping in California, Texas, Florida, Delaware, New Mexico, Arizona, New Jersey, Colorado, Idaho, Georgia, and Virginia.51

In Florida, subsidence from groundwater pumping is well documented. Below Florida’s surface is a hidden world of underwater rivers and caves carved over millions of years from the state’s fragile limestone.52 The unstable limestone sometimes gives way, causing the surrounding land to cave in and creating sinkholes.53 Intense groundwater pumping can trigger such sinkholes and land subsidence by removing water that once supported limestone near the surface.54 The development of one well in central Florida triggered over 100 sinkholes within twenty acres of each other.55 Most instances are less drastic, but even the creation of just one sinkhole can destroy land, homes, and roads with little or no warning.56

In some cases, sinks are only the beginning of the problem.57 Over-pumping groundwater for agriculture, mining, industry, and public projects caused the formation of Dover Sink and over twenty other sinkholes next to the Peace River in southwest Florida.58 Dover Sink alone steals 6.5 million gallons of water a day from the Peace River, leaving the upper riverbed completely dry during the increasingly frequent drought seasons.59 Instead of placing restrictions on local groundwater pumping, regional water managers want to place berms around the sinks to keep the river flowing.60 This strategy has never been successfully implemented anywhere else and,

53. Id.
54. Id.
55. Id.
56. Id.
57. Id.
58. Id.
59. Id.
60. Id.
if approved, is likely to trigger even more sinkholes in the area by making the land less stable.  

Some say Florida’s population growth is inevitable, and the state agency that controls the region’s water supply must meet the demand no matter how high.  

Others contend the agency has authority to limit growth to reflect the availability of water but simply chooses not to.  

Florida residents who experience lowered water tables or subsiding land often find themselves without recourse, despite attempts to communicate with authorities. This has lead to increased litigation, often with frustrating results. Some residents who try to speak out against the harmful impacts of groundwater pumping find themselves defendants in Strategic Litigation Against Public Participation (SLAPP) suits brought by cities and utilities aimed at keeping groundwater issues out of the courts. Others are forced to accept defeat and move to another place.  

D. Natural Resource Extraction

Natural resource extraction can also create serious ramifications for groundwater. The Powder River Basin, home to the nation’s largest coal reserves, is experiencing a new boom: coal bed methane natural gas production. To reach natural gas trapped in coal seams, producers must first dewater a coal seam aquifer by drilling a conventional water well and pumping. The amount of pumped groundwater from coal seam aquifers is staggering. One government projection for the 51,000 new wells in the Wyoming Powder River Basin estimates groundwater extraction, as a waste by-product of coal bed methane production, at one billion gallons of water per day.  

The pumped groundwater is a waste by-product of the process, and is discharged to surface waters or left to evaporate in holding pits. Not only

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61. Id.  
63. Id.  
64. GLENNON, supra note 18, at 74–75.  
65. Id. at 71–86.  
66. Id. at 78.  
67. Id. at 86.  
69. Id. at 10,574.  
70. Id. at 10,575.  
are such practices decried as wasteful, long-term pumping can lower water tables by hundreds of feet. The Bureau of Land Management estimates that water tables will be affected as far as twenty miles from the gas fields, impacting domestic wells and surface springs. Ranchers have sued producers, labeling the extraction and dumping of groundwater as wasteful and unlawful. The Montana Department of Natural Resources and Conservation, the agency responsible for ground and surface water permitting in that state, claims it has no control over the pumping, does not require a water right for the pumping, and does not consider the practice to be a waste of water.

Hard rock mining also causes groundwater problems, particularly in the West. Conventional open-pit gold mining in Nevada requires significant groundwater depletion, sometimes lowering the water table by as much as 1500 feet. The pits must be dewatered, and the water is mostly wasted. At the Cortez gold mine in the Crescent Valley, high quality groundwater pumped from the mine is returned to shallow infiltration trenches. As it percolates down to the water table, it picks up salts from the soil; when it reaches the water table it no longer meets drinking water standards. When mining ceases, the pits can fill with induced groundwater that would otherwise recharge surface water.

Act to force the producer to obtain a National Pollution Discharge Elimination System Permit for particularly saline discharges into surface water used for irrigation).

72. U.S. DEP’T OF THE INTERIOR & STATE OF MONT., FINAL STATEWIDE OIL AND GAS ENVIRONMENTAL IMPACT STATEMENT AND PROPOSED AMENDMENT OF THE POWDER RIVER AND BILLINGS RESOURCE MANAGEMENT PLANS 4–12 (2003). As part of the process, Montana Bureau of Mines and Geology (BOMG) completed a three dimensional groundwater model to examine the magnitude and geographic extent of the drawdown impacts within the boundaries of producing fields and beyond the edge of producing fields. Id. The BOMG’s 3-D Model predicts between 240 to 600 feet of drawdown in the coal seam aquifers within the boundaries of producing fields. The final environmental impact statement (FEIS) predicts drawdowns of up to thirty feet extending an estimated seven miles from the edges of producing fields and drawdowns extending as far as twenty miles from the edges of producing fields. If full development proceeds as completed, there will be numerous producing fields in southeastern Montana. Id.


74. Id. at 6–19.


E. Bottled Water: Groundwater as a Consumer Commodity

Another source of increased demand on groundwater is the bottled water industry. The popularity and profitability of bottled water has created a new growth industry. As states look for new ways to boost their economies, many welcome water bottling industries, like the international giant, Nestlé. The company operates under a number of labels in many states, including Maine, Michigan, Tennessee, California, Florida, and Wisconsin. Bottled spring water fetches premium prices, so Nestlé and other bottlers purchase properties with natural springs.

Wisconsin is one state where bottled water and groundwater clash. The state has codified the reasonable use doctrine, which prohibits withdrawals of groundwater that cause unreasonable harm to others. But the burden is on the adjoining landowners to demonstrate harm, and because “harm” under the state law does not include reductions in adjacent creeks and rivers, it is hard to limit groundwater withdrawals. The law, therefore, allows bottled water companies and other industries to withdraw groundwater regardless of its impact on other water bodies or the public’s interest in preserving groundwater as an integral part of the water system as a whole. Despite the lack of legal protection, public interest groups were able to fight off an attempt by Perrier, one of Nestlé’s bottling companies, to begin extracting groundwater in the state. The company, however, is giving Wisconsin another try, and history would suggest that Nestlé is likely to win in the end.

Michigan residents have been battling another Nestlé subsidiary, Ice Mountain Spring Water, for a number of years. Ice Mountain bottled approximately 226 million gallons of water in 2006 from its plant in Stanwood, Michigan, but the company’s website blames agricultural, production, supranote 18, at 5–6.

77. Id. at 10–11.
79. Id. note 18, at 8.
80. Id. at 10.
81. Id. at 10.
municipal, and other uses for decreasing water levels. Nestlé isn’t the only bottler in the state, either. The high profits earned in the bottled water industry attract new bottling companies, like the one starting up in Evart. Company owner Duane DeWitt plans to call it the Great Lakes Bottled Water Company, and hopes to pump 24,000 gallons of water each day from a source sought after by Ice Mountain. The City Council has welcomed the forty jobs the company would create and may extend a variance so that DeWitt can avoid regulations that would make pumping the water more costly.

F. Saltwater Intrusion: The Sea Cometh

Some coastal areas face yet another serious groundwater issue—saltwater intrusion into groundwater used for domestic purposes in seaside communities. Saltwater intrusion is the movement of saline water into freshwater aquifers, and can be caused by over-pumping groundwater to meet the demand of a growing population. Many communities along the Atlantic, including Chesapeake Bay, Virginia, Long Island, New York, and Beaufort-Hilton Head, South Carolina, have already experienced saltwater intrusion in their aquifers. Groundwater pumping on Nantucket Island is already causing saltwater intrusion that threatens domestic water supplies. Saltwater intrusion is not limited to coastal areas; Alabama reports a lawsuit where saltwater intrusion from groundwater pumping ruined domestic supplies over 100 miles from the coast.

Virginia’s eastern shore illustrates the problem. Its fresh water aquifer floats between the salty Chesapeake Bay, the Atlantic Ocean, and above saltwater located in deeper aquifers. Some say the answer is to simply limit development. In the southern half of Virginia Beach, for example, development is limited to allow aquifers to sufficiently recharge on a

88. Id.
89. USGS REPORT, supra note 16.
91. Martin v. City of Linden, 667 So. 2d 732, 734 (Al. 1995).
93. Id.
regular basis.\textsuperscript{94} Other options such as desalination or treating reclaimed wastewater are very costly. The city recently decided to fund an interbasin water transfer to meet current demand, but the solution is only short-term.\textsuperscript{95}

Hydrologists have known for decades that groundwater is often directly connected to surface water. Pumping can dramatically lower water tables, altering the natural flow of groundwater to surface water (pre-stream capture) and causing some surface flow back into groundwater (induced infiltration).\textsuperscript{96} Groundwater pumping can seriously affect the amount and quality of water that would otherwise remain in rivers, lakes, springs, and wetlands.\textsuperscript{97}

\textbf{G. Reduced Surface Flows}

Groundwater depletion impacts are not just limited to subsurface aquifers. The results of groundwater pumping on surface flows can be catastrophic. The Ipswich River in eastern Massachusetts, a region wetter than Seattle, has been sucked dry due largely to municipal groundwater pumping.\textsuperscript{98} Municipalities obtained groundwater well permits without regard to the destructive impacts on surface flows in the river. As communities expanded their water use, the river, fed by groundwater, lost significant surface flow.\textsuperscript{99} Now the river completely dries up some summers, while locals water lawns with pumped groundwater. Impacts to the river’s ecology have been devastating.\textsuperscript{100}

Atlantic salmon once inhabited nearly all coastal rivers between New York and Canada. Today, their numbers have declined dramatically to the point of near extinction.\textsuperscript{101} Despite intense political opposition, Atlantic salmon were listed as an endangered species.\textsuperscript{102} Affected states, such as Maine, along with the U.S. Fish and Wildlife Service, must develop

\textsuperscript{95} Id.
\textsuperscript{96} ALLEY ET AL., \textit{supra} note 7, at 62; Sewall, \textit{supra} note 76.
\textsuperscript{97} Id.
\textsuperscript{98} GLENNON, \textit{supra} note 18, at 103.
\textsuperscript{99} Id. at 104.
\textsuperscript{100} Id. at 102–03.
recovery plans. But Maine farmers are diverting river water to grow the state’s famous blueberries. This fruit, because it is high in antioxidants, has become increasingly popular in recent years. Maine must find a way to leave enough water in its rivers for the salmon to thrive, but hopes to do so without sacrificing its blueberry industry. Naturally, the state is turning to groundwater. The problem is that much of the groundwater in Maine is hydrologically connected to the same rivers on which salmon rely on.

Although Maine does recognize the relationship between groundwater and surface water, its groundwater laws are still antiquated. In order for groundwater to provide a workable solution and to avoid draining the rivers and other critical areas such as the coastal wetlands, wells would have to be carefully located and monitored, and users would have to follow a strict pumping schedule.

H. Groundwater Depletion: A Pervasive Nationwide Problem

The problems discussed in the preceding sections are not the only examples of groundwater over-allocation in the United States. In Idaho, groundwater pumping for agriculture has lowered water levels and spring discharge rates from the Snake River Aquifer since 1950. Groundwater

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103. GLENNON, supra note 18, at 134–35.
104. Id. at 129–32.
105. Id. at 132.
106. Id. at 135.
107. Id. at 138.
108. See, e.g., ME. REV. STAT. ANN. 38, § 470-A(2) (2001). As recently as 1999, however, Maine’s Supreme Court “declined to abandon” the rule of absolute dominion. Maddocks v. Giles, 728 A.2d 150, 153 (Me. 1999).
110. The USGS has catalogued a number of other parts of the country with groundwater problems. See U.S. GEOLOGICAL SURVEY, FS-103-03, GROUND-WATER DEPLETION ACROSS THE NATION (2003), http://pubs.usgs.gov/fs/fs-103-03/; BartolinoFS(2.13.04).pdf [hereinafter USGS DEPLETION] (discussing the negative effects of groundwater pumping in both arid and non-arid regions). The article cites groundwater declines of approximately 200 feet and saltwater intrusion in Baton Rouge, Louisiana; groundwater declines of 400 feet and land subsidence of up to ten feet resulting in increased susceptibility to flooding in Houston, Texas; water level declines of up to seventy feet in Memphis and Arkansas; declines of over 100 feet in Washington and Oregon from irrigation, industrial use, and public supply; decreased water levels in Idaho’s Snake River Plain Aquifer from production for agriculture; groundwater declines of 300 to 500 feet, up to 12.5 feet of land subsidence, and decreased streamside vegetation in Arizona near Tucson and Phoenix; groundwater declines of 300 feet, dried up springs, and up to six feet of subsidence around Las Vegas, Nevada; over 300 feet of groundwater decline and six feet of land subsidence causing damage to roads and buildings in southern California.
111. Id.
springs feed much of Snake River, and are relied on heavily by irrigators. The decline of groundwater storage between 1975 and 1995 averages about 350,000 acre-feet per year. Groundwater from the Sandstone Aquifer is the main source of drinking water for the Chicago-Milwaukee region. Groundwater pumping since 1864 has lowered the water table in that region by as much as 900 feet. Recent restrictions on groundwater pumping have helped some areas recover, but not others. Furthermore, contamination by agricultural chemicals has degraded the quality of some of the shallower aquifers.

The groundwater problems depicted above have arisen despite the fact that all states have some regulatory framework for groundwater and despite our increased understanding of groundwater hydrogeology. Demands on our nation’s groundwater will continue to grow as population grows and shifts to arid regions. Aquifer recharge can take decades, centuries, or millennium, as in some parts of the Ogallala. Global warming will alter precipitation and runoff patterns, which affect groundwater recharge and availability of surface water. It is time for a fresh approach to groundwater management.

II. A BRIEF OVERVIEW OF GROUNDWATER LAW

The authors of a popular water resources textbook opine that the common law of groundwater is designed “seemingly to confuse law students.” The confusion extends beyond law students to embrace courts, legislatures, and attorneys who grapple with the subject. Though groundwater aquifers know no political bounds and are often interconnected to surface waters, groundwater law traditionally was adopted on a state-by-state basis separate from laws governing surface water. States recognize five common law groundwater doctrines, further

112. Id.
114. USGS DEPLETION, supra note 110.
115. Id.
117. SAX, supra note 11, at 411.
complicating groundwater law. Even within these doctrines, distinctions are made between “percolating” groundwater and underground streams. Modern groundwater law in most states contains a statutory overlay that alters or abolishes some or all of the state’s common law principles. Many states also apply different rules to different geographic areas, leaving some aquifers highly regulated and others devoid of regulation.

\[ A. \text{ Common Law Applied to Groundwater} \]

1. Absolute Dominion

The original common law doctrine—absolute dominion rule or rule of capture—stemmed from a worldview where groundwater was a mysterious resource, hidden from view, subject to unknown forces beyond human control. The absolute dominion rule permits the overlying landowner to take as much groundwater as the landowner desires, without limitation or liability to adjoining landowners. While the doctrine may have made sense in the nineteenth century—when wells were dug by hand, electric pumps were non-existent, and concepts like aquifer recharge and surface-groundwater interconnectivity were poorly understood—it is hard to justify in the twenty-first century. Amazingly, the absolute dominion rule persists.

119. See, e.g., Maddocks v. Giles, 728 A.2d 150, 152 (Me. 1999) (“Most underground water gradually percolates through the various strata and is not flowing in a watercourse.”).

120. For example, because the State allows discretion in regional regulation, the California Central Valley has little regulation but the South Coast is heavily managed. See CAL. WATER CODE § 10750.4 (2007) (stating that local agencies are not required to adopt or implement groundwater management plans). See generally Barbara T. Andrews & Sally K. Fairfax, Groundwater and Intergovernmental Relations in the Southern San Joaquin Valley of California: What Are All These Cooks Doing to the Broth?, 55 U. COLO. L. REV. 145 (1984) (discussing the development of local groundwater programs outside the southern San Joaquin Valley). States with controlled groundwater areas (CGAs) may also experience different forms and degrees of regulation throughout the state. See TEX. SPEC. DISTS. CODE ANN. § 8801 (Vernon 2005) (establishing a CGA for “the Harris-Galveston Subsidence District” in order “to provide for the regulation of groundwater withdrawal in the district to end subsidence, which contributes to or precipitates flooding or overflow of the district, including rising water resulting from a storm or hurricane”); MONT. CODE ANN. § 85-2-506 (2007) (allowing Montana to establish controlled groundwater areas where withdrawals exceed recharge); NEB. REV. STAT. § 46-725 (2007) (listing factors for the Director to consider when “determining whether to designate or modify the boundaries of a management area or to require a district which has established a management area, a purpose of which is protection of water quality, to adopt an action plan for the affected area”).

121. The oft-cited case of Acton v. Blundell explained that groundwater flowed in “hidden veins of the earth beneath its surface: no man can tell what changes these underground sources have undergone in the progress of time.” Acton v. Blundell, 152 Eng. Re. 1223, 1233 (Ex. Ch. 1843).
Five states recognize the absolute dominion rule in some form.\textsuperscript{122} Both Maine and Texas reaffirmed it in 1999. Maine refused to find any liability against a gravel pit owner who drained an underground spring in the course of his operations, to the detriment of the adjoining landowners.\textsuperscript{123} The Maine court focused on the arcane distinction between an underground water course (a stream with bed and banks that flows beneath the ground) and percolating ground water (all other water beneath the ground) and upheld its decades-old legal tradition of absolute dominion.\textsuperscript{124} While noting that the doctrine is founded upon discredited myths about groundwater, and that “several courts have given modern science as a basis for abandoning the old rule,” the Maine court declined to abandon it.\textsuperscript{125} Ignoring the fact that plaintiffs lost a long-flowing underground water source, the court faulted them for failing to show that “the absolute dominion rule has not functioned well in Maine.”\textsuperscript{126} In clinging to settled law, and ignoring the fact that the rule did not work in this case, the court imposed an unreasonably high burden by requiring the plaintiffs to prove the rule did not work across the entire state.\textsuperscript{127} Settled expectations, for this court, required the legislature to change the law.\textsuperscript{128}

In the landmark decision \textit{Sipriano v. Great Spring Waters of America, Inc.}, Texas affirmed the absolute dominion rule on nearly identical grounds, discussing both the mysterious nature of groundwater that gave rise to the doctrine and its citizens’ expectation that the doctrine would not be changed.\textsuperscript{129} The Texas court, perhaps buttressed by the phalanx of industry-related amicus briefs urging affirmation of the rule of capture, paid homage to what it viewed as the economic necessity of maintaining the rule.\textsuperscript{130}

\begin{footnotesize}
\begin{enumerate}
\item[123.] \textit{Maddocks}, 728 A.2d at 152.
\item[124.] \textit{Id.} at 153–54.
\item[125.] \textit{Id.} at 153.
\item[126.] \textit{Id.} at 154.
\item[127.] \textit{See id.} ("The Maddocks did not present evidence or point to any studies that the absolute dominion rule has not functioned well in Maine.").
\item[128.] \textit{Id.}
\item[129.] \textit{Sipriano v. Great Spring Waters of America, Inc.}, 1 S.W.3d 75, 76–77 (Tex. 1999).
\item[130.] \textit{Id.} at 80 n.41. \textit{Amici} urging affirmance of the rule of capture included the City of Houston, Texas Council of Forest Products Manufacturers, Texas Water Conservation Association, Texas Groundwater Association, Texas Alliance of Groundwater Districts, Edwards Aquifer Authority, High Plains Underground Water Conservation District, North Plains Groundwater Conservation District, Panhandle Groundwater Conservation District, Sandy Land Underground Water Conservation District, Mesa Underground Water Conservation District, South Plains Underground Water Conservation District, North Plains Ground Water Conservation District No. 2, American Land Foundation, Riverside and Landowners Protection Coalition, Texas Justice Foundation, Texas and Southwestern Cattle Raisers Association, Texas Cattle Feeders Association, Texas Association of Nurserymen, Inc., and Texas Farm
\end{enumerate}
\end{footnotesize}
Texas, like Maine, reiterated the century-old description of groundwater as “so secret, occult, and concealed that an attempt to administer any set of legal rules in respect to [it] would be involved in hopeless uncertainty, and would, therefore, be practically impossible.”\textsuperscript{131} In deference to more modern views of groundwater, the Texas court did note that groundwater could be protected by new provisions in the Texas Water Code.\textsuperscript{132} Texas’s unyielding adherence to the absolute dominion rule was reaffirmed in subsequent decisions, even after the “protective” provisions discussed in \textit{Sipriano} were implemented.\textsuperscript{133} Texas’s refusal to abandon the absolute dominion rule caused one commentator to opine that “[i]nstead of dealing rationally with the concerns posed the state’s attempt to effectively deal with the growing groundwater crisis, the absolute dominion rule seemed to trump any meaningful regulation, and the buyers appeared positioned to drain the aquifer dry.”\textsuperscript{134}

2. Reasonable Use

While the absolute dominion rule is decidedly in the minority, the more widely used reasonable use rule also does little to foster groundwater conservation. The reasonable use rule, often confused or intermingled with the correlative rights doctrine discussed below, initially represented advancement from the absolute dominion rule. Reasonable use for groundwater, similar to reasonable riparian use, requires balancing competing uses from the same aquifer. Unlimited withdrawals, even to the detriment of another groundwater user, may still be reasonable. However, courts may restrict uses for causing unreasonable harm to other users within an aquifer, something never permitted under the absolute dominion rule.\textsuperscript{135}

New Hampshire was the first state to abandon absolute dominion by adopting the reasonable use rule in 1842.\textsuperscript{136} The reasonable use rule for groundwater, similar to its riparian counterpart, required competing uses from the same aquifer to refrain from causing other users unreasonable

\textsuperscript{132} Dellapenna, supra note 122, § 20.07(a)(2)(b), at 20-69. This treatise devotes considerable attention to Texas’ approach to groundwater management.
\textsuperscript{133} Martin v. City of Linden, 667 So. 2d 732, 736 (Al. 1995).
\textsuperscript{134} Bassett v. Salisbury Manufacturing, 28 N.H. 438, 441 (Sup. Ct. 1854).
harm, with no party having an absolute right to consume the aquifer.\textsuperscript{137} Adjudication under reasonable use is fact-specific; courts make the determination of reasonableness on a case-by-case basis. Though New Hampshire stood alone for decades, the doctrine eventually gained wide acceptance in the United States, becoming known as the “American Rule.”\textsuperscript{138}

Because it theoretically limits wasteful pumping and requires reasonable use of the resource, the reasonable use rule is an improvement from the free-wheeling rule of absolute dominion.\textsuperscript{139} Yet it still fosters groundwater extraction with little restraint, particularly for surface owners using the water on the property where pumping occurs.\textsuperscript{140} Moreover, the reasonable use rule creates a high degree of uncertainty. Case-by-case adjudication provides little protection to senior users, and fails to provide guidance for future users.

Professor Dellapenna explains that abandonment of common law reasonable use for riparian rights has often been followed by abandonment of reasonable use in groundwater.\textsuperscript{141} Most riparian states adopted a regulated riparian water rights approach in the last half of the twentieth century. These regulated systems formed the basis for the Regulated Riparian Model Water Code.\textsuperscript{142} Many states abandoning a common law reasonable use doctrine and adopting a regulated riparian approach for surface waters have also altered the reasonable use doctrine for groundwater.\textsuperscript{143} The application of a regulated riparian approach to groundwater varies widely among riparian states.\textsuperscript{144}

\textsuperscript{137} Id.
\textsuperscript{138} Dellapenna, supra note 122, § 22.03, at 22-12. Professor Dellapenna, who authored the groundwater provision in this treatise, notes that by 1934, the reasonable use rule “was in fact the normal law of choice regarding groundwater—a rather remarkable transformation of the understanding of the law in less than 20 years.” Id.
\textsuperscript{139} Id. § 21.03, at 21-9. Professor Dellapenna provides a detailed review of the contorted means by which California moved from absolute dominion to a reasonable use rule, then adopted correlative rights because the theories underlying reasonable use were not amenable to California’s arid climate. Id. § 21.03(a).
\textsuperscript{140} See Bristor v. Cheatham, 255 P.2d 173, 180 (Ariz. 1953) (“This rule does not prevent the extraction of ground water subjacent to the soil so long as it is taken in connection with a beneficial enjoyment of the land from which it is taken.”).
\textsuperscript{141} Dellapenna, supra note 122, § 23.01, at 23-1.
\textsuperscript{142} Id. § 23.02, 23-6 to 23-7.
\textsuperscript{143} Id. at 23-7. According to Professor Dellapenna, “[m]ost of the regulated riparian states apply the same legal regime to groundwater that they have to surface water.” Id.
\textsuperscript{144} Id.
3. Correlative Rights

California added its own common law rule, repudiating absolute dominion as unsuited for its arid climate and adopting the correlative rights doctrine for groundwater. Correlative rights avoid the harsh results under absolute dominion or reasonable use by allowing more equitable apportionment from an aquifer. All users overlying an aquifer are entitled to groundwater based upon their surface ownership interests regardless of priority of use by empowering courts to halt uses that are detrimental to the common use of the water, it is hardly a conservation-based doctrine. Surface owners are free to use all of an aquifer, as long as they do not damage another in the process.

4. Prior Appropriation

The fourth common law doctrine that applies to groundwater is prior appropriation. The mantra of “first in time, first in right” was easily applied to western groundwater law in the twentieth century, as it had been to surface waters in the nineteenth century. Under the doctrine of prior appropriation, groundwater rights are obtained by putting the water to beneficial use. New users cannot interfere with existing senior rights. Surface and groundwater rights were largely the same for states adopting prior appropriation for groundwater, even though the systems are administered separately.

Application of pure prior appropriation doctrine to groundwater presents problems distinct from application to surface water. “First in time, first in right” is relatively easy to administer for surface flows; unappropriated water is visible and available for others to take. Unlike surface water, groundwater may be non-renewable, making senior rights meaningless over time. In a seminal New Mexico Supreme Court decision, the court allowed the state engineer to issue a new groundwater permit to an

146. Id.
147. Id.
148. See, e.g., Hinton v. Little, 296 P. 582, 584 (Idaho 1931) (affirming injunction restraining defendants from interference with prior appropriation).
149. City of Albuquerque v. Reynolds, 379 P.2d 73, 79 (N.M. 1962) (“[T]he substantive rights [for ground and surface waters] when obtained, are identical.”).
industrial use that would contribute to aquifer depletion. The state engineer decided that it was acceptable under the prior appropriation doctrine to permit new beneficial uses even if the aquifer would be mined out in forty years.

More importantly, surface–groundwater interaction can lead to groundwater withdrawals that affect surface water rights, creating problems for appropriators of both sources. Some states have been exceptionally slow to recognize surface–groundwater relationships. As recently as 2005, Montana, for example, was willing to permit groundwater extraction in basins that were legislatively closed to new surface appropriations because of over-appropriated streams awaiting adjudication. The Department of Natural Resources and Conservation (DNRC) was willing to permit groundwater pumping, even though a party could show that the pumping could diminish surface flows. The Montana Supreme Court found this practice at odds with the basin-closure law. The willingness of Montana’s DNRC to permit groundwater extraction that harmed surface flows shows that some agencies still cling to outmoded views of groundwater–surface water interactions.

5. Reliance on Tort Law

Finally, a few states have looked to the Restatement (Second) of Torts as a framework for regulation of groundwater. The Restatement is not a water law doctrine, but rather defines the bounds of liability for withdrawing groundwater to the detriment of others. The Restatement has been interpreted to provide a property right in groundwater underneath

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151. Id. at 777.
152. Id.
154. Id. at 227.
155. Id. at 232.
156. Id. In Trout Unlimited, DNRC ignored the analysis of its own hydrogeologist, who explained that groundwater withdrawal affects surface streams by both pre-stream capture and induced infiltration. Id. DNRC refused to concede that pre-stream capture, which can lessen stream flows long after pumping ceases by capturing groundwater that otherwise would contribute to a stream’s baseflow, should be considered in addressing new groundwater pumping applications in basins that are closed to new surface appropriations. Id.
157. Dellapenna, supra note 122, § 19.05(b)(2), at 19-47. Since its approval in 1977, Ohio, Michigan, and Wisconsin have “expressly followed” the Restatement. Id. Recently, Nebraska adopted the Restatement as the “proper rule for deciding disputes involving the use of groundwater, including claims of interference with the use of surface waters.” Id. at 19-37.
one’s property and to limit off-tract municipal uses that harm domestic wells.159

None of these common law doctrines provide for long-term protection of groundwater resources. By design they accommodate as much use as the supply can provide. Groundwater overdraft issues in places where extraction is regulated by common law doctrines have been prevalent for decades. Common law doctrines governing groundwater use, as with surface water, provide poor means for resolving disputes or promoting efficient economic growth. And they do nothing to conserve an increasingly scarce and contentious resource.

B. Statutory Overlays

As with surface water, states have enacted myriad statutory schemes governing groundwater. Today every state has some type of regulatory overlay applicable to groundwater.160 While a comprehensive review of these statutory schemes is beyond the scope of this Article, these statutes fail to protect excessive groundwater use in many parts of the country. Some common problems emerge.

Many states permit adoption of groundwater control or management areas, where special protective rules to conserve groundwater are applied over a limited geographic area.161 Establishing local protective groundwater regulations can prevent groundwater overdrafts.162 Groundwater protection areas do not necessarily prevent groundwater mining. Creation of such areas may be at the discretion of state water management agency. States with serious groundwater problems have not always embraced such designations.163 Some states allow citizen-created groundwater protection

160. Dellapenna, supra note 122, § 23.02(a), at 23-8.
161. See, e.g., MONT. CODE ANN. § 85-2-506 (2007) (allowing Montana to establish controlled groundwater areas where withdrawals exceed recharge); OR. REV. STAT. § 537.730(1)(e) (1991) (allowing Oregon to establish critical groundwater areas if available supply is “being, or about to be overdrawn”).
162. See, e.g., Bamford v. Upper Republican Natural Res. Dist., 512 N.W.2d 642, 651–52 (Neb. 1994) (holding constitutional the state statute allowing cease and desist orders with respect to groundwater usage).
163. Bruce E. Toppin, III, Comment, The Path of Least Resistance: The Effects of Groundwater Law’s Failure to Evolve with Changing Times, 38 ST. MARY’S L.J. 503, 506–07 (2007). This comment addresses the Sipriano decision discussed above and criticizes the Texas Supreme Court’s affirmation of the absolute dominion rule for groundwater. One of the court’s bases for upholding absolute dominion was the Texas statute that allows the creation of local groundwater areas to protect aquifers. The author concludes that these areas are underutilized and do not justify allowing the problems posed by unfettered groundwater extraction in an arid climate. “Undoubtedly decentralized regulation addresses local concerns over groundwater supplies, but this method leaves many critical statewide issues
areas through a petitioning process, but the process can be expensive and the petition may be denied. At best, local groundwater control districts address problems on a local scale.

Some state regulatory schemes are directed primarily at regulating well drilling. Regulation of well drilling does not necessarily equate with imposition of limits on groundwater withdrawals. Some state regulatory schemes provide exemptions from regulations for withdrawals that are considered de minimis. Montana, for example, exempts all groundwater wells that produce less than thirty-five gallons per minute and ten acre-feet per year. Such wells are exempt from permitting requirements and notice to prior appropriators. While the intent may be to exempt rural homeowners from permitting requirements for domestic wells, the exemption is easily abused by real estate developers seeking to avoid the permitting requirements of a centralized water system. Other states also exempt smaller wells from regulatory requirements.

Groundwater regulation has not universally embraced the scientific realities of groundwater and surface water interconnectivity. Many states do not have integrated permitting requirements, or use limited definitions of groundwater and surface water interactions to avoid addressing problems caused by groundwater pumpers on surface flows. The Regulated Riparian Model Water Code, where adopted, provides for integrated consideration of ground and surface water impacts. It has been embraced by only thirteen states, and even those states generally fail to coordinate ground and surface water uses. The failure of states to regulate ground and surface water as a unified resource magnifies shortcomings in both surface and groundwater

unaddressed.” Id. at 507. Moreover, the groundwater designations are subject to existing water rights. TEX. WATER CODE ANN. § 36.002 (Vernon 1995).


165. Dellapenna, supra note 122, § 23.02(a), at 23-8.


167. A 2002 decision of the Washington Supreme Court invalidated real estate developers’ attempt to circumvent groundwater permitting requirements by having each lot in a new subdivision receive an exempt well permit. State Dep’t of Ecology v. Campbell & Gwinn, LLC, 43 P.3d 4, 4 (Wash. 2002). Washington exempts wells from the prior appropriations permitting system for beneficial uses under 5000 gallons per day. Id. The Washington Court refused to allow the exemption to be used for individual lots for the whole subdivision, because such a result was contrary to legislative intent and was poor policy in a water-scarce region. Id. at 9–16.


169. Dellapenna, supra note 122, § 23.02, at 23-6 to 23-7.

170. Id. § 23.02(b), at 23-12.
law. Groundwater is, after all, the source of almost 40% of the stream flow in the United States.\textsuperscript{171}

Statutory regulation can still lead to the same case-by-case approach used under common law remedies. The Florida Supreme Court interpreted its groundwater statute as not allowing the State to evaluate more than one permit at a time.\textsuperscript{172} Accordingly, the Water Board considers only whether a permit applicant’s beneficial use interferes with a previously existing use, without regard to the benefit of the prior use or broader implications for the public interest in the future of the resource.\textsuperscript{173} The Florida court also refused to balance these interests, and remained highly deferential to the Water Board’s decisions.\textsuperscript{174}

Professor Dellapenna summarizes the status of groundwater regulation by state governments: “a highly fragmentary, piecemeal manner, ignoring the interconnections between groundwater and other water moving through the hydrologic cycle.”\textsuperscript{175} Another well-known water resources textbook notes that “[m]any state laws do not even discern whether groundwater sources are essentially renewable or non-renewable, let alone determine a safe yield that has both scientific validity and economic rationality.”\textsuperscript{176}

With the synergistic impacts of continued population growth, economic expansion, and climate change overlying the fragmented, ad hoc, and out-dated legal framework described above, it is not surprising that many regions of the country face groundwater crises. The fact that vast areas of our country face serious groundwater depletion demonstrates that even the best-intended legislative reforms of antiquated common law doctrines are inadequate to address long-term groundwater concerns.

\textsuperscript{172} Harloff v. Sarasota, 575 So. 2d 1324, 1328 (Fla. 2d Dist. Ct. App. 1991).
\textsuperscript{173} \textit{Id.}
\textsuperscript{174} \textit{Id.} at 1327–28.
\textsuperscript{175} Dellapenna, \textit{supra} note 122, § 19.05, at 19-28.
\textsuperscript{176} A. DAN TARLOCK ET AL., WATER RESOURCE MANAGEMENT 533 (5th ed. 2002).
III. THE PUBLIC TRUST AND GROUNDWATER

A. Brief Historical Overview of the Public Trust Doctrine

The public trust doctrine is often traced back to sixth-century Roman civil law in the declaration of the Justinian Institute:

By the law of nature these things are common to all mankind—the air, running water, the sea, and consequently the shores of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects
habitaciones, monuments, and buildings, which are not, like the sea, subject only to the law of nations... All rivers and ports are public; hence the right of fishing in a port, or in rivers, is common to all men... The public use of the seashore, too, is part of the law of nations, as is that of the sea itself.\textsuperscript{177}

American courts have recognized this iteration of the doctrine as an origin of the U.S. doctrine;\textsuperscript{178} Early American jurisprudence adopted England’s version, which holds navigable waters in trust for the public in order to protect navigability and promote commerce.\textsuperscript{179} Though state courts argued a number of public trust doctrine cases in the early 1800s, the most important nineteenth-century acknowledgment of the public trust doctrine occurred in the landmark U.S. Supreme Court case \textit{Illinois Central Railroad Co. v. Illinois} in 1892.\textsuperscript{180} The Court recognized the public trust doctrine as a well-known common law rule, and \textit{Illinois Central} remains good law today.\textsuperscript{181}

\textsuperscript{177} J. Inst. 2.1.1.
\textsuperscript{179} Arnold v. Mundy, 6 N.J.L. 1, 53 (1821). Arnold v. Mundy was the first public trust case in the United States, decided by a New Jersey court in 1821. The court ruled that the public has a right to collect oysters up to the high water mark of the shorelines. Therefore, a property owner could exclude the public from privately owned shorelines influenced by the ebb and flow of the tide, but only above the high water mark. \textit{Id.} at 8. The court distinguished waters influenced by the tide from freshwater rivers or streams that were not. \textit{Id.} A Massachusetts court made a similar ruling shortly thereafter in \textit{Commonwealth v. Alger}, 61 Mass. 53 (1851). Like the New Jersey case, this court restricted its decision to saltwater bodies, and those affected by the ebb and flow of the tide. \textit{Id.} at 65.
\textsuperscript{180} Illinois Cent. R.R. Co. v. Illinois, 146 U.S. 387, 436 (1892).
\textsuperscript{181} \textit{Id.} at 436.
Illinois Central established two important principles. First, the public trust doctrine extends beyond tidal waters to include navigable freshwater bodies such as lakes, streams, and ponds that are not affected by the ebb and flow of the tide. The Court effectively abandoned the traditional English version of the doctrine, which only recognized a public trust in tidal waters. Second, although a State may convey the shores and beds of navigable waters to private parties, such conveyances are limited by the public trust in common resources. The private use must benefit the public’s interest in navigation, swimming, fishing, or other use of the waterway. This second principle—that governments as trustees must act in a fiduciary capacity to protect trust resources—has enduring value in applying the doctrine to other resources.

As public trust cases continued to appear in state and federal courts into the twentieth century, courts tied the doctrine to State ownership of the beds and banks of navigable waters, seashores, and tidelands. Though states traditionally have this ownership interest, they also have a sovereign duty to protect such property for the benefit of citizens. The courts’ focus on the

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182. Id. at 436–37. Before this case, there was some confusion among states as to whether the term “navigable” in English cases referred to waters that are navigable-in-fact, or only waters affected by the ebb and flow of the tide. See Jan S. Stevens, The Public Trust: A Sovereign’s Ancient Prerogative Becomes the People’s Environmental Right, 14 U.C. Davis L. Rev. 195, 201 (1980).

The neat conjunction of navigability and the public trust at common law drew early courts into an oft-repeated and now discarded shibboleth that navigable waters were only those waters ‘in which the tide ebbed and flowed.’ It was widely assumed, based on statements by Lord Hale and several English decisions, that only tidal waters were subject to the King’s ownership. This assumption, although it was initially adopted in a number of states, merits little consideration now.

Id. (internal citations omitted).

183. Id. at 452; see Mono Lake, 658 P.2d at 719 (citing Illinois Central, 146 U.S. 387, for the conclusion that the public trust doctrine is “not limited by the reach of the tides”).

184. Illinois Central, 146 U.S. at 452–54 (ruling that the private interests in the title were limited and that such titles may be revoked at any time because the state’s ownership of the property is always subject to the public’s interest in the use and enjoyment of navigable waterways). Therefore, the state may convey land to private interests, but only if such a conveyance furthers the public interest. The United States upheld England’s method of assigning ownership to the public trust lands. Like in the English common law, each state owns the public trust lands in fee simple absolute. To serve the private and public interests of trust lands, the law recognizes a legal fiction that there are two separate titles vested in the public trust: jus publicum and jus privatum. The first title, jus publicum, is the full right of the public to use and enjoy the trust land. The second, jus privatum, is the private property interest to use and possess the trust land. The state owns both titles, and consequently has a right to convey the jus privatum title to a private interest. However, the jus privatum title is subject to the public rights vested in the jus publicum title, and the conveyance must therefore serve the public’s interest in the trust. Id. at 466.

185. Id.
ownership interest constrained the evolution of the doctrine because states differently define their ownership of trust lands or waters.\(^{186}\)

The Supreme Court recognizes that each state has a unique version of the public trust doctrine, shaped by a combination of common law and statutory law.\(^{187}\) In \textit{Phillips Petroleum Co. v. Mississippi}, the Court reaffirmed an earlier ruling that states may hold in trust waters affected by the ebb and flow of the tide even where they are not navigable in fact,\(^{188}\) and rejected claims that the protection of commerce was a fundamental purpose of the doctrine.\(^{189}\) However, the Court refrained from balancing what it called “great” public and private interests—it referred to the case as a mere “title suit.”\(^{190}\)

\textbf{B. New Applications of the Public Trust Doctrine}

Though some states limit the scope of the public trust doctrine to navigable or tidal waters and traditional uses recognized in \textit{Illinois Central}, a more modern view extends the doctrine to other natural resources.\(^{191}\) Water, the ecosystems that depend upon it, and ultimately other common resources like air and wildlife are resources common to the well-being of all citizens. They deserve the same protection under the public trust doctrine today that tidelands and surface water did in the past. Courts have focused less on the state’s property rights in the lands underlying the water, and more on the state’s duty as trustee to balance private property rights in common natural resources against the public’s interest in water as a common natural resource.

The move to expand the public trust doctrine began in the 1970s. Joseph Sax influenced many of these changes with his famous article, \textit{The Public Trust Doctrine in Natural Resource Law: Effective Judicial

\begin{itemize}
\item \textit{Douglaston Manor Inc. v. Bahrakis}, 678 N.E.2d 201, 203 (N.Y. 1997), the Court of Appeals of New York affirmed that New York still applied the public trust in its entirety to waters affected by the ebb and flow of the tides, a throwback to the English public trust doctrine. While the public had rights of navigation in “navigable in fact” waters, the public had no rights to fish an otherwise navigable river that was not affected by the ebb and flow of tides. \textit{Id.} Other states extend the public trust to all “navigable in fact” waters, allowing recreational use of such waters. \textit{See, e.g., Bott v. Mich. Dep’t of Natural Res., 327 N.W.2d 838, 859–60 (Mich. 1982)} (affirming that the public trust extends beyond tidal waters to the great lakes and other navigable waterways).
\item \textit{Phillips Petroleum Co. v. Mississippi}, 484 U.S. 469, 483 (1988) (citing Shively v. Bowlby, 152 U.S. 1, 26 (1894)).
\item \textit{Id.} at 479–80.
\item \textit{Id.} at 476 n.5.
\item \textit{Id.} at 472.
\item \textit{See, e.g., Wood, Nature’s Trust: Reclaiming an Environmental Discourse, 25 VA. ENVT L. J 243 (2007).}
\end{itemize}
Sax portrays the doctrine as a tool to fix what many lawmakers see as a gap in environmental decision making. He describes the lack of administrative and legislative response to citizens’ concerns about the quality of their land, air, and water, and argues that the public trust doctrine can mitigate these concerns because it gives the public a legal right in their resources, is enforceable against the government, and is “consistent with contemporary concerns for environmental quality.” For these reasons, Sax encourages states and judiciaries to view the public trust doctrine as flexible and adaptable to current ideologies and concerns.

In 1983, California’s high court addressed the inevitable collision in western water law between prior appropriations and the public trust in the seminal case, *National Audubon Society v. Superior Court of Alpine City (Mono Lake)*. Los Angeles diverted water from Mono Lake, a navigable water body, by way of its non-navigable tributaries. The diversions shrunk Mono Lake, and if unchecked would have eventually destroyed the lake’s ecosystem.

In requiring the State to exercise its trustee duties to limit prior appropriations, the California Supreme Court expanded traditional concepts of the public trust doctrine. First, the court found that the scope of the trust in California is not limited to navigable waters. Recognizing the relationship between navigable and non-navigable waterways, the court ruled that the doctrine applies to non-navigable waters where they affect navigable waters like Mono Lake. The public trust doctrine, in this case, prohibited the State from allowing diversions from Mono Lake’s tributaries because diverting the water would lower the lake to levels that were not in the public’s interest.

In addition, the court described the evolving purpose of the trust within the state. Though it was initially limited to protecting traditional uses

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193. *Id.* at 474.
194. *Id.* at 474–76.
195. *Nat’l Audubon Soc’y v. Superior Court of Alpine City (Mono Lake)*, 658 P.2d 709, 712 (Cal. 1983). Describing the conflict between prior appropriations and the public trust as an “inevitable collision” sounds strong. But the situation at Mono Lake—where divisions dry up streams—replays itself across the Western landscape. This author need look no farther than his own backyard, to the Bitterroot Valley where a dozen or more tributary streams, which should be teeming with trout, are dewatered to a trickle every summer.
196. *Id.* at 720.
197. *Id.*
198. *Id.* at 721.
199. *Id.* at 716.
200. *Id.* at 719.
like navigation, commerce, and fishing, the purpose expanded to include protection of “environmental and recreational values.”\textsuperscript{201} Citing language in a 1971 case that marked the first recognition of broader public trust purposes, the court explained that the public trust uses that the state may protect “are sufficiently flexible to encompass changing public need,” and “the state is not burdened with an outmoded classification favoring one mode of utilization over another.”\textsuperscript{202} The state may determine that one use is more beneficial than another, even if a court found it less important in a prior case.\textsuperscript{203} Applying these principles in \textit{Mono Lake}, the court extended the doctrine to preservation for scientific study of ecological units, food and habitat for wildlife, scenery, and climate.\textsuperscript{204} Finally, the court explained that the State’s power as administrator can also adapt to changing times: “the continuing power of the state as administrator of the public trust . . . extends to the revocation of previously granted rights or to the enforcement of the trust against lands long thought free of the trust.”\textsuperscript{205}

The court’s decision in \textit{Mono Lake} did not mark the end of the battle over Mono Lake’s water. The court left it up to the parties to discover a better solution, and hoped that it had “clear[ed] away the legal barriers” that had previously prevented them from reaching a solution.\textsuperscript{206} It wasn’t until December 1993, ten years later, that the parties came to an agreement. Environmental groups brought suits under California’s Fish and Game Code against the Water Board for issuing licenses to the Department of Water and Power of Los Angeles (DWP) that violated the Code’s minimum flow requirements.\textsuperscript{207} After multiple appeals and remands, the California Court of Appeals eventually directed the trial court to set interim flow releases for four of the tributaries, and imposed certain conditions on DWP’s licenses.\textsuperscript{208}

Other jurisdictions have comfortably extended the doctrine beyond historical norms. For example, in \textit{Matthews v. Bay Head Improvement Ass’n}, the Supreme Court of New Jersey interpreted its public trust doctrine to protect access to both municipal and privately owned dry sandy areas

\textsuperscript{201} Id. at 712 (citing Marks v. Whitney, 491 P.2d 374 (Cal. 1971)).
\textsuperscript{202} Id. at 719 (citing Marks, 491 P.2d at 380).
\textsuperscript{203} Id. at 728.
\textsuperscript{204} Id. at 719.
\textsuperscript{205} Id. at 723.
\textsuperscript{206} Id. at 732.
\textsuperscript{208} Id.
The court had not explicitly extended the doctrine so far in other cases, and based its reasoning on “growing concern about the reduced ‘availability to the public of its priceless beach areas,’” and policy statements made by the courts and legislature.

To justify its decision, the court cited the earlier extension of its public trust from traditional uses to “bathing, swimming, and other shore activities.” It then explained that the doctrine is flexible: “[T]he public trust doctrine [is] not to be ‘fixed or static,’ but [] to ‘be molded and extended to meet changing conditions and needs of the public it was created to benefit.’”

Perhaps the most significant recent expansion of the public trust is found in the Hawaii Supreme Court’s decision of In re Water Use Permit Applications (Wai’ Hole Ditch). The Hawaii court found that its public trust extends to all of the water in its state, including groundwater. Drawing heavily from Mono Lake, the Hawaii court also relied upon its common law and two recent amendments to Hawaii’s Constitution. In 1978, Hawaii citizens amended their constitution in two separate provisions to recognize and adopt an expansive version of the public trust doctrine.

The first provision is reminiscent of the Roman doctrine:

> 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.

In the other provision, Hawaii restates the public trust extension to water resources: “The State has an obligation to protect, control and
regulate the use of Hawaii’s water resources for the benefit of its people.”

The Wai‘hole Ditch court explained that under these constitutional provisions, the state’s doctrine “applies to all water resources without exception or distinction” and that the legislature’s use of the term “water resources” has always included groundwater.

While several key recent public trust cases ground their rulings in state constitutions, it is important to note that some states have specifically extended the public trust doctrine to other resources by statute. New Hampshire declared groundwater a public trust resource in 2004. The law explicitly extends the public trust doctrine to the state’s groundwater in two different chapters. The first announces that the public trust applies to all water in New Hampshire, including groundwater.

In reference to the State as trustee, the statute further explains that “[t]he maximum public benefit shall be sought, including the assurance of health and safety, the enhancement of ecological and aesthetic values, and the overall economic, recreational and social well-being of the people of the state.” The second provision indicates that the State is responsible for “groundwater management in the public trust and interest.”

Connecticut also explicitly extended the public trust to all waters, rather than just surface waters, in the Connecticut Environmental Protection Act (CEPA). The statute is comprehensive, providing relief from the State, or by the State, for any violations. The relevant provision reads as follows: “[The state holds a] public trust in the air, water and other natural resources of the state from unreasonable pollution, impairment or destruction provided no such action shall be maintained against the state for pollution of real property acquired by the state . . . .” Statutory enactment of public
trust principles for groundwater provides a clear message to courts that public trust principles must be applied to resolve disputes. Legislative support, where it can be gained, is critical. However as discussed below, enacting public trust legislation can be contentious.

IV. GROUNDWATER AND THE PUBLIC TRUST DOCTRINE

A. Application of the Doctrine Beyond Property-Based Navigability

Distinctions Regarding Bed, Banks, and Tidelands

Groundwater problems are serious, escalating, and not well-managed by the present legal framework. A new approach is needed. Legislative solutions are slow, subject to manipulation, and ultimately subject to the water management agencies that implement them. The public trust doctrine is not a panacea. However, it enunciates a valuable principle that has already been applied in a variety of water-related contexts. The basic public trust doctrine principle—that some resources are to be shared by all and managed in a protective capacity for future generations by the sovereign—is particularly well-suited to groundwater.

Nearly thirty years ago Professor Joseph Sax urged that the doctrine be freed from its historical shackles. Professor Sax explained:

[The] function of the public trust as a legal doctrine is to protect [] public expectations against destabilizing changes. . . . So conceived, the doctrine would serve not only to embrace a wider range of things than private ownership, but would also make clear that the legal system is pursuing a substantive goal identical to that for the management of natural resources.

Dewatering coal bed aquifers that ranchers in Montana have depended upon for generations, collapsing sink holes that destroy private property in Florida, the significant diminution of the Ogallala Aquifer, and saltwater invasion of drinking water on the East Coast are a few examples of

of the state. Id. The court did, however, recognize groundwater as a public trust resource as provided by the legislature under CEPA. Id. at n.3.


229. Id. at 188–89.
“destabilizing changes” caused by the disparate, outdated legal framework for managing groundwater.

Application of the public trust to groundwater requires freeing the doctrine from its earlier English and American jurisprudential basis in property law. The public trust doctrine as originally developed in this country was tied to the state’s ownership of property—tidelands, lake shores, the bed and banks of navigable streams. Thus, groundwater does not fit within the public trust foundation of *Illinois Central* and its progeny. Groundwater cannot overlay the bed of state-owned property, nor can it support navigation or recreation. However, rigid application of traditional property-based concepts of the public trust should not thwart its application to groundwater. In fact, inclusion of groundwater within the public trust fits easily within the approach taken recently by several state supreme courts. Application of the public trust doctrine should focus on the protection of common resources, not arcane distinctions of navigability.

The public trust was not originally wedded to the state’s ownership of property. Justinian’s statement of the public trust embraced a wider view of the commons. The two seminal California public trust doctrine cases that define the public’s interest in broader ecological values as part of the doctrine draw from this legacy. Cases like *Mono Lake* still address the public trust to state ownership of the bed and banks of navigable waters. But the words of these decisions speak to a broader application of the doctrine.

Public trust doctrine cases—traditional and modern—are often tied to water. Water itself is the common good, more important than beds and banks of streams or tidelands owned by the state. There is no principled


The public uses to which tidelands are subject are sufficiently flexible to encompass changing public needs. In administering the trust the state is not burdened with an outmoded classification favoring one mode of utilization over another. There is a growing public recognition that one of the most important public uses of the tidelands—a use encompassed within the tidelands trust—is the preservation of those lands in their natural state, so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area.

*Id.*

232. *Mono Lake*, 658 P.2d at 720. “Mono Lake is, as we have said, a navigable waterway. The beds, shores and waters of the lake are without question protected by the public trust.” *Id.*
reason to tie the public’s right to wise management of water resources to arcane concepts of navigability and state ownership of land. It is time to recognize that the public trust doctrine embraces the water itself. Groundwater, as science told us more than a century ago, and as courts finally recognized more recently, is inexorably tied to surface water.\textsuperscript{233} It’s all just water.

In a case decided the same year as \textit{Illinois Central}, the Minnesota Supreme Court recognized public rights in water as flexible, changing with society’s needs.\textsuperscript{234} After discussing traditional tests of navigability for ownership of underlying waters, the court explained:

Many, if not most, of the meandered lakes of this state, are not adapted to, and probably will never be used to any great extent for commercial navigation; but they are used—and as population increases, and towns and cities are built up in their vicinity, will be still more used—by the people for sailing, rowing, fishing, fowling, bathing, skating, taking water for domestic, agricultural, and even city purposes, cutting ice, and other public purposes which cannot now be enumerated or even anticipated. To hand over all these lakes to private ownership, under any old or narrow test of navigability, would be a great wrong upon the public for all time, the extent of which cannot, perhaps, be now even anticipated.\textsuperscript{235}

The Minnesota Supreme Court recognized a century ago what some courts are now grappling with: whether protecting public uses of water beyond traditional notions of commercial navigability is a proper object of the public trust. Three state courts—Wyoming, Montana, and Hawaii—have abandoned any notions of navigability and state-ownership of the property underlying water, and instead focused on water itself.

Wyoming and Montana have also focused on public uses of surface water, rather than property interests of riparians, in applying the public trust doctrine and furthering public rights in all water. In Wyoming, the North Platte River was held non-navigable under traditional tests as applied in

\textsuperscript{233} In words of the Hawaii Supreme Court, “[M]odern science and technology have discredited the surface-ground dichotomy;” \textit{In re Water Use Permit Applications (Wai’ Hole Ditch)}, 9 P.3d 409, 447 (Haw. 2000) (citing A. DAN TARLOCK, \textsc{Law of Water Rights and Resources} \textsection{} 4.5 (2000)).

\textsuperscript{234} \textit{Lamprey v. Metcalf}, 53 N.W. 1139, 1143 (Minn. 1893).

\textsuperscript{235} \textit{Id.} at 1143. The case turned on the fact that the lake in question had become dry, and under riparian rules of accretion, the riparians became owners of the new shoreline, negating any public use of the dry bed of the former lake. \textit{See id.}
Day v. Armstrong. The Wyoming Supreme Court found that while various navigability tests were useful for determining public versus private ownership of stream beds, tests for navigability were of little import in determining public rights on the waters above. Moreover, though the dispute was between two private parties, the court had no trouble treating the case “as a class action, affecting the rights of the public generally.” The public was given the absolute right to float and recreate on surface waters, irrespective of title to the underlying bed and banks.

Montana adopted the reasoning of both Lamprey and Day in Coalition for Stream Access v. Curran. Mr. Curran purchased large tracts of land abutting the Dearborn River, a popular floating stream, and harassed and obstructed the public in an effort to curtail public use. Curran asserted title to the river bed and a corresponding right to prevent public use. Though the Dearborn River was determined to be navigable in fact, the Montana court found the distinction unnecessary when determining the public’s interest in the water. Instead the court held that “the Constitution and public trust doctrine do not permit a private party to interfere with the public’s right to recreational use of the surface of the state’s waters.”

As a result of the Curran decision, the Montana Legislature adopted a stream access law that gives the public the absolute right to use all surface waters of the state irrespective of ownership. The public has unfettered use of the water, as well as the bed and banks of streams to the high water mark, even on private property. In a companion case involving the

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237. Id.
238. Id. at 151.
239. In the court’s words:
   Irrespective of the ownership of the bed or channel of waters, and irrespective of their navigability, the public has the right to use public waters of this State for floating usable craft and that use may not be interfered with or curtailed by any landowner. It is also the right of the public while so lawfully floating in the State’s waters to lawfully hunt or fish or do any and all other things which are not otherwise made unlawful.
239. Id. at 147.
241. Id. at 165.
242. Id. at 170.
243. Id.
244. Id.
246. Id. Montana divides surface waters into two classes. Class I streams are those where the bed and banks are owned by the state, where title passed at statehood under the Equal Footing Doctrine. Id. The public’s rights are broader in Class I streams, including the right to camp and hunt. Class II
Beaverhead River, another prime Montana trout stream, the court reaffirmed its abandonment of navigability as a test for public rights in water.\textsuperscript{247} While a subsequent decision limited some of the public uses of private property such as hunting and camping, the application of the public trust to all water irrespective of navigability remains unchanged in Montana.\textsuperscript{248}

An even broader application of the public trust doctrine, without any reference to property ownership, is the Hawaii Supreme Court’s decision in \textit{Wai’ Hole Ditch}.\textsuperscript{249} The court began with a classic public trust analysis based on \textit{Illinois Central} and its progeny.\textsuperscript{250} However, the court was not constrained by common law public trust notions of navigability and title to bed and banks, but rather focused on the water itself.\textsuperscript{251} The court found that “rules developed in order to protect public water bodies and submerged lands for public access and use . . . do not readily apply in the context of water resources valued for consumptive purposes, where competing uses are more often mutually exclusive.”\textsuperscript{252} The court then applied the public trust to groundwater, where traditional notions of navigability and state ownership simply cannot be applied.\textsuperscript{253} The court left open the question of even broader application of the public trust doctrine to natural resources beyond ground and surface waters.\textsuperscript{254}

The facts in \textit{Wai’ Hole Ditch} provide a compelling case. Large corporate farms had diverted streams from the windward to the leeward side of the island, leaving windward streams dewatered and severely impacting several local windward communities.\textsuperscript{255} The leeward water users had valid water rights, but the Hawaii court found public trust principles overrode legislatively and administratively granted water rights. In the tradition of \textit{Illinois Central} and \textit{Mono Lake}, the Hawaii court found that the

\footnotesize{streams are other natural water bodies where the bed and banks are privately owned. The public may not camp on Class II streams. Irrigation ditches are excluded from the Stream Access Law. Id.}


\footnotesize{248. Galt v. Montana Dept. of Fish, Wildlife & Parks, 731 P.2d 912, 915 (Mont. 1987).}

\footnotesize{249. In re Water Use Permit Applications (Wai’ Hole Ditch), 9 P.3d 409, 447 (Haw. 2000).}

\footnotesize{250. Id. at 440.}

\footnotesize{251. Id. at 444–47.}

\footnotesize{252. Id. at 448.}

\footnotesize{253. Id. at 447.}

\footnotesize{254. Id. at 445 (“We need not define the full extent of article XI, section one's reference to all public resources at this juncture.”).}

\footnotesize{255. D. Kapua ‘ala Sproat & Isaac H. Moriwake, \textit{Ke Kalo Pa’a O Waiahole: Use of the Public Trust as a Tool for Environmental Advocacy}, in \textsc{Creative Common Law Strategies for Protecting the Environment} 247, 253 (Clifford Rechtschaffen & Denise Antolini eds., 2007).}
public trust doctrine cannot be rendered superfluous by legislative enactments.\textsuperscript{256}

The Wyoming, Montana, and Hawaii courts all looked to their state constitutions to analyze and apply the public trust beyond traditional interpretations. Hawaii also had the benefit of pre-statehood culture and traditional laws governing water, a rich source of authority unique to Hawaiian culture, to find the sovereign’s innate responsibility to protect water regardless of ownership of underlying lands.\textsuperscript{257} However, no state blindly extended the public trust doctrine without grounding its reasoning in state constitutional, or statutory, or common law. As discussed below, the rich heritage of state constitutions provides a firm basis for public trust doctrine extension to groundwater.

\textbf{B. Applying the Public Trust to Groundwater}

To date, the Hawaii court provides the clearest endorsement of the public trust doctrine to groundwater:

\begin{quote}
In sum, given the vital importance of all waters to the public welfare, we decline to carve out a ground water exception to the water resources trust. Based on the plain language of our constitution and a reasoned modern view of the sovereign reservation, we confirm that the public trust doctrine applies to all water resources, unlimited by any surface-ground distinction.\textsuperscript{258}
\end{quote}

Where Hawaii has led, other states can follow. State constitutions provide a solid foundation for adoption of the public trust doctrine. California, Wyoming, and Montana used their state constitutions to extend the trust beyond navigability issues to focus on the real trust resource—the people’s water. Other states can do the same.

The vast majority of state constitutions contain some reference to the protection of natural resources.\textsuperscript{259} The substantive effects of these provisions vary widely. Some state courts hold constitutional environmental or natural resource provisions merely laudatory, or to be

\begin{footnotesize}
\textsuperscript{256} Wai’ Hole Ditch, 9 P.3d at 444–45.
\textsuperscript{257} Id. at 440–41.
\textsuperscript{258} Id. at 447.
\textsuperscript{259} Robert J. Klee, What’s Good for School Finance Should Be Good for Environmental Justice: Addressing Disparate Environmental Impacts Using State Courts and Constitutions, 30 COLUM. J. ENVTL. L. 135, 167–71 (2005). Examining the role of state constitutions in environmental law, Klee tallied forty-two state constitutions that have at least some reference to the protection of natural resources. Id. at 167.
\end{footnotesize}
non-self-executing, requiring legislative action to implement their commands.\textsuperscript{260} But many state constitutions embrace the protection of natural resources as a state responsibility.\textsuperscript{261} Some constitutions specifically protect water resources.\textsuperscript{262} These constitutions can be a firm legal basis for applying the public trust to groundwater. The states that have extended the public trust to water regardless of navigability or ownership of the underlying bed have grounded their decisions in their state constitutions.

Basic trust law principles are readily adapted to groundwater. The trustee, of course, is the State. Several constitutions explicitly recognize that role.\textsuperscript{263} Present and future generations of citizens are obvious beneficiaries. The corpus of the trust—groundwater aquifers that are capable of human use—is identifiable. The duties of a trustee are “the highest known to the law.”\textsuperscript{264} The trustee has an obligation to ensure that the corpus is made available to the beneficiaries and are wisely used. Groundwater mining and overdrafting are inconsistent with basic trust duties; trusts must be managed to preserve trust assets and to fulfill trust purposes.\textsuperscript{265} The corpus of the trust—here, the state’s groundwater

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{260} See, e.g., Commonwealth v. Nat’l Gettysburg Battlefield Tower, 311 A.2d 588, 593–95 (Pa. 1973) (dismissing the argument that natural resource protection amendment is self-executing).
\item \textsuperscript{261} See, e.g., R.I. CONST. art. 1, § 17 (“[T]he people 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 . . . .”); TEX. CONST. art. XVI, § 59 (“[T]he preservation and conservation of all . . . natural resources of the State are each and all hereby declared public rights and duties . . . .”); FLA. CONST. art. II, § 7 (“It shall be the policy of the state to conserve and protect its natural resources and scenic beauty.”); S.C. CONST. art. XII, § 1 (“[T]he health, welfare, and safety of the lives and property of the people of this State and the conservation of its natural resources are matters of public concern.”).
\item \textsuperscript{262} E.g., HAW. CONST. art. XI, § 1 (“[T]he 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 . . . .”); MASS. CONST. amend. art. XCVII (“The people shall have the right to clean air and water . . . .”); PA. CONST. art. 1, § 27 (“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.”); MICH. CONST. art. IV, § 52 (“The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction.”); N.Y. CONST. art. XIV, § 4 (The legislature . . . shall include adequate provision for the abatement of air and water pollution and of excessive and unnecessary noise, the protection of agricultural lands, wetlands and shorelines, and the development and regulation of water resources.”); N.C. CONST. art. XIV, § 5 (“[I]t shall be a proper function . . . to control and limit the pollution of our air and water . . . .”); VA. CONST. art. XI, § 1 (“To the end that the people have clean air, pure water, and the use and enjoyment for recreation of adequate public lands, waters, and other natural resources, it shall be the policy of the Commonwealth to conserve, develop, and utilize its natural resources . . . .”).
\item \textsuperscript{263} See, e.g., MONT. CONST. art. IX, § 3 (“All surface, underground, flood, and atmospheric waters within the boundaries of the state are the property of the state for the use of its people and are subject to appropriation for beneficial uses as provided by law.”).
\item \textsuperscript{264} 76 AM. JUR. 2D Trusts § 331 (2005). The words of Justice Benjamin Cardozo, “the punctilio of an honor the most sensitive,” perhaps best describe the duties of a trustee towards the beneficiaries. Meinhard v. Salmon, 164 N.E. 545, 546 (N.Y. 1928).
\item \textsuperscript{265} 76 AM. JUR. 2D Trusts § 331 (2005).
\end{itemize}
\end{footnotesize}
resources—should be managed in perpetuity for the current and future beneficiaries rather than be depleted by a small subset of private interests for private gain. State courts understand trust principles; they apply them frequently. Those principles can be easily applied to the management of groundwater as a public trust resource.

States can thus create their own parameters and adopt the doctrine to their own needs. While the U.S. Supreme Court has addressed the public trust doctrine on several occasions, application of the public trust has generally been a matter of state law. The Supreme Court has not federalized the public trust doctrine. Nor has groundwater management been preempted by federal law. Extension of the public trust to groundwater can therefore proceed on a state-by-state basis. States have always developed their own common and statutory law to govern groundwater, and imposition of a public trust to groundwater will not

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266. Id.

267. Professor Huffman is critical of those that apply the trust principles to the public trust doctrine. James L. Huffman, A Fish Out of Water: The Public Trust Doctrine in a Constitutional Democracy, 19 ENVTL. L. 527, 535–46 (1989). He argues that the analogy to basic trust law fails because the public trust doctrine’s trust lacks a creator or settlor as that term of art have evolved in trust law. Id. That argument misses the mark. The public trust doctrine is not the same as a private trust. But important principles of private trust law carry over to the public trust doctrine and can be useful in helping courts and the public understand the doctrine’s guiding principles. The state’s role of trustee and all citizens’ role as beneficiaries mean that the state can’t dispose of trust assets to the detriment of the greater public. Because the public trust should be perpetual, the state has a duty to both use the trust for current needs but conserve the corpus for future generations. The law of trusts need not apply in all aspects for it to provide a useful paradigm.

268. See Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 475 (1988) (“[I]t has been long established that the individual States have the authority to define the limits of the lands held in public trust and to recognize private rights in such lands as they see fit.”).

269. Most courts have found that the Clean Water Act’s predominant program, section 402 NPDES permit requirements, does not apply to groundwater. Exxon Corp. v. Train, 554 F.2d 1310, 1324 (5th Cir. 1977) (the failure to include explicit sections addressing groundwater in the NPDES permitting system “strongly suggests that Congress meant to stop short of establishing federal controls over groundwater pollution”); see also United States v. GAF Corp., 389 F. Supp. 1379, 1383 (S.D. Tex. 1975) (stating that isolated groundwater is not subject to the Clean Water Act); Village of Oconomowoc Lake v. Dayton Hudson Corp., 24 F.3d 962, 965 (7th Cir. 1994) (“Neither the Clean Water Act nor the EPA’s definition [of “Waters of the United States”] asserts authority over ground waters, just because these may be hydrologically connected with surface waters.”). But cf. Friends of Santa Fe County v. LAC Minerals, Inc., 892 F. Supp. 1333, 1358 (D.N.M. 1995) (explaining that the Clean Water Act protects groundwater with some connection to surface water). The Clean Water Act does mention groundwater in two distinct sections. Section 104(a)(5) provides that the EPA shall establish and coordinate water quality monitoring programs for navigable waters, groundwater, and the contiguous zone and the oceans. 33 U.S.C. § 1254(a)(5) (2000). Similarly, section 304(f)(2)(D) provides that the EPA shall issue guidelines for identifying and evaluating the nature and extent of nonpoint pollutants resulting from “disposal of pollutants in wells or subsurface excavations.” 33 U.S.C. § 1314(f)(2)(D) (2000).
interfere with states’ ability to apply the doctrine in a manner suited to that state’s resource.

States that apply the public trust to groundwater can draw from the experiences of states like Montana and Hawaii that have freed the public trust doctrine from property-based notions. Those experiences have shown that the doctrine can protect public resources, even when balanced against private property interests. The doctrine’s critics are unable to demonstrate that the public trust doctrine has prohibited resource development or led to economic stagnation.

For example, the Montana Supreme Court’s determination that the public trust and the Montana Constitution protect all waters of the state for public use did not lead to interference with private property or irrigation rights. In fact, Montana’s Stream Access Law, stemming from the public trust, respects private property rights. Public use of all of the state’s waters, irrespective of ownership of bed and banks, is integral to Montana’s cherished fishing traditions and the foundation of the state’s essential and booming recreation industry. Speaking to a group of water attorneys at a recent seminar, Governor Brian Schweitzer embraced public recreational use of state waters. The Montana Department of Fish, Wildlife and Parks is a pro-public trust and public access party in a significant case now pending at the Montana Supreme Court.

In California, Mono Lake was a highly controversial application of the public trust doctrine. The decision itself did not undo the prior appropriations system nor did it solve the problems pertaining to the

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272. See Sarah K. Stauffer, Comment, The Row on the Ruby: State Management of Public Trust Resources, the Right to Exclude, and the Future of Recreational Stream Access in Montana, 36 ENVTL. L. 1421, 1426–27 (2006). This comment supports this author’s contention that adoption of the public trust doctrine provides substantial benefits, and that those who oppose it are often wealthy landowners. In Montana, those opposing the public trust have often been large landowners seeking to exclude the public. Id.; see also Montana Coal. for Stream Access, Inc. v. Curran, 682 P.2d 163, 165 (Mont. 1984) (explaining that the protagonist in Curran, the case that led to the adoption of the public trust, was a Texas oilman).


274. Reply Brief of Petitioner-Appellant at 12–16, Bitterroot River Protective Ass’n v. Bitterroot Conservation Dist. et al., No. DA 06-0520 (Mont. filed Mar. 12, 2007), available at http://fnweb.isd.doa.state.mt.us/idmws/custom/sll/sll_fn_d1.asp?case=da%2006-0520. The case involves a challenge by conservationists to actions taken by several newly-arrived private landowners (including rock star Huey Lewis and stock broker Charles Schwab) to assert that a water body used locally by fishermen for seventy years, was actually a private irrigation ditch. Id. The case is pending before the Montana Supreme Court.
dewatering of Mono Lake. Rather, the decision led to subsequent negotiations between the affected parties that helped shape a decision by the California Water Board. That decision helped preserve the Mono Lake ecosystem and still allowed Los Angeles to divert significant amounts of water. The decision was a major victory for protection of public resources; it spurred new conservation efforts and increased public awareness of water problems. Authors Tony Arnold and Leigh Jewell label it a “clever catalyst for compromise,” and offer that the decision’s greatest value was forcing recognition of public values in resources previously considered private, and creating a post-litigation climate to resolve the dispute. Los Angeles has not gone dry due to the California Supreme Court’s broader application of the public trust to non-navigable tributaries of Mono Lake, the prior appropriations system is not defunct, and the Lake has regained significant area as a result of increased flows. California, of course, continues to experience robust economic growth.

Judicial adoption of the public trust, founded on state constitutional law, is a viable avenue to extend protection to all water and the resources that depend on it. The courts that have done so have not been plagued by supposed doctrinal inconsistencies rooted in early applications of the doctrine. Courts embrace the doctrine as a flexible means to protect common resources. Extension of the public trust to groundwater by judicial decision, especially if founded upon a state constitution, or earlier application of public trust, is not an exceptionally broad leap of legal logic.

Another avenue for adoption of the public trust is through legislation. In response to potential groundwater claims by water bottlers, New Hampshire enacted legislation that declared, as a matter of State policy, that

276. Id. at 163–90.
277. Id. at 173.
278. Id. at 190. In the authors’ words, “The ‘real’ public trust doctrine exists as much in the post-litigation interactions of the parties that resolve conflicts and give effect to public trust values as it does in judicial decisions describing and announcing the doctrine’s applicability.” Id.
279. Id. at 189.
groundwater would be managed as a public trust resource. The legislation directs the State to implement groundwater protection plans consistent with its trustee obligation if local governments fail to act. The legislation is too recent to gauge its effect. Other states have also applied the doctrine legislatively with some success. Attempts to mimic New Hampshire’s legislation in Vermont, however, have stalled.

C. Likely Criticism of Applying the Public Trust Doctrine to Groundwater

Some argue that expansion of the public trust doctrine is unnecessary because modern environmental statutes are better suited to address environmental problems, and that the doctrine is outmoded, judicially imposed, and not suited to modern concerns. Others criticize it as an

281. N.H. REV. STAT. ANN. § 481:1 (2004). The general court declares and determines that the water of New Hampshire whether located above or below ground constitutes a limited and, therefore, precious and invaluable public resource which should be protected, conserved and managed in the interest of present and future generations. The state as trustee of this resource for the public benefit declares that it has the authority and responsibility to provide careful stewardship over all the waters lying within its boundaries. Id.

282. N.H. REV. STAT. ANN. § 485-C:1(I) (2001). “The state, which has general responsibility for groundwater management in the public trust and interest, should develop groundwater protection programs within the scope of this chapter when such programs are not developed by a local entity.” Id.

283. Some state legislatures have explicitly extended public trust protections to groundwater. See, e.g., CONN. GEN. STAT. § 22a-15 (2006). It is hereby found and declared that there is a public trust in the air, water and other natural resources of the state of Connecticut and that each person is entitled to the protection, preservation and enhancement of the same. It is further found and declared that it is in the public interest to provide all persons with an adequate remedy to protect the air, water and other natural resources from unreasonable pollution, impairment or destruction. Id. Other states have legislation that could be interpreted as applying the public trust doctrine to groundwater resources. See, e.g., MASS. GEN. LAWS ch. 21(L), § 1 (2006) (stating that “natural resources” include “land, fish, wildlife, biota, air, water, groundwater and drinking water supplies belonging to, managed by, held in trust by, appertaining to or otherwise controlled by the commonwealth or any local government.”).

284. In 2005, bills were introduced in the Vermont House and Senate that, if enacted, would have declared groundwater resources of the state a public trust. H. 294, 2005-2006 Legislative Session (Vt. 2005); S. 151, 2005-2006 Legislative Session (Vt. 2005). Rather than declaring groundwater a public trust resource, the legislature passed the question to an investigative committee. 2006 Vt. Acts & Resolves 128.

285. Richard J. Lazarus, Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine, 71 IOWA L. REV. 631, 710 (1986). Professor Lazarus offers three reasons supporting a “strategic retreat” from the public trust doctrine. He argues that the doctrine will “never adequately reflect modern environmental concerns, unjustifiably relies on the judiciary” and finally, that the Supreme Court’s interest in granting “special legal status” to the
The criticisms have spawned a rather extensive debate by respected legal scholars over the last twenty years. This Article will not parse the nuances of that debate. But as discussed herein, groundwater is particularly well suited to application of the public trust doctrine. Criticisms that may well apply to expansion of the doctrine to other resources do not resonate against application of the public trust doctrine to groundwater.

It is true that the explosion of federal and state environmental laws in the 1970s and 1980s fundamentally altered the legal landscape for environmental protection. In a relatively short time frame, Congress, as well as many state legislatures, changed the backdrop against which environmental values are measured and protected. But Congress has not passed comprehensive federal groundwater legislation that would preempt initiatives to manage groundwater locally. Nevertheless, few states have adopted comprehensive groundwater systems that prevent long-term depletion of groundwater resources.

As indicated in Part I, the country is beset with groundwater problems. Even presuming environmental legislation has been successful in other areas, legislation has not solved our groundwater problems. To claim that the “modern police power” rendered the public trust doctrine of “little importance in promoting governmental authority to protect and maintain a healthy and bountiful natural environment” may have been promising twenty years ago. But the convenience of hindsight shows that promise to be unfulfilled in many areas of resource protection, including groundwater.

Moreover, legislative solutions to environmental problems can be altered. A prime example in the context of groundwater is Idaho. In a 1973 case, Baker v. Ore-Ida Foods, the Idaho Supreme Court held that “Idaho’s Ground Water Act forbids mining of an aquifer.” The court enjoined

doctrine is “waning.” Id. These criticisms are important to frame the arguments advanced herein, and are addressed in this section.

286. See, e.g., Huffman, supra note 266, at 528 (“[M]uch of modern public trust law infringes upon vested private property rights and is therefore violative of the federal constitution.”).

287. In addition to the articles by Professor Joseph Sax, others have urged wider adoption of the public trust. E.g., Charles F. Wilkinson, The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine, 19 ENVTL. L. 425, 482 (1989) (advocating for a shift in the law that extends public trust protection to water resources).

288. See discussion supra note 268.

289. But see ARIZ. REV. STAT. ANN. § 45-576 (2007) (prohibiting construction of new subdivisions unless the developer offers proof that the division has an assured supply of water for 100 years).

290. Lazarus, supra note 284, at 674.

pumping beyond the “reasonably anticipated average rate of future natural recharge.”\textsuperscript{292} However, the Idaho Legislature subsequently modified the statute involved in \textit{Baker} to allow groundwater mining at the Director of Water Resource’s informed discretion.\textsuperscript{293} Rather than show fealty to 130 years of prior appropriations, the Idaho legislature simply changed the law to allow junior groundwater pumpers, often large corporate farms, to affect surface flows in the Snake River, even if the pumping infringed upon senior rights.\textsuperscript{294} Likewise, in Hawaii, commentators have noted that “no sooner did the ink was dry on the \textit{Wai’ Hole} decision than the former plantation and corporate agricultural interests began seeking a legislative end-run around it.”\textsuperscript{295}

Since Professor Sax’s call for application of the public trust doctrine as a broader means of environmental protection in 1970, a plethora of environmental protection statutes have been enacted.\textsuperscript{296} But statutes are subject to alteration. Administrative agencies can be victims of political manipulation; the Orwellian doublespeak inherent in “Clear Skies” and “Healthy Forests” initiatives underscores the risks inherent in entrusting environmental protection to legislative and administrative processes.\textsuperscript{297} For groundwater, the legacy of failure exemplified by legislative and administrative bodies is hard to deny. Adoption of a public trust doctrine,

\begin{itemize}
  \item Id. \textsuperscript{292}
  \item \textit{IDAHO CODE ANN.} \textsuperscript{293} § 42-237a(g) (2007).
  \item Sproat & Moriwake, \textit{supra} note 254, at 279.
\end{itemize}

as grounded in state constitutional law, helps insulate groundwater protection from the political forces and special interests that can dominate legislatures and bureaucracies. The specter of a judicially-created taking will haunt those who advocate for adoption of the public trust doctrine. Some scholars argue that application of the public trust doctrine is antithetical to private property rights and creates a taking of private property. But water law is full of examples of failed lawsuits that claimed that loss of water “rights” constituted a taking in violation of the Fifth Amendment.

For example, states that have abolished riparian rights in favor of a regulated system of water use have, with limited exceptions, successfully defended their restrictions on riparian property ownership against takings claims. Even when irrigators faced significant reduction in contract water from federal projects because of court-ordered Endangered Species Act protection, no taking occurred. Also, in prior appropriation jurisdictions courts have accepted limitations on water use without finding a taking. Groundwater regulations that limit groundwater pumping in Nebraska, which previously recognized a correlative rights doctrine at common law, did not cause a taking. A leading treatise notes that takings

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298. Huffman, supra note 266, at 528.
299. See, e.g., In re Hood River, 227 P. 1065, 1096 (Or. 1924) (“This is not taking the property of one and giving it to another. It is making the use of public property, water, the measure of the property of the individual therein. The right to water is a usufruct. That right becomes vested when it is applied to a beneficial use, and not before.”); Baumann v. Smrha, 145 F. Supp. 617, 624–25 (D. Kan. 1956) (“[W]e do not regard a landowner as having a vested right in underground waters underlying his land which he has not appropriated and applied to beneficial use.”). But cf. Franco-America Charolaise, Ltd. v. Okla. Water Res. Bd., 855 P.2d 568, 571 (Okla. 1990) (“Oklahoma riparian owners enjoy a vested common-law right to the reasonable use of the stream. This right is a valuable part of the property owner’s ‘bundle of sticks’ and may not be taken for public use without compensation.”).
300. Klamath Irrigation Dist. v. United States, 67 Fed. Cl. 504, 540 (2005). But cf. Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313, 319 (2001) (“Like it or not, water rights, though undeniably precious, are subject to the same rules that govern all forms of property—they enjoy no elevated or more protected status. In the case sub judice, those rights, such as they exist, take the form of contract claims and will be resolved as such.”). See generally John D. Leshy, A Conversation About Takings and Water Rights, 83 Tex. L. Rev. 1985 (2005) for an entertaining discourse about the long-recognized legal limitations in western water, especially water delivered by federal water projects.
301. See, e.g., MacDonald v. State, 722 P.2d 598 (Mont. 1986) (upholding re-quantification of water rights from flow-rate based to quantity based, even if the re-quantification resulted in lower total appropriation, and emphasizing that irrigators do not own the water, but only possess a right to use it).
302. Bamford v. Upper Republican Natural Res. Dist., 512 N.W.2d 642, 652 (Neb. 1994). Florida, too, denied a takings claim based on groundwater regulation. See Tequesta v. Jupiter Inlet Corp., 371 So. 2d 663, 667 (Fla. 1979) (“The right of the owner to ground water underlying his land is to the usufruct of the water and not to the water itself. The ownership of the land does not carry with it any ownership of vested rights to underlying ground water not actually diverted and applied to beneficial use.”). But cf. McNamara v. City of Rittman, 838 N.E.2d 640, 644–45 (Ohio 2005) (holding that a landowner does have a right in groundwater that, if destroyed by a government entity, is an
claims stemming from regulatory restrictions on groundwater use are more easily rejected than those for surface water claims.  

Indeed, traditional common law doctrines of absolute dominion and reasonable use are doctrinally inapposite to arguments asserting that ownership in groundwater is a stick in the bundle of rights granted by deed. These common law remedies often leave a landowner defenseless against a neighbor who sunk a deeper well or uses a larger pump to deplete an aquifer, even when the property owner loses access to water underneath his property.  

It is hard to assert that the government is unconstitutionally taking a valuable property right when one’s neighbor can lawfully take the same property with impunity. The weight of modern authority counsels against a court finding a taking of groundwater “rights” based upon adoption of the public trust doctrine, even if adoption limits present and future groundwater use.

Still, the allure of takings claims weighs heavy in the minds of the public and some judges. Property rights advocates carry significant public sway. Recent attempts in Vermont to apply the public trust doctrine to groundwater through legislation were opposed by property rights advocates, the ski industry, and water bottlers. Anti-takings sentiment was prominent in the debate that ultimately resulted in defeat for the legislation.

CONCLUSION

Protection of clean and adequate groundwater supplies is vital for the enduring health of the nation. Common law groundwater doctrines,

unconstitutional taking). The facts in McNamara were sympathetic to the homeowner, whose well was threatened by municipal pumping. Id. at 642. The case does not stand for the proposition that conservation measures constitute a taking. Rather, in McNamara a government entity was engaged in pumping that allegedly caused damages, giving rise to a takings claim. Id.

304. Id.
306. See, e.g., Evan Mulholland, Groundwater Quantity Regulation in Vermont: A Path Forward, 8 VT. J. ENVTL. L. 1, 34 (2006) (discussing opposition to a public trust bill by the President of Vermont Pure, a subsidiary of Nestlé that bottles water in Randolph, Vermont, because of potential harm to his business).
however, provide virtually no long-term protection, and statutory regulation of groundwater is highly variable. The plethora of groundwater problems across the country requires a new paradigm for using groundwater wisely.

The public trust doctrine can provide that paradigm. Commentators addressing both Mono Lake and Wai`Hole Ditch both underscore the real value of the public trust as something beyond winning a court battle. Adoption of the public trust to protect water resources provides an important statement that can shift public views in favor of protecting public resources.308 The public trust “crosses over from the law to a pure statement of societal vision.”309 For groundwater, a new societal vision is needed. The principle that water itself is a common resource, freed from property law constraints in the traditional public trust, has already been recognized by several state supreme courts. If surface waters can be protected by the public trust, independent of state property or navigability requirements, then so can groundwater. State constitutions can provide the legal framework for public trust principles. Distinctions between ground and surface water are becoming increasingly arcane. The idea that groundwater is a resource of the commons is not particularly novel.310

Arguments against applying the public trust to groundwater must confront the widespread failures of current regulatory systems, and offer a better way to avert the problems that beset our use and misuse of groundwater. Takings claims may be asserted, but will not likely have much success given the widespread rejection of takings claims in water resource disputes. Water should not be classified as private property. The better view is that water is a common resource, held in trust by the State for the wise and perpetual use by its citizens.

Applying the public trust to groundwater will not erase groundwater problems overnight. The Mono Lake experience demonstrates that the real force of the doctrine is to infuse decision makers with the knowledge and power to act for the long term, notwithstanding countervailing traditional interests. The “real” public trust lies in the ability of the public to give effect to the values enunciated in the courtroom.311 But the process of

308. In the words of Sproat and Moriwake, “[m]ore than a set of rules, the public trust embodies an entire way of thinking.” Sproat & Moriwake, supra note 254, at 276.

309. Id.

310. “Water, as a thing in its natural habitat, was variously conceived by the Romans to be res nullus, the property of no one, along with the air, the sea, and wild animals, or as res communes, common things owned by everyone.” Frank J. Trelease, Government Ownership and Trusteeship of Water, 45 Cal. L. Rev. 638, 640 (1957).

311. See BEYOND LITIGATION, supra note 274, at 190 (“The ‘real’ public trust doctrine exists as much in the post-litigation interactions of parties that resolve conflicts and give effect to public trust values as it does in judicial decisions describing and announcing the doctrine’s applicability.”).
infusing public trust values into groundwater decision making can only begin when state courts apply the doctrine. Judge Richard Posner, a leading conservative jurist, has suggested that in the context of common-pooled resources, pragmatic jurists are preferable over legal positivists. Legislative solutions can be terribly inefficient. “American legislatures, in contrast to European parliaments, are so sluggish when it comes to correcting judicial mistakes that a heavy burden of legal creativity falls inescapably on the shoulders of judges [who cannot] bear the burden unless they are pragmatists.”

While judicial imposition of the public trust to groundwater may bring cries of judicial activism, such a decision can draw from a state’s constitution or the rich legacy of numerous other state court decisions to correct the scientific fallacies and legal fictions that still govern groundwater. The protection of our nation’s groundwater cannot depend on the common law, nor can it wait for plodding legislatures or backward-thinking water administrators to ensure that groundwater is available for future generations—for uses that we may not now fathom. The protection of groundwater is just too precious to trust to anything less than the public trust.

312. Sax, supra note 11, at 423. Sax develops this argument from an examination of how the law has treated the common pooled resource of oil and gas. Judge Posner, writing on how courts have treated that resource, acknowledges that judges are called upon to lead the law in pragmatic directions. Id. at 421–23.

313. The term “activist judge,” based on this author’s twenty-three years of litigation experience, is mostly a politically-laden term applied by those who dislike a particular result in court and grasp for a label to explain it.
COVERT OPINION: REVEALING A NEW INTERPRETATION OF ENVIRONMENTAL LAWS

Paul Boudreaux*

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INTRODUCTION

The standard history of the federal environmental statutes is that Congress fairly consistently chose the protection of water, wildlife, and human health over economic interests.1 But is the conventional wisdom

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1. See David M. Driesen, The Societal Cost of Environmental Regulation: Beyond Administrative Cost-Benefit Analysis, 24 Ecology L.Q. 545, 554 (1997) (“Most public health and environmental statutes have the goal of protecting public health and the environment, rather than
correct? Are many of the interpretations in fact the result of agency and judicial creativity? Considering the current U.S. Supreme Court’s growing skepticism of far-reaching environmental laws, much of our settled interpretations might now be on shaky ground.\(^2\) Consider the following story.

**THE COVERT OPINION**

On a trip to Washington this past summer, I was strolling along 2nd Street one sweltering Monday afternoon behind the U.S. Supreme Court’s Greek temple of a courthouse. I glimpsed something shiny out of the corner of my eye; it appeared to emanate from a dumpster behind the regal edifice. Upon closer inspection, the shine came from a plastic wrapping around a paper document. Not seeing any of the usually ubiquitous court police nearby, I retrieved the wrapped document. Even a cursory review revealed that I had stumbled upon something extraordinary; it appeared to be the draft of a pending environmental law decision of great importance. Why this litigation cannot be found in the public records remains a mystery, balancing that protection against economic interests.”); Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333, 1333–35 (1985) (referring to pollution laws as requiring the use of “whatever technology is available to reduce or eliminate . . . risk, so long as the costs of doing so will not cause a shutdown of the plant or industry,” and calling this system an “extraordinarily crude, costly, litigious and counterproductive system of technology-based environmental controls”); DANIEL FARBER, ECO-PRAGMATISM (1997) (discussing the idea of following a pro-environmental “baseline” that places economic and other considerations behind); CARNEGIE COMM’N ON SCIENCE, TECH., AND GOV’T, RISK AND THE ENVIRONMENT, IMPROVING REGULATORY DECISIONMAKING 76 (1993) (asserting that the environmental laws take an overly protective and risk-averse approach to potential environmental harms); STEPHEN Breyer, BREAKING THE VICIOUS CIRCLE (1993) (arguing that our current environmental laws impose misplaced priorities in favor of certain highly publicized risks, at the expense of other, more serious risks).


Conversely, the recent decision in *Massachusetts v. Environmental Protection Agency*, 127 S. Ct. 1438, 1462 (2007) (holding that automotive “greenhouse gas” emissions must be regulated by the EPA as “pollutants” under the Clean Air Act, 42 U.S.C. § 7521(a)(1) (2000)), appeared to diverge from the more skeptical approach to interpreting environmental laws. One may view this case as a unique aberration, however, in that it reflects a desire of the Court to make a statement about the “hot” issue of global climate change. In any event, the vote of Justice Anthony Kennedy appears to be decisive in deciding major environmental law cases, as it has been in many areas of Supreme Court jurisprudence in the early twenty-first century. Kennedy was in the majority in *SWANCC* (decided by a 5–4 vote), concurred in the judgment in *Rapanos* (4–1–4), and was in the majority in *Massachusetts v. Environmental Protection Agency* (5–4).
but I suspect that it might have something to do with national security or the potentially explosive nature of the Court’s draft opinion. At the risk of prosecution, I decided that the public held a right to see and comprehend this important document. The imperfect condition of the discarded document made a handful of words illegible. Nonetheless, I suggest, without undue hyperbole, that few documents in the Court’s history have revealed so candidly a methodology for deciding statutory cases. The draft is printed here, in full, as far as I could discern. The task falls to legal commentators, the public, and the political process to decide what sort of response would be appropriate.

National Association for Better Opportunities for Business and Society [NABOBS], et al., Petitioners,

v.

U.S. Environmental Protection Agency, the U.S. Department of the Interior, et al., Respondents.

______, J., delivered the opinion of the Court. [5]

This action raises serious issues relating to the burdens of environmental law on private property, liberty, and enterprise. Over the past forty years, regulatory agencies and lower courts have imposed questionable interpretations of federal statutes, often predicated on an assumption that the environment takes precedence over all other human goals—an assumption that is unsupported, in many instances, by explicit statutory language.

This litigation is brought by a group of advocates for smaller government and for private property rights. They seek declaratory and other relief associated with a wide variety of federal agency actions. The

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3. One unusual feature is that the opinion uses footnotes for its citations, contrary to usual Supreme Court practice. The opinion thus reads like a law review article.


5. The author of the opinion was, alas, one of the words that was obscured in the draft. Nor is it clear whether there was a draft dissenting opinion.
defendants include a number of federal agencies. Additionally, a number of environmental advocacy groups have submitted briefs as *amicus curiae*.

In recent decisions in environmental cases, this Court has crystallized a more rigorous form of statutory interpretation.\(^6\) When Congress has employed a specific word or phrase, and that meaning is in dispute, the first rule of interpretation should be to discern the plain meaning. This can be done readily by consulting a dictionary and then extrapolating from the most reasonable definition.\(^7\) This task is assisted greatly by relying on traditional canons of interpretation, which often counsel against expansive constructions.\(^8\)

In ascertaining a plain meaning, the Court must give due regard to the principle that the states, not the federal government, retain the chief responsibility in our federal system for regulating (or not regulating) the use of land, water, wildlife, and other resources.\(^9\) We must also be cognizant, of course, of the principles of personal liberty that underlie our constitutional system. When interpreting statutes that might hobble citizens’ free use of private property, we must keep in mind the rule that government cannot, by virtue of the U.S. Constitution’s Fifth Amendment,\(^10\) “go too far” in regulating private property without just compensation.\(^11\)

\(^6\) See, e.g., *Rapanos*, 126 S. Ct. 2208 (plurality opinion); *SWANCC*, 531 U.S. 159. These cases are discussed in the text accompanying notes 14–22.

\(^7\) See *Rapanos*, 126 S. Ct. at 2220–21 (plurality opinion) (relying on a dictionary definition). In following this form of interpretation, not all of the members of the Court’s majority agree that we are seeking to divine the “intent” of the drafters in determining the meaning of a statute. See, e.g., *MCI Telecomm. Corp. v. Am. Tel. & Tel. Co.*, 512 U.S. 218, 228 (1994) (noting that a dictionary issued around the time a statute is enacted is useful in ascertaining meaning). It is possible, of course, that not all of the members of Congress hold a common understanding of a statutory term. Nonetheless, if congressional drafters desire to employ a meaning that is different from the plain, dictionary meaning, they can make this different meaning clear through a precise definition in the statutory text.

\(^8\) See, e.g., *SWANCC*, 531 U.S. at 172–73 (restricting the reach of the Clean Water Act by employing a doctrine that statutes should be interpreted to avoid invoking the “outer limits” of congressional power).

\(^9\) See *Rapanos*, 126 S. Ct. at 2215, 2223 (plurality opinion) (implicitly concluding that the states must retain primary control over water use regulation); *SWANCC*, 531 U.S. at 172–74 (concluding that the traditional authority of the states places congressional regulation of land and water near the “outer limits” of its power under the Commerce Clause, article I, section 8 of the U.S. Constitution.).

\(^10\) U.S. CONST. amend. V.

If we can ascertain a plain meaning through these techniques, our task is complete. We cannot defer, via the famous Chevron doctrine, to contrary or unreasonable interpretations by administrative agencies. Nor do we need to bow before an agency’s supposed expertise in a particular realm. Even long-standing, supposedly settled administrative interpretations must be held unlawful when they depart from our reading of the plain meanings of the words of the statute.

In both our 2006 plurality decision in Rapanos v. United States and our earlier Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC), we rejected a method of statutory interpretation that would have this Court slavishly defer to agency interpretations. Often, onerous interpretations have been imposed upon American citizens by agency bureaucrats with little regard for the plain meaning of the statute’s text. First, in SWANCC, we rejected the U.S. Army Corps of Engineers longstanding interpretation of the federal Clean Water Act’s linchpin term “navigable waters” (oddly defined by Congress to mean “waters of the United States”), which included even small ponds that exist in only one state—an interpretation that ignored the interstate commerce limitation on the powers of Congress. We interpreted the statutory term narrowly through a combination of two tools: (1) the doctrine of avoiding the “outer limits” of congressional power under the commerce

12. See Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 843–44 (1984) (setting forth a two-part test for interpreting statutory terms, the first of which is to discern whether Congress has spoken clearly on an issue, and the second of which is to defer to reasonable agency interpretations if Congress has not spoken on the issue).

13. See Rapanos, 126 S. Ct. at 2232 (plurality opinion) (rejecting the notion that an interpretation that has existed for more than 30 years holds “adverse possession” of the law when it disregards statutory text).

14. Id. at 2208. Although the citizen challengers to the government regulation prevailed by a 5–4 vote in Rapanos, the Court issued no majority opinion. Justice Scalia wrote a plurality opinion, id. at 2214, while Justice Kennedy concurred only in judgment, id. at 2236. Justice Stevens wrote a dissent for four justices. Id. at 2252.


16. 33 U.S.C. § 1362(7) (2000). In full, the statute defines “navigable waters” as “waters of the United States, including the territorial seas.” Id.

17. See U.S. CONST. art. I, § 8, cl. 3 (giving Congress the power to regulate “commerce among ... the several states”). We have recently reaffirmed that this restriction imposes real boundaries on federal legislation. See SWANCC, 531 U.S. at 173–74 (restricting the Clean Water Act in order to avoid an interpretation that might exceed the commerce power); United States v. Morrison, 529 U.S. 598, 617 (2000) (holding a statute unconstitutional that provides for federal criminal penalties for violence against women); United States v. Lopez, 514 U.S. 549, 567 (1995) (holding that the Gun-Free School Zones Act is an unconstitutional exercise of Congress’s commerce clause power).
clause; and (2) the principle of the “tradition” of state and local control of water and land use.\(^\text{18}\)

In *Rapanos*, a majority of the Court reversed agency decisions under the Clean Water Act that had required permits for discharging into a wetlands area and into a channel that were not immediately adjacent to truly navigable-in-fact bodies of water.\(^\text{19}\) A plurality of the Court extrapolated from a dictionary definition to limit the fundamental term “waters” to include only relatively permanent oceans, rivers, streams, and lakes. In doing so the Court implicitly rejected agency interpretations that had broadly covered wetlands, intermittent water bodies such as arroyos, and man-made channels.\(^\text{20}\) In addition, this reading rejected an argument for administrative deference based on the fact that agency bureaucrats, hounded

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18. *SWANCC*, 531 U.S. at 172–73. As for the first jurisprudential tool, we wrote that “[w]here an administrative interpretation of a statute invokes the outer limits of Congress’s power, we expect a clear indication that Congress intended that result.” *Id.* at 172 (citing Edward J. DeBartolo Corp. v. Fla. Gulf Coast Bldg. & Constr. Trades Council, 485 U.S. 568, 575 (1988)). This doctrine arises from a desire to avoid deciding constitutional issues needlessly. *Id.* at 172. We note that the concept of avoiding even the “outer limits” of a power bears a strong resemblance, in reverse, of the notion that constitutional rights exist when they are in the “penumbra” of enumerated rights. See *Griswold v. Connecticut*, 381 U.S. 479, 483–84 (1965) (setting forth the “penumbra” notion to create a right to privacy).

The concern over avoiding “outer limits” is “heightened,” we wrote, when a possible interpretation would “alter the federal-state framework by permitting federal encroachment upon a traditional state power.” *SWANCC*, 531 U.S. at 173 (citing United States v. Bass, 404 U.S. 336, 349 (1971)). We concluded that state and local governments have a “traditional and primary power over land and water use.” *Id.* at 174 (citing Hess v. Port Auth. Trans-Hudson Corp., 513 U.S. 30, 44 (1994)). Our blanket conclusion that the federal government has no “tradition” of control of land or water use was not affected by more than thirty years of federal laws on the environment or the body of law establishing federal control of interstate water disputes. See, e.g., Reclamation Act of 1902, 43 U.S.C. § 371 (2000) (federal law to stimulate water projects in dry states); *Winters v. United States*, 207 United States 564, 577 (1908) (setting forth a federal law principle that the federal government holds a reserved water right when it reserves or withdraws public land, such as for an Indian reservation or a national park).


20. See *id.* at 2220–26 (relying on the definition of “waters” in *Webster’s New International Dictionary* 2882 (2d ed. 1954)). Since the *Rapanos* decision, some writers have criticized the plurality opinion for its apparent assumption that wetlands are categorically not “permanent” or “standing.” See, e.g., Paul Boudreaux, *A New Clean Water Act*, 37 ENVTL. L. REP. 10,171, 10,188 (2007). For example, the *Webster’s Third New International Dictionary* (1961) [hereinafter *Webster’s Third*], replaced the definition in the “Webster’s Second” edition of 1954, quoted by the plurality in *Rapanos*, 126 S. Ct. at 2220–21, in favor of a definition of “waters” that included “the water occupying or flowing in a particular bed.” *Webster’s Third*, supra at 2581. This revised definition certainly could include even intermittent wetlands. We decline, however, to use the instant opinion to revisit the issue.
by the so-called environmental community, had applied the broader interpretations for many decades.21

_**Rapanos** and _**SWANCC** offer a bold new vision for re-interpreting the environmental laws. They offer a vision that clears away the clouds and dust of choking agency rules and stifling lower court decisions, to reveal a clear blue vista of liberty.22

With this in mind, we consider the petitioners’ challenges to (1) the National Environmental Policy Act, (2) the Comprehensive Environmental Response, Compensation and Liability Act, (3) the Clean Water Act, and (4) the Endangered Species Act.23

I. THE NATIONAL ENVIRONMENTAL POLICY ACT

In 1969 Congress enacted the National Environmental Policy Act (NEPA),24 which for the first time insinuated a significant federal presence into the realms of land, water, and other resources, which for nearly 200 years had been almost exclusively the regulatory province of the states and local governments.25 Buried in the middle of the statute was a seemingly innocuous requirement that each federal agency include, along with proposals for legislation and other proposed actions, a “detailed statement”

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21. After criticizing the agency interpretations as burdensome, the _Rapanos_ plurality rejected what it called the agencies’ “Land is Waters” approach, which the plurality chastised as “beyond parody.” _Rapanos_, 126 S. Ct. at 2214–15, 2222. The plurality then rejected the invitation that it should “defer” to what it had concluded was an unreasonable agency interpretation. _Id._ at 2232–33.

After the split decision in _Rapanos_, some lower courts have followed the “significant nexus” test set forth by Justice Kennedy, who concurred in the judgment but not with the reasoning of the plurality. _See Rapanos_, 126 S. Ct. at 2236 (Kennedy, J., concurring in the judgment). These lower court decisions employed the rather dubious logic that regulation of a water body with a “significant nexus” to navigable-in-fact waters probably would have been approved of by five members of the Court in 2006 (Justice Kennedy and the four _Rapanos_ dissents). _See United States v. Johnson_, 467 F.3d 56, 58 (1st Cir. 2006) (applying “significant nexus”). _But see United States v. Chevron Pipe Line Co._, 437 F. Supp. 2d. 605 (N.D. Tex. 2006) (following the _Rapanos_ plurality’s reasoning). We give no encouragement to such a reading of precedent. Undoubtedly, the issue of “waters” will return to the Supreme Court.

22. By “blue,” we do not mean to refer to partisan politics, of course.

23. We do not render any judgment today on claims seeking reinterpretation of the Clean Air Act, 42 U.S.C. §§ 7401–7671q (2000). To be frank, we believe that the petitioners’ arguments concerning this Act are, categorically, not as plainly correct as their claims under the other statutes. In fact, we find the Clean Air Act to be very confusing. [Note to judicial law clerks: Ensure that this last sentence does not appear in the final draft; replace it with more appropriate language.]


of the environmental impact of the proposed action when it “significantly affect[s] . . . the human environment.”

From this simple provision, however, an extraordinary industry has mushroomed. The lower courts and a federal agency, the Council on Environmental Quality (CEQ), have created a byzantine system of requirements for bulky “environmental impact statements” (EISs). CEQ regulations demand an exploration of environmental impacts through a cumbersome and regimented process of considering various “alternatives” to an agency’s proposed action and comparing the expected impacts. For major agency actions, the construction of an EIS can take more than a year, cost millions of dollars, and result in a scientific study that fills many volumes.


27. See 40 C.F.R. §§ 1500.1–1508.28 (2007) (CEQ regulations concerning the implementation of NEPA).

28. The CEQ regulations prescribe details such as: (1) whether to create an “environmental assessment” to decide whether to take on the larger task of a full-blown EIS, 40 C.F.R. § 1501.4(b); (2) the “timing” of the EIS, id. § 1502.5; (3) the recommended format, id. § 1502.10; (4) how various “alternatives” should be considered, id. § 1502.14; and (5) which categories of environmental impacts to consider (confusingly renamed both “consequences” and “effects” in the CEQ regulations, id. § 1502.6 (referring to § 1508.8)).

Among the most brazen of the CEQ’s expansions of the law is a requirement that an EIS include “appropriate mitigation measures.” Id. § 1502.14. The statute contains no such requirement. Indeed, this Court has stated that NEPA imposes only procedural requirements, and does not require any particular substantive decisions to further any particular environmental interests. See Stryker’s Bay Neighborhoods Council, Inc. v. Karlen, 444 U.S. 223 (1980), cited in Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989) ("[I]t is now well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process.").

29. Even the CEQ conceded, in a comprehensive review of NEPA in 1997, that compliance with the Act “takes too long and costs too much,” that “documents are too long and technical for people to use,” that the EIS process “is still frequently viewed as merely a compliance requirement,” and that in consequence “millions of dollars, years of time, and tons of paper have been spent on documents that have little effect on decisionmaking.” Council on Envtl. Quality (CEQ), The National Environmental Policy Act: A Study of Its Effectiveness After Twenty-Five Years 7 (1997), available at http://ceq.eh.doe.gov/nepa/nepa25fn.pdf.

In a recent academic study of NEPA, it was noted that a typical Department of Energy EIS took two and a half years to complete. Daniel R. Mandelker & Charles Eccleston, Comments on the Task Force on Improving the National Environmental Policy Act, at para. 7 (2006) (citing Dep’t of Energy, National Environmental Policy Act, Learned Lessons 40 (2005)). Although the academicians found that the average EIS was 204 pages long, some EISs can run “several thousand pages” in length. Id. Another report found that the average cost of producing a programmatic EIS at the DOE was $12.5 million. Nat’l Acad. of Pub. Admin., Managing NEPA at the Department of Energy, at pt. IV.C (1998), available at http://www.eh doe.gov/nepa/process/ napa_rep/napa_rep.html.
The heavy regulatory burden of NEPA began, to a large extent, with a famous and audacious decision of the U.S. Court of Appeals for the District of Columbia, in *Calvert Cliffs Coordinating Committee v. Atomic Energy Commission*. In this extraordinary opinion—the first major appellate decision under the new law—Judge J. Skelly Wright used powers of creativity to turn a seemingly small and harmless statute (a “paper tiger,” some called it) into a regulatory dragon. Judge Wright concluded that NEPA required the creation of an EIS even for projects that had been tentatively approved, such as nuclear power plants. The CEQ followed by imposing its intricate regulations for the timing and preparation of an EIS. Among other things, the *Calvert Cliffs* opinion helped establish the principle that, if a federal agency does not follow requirements to the letter, it exposes itself to a court-ordered injunction that may stop the agency in its tracks. Through such an injunction, the benefits to the American people of the proposed agency action may be lost.

Interestingly, the government did not petition for a writ of certiorari in the *Calvert Cliffs* case. Perhaps the Nixon administration was seeking to avoid controversy in an election year. For whatever reason, today, more than thirty-five years later, we address for the first time the appropriate meaning of the fundamental provisions of NEPA.

### A. “Detailed Statement”

As we have noted, NEPA simply requires an agency to prepare a “detailed statement” on the environmental impact. What does this

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30. *Calvert Cliffs’ Coordinating Comm., Inc. v. U.S. Atomic Energy Comm’n*, 449 F.2d 1109 (D.C. Cir. 1971). We note that this decision has become somewhat of a heroic “model” for some who advocate in favor of judicial activism to foster environmental protection.

31. Indeed, Judge Wright’s opinion appeared to revel in its ground-breaking. The opinion began by stating, “These cases are only the beginning of what promises to become a flood of new litigation-litigation seeking judicial assistance in protecting our natural environment.” *Id.* at 1111. It concluded by stating, “No less is required if the grand congressional purposes underlying NEPA are to become a reality.” *Id.* at 1129.

32. *Id.* at 1127–29 (requiring an overhaul of the NEPA rules created by the Atomic Energy Commission). The opinion in *Calvert Cliffs* held that agencies must always consider environmental impacts in their decision-making, regardless of language in the statute saying that the burdens were to be imposed “to the fullest extent possible.” *Id.* at 1114–15 (disregarding the importance of the “fullest extent possible” language in 42 U.S.C. § 4332 (2000)).


34. *See Calvert Cliffs*, 449 F.2d at 1129 (enjoining the agency from going ahead with nuclear plant projects that had already been tentatively approved, until it had complied with the letter of the court’s interpretations).

requirement of a “statement” mean? Let us consult Webster’s Dictionary.\footnote{In \textit{Rapanos}, a plurality of this Court relied on \textit{WEBSTER’S NEW INTERNATIONAL DICTIONARY} (2d ed. 1954)—affectionately called “Webster’s Second” by many who were educated in the 1950s. \textit{Rapanos} v. United States, 126 S. Ct. at 2220–21. In 1961, however, Merriam-Webster, Inc., released \textit{WEBSTER’S THIRD}, supra note 20. In contrast to the Second, which followed a prescriptive approach, through which definitions were based on traditional usage, the Third followed a more descriptive approach, through which words were defined by how they were being used at the time of publication. A descriptive approach is far more susceptible to change, of course. \textit{See} W. Mich. Univ., Finding Word Information: English Language Dictionaries, http://www.wmich.edu/library/guides/find/dictionaries.php (last visited Sept. 13, 2007). Many traditional critics were upset. \textit{See}, e.g., Wilson Follett, \textit{Sabotage in Springfield}, \textit{ATLANTIC MONTHLY}, Jan. 1962, at 73 (calling Webster’s Third “a dismayingly assorted assemblage of the questionable, the perverse, the unworthy, and the downright outrageous”). In a sense, the Third was a harbinger of the more “permissive” society of the 1960s, when many young Americans rejected traditional values in favor of “finding yourself” and “doing your own thing.” For more on the debate surrounding the Third, see generally \textit{HERBERT CHARLES MORTON, THE STORY OF WEBSTER’S THIRD: PHILIP GOVE’S CONTROVERSIAL DICTIONARY AND ITS CRITICS} (1994). The Third, updated mostly recently in 2002, remains the most scholarly unabridged dictionary of the English language published in the United States. For a discussion of the uses of dictionaries by the Supreme Court, see \textit{Note, Looking It Up: The Supreme Court’s Use of Dictionaries in Statutory and Constitutional Interpretation}, 107 HARV. L. REV. 1437 (1994).} “Statement” is defined as “a single declaration or remark.”\footnote{WEBSTER’S THIRD, supra note 20, at 2229.} This plainly implies a short document. A “statement” does not mean, by contrast, a \textit{study}, an \textit{analysis}, or an \textit{exposition}, which imply longer and more multifaceted documents. Had Congress intended to require a longer study, it could have used one of these other terms; but it required only a “statement.” To write a “detailed” statement means only to recite specific particulars.

To understand the appropriate meaning of a \textit{statement}, consider an example of the environmental impacts of starting up a nuclear power plant. It would be a sufficiently “detailed statement” to note that a power plant would (1) require the use of a large amount of water for cooling of the plant, (2) discharge warm water that might harm fish and water plants, and (3) pose a small risk of radioactive hazard because it uses radioactive materials (such as uranium and plutonium) and disposes of other radioactive elements. After considering a handful of alternative approaches to the proposed action and a few other minor points, this statement is all that the statute requires.\footnote{42 U.S.C. § 4332(2)(C)(iii) (2000) (requiring the consideration of alternatives). The statute also requires a statement on “the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity,” and “any irreversible and irrevocable commitment of resources which would be involved in the proposed action should it be implemented.” \textit{Id.} § 4332(2)(C)(iv), (v).} To impose more, such as the CEQ’s complex commands, simply goes beyond the statutory text. It is a usurpation of legal authority. Accordingly, we hold today that the CEQ’s regulations...
concerning the creation of a complicated and regimented EIS are unlawful interpretations of NEPA and may not be enforced.

B. “Accompany”

Next, Calvert Cliffs required that high-level agency decisionmakers must actually read and consider the EISs before making their decision. But NEPA does not compel this duty. The statute requires only that a statement “accompany” a proposal through the agency decisionmaking process. To accompany means merely to “go along with,” according to Webster’s. If Congress had meant to require agencies to consider the statement, it could have said so.

The reasoning in Calvert Cliffs on this point is symptomatic of the activist method of interpretation that we disavow. Judge Wright asked rhetorically, in the face of the plain meaning of the statute: “What possible purpose could there be in the section 102(2)(C) requirement (that the ‘detailed statement’ accompany proposals through agency review processes) if accompany means no more than physical proximity? . . . The word ‘accompany’ in section 102(2)(C) must not be read so narrowly as to make the Act ludicrous.”

Although it may be tempting for a federal judge to interject his personal belief as to whether a decision of Congress is “ludicrous,” such a belief must not interfere with the interpretation of a statute. To accompany means to “go along with,” and nothing more. Congress required only that the statement accompany an agency proposal through the review process. Congress plainly left it to the sound discretion of the agency whether to consider the substance of the statement. Accordingly, we reject the reasoning of Calvert Cliffs that an agency must consider the content of the environmental statement, and we hereby hold unlawful any CEQ interpretations that go beyond the simple “accompany” requirement.

40. 42 U.S.C. § 4332(2)(C) (2000). To be precise, the statute requires only that the statement “accompany the proposal through the existing agency review processes.” Id.
41. WEBSTER’S THIRD, supra note 20, at 12.
42. Calvert Cliffs, 449 F.2d at 1117.
C. “Human Environment”

NEPA limits an agency’s statement to those impacts that affect the quality of the “human environment.” In its regulations, however, the CEQ has stretched this term with considerable force. The regulations state that the term “shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment… [E]conomic or social effects are not intended by themselves to require preparation of an environmental impact statement.”

The term “effects” is defined to encompass consequences that are “ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.” Some lower courts have blindly followed the CEQ’s complex commands.

This extraordinary stretch of the scope of NEPA (in a manner that seems to disregard the traditional limits of proximate causation by its inclusion of “indirect effects”) once again runs counter to the plain meaning of the statute. The meaning of “human” is self-apparent. According to Webster’s, the plain meaning of “environment” relates to surroundings that “influence.”

Accordingly, the CEQ regulations expand impermissibly and illogically the definition of “human environment.” Indeed, the simple fact that the CEQ’s definition refers to both “the relationship of people with [the] environment” (which roughly encompasses the plain meaning of “human environment”) and “the natural and physical environment” (which fails to relate to humans at all) clearly shows that the regulations define “human environment” far too broadly.

We hold today that “human environment” is limited to those facets of the environment that directly affect human beings. Air pollution in cities, water used for drinking, and animals hunted as game each are part of the “human environment,” of course. But other aspects of what the CEQ calls

46. Id. § 1508.8(b).
47. See, e.g., Pit River Tribe v. Bureau of Land Mgmt., 306 F. Supp. 2d 929, 936 (D. Cal. 2004) (including within “human environment” things such as “wildlife” and American Indian “traditional cultural values”), rev’d, 469 F.3d 768 (9th Cir. 2006) (reversing some holdings in favor of the government and leaving untouched the conclusions about the reach of “human environment”).
48. See 40 C.F.R. § 1508.8(b) (2007) (requiring a discussion of “indirect effects”).
49. Webster’s defines “environment” as “the aggregate of social and cultural conditions . . . that influence the life of an individual or community.” WEBSTER’S THIRD, supra note 20, at 760.
“ecological” effects (a word never used in the statute) plainly are outside of the “human environment.” Indeed, the fact that Congress chose to modify “environment” with “human” (as opposed to “natural” or no modification at all) shows Congress’s exclusive focus on human-oriented effects. Accordingly, the effects of agency actions on the “natural” environment are excluded from NEPA’s reach. Effects on wildlife, forests, mountains, and water bodies are not part of the “human environment” unless these consequences have a direct effect on human interests.

Consider, for example, an agency action to approve logging in a national forest, which might affect some sea birds that nest in the trees. 51 Under the CEQ’s regulations, the agency would have to study the effects of logging on the trees and on the birds. Under the plain words of NEPA, however, the agency need only study effects upon the “human” environment, which, depending on the circumstances, might include the logging’s destruction of a popular recreational trail or the loss of a population of deer that are hunted for sport. 52 However, effects on “nature” alone are excluded under the plain meaning of the statute.

These clarifications to NEPA will significantly decrease the federal government’s workload and costs necessitated by the law. Our interpretations, which shear away from NEPA the accretions imposed by lower courts and overzealous agencies, will allow the government to pursue important and essential work, such as protecting the nation’s security, unimpeded by senseless paperwork and intolerable delay.

51. See, e.g., Marbled Murrelet v. Babbitt, 83 F.3d 1060 (9th Cir. 1996) (affirming an injunction against a federally permitted logging operation because of the possibility that the logging would harm an endangered species, the sea bird called the marbled murrelet).

52. How close must the causal link be? Absent a contrary congressional command, we rely on a presumption of using the traditional legal doctrine of proximate causation, which excludes liability for effects that are too "remote" from the causal actor. See RESTATEMENT (SECOND) OF TORTS § 431(a) (1965) (discussing the requirements for legal causation). The requirement of proximate causation has been incorporated by federal courts into many federal statutes that impose liability, including: (1) the Endangered Species Act, 16 U.S.C. § 1538(a)(1)(B) (2000); see Babbitt v. Sweet Home Chapter of Cmtys. for a Great Or., 515 U.S. 687, 696–97 n.9 (1995) (referring to “ordinary requirements of proximate causation and foreseeability”); (2) the Lanham Act, 15 U.S.C. § 1114 (2000) (governing advertising misrepresentation); e.g., TeleRep Caribe, Inc. v. Zambrano, 146 F. Supp. 2d 134, 143 (D.P.R. 2001); (4) the Securities Exchange Act § 10(b), 15 U.S.C. § 78j(b) (2000) (governing the sale of stocks and bonds); e.g., In re IBM Corporate Sec. Litig., 163 F.3d 102, 106 (2d Cir. 1998); and (4) certain civil provisions of the Racketeer-Influenced Corrupt Organizations Act; e.g., Holmes v. Sec. Investor Prot. Corp., 503 U.S. 258, 266 n.11 (1992).
II. CERCLA

A lame-duck Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act in late 1980, just before Ronald Reagan was inaugurated as President.53 The statute serves almost as a symbol of the passing of an era of heavy government intervention into private affairs and private property. Nonetheless, lower court and agency interpretations of CERCLA since 1980 have saddled American businesses with the burdens of multi-million dollar “responses” (more easily understood as “cleanups”) of hazardous waste sites, typically lasting many years.54 These duties have been imposed retroactively, even for waste that was disposed of lawfully many decades ago.55 Property owners have been required to remove, in effect, every last molecule of hazardous wastes, even though many economic studies have shown the inefficiency of a “not-good-enough-until-the-last-drop” approach.56 By reviewing the text of the statute, however, we conclude that CERCLA’s interpretations must be significantly restrained.

A. Interstate Commerce

In CERCLA, Congress authorized the President to “respond” to “releases” of hazardous substances.57 The President has delegated his

Remarkably, however, the statute holds no textual link to Congress’s constitutional limitation in regulating interstate commerce.\footnote{See U.S. CONST. art. I, § 8, cl. 3 (giving Congress the power to regulate “commerce . . . among the several states”); see also Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng’rs (SWANCC), 531 U.S. 159, 173–74 (2001) (restricting the Clean Water Act in order to avoid an interpretation that might exceed the commerce power); United States v Morrison, 529 U.S. 598 (2000) (holding that a federal statute was unconstitutional under the commerce power); United States v. Lopez, 514 U.S. 549, 549 (1995) (holding a federal statute unconstitutional under the commerce power).}

Before CERCLA, regulation of land and pollution on land was the prerogative of state and local law, not federal law.\footnote{See SWANCC, 531 U.S. at 174 (2001) (citing Hess v. Port Auth. Trans-Hudson Corp., 513 U.S. 30, 44 (1994)) (referring to “States’ traditional and primary power over land and water use”).


62. See SWANCC, 531 U.S. at 172–73 (stating that concerns over excessive federal powers “are heightened where the administrative interpretation alters the federal-state framework by permitting federal encroachment upon a traditional state power,” such as the traditional state and local control of land and water use).

63. The broadest construction of Congress’s interstate commerce power is that it allows for the regulation of activities that “substantially affect” interstate commerce. Lopez, 514 U.S. at 558–59. At least one court of appeals has suggested that CERCLA may apply to releases in which there is no evidence that the release has extended over state lines. United States v. Olin Corp., 107 F.3d 1506 (11th Cir. 1997). The decision in Olin appears not have taken seriously our jurisprudence on the commerce power. We disapprove of any language or holding in Olin that is inconsistent with our opinion today.

64. A quick review of many famous CERCLA cases does not show any readily apparent link to interstate commerce. See, e.g., United States v. Bestfoods Corp., 524 U.S. 51 (1998) (release at a
B. Strict Liability

Additionally, the petitioners challenge the application of CERCLA to circumstances in which businesses have acted reasonably in handling the waste. CERCLA’s section 107 states only that certain parties “shall be liable” for the costs of the response.\(^{65}\) The definitional section states that the terms “‘liable’ or ‘liability’ . . . shall be construed to be the standard of liability which obtains under § 1321 of Title 33.”\(^{66}\) Accordingly, definitional gymnastics send us to the Clean Water Act’s provision that imposes liability for cleanups of oil spills.\(^{67}\) Unfortunately, this provision does not resolve the issue because its reference to “liability” is as vague and unhelpful as that in CERCLA.\(^{68}\) The respondents suggest that it was “understood” at the time of the passage of CERCLA that the standard of liability under 33 U.S.C. § 1321 was strict liability.\(^{69}\) But statutory interpretation does not rely on what advocates, congressional staffers, or so-called environmentalists might have “understood;” rather, it is based on the statutory text itself.\(^{70}\)

As for the proper standard of liability under the oil spill provision, it appears that certain lower courts had reasoned, rather woodenly, that because Congress expressed great concern over the problem of oil spills, the courts must interpret the statute broadly.\(^{71}\) Similar arguments have been made for reading strict liability into CERCLA.\(^{72}\) Indeed, certain lower

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\(^{65}\) The strangely worded section 107(a) of CERCLA states that four categories of persons—present owners of property, former owners of property, arrangers, and transporters—“shall be liable” for cleanup costs. 42 U.S.C. § 9607(a) (2000). This section does not specify any standard of liability.

\(^{66}\) Id. § 9601(32) (referring to 33 U.S.C. § 1321).


\(^{68}\) See id. (failing to set forth a standard of liability, although it does provide a clear defense to spills caused by a third person).


\(^{70}\) See Rapanos v. United States, 126 S. Ct. 2208, 2332 (2006) (plurality opinion) (concluding that the fact that an interpretation has existed for 30 years does not change the meaning of a statute that is contrary to the long-time interpretation).

\(^{71}\) See, e.g., United States v. West of England Ship Owner’s Mut. Prot. & Indem. Ass’n, 872 F.2d 1192, 1195–96 (5th Cir. 1989) (finding strict liability, in large part by imposing a burden on the defendants to show that Congress intended to create a system of fault-based liability); Burgess v. M/V Tamano, 564 F.2d 964, 981–82 (1st Cir. 1977) (concluding, rather boldly, that the purpose of the statute would be undermined unless strict liability were imposed), cert. denied, 435 U.S. 941 (1978); Sabine Towing & Transp. Co. v. United States, 666 F.2d 561, 565–66 ( Ct. Cl. 1981) (imposing strict liability following a conclusion that the Clean Water Act holds a “remedial” purpose).

federal courts have resorted to merely citing each other without basis in the statute itself, for the proposition that CERCLA imposes strict liability. 73

This approach is illogical. In cases outside CERCLA, we have rejected the unwise practice of interpreting a statute by trying to extrapolate from its general “purpose.” 74 Such a methodology inevitably leads to applications that are broader than the words of the statutory text and that intrude into the liberties of American citizens. As the plurality stated in Rapanos, “no law pursues its purpose at all costs, and . . . the textual limitations upon a law’s scope are not less a part of its ‘purpose’ than its substantive authorizations.” 75 Accordingly, neither Congress’s reference to 33 U.S.C. § 1321, nor the supposed remedial “purpose” of CERCLA, answer the liability question.

In the absence of clear direction from Congress, we look to the well-established doctrine that derogations from the common law must be made explicit by the statutory text. 76 There is no doubt that CERCLA is a species of statutory tort law; it does not regulate activity, but rather imposes liability for past acts that allegedly contribute to current harm. 77 Every first-year law student knows that common law tort liability typically is predicated on a showing of negligence (with certain explicit and highly limited exceptions, such as abnormally dangerous activities). 78
Accordingly, the doctrine concerning derogations from the common law compels us to conclude that liability under CERCLA can be imposed only when the defendant has been negligent in its actions. As with all civil litigation, the plaintiff holds the burden of proving this element in litigation. 79

C. Retroactivity

Next, we respond to the petitioners’ argument that CERCLA cannot be interpreted to impose liability for conduct taken before its enactment in 1980. Once again, Congress was frustratingly silent as to whether it intended to make the statute retroactive. And once again, courts in the early days of the statute used the “purpose” argument to impose retroactive liability—a logic that later cases have simply repeated in circular fashion. 80

Needless to say, such an interpretation implicates serious issues of procedural due process and ex post facto application. 81 Even today, in the twenty-first century, CERCLA litigation still ensnares many pre-1980 disposals—undoubtedly to the shock of businesses and citizens who acted in full accordance with the laws when they disposed of waste before 1980. 82


80. See United States v. Ne. Pharm. & Chem. Co., Inc. (NEPACCO), 810 F.2d 726, 733 (8th Cir. 1986) (concluding that “to be effective, CERCLA must reach past conduct” and that the “statutory scheme itself is overwhelmingly remedial and retroactive”); United States v. R.W. Meyer, Inc., 889 F.2d 1497, 1506 (6th Cir. 1989) (relying on NEPACCO and “the broad remedial purposes underlying CERCLA”).

81. The problem of whether a retroactive application violates due process was recognized as early as the NEPACCO case in 1986. See NEPACCO, 810 F.2d at 733 (affirming the district court finding that retroactive application of CERCLA does not violate due process). The U.S. Constitution prohibits ex post facto laws, which seek to make unlawful conduct that was lawful when it occurred. U.S. Const. art. I, § 9, cl. 3. Although the principle applies with full force only to criminal laws, Calder v. Bull, 3 U.S. (3 Dall.) 386, 390 (1798), the principle that government should avoid upsetting the expectations of parties can inform us in crafting a proper interpretation of civil laws such as CERCLA.

Happily, we can avoid the constitutional problems by relying on the venerable doctrine that statutes apply only prospectively, unless the legislature clearly commands that liability is to be imposed retroactively. Congress made no such statement in the statutory text of CERCLA. Accordingly, we hold that CERCLA does not apply to any conduct, including the disposal of hazardous waste, which was engaged in before its enactment in 1980.

D. The “Order” Authority

Finally, the petitioners argue that the EPA has exceeded its powers under CERCLA by claiming an extraordinary power to unilaterally “order” a private party to conduct a cleanup, even on private property. A typical cleanup costs multiple millions of dollars.

The EPA asserts a power to order through section 106(a) of the Act. But this subsection does not authorize precisely what the government says it does; indeed, Congress enacted here another puzzling provision. The subsection sets forth two authorizations. The first sentence empowers the President to authorize a civil action in federal court, but only when there is an “imminent and substantial endangerment.” Then, the subsection states, in almost an afterthought: “The President may also, after notice to the affected State, take other action under this section including, but not limited to, issuing such orders as may be necessary to protect public health and welfare and the environment.” From this obtuse sentence, the EPA, in a daring leap, has asserted a power to command a citizen to spend unlimited funds to cleanup one’s own property. This power is made even more

83. See SWANCC, 531 U.S. at 172–73 (doctrine of avoiding constitutional issues).
84. Bowen v. Georgetown Univ. Hosp., 488 U.S. 204, 208 (1988) (“Congressional enactments and administrative rules will not be construed to have retroactive effect unless their language requires this result.”); see Gen. Motors Corp. v. Romein, 503 U.S. 181, 191 (1992) (“Retroactive legislation presents problems of unfairness that are more serious than those posed by prospective legislation, because it can deprive citizens of legitimate expectations and upset settled transactions.”); Dash v. Van Kleeck, 7 Johns. *477, *503 (N.Y. 1811) (“It is a principle of the English common law, as ancient as the law itself, that a statute, even of its omnipotent parliament, is not to have a retrospective effect.”). See generally Elmer E. Smead, The Rule Against Retroactive Legislation: A Basic Principle of Jurisprudence, 20 MINN. L. REV. 775 (1936) (discussing the rejection of retroactive legislation throughout history).
85. See supra note 54 for a discussion on the costs of a CERCLA cleanup.
87. Id. (“In addition to any other action taken by a State or local government, when the President determines that there may be an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of hazardous substance from a facility, he may authorize the Attorney General to secure such relief as may be necessary [in the U.S. District Court].”).
88. Id.
totalitarian by the fact that CERCLA prohibits a federal court from hearing a challenge to such an order—a situation that raises serious questions of procedural due process. We find it inconceivable that Congress sought to create such a dictatorial control of private property and private funds through a vague reference to an “order.” Among a myriad of problems with the EPA’s interpretation is that the “order” sentence never refers to the “release” of hazardous substances. Another crippling fault is that such a tyrannical power to order a cleanup would in effect make the civil lawsuit authorization in section 106(a) a nullity, in violation of a principle of statutory interpretation. Next, a nearly unlimited federal invasion of private property by “order” raises a grave question whether the EPA’s interpretation constitutes an unlawfully uncompensated regulatory “take” of property, in violation of the Fifth Amendment. Appropriate compensation would, of course, require full reimbursement of the costs of the cleanup.

Invoking again the principle of avoiding unconstitutional interpretations, we conclude that, in order to avoid the looming barriers of due process and the taking of private property, as well as avoiding a statutory nullity, CERCLA’s section 106(a) does not authorize the federal government to issue an order to clean up a release of hazardous substances. A “response” directive may be secured only through a civil judgment in federal court, as plainly authorized by the first sentence of section 106(a). The final sentence, however, is properly limited only to administrative “orders” concerning the details of a response, but only after such a response has been directed through a judgment of a federal court.

89. 42 U.S.C. § 9613(h) (stating no judicial review of a CERCLA order). A party must wait until it has already paid for the cleanup before suing for reimbursement. Id. § 9606(b)(2)(A). This blocking of access to the federal courts raises serious issues of due process. See M.L.B. v. S.L.J., 519 U.S. 102 (1996) (holding that a state violates due process when it imposes certain conditions on the right to appeal in a civil case); Griffin v. Illinois, 351 U.S. 12 (1956) (explaining that due process requires the state to furnish an indigent criminal defendant with a free trial transcript).

90. Courts at all levels have followed the principle that a statute should be read to avoid rendering any part of it a nullity. See, e.g., In re Cervantes, 219 F.3d 955, 961 (9th Cir. 2000) (“We have consistently rejected interpretations that would render a statutory provision surplusage or a nullity.”); State v. Beard, 22 P.3d 116, 121 (Idaho Ct. App. 2001) (“It is incumbent upon a court to give a statute an interpretation, which will not render it a nullity.”); Bailey v. Joy, 810 N.Y.S.2d 644, 648 (Sup. Ct. 2006) (“It is a fundamental canon of statutory construction that a Court must avoid an interpretation of a statute that renders it a nullity.”).


In sum, we conclude that CERCLA addresses only releases that significantly affect interstate commerce, imposes liability only through a showing of negligent conduct that occurred after 1980, and authorize cleanups only through a federal court order. The government suggests that our interpretation would “gut” CERCLA and expose the public to great risks from hazardous waste. But it is not for this Court to make policy; our role simply is to apply the statute Congress enacted. It is worth noting, however, that our clarified interpretations of CERCLA merely return much regulatory power to the states and relieve American citizens from some of the extraordinary costs of hazardous waste liability and litigation, much of which ends up in the pockets of so-called environmental lawyers.93

III. THE CLEAN WATER ACT

Next, we return to the Clean Water Act,94 the subject of our decisions in *Rapanos* and *SWANCC*. In the former case, the Court’s plurality, but not a majority, reasoned that the linchpin term “waters of the United States” covers only relatively permanent bodies, such as oceans, rivers, streams, and lakes, but not locations that are intermittently wet, such as many wetlands.95 While we do not revisit the “waters” definition, we do interpret other terms in the Clean Water Act and conclude that the regulatory agencies and lower courts have imposed greater burdens on American citizens than the Act imposes.

A. “Addition”

The Clean Water Act reflects a break with American tradition in that it intrudes federal regulation into a domain that traditionally has been the province of state law.96 Most obligations in the Clean Water Act arise from section 301(a), which generally makes unlawful the “discharge of any pollutant” by any person (but subject to a number of important exceptions, such as a permitting requirement).97 An effort to understand this phrase sends us to the definitional section 502, which is, alas, akin to a trip to


96. See *SWANCC*, 531 U.S. at 174 (citing Hess v. Port Auth. Trans-Hudson Corp., 513 U.S. 30, 44 (1994)) (referring to the “States’ traditional and primary power over land and water use”).

Alice’s Wonderland, where straightforward answers may be sought but never found.  Although subsection 502(16) provides a definition of “discharge’ when used without qualification, 99 the statute provides no definition whatsoever of the term “discharge of any pollutant”—a term that plainly is a discharge with a qualification (the qualification being that it must involve a “pollutant,” which is further defined). 100 The term “discharge’ when used without qualification” is defined as “includ[ing] a discharge of a pollutant and a discharge of pollutants.”101 The latter two terms—“discharge of a pollutant” and “discharge of pollutants”—are of course not precisely the same as section 301’s reference to “discharge of any pollutant.”102

We are tempted at this point to toss up our hands and conclude that Congress bizarrely provided no definition at all of section 301’s key term—“discharge of any pollutant.” But we need not go so far today. Assuming, arguendo, that “discharge of any pollutant” is approximately the same as “discharge of a pollutant”—and commonsense indicates that it is—we find that the Act’s coverage is somewhat limited. “Discharge of a pollutant” is defined to mean “any addition of any pollutant” to “navigable waters” or the ocean103 from a “point source.”104

We focus today on the appropriate reading of the word “addition.” The federal courts have struggled with the question whether the movement of already polluted water to another location is an “addition” that triggers regulation.105 Control and movement of water is essential for activities such as protection against floods, which have killed more people than any other

98. In this story, the Caterpillar remarks to Alice:
   “One side will make you grow taller, and the other side will make you grow shorter.”
   “One side of what? The other side of what?” thought Alice to herself.
   “Of the mushroom,” said the Caterpillar. . . .
   Alice remained looking thoughtfully at the mushroom for a minute, trying to make out which were the two sides of it; and, as it was perfectly round, she found this a very difficult question.


100. Id. § 1362(6).
101. Id. § 1362(16).
102. Indeed, the primary section dealing with permits, section 402, again refers to “discharges of any pollutant.” Id. § 1342(a).
103. The exact phrase is “contiguous zone or the ocean.” Id. § 1362(12).
104. Id. “Point source” is defined at § 1352(14).
type of natural disaster, and the provision of water supplies for American households and businesses. Can such critically valuable movements of water be considered an unlawful discharge of pollutants under the Clean Water Act, necessitating an expensive permitting process? Some lower courts have held that relocations are regulated by the Act.

A simple consideration of the word “addition,” however, reveals that these decisions are misguided. According to Webster’s, the word “addition” means “the joining or uniting of one thing to another.” The two “things” at issue here are pollutants and navigable waters. The pollutants that are destined for relocation were already “joined” to the navigable waters before their relocation. When they are relocated, they are simply rejoined to the navigable waters. Accordingly, by the plain words of the statute, the relocation of pollutants through the relocation of water is never an “addition” of pollutants, and thus not a “discharge of any pollutant” regulated by the Clean Water Act.

We disapprove of any lower court opinions that reached contrary conclusions.

B. “Designate Uses”

Next, the petitioners ask us to interpret obligations imposed by section 303 of the Act. This section requires states to create and implement “water quality standards”—something that many states had done years before Congress enacted the current amendments to the Clean Water Act in 1972. Accordingly, section 303 may be seen as a partial federalization of state regulation of the quality of waters within that state. But Congress wisely and appropriately reserved to the states a great deal of discretion. As stated in section 101 of the Act, it was Congress’s policy “to recognize, 106 The destructive power of water has made flooding the most fatal of all natural disasters. See Marquis Canaday, The Greatest Natural Disasters of All Time, ASSOCIATED CONTENT, July 25, 2007, http://www.associatedcontent.com/article/321448/the_greatest_natural_disasters_of_all.html (attempting to list the worst disasters in world history, including the 2004 tsunami that killed an estimated 200,000 people).

107 See, e.g., Dubois v. U.S. Dept’ of Agric., 102 F.3d 1273, 1298 (1st Cir. 1996) (holding that movement of water for snowmaking at a ski resort is an “addition”); Dague v. City of Burlington, 935 F.2d 1343, 1354 (2d Cir. 1991) (movement of water from a landfill to a wetland is an “addition”).

108 WEBSTER’S THIRD, supra note 20, at 24.


110 Id. § 1313.

111 By referring to “existing water quality standards,” section 303 identifies that states enacted water quality standards before Congress took action. Id. § 1313(a). For a history of water quality standards leading up to the 1972 Clean Water Act, see generally Oliver A. Houck, TMDLs: The Resurrection of Water Quality Standards-Based Regulation under the Clean Water Act, 27 ENVTL. L. REP. 10,329 (1997).
preserve, and protect the primary responsibilities and rights of the States’ with regard to water pollution, prevention, planning, and development. 112

Under the statute, the threshold responsibility for states is to “designate uses of the navigable waters involved and the water quality criteria for such waters based upon such uses.”113 The law imposes no restriction whatsoever on the designated uses that the state may choose.114 The discretion granted to the states is absolute. To quote a venerable environmental decision of this Court: “One would be hard pressed to find a statutory provision whose terms were any plainer . . . .”115

Despite this, the federal EPA has issued regulations that hamstring the states. Specifically, the EPA requires that states choose a designated use that is at least as demanding on water quality as a “fishable/swimmable” use.116 Such a constraint upon the states has no basis in the statute. EPA points to a prefatory “goal” in the Clean Water Act’s introductory section.117 But the relevant passage only reads: that “[t]he national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983.”118 This “interim goal” was supposed to be a step toward the final goal that “discharges of pollutants into navigable waters be eliminated by 1985.”119

Needless to say, these “goals” were merely pie in the sky—hardly statutory commands. At the same time that Congress whimsically set forth a “national goal” of no discharges into navigable waters by 1985,120 it set forth a complex system (necessary, of course, if the nation were to continue as we know it) for permits to discharge pollutants into navigable waters, without any miracle plan to eliminate discharges by 1985.121 Our calendar

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113. Id. § 1313(c)(2)(A).
114. The fact that Congress did not wish to intrude on a state’s prerogative to choose water quality standards is borne out of the fact that, if a state had adopted such standards before the 1972 Act, the state was not required to make changes to its standards unless the EPA Administrator concluded, by October 18, 1972, that the water quality standard did not “meet the requirements” of the new federal Act. Id. § 1313(a)(1), (2).
118. Id. § 1251(a)(2).
119. Id. § 1251(a)(1).
120. Id.
121. See id. § 1342(a) (authorizing permits for discharges); § 1311(b) (setting forth various levels of technology to be used by permittees); § 1314(b) (giving guidance as to the creation of these technology requirements).
reveals that 1985 has long since passed. Just as the dewy-eyed “national goal” of no discharges was never a command, the “interim goal” of fishable and swimmable waters by 1983—which was prefaced by a caveat that it should be achievable “wherever attainable”—is, a fortiori, not a statutory command.

We return, then, to section 303’s unrestrained grant of discretion to states to “designate uses.” In some cases, a state may designate a water body as a public drinking supply, a freshwater fishery, a route of navigation, or a public swimming area. In other instances, if it sees fit, a state may designate a water body as a dump for liquid wastes.

Although we recognize concerns over water pollution, we note that Americans have for centuries used water bodies as inexpensive and practical means of disposing liquid wastes in a way that both dilutes the pollutants and minimizes exposure to people. Indeed, another federal statute, the Safe Drinking Water Act, imposes tight pollution-removal restrictions on public water supplies that are used for drinking, food preparation, and other household demands. For many navigable water bodies, of course, the water is not used for any human purpose; it seems wholly reasonable for Congress to have left discretion to the states. State governments are closer to the people and businesses that they serve than is the EPA in Washington; states are more in touch with their own citizens’ desires to create balances between economic activity, water needs, and the demand for fish and recreation.

Accordingly, as a plain reading of the Act, we hold that states retain unlimited discretion to “designate uses” as each state sees fit. Along with our clarification of “addition,” we return to the states and to the people some of the authority that the federal government has hoarded for itself under the Clean Water Act.

IV. THE ENDANGERED SPECIES ACT

Finally, the petitioners challenge agency interpretations of the Endangered Species Act of 1973. This statute has been called the “pit bull” of environmental law because of its supposedly un-nuanced

122. Id. § 1313(c)(2)(A).
commands ("unfeeling" or "inhumane" might also be appropriate terms) to give certain species priority over the interests of humankind. But, as we explain today, the proper construction of the ESA is not as ruthless and animalistic as some have interpreted it.

The power of the ESA hinges largely on two verbs. First, federal agencies may not "jeopardize" the continued existence of any endangered species. Second, no person may "take" an endangered species, with certain limited exceptions. Despite the oft-repeated assertion that Congress intended to give the protection of imperiled species the highest of priorities, Congress did not see fit to provide useful definitions for these key verbs. "Take" is defined with a list that raises more questions that it answers. "Jeopardize" is not defined at all. Today, we guide the proper interpretations of the two verbs.

A. "Take"

The verb "take" is defined with a long list of words (many of which are synonyms), including kill, trap, and harm. In 1995, this Court, divided, upheld administrative regulations that give astonishingly broad readings to the "harm" component of "take." Among other things, the regulations make it unlawful to use land in a way that leads to an injury of a member of the species, even if the actor does so unintentionally and indirectly. We do not revisit this opinion today.

127. For a reference to the ESA as a "pit bull," see George Cameron Coggins, An Ivory Tower Perspective on Endangered Species Law, 8 NAT. RESOURCES & ENV’T 3, 3 (1993).
128. 16 U.S.C. § 1536(a)(2). For simplicity’s sake, we use the term "endangered species" to refer to the categories of both endangered and threatened species, which are also called colloquially "listed" species in section 4 of the Act. Id. § 1533.
129. Id. § 1538(a)(1)(B).
132. Id. § 1532(b).
133. See id. ("The term ‘take’ means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.").
134. See Babbitt v. Sweet Home Chapter of Cmtyrs. for a Great Or., 515 U.S. 687 (1995) (holding that the Secretary of Interior "reasonably construed Congress’ intent when he defined ‘harm to include habitat modification’"). If and when we do revisit this opinion, we may take note of the fact that the common understanding of the term "take," to sportsmen in the context of wildlife, means to kill or to capture such wildlife. Certainly no hunter would consider conduct that merely impaired an animals’ ability to breed, feed, or shelter, to be a "take" of the animal! See 50 C.F.R. § 17.3 (2007) (describing situations that qualify as a "take").
135. The definition of "harm" includes "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." Id. Accordingly, action that significantly modifies a species’ habitat,
Rather, we focus on the application of the take section. Petitioners point out that the provision most often infringes on liberty when plaintiffs use it to seek an injunction against conduct that has not yet occurred. For example, advocates for birds have sued to stop the construction of a high school because of possible adverse effects to an endangered pygmy owl,136 and a court has enjoined logging because of a threat to an obscure sea bird called the marbled murrelet.137 Indeed, landowners across America fear that plans to use their property might get them haled into court and possibly enjoined, based on a possibility that the planned conduct might cause some harm to an endangered species.138 Such an application of law is Orwellian.

While some birdwatchers may wish to give their feathered friends a higher status under law than enjoyed by humans, we must bring them back down to earth. It is an established principle that injunctions are a disfavored remedy; an injunction is available only if there is not an adequate monetary remedy at law.139 This notion is bolstered by the concept that liberty allows American citizens freedom of action unless a law specifically proscribes the action.140 The ESA’s take prohibition does leading to an injury by an inability to breed, feed, or shelter, can be considered a “take” of the species. See, e.g., Forest Conservation Council v. Rosboro Lumber Co., 50 F.3d 781 (9th Cir. 1995) (enjoining the proposed logging of a forest because of potential “harm” to endangered spotted owls).


137. Marbled Murrelet v. Babbitt, 83 F.3d 1060, 1066 (9th Cir. 1996). For other cases of injunctions, see Forest Conservation Council v. Rosboro Lumber Co., 50 F.3d 781 (9th Cir. 1995) (logging might harm a spotted owl); United States v. Town of Plymouth, 6 F. Supp. 3d 81 (D. Mass. 1998) (enjoining a town’s permitting off-road vehicles on a public beach, for fear of harm to endangered plovers); Palila v. Haw. Dep’t of Land & Natural Res., 471 F. Supp. 985 (D. Haw. 1979) (ordering a state to eradicate sheep that grazed on plants that were also eaten by an endangered bird; failure to do so would be a “take” of the bird), aff’d, 639 F.2d 495 (1981).


140. For example, the well-known “rule of lenity” provides that criminal laws must be narrowed when they are unclear, in order to give “fair warning” to citizens. James v. United States., 127 S. Ct.
nothing to alter this presumption. Indeed, a commonsense reading of the take prohibition in context reveals that Congress provided for civil monetary and criminal liability only after the take has occurred. The citizen suit provision authorizes an action only against persons who are already "in violation" of the Act. The regulations similarly predicate liability on "actual" harm.

Accordingly, we hold that the ESA's prohibition against "take" can be enforced only after proof that a take has occurred. It cannot be enforced through a suit to enjoin conduct before it occurs simply because a plaintiff asserts that it might threaten the possibility of a future take.

B. "Jeopardize"

We turn next to the appropriate definition of the verb "jeopardize." Although we stated in an early ESA decision that the prohibition against jeopardy was straightforward and "plain," we had no occasion to address the precise definition of the term in the ESA's section 7. Although the respondents and amicus seek to convince us that the verb imposes great duties upon federal agencies, Congress did not see fit to define the word. In their regulations, the federal wildlife agencies have defined "jeopardy" to cover any action "that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a

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141  See id. § 1538(a) (describing what constitutes a "take").
142  Id. § 1540(a), (b).
143  Id. § 1540(g)(1)(A). We have held that a nearly identical citizen suit provision of the Clean Water Act, 33 U.S.C. § 1365(a)(1) (2000), permits suits to be brought only while an alleged violation is occurring—not before and not after. See Gwaltney of Smithfield v. Chesapeake Bay Found., 484 U.S. 49, 56–67 (1987) (stating that "Congress could have phrased its requirement in language that looked to the past (‘to have violated’) but it did not choose this readily available option").
144  See 50 C.F.R. § 17.3 (2007) (stating that significant habitat modification may be a "take" only when the conduct "actually kills or injures" the wildlife).
145  See 16 U.S.C. § 1540(a), (b), (g) (discussing civil and criminal penalties and citizen suits).
146  See supra note 136 for examples of injunctions issued before any take had occurred. These sorts of suits for an injunction may no longer be maintained.
147  See Tenn. Valley Auth. v. Hill, 437 U.S. 153, 173 (1978) (discussing how the ESA fails to define the verb "jeopardize").
148  In the Hill case, we assumed, based on the stipulated facts as then known, that the planned agency action would eradicate a little fish called the snail darter. Id. at 173–74. As it turned out, the stipulation was inaccurate; the snail darter survived the eventual agency action, was downlisted from endangered to threatened, and lives on today in three states. See U.S. Fish & Wildlife Service, Species Profile: Snail Darter (Percina tanasi), http://ecos.fws.gov/speciesProfile/SpeciesReport.do?spcode=E010 (last visited Feb. 10, 2008).
listed species in the wild by reducing the reproduction, numbers, or distribution of that species.\textsuperscript{149}

Through this regulation, the agencies once again have inflated a statutory term. The regulation would make it unlawful merely to diminish “appreciably” a species’ prospects. What this means in practice is left to a case-by-case determination, which is convenient for the wildlife agencies, if not for American citizens. The regulation grants to the wildlife agencies nearly dictatorial discretion in deciding, Caesar-like, whether to give a thumb-up or thumb-down to an agency project through a “Biological Opinion,”\textsuperscript{150} regardless of how important to the nation the project might be.\textsuperscript{151} For example, if a planned initiative by the U.S. Department of Homeland Security to stop potential terrorists at our nation’s borders made it more difficult for endangered ocelot cats to copulate at night along the border, might this constitute an unlawful “jeopardy” action?\textsuperscript{152} The nation (and its security) would have to await the imperial decision of the wildlife agencies, acting in their self-created discretion.\textsuperscript{153}

Fortunately for the nation, however, the plain meaning of the ESA’s section 7 shows that the agencies have once again exceeded their permissible powers. “Jeopardize” is defined by Webster’s as to “imperil” or “to expose to danger (as of imminent loss, defeat, or serious harm).”\textsuperscript{154} These plainly require the risk of imminent injury, not injury in a distant and uncertain future—an element that the agency’s regulatory definition fails to countenance.\textsuperscript{155} Moreover, the statute clarifies that “jeopardize” concerns

\begin{itemize}
\item \textsuperscript{149} 50 C.F.R. § 402.02 (2006).
\item \textsuperscript{150} 16 U.S.C. § 1536(b)(3)(A) (authorizing the wildlife agencies to write a Biological Opinion as to whether the proposed action would “jeopardize” a listed species).
\item \textsuperscript{151} See Bennett v. Spear, 520 U.S. 153 (1997) (holding that a citizen aggrieved by a “jeopardy” Biological Opinion that blocks a proposed action is entitled to judicial review of the wildlife agency’s opinion).
\item \textsuperscript{152} Environmental groups have brought a number of cases to challenge the government’s activities on the banks of the Rio Grande in South Texas, along which the endangered ocelot creeps at night. See, e.g., Sierra Club v. Baker, No. 89-3005-RCL, 1990 WL 116845 (D.D.C. July 31, 1990) (approving an ESA consent order).
\item \textsuperscript{153} The ESA includes a process for allowing a “jeopardy” action nonetheless to go forward, through an exemption. 16 U.S.C. § 1536(g)-(j). But this process of appealing to the Endangered Species Committee, colloquially known as the “God Squad,” has proven to be very difficult and cumbersome in practice. See DALE D. GOBLE & ERIC T. FREYFOGLE, WILDLIFE LAW 1310–13 (2002) (explaining the “elaborate mechanism” and discussing the two times where it has been invoked successfully).
\item \textsuperscript{154} WEBSTER’S THIRD, supra note 20, at 1213.
\item \textsuperscript{155} This requirement fits with our constitutional jurisprudence concerning standing to sue, which requires an allegation of an “imminent” injury. See, e.g., Lujan v. Defenders of Wildlife 505 U.S. 555, 560 (1992) (holding that a plaintiff does not have standing if he cannot show plans to visit the area of the alleged harm in the immediate future).
\end{itemize}
only the “continued existence” of the species. Accordingly, the plain interpretation of the term “jeopardize the continued existence” of a species refers only to threatening an imminent eradication of the species. An action that merely threatens an appreciable decrease in numbers, with a possible extinction only in the distant future, is not implicated by the ESA’s section 7.

The wildlife agencies seek to preserve their totalitarian discretion over the rest of the federal government by arguing that a “jeopardy” determination may be made by accumulating harm from the agency action with other threats to the species. But the statute plainly does not call for such accumulation. To be sure, if other events have already decreased a species’ numbers to, say, a dozen animals or plants, this fact can be used in deciding whether an agency action will constitute a final coup de grace. But jeopardy is not created simply because an agency’s action is expected to diminish the species’ population by, say, thirty percent. As long as the remaining numbers would remain viable in the immediate future, there has been no “jeopardiz[ing] the continued existence.”

Accordingly, we hold that the jeopardy prohibition in the ESA’s section 7 is limited by its words to cover only actions that, by themselves, are reasonably expected to eradicate completely an endangered species.

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156. 16 U.S.C. § 1536(a)(2).

157. At what level of certainty of the eradication is the statutory prohibition triggered? Here, for once, the agencies’ definition follows the proper path in its use of the standard of “reasonably to be expected.” 50 C.F.R. § 402.20 (2006). After all, decisions based on a “more likely than not” benchmark are the touchstones of American civil law. The presumption in civil law is that the standard of proof is the “preponderance of the evidence” or “more likely than not” standard. See, e.g., M.L.B. v. S.L.J., 519 U.S. 102, 141 (1996) (applying the presumption unless the statute indicates otherwise); Sedima, S.P.R.L. v. Imrex Co., 473 U.S. 479, 490 (1985) (same).

158. The regulations require a Biological Opinion to determine, among other things, whether the action, taken together with cumulative effects, “is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.” 50 C.F.R. § 402.20.

159. This conclusion is reminiscent of the law of regulatory “ takings ,” in which a total taking of the value of property triggers governmental compensation, but a regulation that decreases the value only 80% or 90% does not necessarily do so. See Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1064 (1992) (Stevens, J., dissenting) (noting how the Court’s new rule is arbitrary by allowing “[a] landowner whose property is diminished in value 95% recovers nothing, while an owner whose property is diminished 100% recovers the land’s full value”). To the extent that environmentalists disagree with the imminent eradication standard we have clarified for the ESA’s section 7, through the argument that even a 30% decrease is unwelcome, it is worth asking whether they would support a similar loosening of the total takings rule. See id. at 1019 n.8 (noting that the law might, in some cases, provide for compensation to a landowner who suffers less than a total taking).


161. A similar analysis concerning destruction or adverse modification of a species’ designated critical habitat applies to the final phrase of section 7(a)(2). Id. Congress clarified that “critical habitat” was to cover only those areas that are “essential for the conservation of the species,” but cannot include the entire geographic range of a species. Id. § 1532(5)(A), (B). From these restrictions, we conclude
We trust that these properly cabined interpretations of “take” and “jeopardize” will remove some of the infamous fangs from the ESA and return some freedom of action to American citizens and their government.

CONCLUSION

We recognize that, through these interpretations, we revise many commonly held perceptions of environmental laws. The statutes are revealed as not consistently placing the interests of wildlife, clean water, and risk-avoidance above the interests of economic development. Rather, it has been the regulatory agencies and lower courts that have created much of the common perceptions of unbalanced statutory commands. Environmentalists may complain that our interpretations have gutted some of the most prominent federal laws. But their complaints are properly directed to Congress, which drafted the often-unfocused statutes, and to the American citizens, who elect our representatives. If the American public truly desires a legal system in which environmental protection is a cardinal principle, Congress has yet to enact statutes that fulfill this aspiration.

that “critical habitat” may cover only the minimum area needed by a species to avoid extinction. The inclusion of any greater acreage would be contrary to the plain meaning of the requirement.
INTRODUCTION

Environmental justice, as a social movement, has typically focused on disparate siting practices of hazardous facilities and unequal exposure to
pollution in low-income and minority communities. As a result, solutions to environmental injustices tend to center on ways to halt disparate siting and prevent dangerous exposure to pollution. However, efforts to increase access to and improve the quality of environmental amenities present equally necessary and practical means of achieving environmental justice. This is because “[i]nequitable distribution of environmental benefits is a stark example of failed democracy, environmental injustice, and even environmental racism.” This Note specifically examines community gardening as an amenity used to alleviate environmental injustices. The basic premise of the argument is that communities, and society as a whole, will only be able to realize the full potential of these spaces if gardens possess long-term status and, as a result, are able to thrive with permanence.

While permanence is a crucial aspect of a garden’s success in serving a community, many legal obstacles threaten the vitality of community gardens. The applicable law is currently inadequate and ineffective in promoting and protecting gardens. Instead, the law is specifically at odds with the permanence and vitality of gardens, and in many cases is simply non-existent. A wide array of policy, legal, and other problems prevent gardens from reaching their full potential. Despite such variety, this Note focuses specifically on the challenges associated with the ownership of gardens and highlights the legal issues related to property law and land ownership that threaten the vitality of community gardens. In order to promote community gardening, we must redefine how land is valued and apply an ethics of place framework to stimulate more effective thinking in this realm.

1. See Samara F. Swanston, Environmental Justice Quality Benefits: The Oldest, Most Pernicious Struggle and Hope for Burdened Communities, 23 VT. L. REV. 545, 547 (1999) (“To date [in 1999], almost all of the scholarship and advocacy has focused solely upon environmental burdens.”); see also Alice Kaswan, Environmental Justice: Bridging the Gap Between Environmental Laws and “Justice,” 47 AM. U. L. REV. 221, 238 (1997) (“For example, if saving open space were to become a governmental priority over slowing pollution in urban areas, that policy choice would be to the benefit of those already living in remote areas, such as the suburbs.”).
2. In this context, environmental amenities refer to open spaces such as beaches, parks, including national, state, and municipal, gardens, green spaces, and nature generally.
3. Swanston, supra note 1, at 547.
4. See generally Jane E. Schukoske, Community Development Through Gardening: State and Local Policies Transforming Urban Open Space, 3 N.Y.U. J. LEGIS. & PUB. POL’Y 351 (2000) (discussing other legal issues of community gardening such as tax law, nonprofit law, liability concerns, and basic property law as relates to community gardens).
5. See MICK SMITH, AN ETHICS OF PLACE: RADICAL ECOSYSTEM, POSTMODERNITY, AND SOCIAL THEORY 20 (2001) (“[An ethics of place] recognizes the importance of locality and context and, at the same time, provides a language more suited to expressing the values of those forms of life associated with radical environmentalism.”).
promote community gardens, the application of a place-based environmental ethic to land use planning and decision making is needed to resolve the property ownership conundrum that threatens gardens.

This Note consists of four substantive sections. Part I supplies a general context for the topic of community gardening, outlining its basic facts and problems. Part II presents a number of property ownership mechanisms available to communities and organizations for their gardens. This section describes each ownership option along with its associated benefits and detriments. Part II also addresses policy and practical issues of property ownership and land use decisions that threaten the vitality of community gardens. Part III discusses challenges property laws pose, including traditional American perceptions of property ownership and the ways in which value is placed on gardens. This Note concludes by arguing for the application and integration of an ethic of place to land use planning and decision making.

I. BACKGROUND

A. What is a Community Garden?

Community gardening represents an approach to “community management of open space” that promotes public participation in environmental justice efforts and ensures an active public role in facilitating the use of space.6 A community garden is typically defined as a “neighborhood garden in which individuals have their own plots yet share in the garden’s overall management.”7 Community gardening may include a variety of activities. For example, community members may choose to grow produce, herbs, flowers, shrubs, bushes, or trees.8 Gardens today include “neighborhood community gardens, children’s gardens, horticultural therapy gardens, and entrepreneurial job-training gardens.”9 Communities do not typically own the physical property on which they

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6. See Schukoske, supra note 4, at 357–58, 361 (citing LISA ARMSTRONG ET AL., COMMUNITY MANAGED OPEN SPACE ON VACANT PROPERTY IN BALTIMORE 2, 16–17 (1995)).
9. LAWSON, supra note 7, at 2.
garden, but cultivation may still take place on either public or private land.\textsuperscript{10}

Gardens can be owned by an institution, the public, or a private entity.\textsuperscript{11}

The practice of community gardening has experienced much popularity beginning as early as the 1890s.\textsuperscript{12} Currently, approximately 18,000 community gardens have been established across the United States and Canada.\textsuperscript{13} For over ten years, more than 32% of the 6018 surveyed community gardens have functioned successfully.\textsuperscript{14} Moreover:

\begin{quote}
[i]n a 1996 national survey focusing on community gardening activity, cities reported that 67.4% of gardens were neighborhood gardens, 16.3% were on public housing premises, 8.2% were on school grounds, 1.4% were on mental health or rehabilitation facilities, 1.4% were at senior citizen centers, and 0.6% were part of job or economic development programs.\textsuperscript{15}
\end{quote}

Additionally, many similarities can be seen between historic and contemporary community gardening. First, social reformers historically used community gardening as a way to supply unemployed workers with land and job training.\textsuperscript{16} This mirrors today’s hope that gardening will provide low-income populations with necessary skills and alleviate economic strain by supplying these same communities with low-cost food from their gardens.\textsuperscript{17}

Second, like contemporary community gardening, the source of historic garden space was often vacant or abandoned lots during the 1890s.\textsuperscript{18} This type of land use has the potential to effectively reduce crime and violence.\textsuperscript{19} Third, early education reformers incorporated gardening into the classroom

\begin{enumerate}
\item Schukoske, supra note 4, at 354–55.
\item LAWSON, supra note 7, at 3–4.
\item Id. at 1.
\item See Schukoske, supra note 4, at 360 (citing Suzanne Monroe-Santos, Recent National Survey Shows Status of Community Gardens in U.S., COMMUNITY GREENING REV., 1998, at 12, which references a recent national survey of operating gardens).
\item Id. at 355.
\item Id.
\item See Schukoske, supra note 4, at 356 (discussing the benefits of community gardens as self-help environmental justice for low-income neighborhoods).
\item Lawson, supra note 7, at 1.
\item See Schukoske, supra note 4, at 356 (discussing elimination of criminal activity in vacant lots through community gardening). The notion that community gardening combats violence and crime will be discussed below in Part II.B.
\end{enumerate}
as a hands-on teaching strategy to combine “school subjects . . . civics and good work habits.”

Finally, akin to many social movements throughout history, the prevalence of community gardening most often coincided with periods of economic hardship as well as social and political unrest. During the 1970s, gardening resurfaced as communities sought solutions to a wide array of social problems including “urban abandonment,” inflation, and social conflict. Communities also used gardening as a tool to promote a “new environmental ethic.”

B. Benefits of Community Gardens

Major factors that have influenced the unequal distribution of environmental amenities include “racially discriminatory zoning practices, urban renewal, discriminatory siting of noxious land uses, and the relocation of communities due to redevelopment.” Inner cities often symbolize the result of segregation and discrimination laws that are deeply ingrained in the legal system. One author reflects that during the redevelopment and privatization of the 1940s in Washington, D.C., “the flurry of greedy bulldozing, bidding and slapdash construction must have been dizzying.” This time also marked the beginning of a trend that dislocated and relocated many poor and minority communities. Professor John C. Dubin insists that “[t]he failure to respect and protect the quality of the residential environment of these communities is a by-product of

20. LAWSON, supra note 7, at 1.
22. See LAWSON, supra note 7, at 1–2 (discussing garden promotion specifically during World War I and World War II).
23. Id. at 2.
24. See, id. (referring to an ethic focused on promoting solid moral values and the land).
27. Id.
separate land use policies, resulting in the absence of zoning protection from diverse modern-day land use threats.\textsuperscript{28}

The values that Americans assign to land greatly contribute to environmental inequities such as discrimination in land use and ownership. Such values include economic status, independence, and a superior quality of life.\textsuperscript{29} Throughout history, minorities were refused entrance to a variety of recreational facilities and open spaces, even parks.\textsuperscript{30} Public parks and open spaces were originally created for the privileged white class to help them cope with the challenges of urban living because such places offered “physical activity, recreation, and relaxation.”\textsuperscript{31}

In contrast, community gardens offer an abundance of benefits to all urban residents. Four overarching reasons for promoting gardens include education, social stability, economic strength, and public health.\textsuperscript{32} Community gardens encourage sustainable and positive economic development and can provide employment and educational opportunities.\textsuperscript{33} They represent a form of greening and beautification in areas that severely lack existing open spaces, parks, and trees.\textsuperscript{34} Gardening also teaches the public about nature, science, and the environment.\textsuperscript{35} Community gardening increases the production of food on the local level as well.\textsuperscript{36} The result is that gardening can improve diets and alleviate problems such as poor quality inner-city grocery stores and expensive food costs.\textsuperscript{37} In this sense,

\begin{itemize}
  \item \textsuperscript{28} Schukoske, supra note 4, at 358 (quoting Jon C. Dubin, \textit{From Junkyards to Gentrification: Explicating a Right to Protective Zoning in Low-Income Communities of Color}, 77 MINN. L. REV. 739, 760–61, 764–68 (1993)).
  \item \textsuperscript{29} Swanston, supra note 1, at 550.
  \item \textsuperscript{30} Michel Gelobter, \textit{The Meaning of Urban Environmental Justice}, 21 FORDHAM URB. L.J. 841, 853 (1994).
  \item \textsuperscript{31} \textit{Id.}
  \item \textsuperscript{32} \textit{See Lawson, supra note 7, at 4–5 (discussing how to improve nutrition and psychological health).}
  \item \textsuperscript{33} \textit{See Schukoske, supra note 4, at 352 (discussing the benefits of the “beautification and greening” of neighborhoods); Lawson, supra note 7, at 7–8 (explaining that individuals can learn practical skills associated with gardening as well as civic mindedness to cultivate a community open space).}
  \item \textsuperscript{34} \textit{See Schukoske, supra note 4, at 356–57 (discussing the greening of urban and minority areas historically “lacking in municipal parks”).}
  \item \textsuperscript{35} \textit{See Lawson, supra note 7, at 5 (“Urban garden programs provide a participatory experience that connects people living in cities, especially children, to the soil and plant and animal life.”)}.
  \item \textsuperscript{36} Schukoske, supra note 4, at 359–60.
  \item \textsuperscript{37} \textit{Id.; see also Lawson, supra note 7, at 4 (stating that the reasons behind community gardens during both World War I and the 1970s included efforts to address morale, rising food prices, and nutrition).}
\end{itemize}
exposing urban populations to nature through gardening serves as a technique to advance public, “social and psychological health.”

On a larger scale, gardens promote self-respect and cooperation in under-privileged, low-income communities. Since gardening often brings together diverse groups and individuals, community gardens are often portrayed as democratic spaces. For example, gardening fosters collaboration of neighbors and nearby residents, regardless of race, age, or sex. This helps to build and promote community and race relations. According to Professor Schukoske, “[t]he community gardening approach promotes interaction between the diverse residents of an urban neighborhood along common interests such as beautification, local food production, personal safety, health, and group projects.”

Additionally, community gardens can reduce crime rates, especially when they are developed on previously vacant lots. It is known that vacant lots attract violence and poor social behavior thereby intimidating residents, limiting the potential of these spaces, creating more societal disengagement, decreasing property values, and diminishing the community’s social capital. However, gardens can establish “‘defensible space’—neighborhood areas in which escape routes for criminal perpetrators are limited and public range of vision is maximized to prevent illicit conduct.”

C. Gardening Instills an Environmental Ethic

Community gardening efforts are extremely compatible with the goals of urban environmental justice and sustainable urban development. Gardening efforts provide both practical and tangible results while contributing to a much needed paradigm shift. Gardening illustrates a

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38. LAWSON, supra note 7, at 5.
39. Schukoske, supra note 4, at 352, 359.
40. LAWSON, supra note 7, at 8.
41. Schukoske, supra note 4, at 357; see also LAWSON, supra note 7, at 8 (“[G]ardening [is] an activity that brings diverse groups together in mutual self-interest.”).
42. Schukoske, supra note 4, at 357.
43. Id. at 356.
44. Id. at 354 (defining “social capital” based on the term coined in JANE JACOBS, THE DEATH AND LIFE OF GREAT AMERICAN CITIES 138 (1961)). According to Professor Schukoske, “[s]ocial capital includes features of social organization such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit.” Id.
45. Id. at 356.
46. See DONALD SCHERER & THOMAS ATTIG, ETHICS AND THE ENVIRONMENT 2 (1983) (describing the current paradigm as one in which human beings assume that the environment is material to be used, have no responsibility to respect the environment, and recognize only instrumental value in
type of “environmental justice self-help” where communities take on a particular problem and solve it themselves. Community gardening integrates both the law and land use policy with civil rights tactics and grassroots activism.

The positive influences of gardening extend beyond the communities which the gardens are specifically intended to benefit. Critically, gardens instill an environmental ethic, specifically the notion of an “ethic in land.” Rather than valuing a garden’s parcel of land based on its potential monetary value, an environmental ethic is needed because:

[t]he ethics of [our current political] system enclose the moral world according to principles of socialization rather than sociality, that is, they are concerned with interpolating the individual into an already given social framework and promulgating a top-down set of values to be internalized rather than letting values form and operate from the bottom up by communal participation.

At a basic level, an ethic can be defined as “a statement of the most fundamental principles of conduct”—a way to explain “what is right and wrong in a systematic way.” Further, an environmental ethic asks “not how human beings ought to behave towards other human beings but how they ought to behave with regard to nature—animals, plants, species and ecosystems.” Following the land ethic, a principle of thought that originated with the writings of Aldo Leopold, provides an avenue in which to relate humans to the land and all that lives upon it. By expanding the limits of community, the land ethic incorporates “soils, water, plants, and animals, or collectively: the land.” Ultimately, a land ethic is crucial to the environment and human well-being because it “changes the role of Homo sapiens from conqueror of the land-community to plain member and

Humans are conceived as controllers, dominators, and manipulators of a sphere of being with which they have no intimate relationship.” Id.

47. Schukoske, supra note 4, at 359 (“[T]he gardening ethic offer[s] communities a local, anthropocentric, cultural interaction with nature and neighbors.”).

48. MIKAEL STENMARK, ENVIRONMENTAL ETHICS AND POLICY MAKING 15 (2002) (“Environmental ethics is the systematic and critical study of the moral judgments and attitudes which (consciously or unconsciously) guide human beings in the way they behave towards nature.”).

49. SMITH, supra note 5, at 157.

50. SHERER & ATTIG, supra note 46, at 2.

51. STENMARK, supra note 48, at 15.

52. ALDO LEOPOLD, A SAN D COUNTY ALMANAC 204 (Oxford University Press, 1988) (1949).

53. Id.
citizen of it. It implies respect for his fellow-members, and also respect for the community as such."

Arguably, urban life effectively creates a divide or a detachment between urban residents and nature. As a result, it becomes harder to protect our natural resources without a connection to the environment. As one possible solution, gardens allow urban residents to reconnect with nature in a very practical and simple way—right in their own neighborhoods. Gardens require humans to work the land, which in turn enables individuals otherwise cut off from natural places to experience nature and discover what nature has to offer. Gardens have the potential to open eyes to the world “out there” and create an understanding of the role that the environment plays in all human life. The result is the realization that nature does not exist solely beyond urban communities.

In sum, gardens not only improve the quality of life for urban residents who have historically been disempowered and disenfranchised. Gardens can also reestablish a land ethic—a connection to nature—which will in turn increase the public’s understanding of the environment. Accordingly, such land ethic could promote better management and protection of natural resources and open spaces. Gardening serves a dual function. Not only could gardening re-establish a land ethic, it could also be used as a tool to turn abandoned and defunct land into something productive. When people begin to experience all that the land has to offer and how they connect with it, they will be more inclined to protect the environment on a larger scale.

D. Gardens Require Permanence

This Note is based on the premise that garden permanence is crucial. For many reasons, a garden’s success cannot be fully measured in one or two growing seasons. An initial reason is simply that garden cultivation takes time; the soil must be nurtured and cultivated over time in order to reach its full potential, especially with organic gardening. As discussed earlier, the purpose of community gardening is seldom the garden itself, but rather the “agendas that reach beyond the scope of gardening.” Longevity of gardens is important because “gardens have a long-term function as open space that promotes nutrition, education, household income subsidy, recreation, and psychological and environmental restoration.” Moreover,
communities continue to need and benefit from the “food, income, or education” that gardens provide throughout time, be those times of stability or crisis.\(^{58}\)

However, even during periods of popular public support, gardens “rarely have been considered permanent.”\(^{59}\) The challenge then becomes that with each new societal catastrophe or change, gardens have to be re-established from very little.\(^{60}\) For this reason, although most gardens themselves are not permanent, a garden’s true success depends on its longevity.\(^{61}\) Some general problems created by the short-term durations of gardens include: limited financial returns due to the inability to prepare for each season; gaps in time when the public becomes interested in the project; small crop yields after the first planting; and time necessary to encourage and properly train participants unfamiliar with gardening.\(^{62}\)

Despite the various benefits of gardening and the success of many gardens in a cross-section of communities nationwide, legal problems threaten the permanence of gardens. Although legal challenges facing gardens could include liability issues, tax implications, nonprofit status, and property, this Note only focuses on property issues.\(^{63}\) Garden space is typically developed in urban settings from vacant or abandoned lots.\(^{64}\) As discussed below, communities and gardening associations often do not officially own the garden land. Instead, the land is leased from a city or municipality, used under a conservation easement or a public park land designation, privately owned, or owned by nonprofit organizations or land trusts. Regardless, none of these mechanisms serve to adequately protect garden permanence.

\(^{58}\) Id. at 11.

\(^{59}\) See id. (elaborating further that impermanence is likely due to the fact that gardens have historically functioned as responses to war, economic depression, and social crises). However, Professor Lawson also suggests that “as economic and social conditions stabilize, the garden site—usually donated—becomes more valuable for development of a different kind.” Id.

\(^{60}\) See id. at 12 (“[P]rograms have had to be reinvented, new land found, and new promotional campaigns developed.”).

\(^{61}\) Id. at 12 (referring to the “long-term function” of gardens).

\(^{62}\) Id. at 49.

\(^{63}\) See generally Schukoske, supra note 4 (discussing other legal issues of community gardening such as tax law, nonprofit law, liability concerns, and basic property law as relates to community gardens).

\(^{64}\) See id. at 351 (“Despite the prevalence of vacant land and the reality of urban blight, many communities have been successful in transforming these dangerous urban spaces into thriving community gardens.”).
II. PROPERTY OWNERSHIP THREATENS THE VITALITY OF COMMUNITY GARDENS

Garden land is legally classified and owned in a variety of ways and there are various “ownership” options available to gardening groups. A particular problem that urban communities face is the dispute over land: how it is to be used, who gets to use it, the best use for the land, how to profit from this land, and the inevitable housing concerns. Much of the dispute arises from the simple fact that urban areas are facing land quantity crises. Downtown revitalization and urban renewal efforts threaten the vitality of gardens as city planners and developers search for available land. Urban housing needs also pose general threats to community gardens and green spaces.

These were critical issues that spurred the most well-known community gardening controversy, New York City Environmental Justice Alliance v. Giuliani.65 In New York City Environmental Justice Alliance, tensions between the need for affordable housing and open space caused the City to cease renewing garden lots and begin auctioning them off.66 At the time, the City owned 1100 parcels comprising approximately 600 gardens that had been leased for development as gardens under the City’s “Green Thumb” program.67 The City sought to sell some garden lots in order to “permit [the] construction of affordable housing, facilities for medical and related services, and perhaps, retail stores.”68

Such land-use disputes involving community gardens are disconcerting because urban renewal, urban housing, and other revitalization efforts can benefit significantly from incorporating community gardens. These land uses should not be viewed as mutually exclusive. Property rights pose specific problems to the vitality of gardens located in minority and low-income populations—communities that cannot afford to purchase the garden lots. Consequently, gardens are susceptible to being purchased by the city or developers, then turned into something other than a green space. Since such land use disputes represent one of the biggest threats to the vitality of gardens, a solution is desperately needed.

65. See N.Y. City Envtl. Justice Alliance v. Guiliani, 214 F.3d 65, 67 (2d Cir. 2000) (requesting an injunction to prevent the city from selling or bulldozing city-owned lots).
66. Id.
67. Id. “Green Thumb” was a community development initiative that provided groups the opportunity to revitalize distressed or vacant lots into community gardens. Id. at 67 n.1.
68. Id. at 67.
A. Public Versus Private Land

The primary question when establishing a community garden involves determining its location. The community must make the initial decision whether to site its garden on public or private land, with private land representing the least preferred type of land.69 While ownership of land offers the “greatest degree of control,” it may only “be feasible and prudent for community organizations that are firmly established.”70 In reality, obtaining title often requires too large of an investment of resources and time for young gardening groups to supply.71 Furthermore, liens are frequently attached to the private land on which many gardening groups seek to establish communal gardens, making it difficult to transfer titles.72

In contrast, as discussed below, siting gardens on public land offers several benefits, including the acquisition of free land, guaranteed public access, and strict designation of the land for gardening activity. Gardening groups leasing land exemplifies one of the most common public use techniques. However, if a city so desires, leases would allow the city to repossess the garden lots. In other words, unless a community requests a long-term contractual clause to protect their space, private garden land can undoubtedly be sold to a new owner and developed. Another public ownership example is the establishment of garden sites through park department stewardship programs. Under this option, the city can designate public parks as community gardens. Such public land designation can be difficult to achieve because it requires public and political support, as well as a knowledge of gardening.

B. Leases

Communities often utilize leasing options by transforming vacant lots into thriving gardens. Leases may be preferred because groups do not need to purchase the land and often get to lease the property for free. At the same time, gardening associations will likely face two challenges in leasing garden land. First, leases expire without the possibility for renewal, even in

69. Jim Flint, Executive Dir. of Friends of Burlington Gardens: Strategies for Starting Sustainable Community Gardens, Workshop at Vermonters Building Solutions: People Creating Healthy Communities Conference (Nov. 11, 2006) (discussing environmental or other nonprofit organizations that purchase lots and designate them as community gardens illustrate an example of private ownership).
70. Schukoske, supra note 4, at 366.
71. Id. at 366–67. One of the main obstacles in the way of fledgling gardening groups is the need to continue to pay property taxes. Id.
72. Id. at 367.
instances where renewal is an option. Second, leases often contain clauses that enable the municipality to repossess the property at any time. Addressing the first challenge, “[t]he duration of garden lot leases is specified in various authorizing laws, and ranges from as long as five years (renewable) in Seattle, to two years in Boston, to as short as one growing season under New York law.” This presents an obvious detriment to the vitality of gardens because leases are not always renewed and certainly are not uniform. Such variety makes garden planning and crop and soil cultivation challenging.

A sub-issue related to this challenge involves covenants for lease renewals. For example, the option to renew the lease is a common covenant found in leases of real property. Such covenants may be entered into after the execution of the agreement and are then held as valid and enforceable. However, it is not clear in all circumstances that the courts will hold every lease renewal provision to be perpetual. In contrast courts have ruled in favor of perpetual lease provisions.

However, courts generally disfavor covenants for continued renewal: “A renewal . . . for all time to come is the creation of a perpetuity, which is against the policy of the law.” Therefore, the courts exceedingly prefer not to interpret a right to renewal as perpetual and refuse to do so unless the language of the agreement unambiguously requires such action. For example, leases lasting for an “indefinite” length of time are invalid and, thus, “may be terminated at will when reasonable notice is given.”

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73.  Id. at 365.
75.  Id.; see also Andrea G. Nadel, Annotation, Sublessee’s Rights with Respect to Primary Lessee’s Option to Renew Lease, 39 A.L.R. 4th 824, 827 (1985) (“In general, provisions, covenants, agreements, or options incorporated in a lease for the renewal or extension of the lease are valid and enforceable.”).
76.  See, e.g., Winslow v. Baltimore & O.R. Co., 188 U.S. 646, 655 (1903) (“From the ordinary covenant to renew, a perpetuity will not be regarded as created. There must be some peculiar and plain language before it will be assumed that the parties intended to create it.”); McLean v. United States, 316 F. Supp. 827, 829 (E.D. Va. 1970) (“Perpetual leases are not favored in the law . . . . The intent to create a perpetual lease must appear in clear and unequivocal language, so plan as to leave no doubt it was the intention and purpose of the parties so to do. It should not be left to inference.”).
77.  Winslow, 188 U.S. at 655; McLean, 316 F. Supp. at 829.
78.  Diffenderfer v. Bd. of President, etc., of St. Louis Pub. Schools, 25 S.W. 542, 544 (Mo. 1894).
As a result, a court will not grant specific performance of a covenant for perpetuity purposes unless express or clearly implied terms were included in the original lease agreement.\(^\text{81}\) Furthermore, even in the rare cases where a state does not disapprove of perpetual renewals, “[p]rovisions in the lease for renewal or extension must be certain, in order to render them binding and enforceable.”\(^\text{82}\) Otherwise, the court will not find the lease perpetual.\(^\text{83}\)

Since policy reasons encourage courts to reject perpetual leases, courts commonly examine the language of a lease to determine whether the parties envisioned the lease to exist in perpetuity.\(^\text{84}\) Courts will look for particular language to make such a determination because with regard to “the words customarily used to create a perpetual lease[,] . . . [their] presence or absence in a lease is of considerable significance to a court in deciding whether a right of perpetual renewal was intended by the parties.”\(^\text{85}\) Several courts have concluded that specific words will trigger a perpetual lease such as “perpetual,” “in perpetuity,” “successive,” “for all time,” and “forever.”\(^\text{86}\)

In addition to the plain language of a lease, courts will also examine how a lease was actually applied.\(^\text{87}\) To conduct such an examination, courts will perform case-by-case analyses and look at the individual circumstances of a matter to determine how parties have performed on their lease. For example, a court may conclude that a perpetuity exists and is valid in a case where the facts show that the parties consistently renewed a lease for an

\(^{81}\) E.g., Diffenderfer, 25 S.W. at 544.

\(^{82}\) First Nat’l Bldg. Corp. v. Harrod, 175 F.2d 107, 109 (10th Cir. 1949) (“If we construe the rider as giving Harrods the right to renew or extend the lease ‘for any period of time they so desire’ . . . other than a reasonable time to be determined under the existing facts and circumstances, then such a provision is void for uncertainty.”) (internal quotations omitted); see also Lawson v. West Virginia Newspaper Pub. Co., 29 S.E.2d. 3, 5 (W. Va. 1944) (“While the well-established rule in this State does not disapprove perpetual renewals, the terms of a lease providing therefor, must be clear and distinct.”).

\(^{83}\) Lawson, 29 S.E.2d. at 5.

\(^{84}\) See McLean v. United States, 316 F. Supp. 827, 828–29 (E.D. Va. 1970) (requiring specific terms such as “perpetual” or “forever” to find a lease perpetual).


\(^{86}\) McLean, 316 F. Supp. at 828 (“Nowhere in the lease does the language ‘perpetual,’ ‘forever,’ ‘for all times,’ ‘in perpetuity,’ ‘successive,’ ‘endless periods,’ ‘continuous,’ ‘ever-lasting,’ or any similar words of description of the terms of the lease appear.”); Geyer v. Lietzan, 103 N.E.2d 199, 201 (Ind. 1952) (“[A]ppropriate and apt words ordinarily used to create a perpetual lease [include] ‘forever,’ ‘for all time,’ ‘in perpetuity,’ etc. [but not] ‘successive renewals.’”); Lonergan, 357 A.2d at 914 (“Nowhere in the provision appear any of the words customarily used to create a perpetual lease, such as ‘forever,’ ‘for all time,’ and ‘in perpetuity.’”).

\(^{87}\) See Tipton v. North, 92 P.2d 364, 369 (Okla. 1939) (“[T]he conduct of the parties to the lease shows clearly that it was their intention that the lease should be so construed as to give the right of renewal for an indefinite period at the option of the lessee.”) (emphasis added).
extended period of time.\textsuperscript{88} Regardless, they may refuse in such instances to conclude that the parties \textit{intended} a perpetual renewal of the lease.\textsuperscript{89}

Discussing the second challenge, some cities include in their leases the right to terminate the agreement. For example, “[t]he Adopt-A-Lot program in Baltimore, Maryland . . . provides renewable one-year leases.”\textsuperscript{90} However, “the city reserves the right to terminate the agreement upon thirty days notice to use the lot for another public purpose, and upon five days notice in the event of complaints concerning the use of or condition of the lot.”\textsuperscript{91} Additionally, “[a]lthough Chicago permits community garden organizations to use specific sites that it has agreed not to develop for three years, the City refuses to enter into any leases with community garden groups.”\textsuperscript{92}

Despite these obstacles, lease agreements can be an effective tool to promote the vitality of gardens. For example, Seattle’s “P-Patch” program effectively promotes community gardening on two levels. The P-Patch program focuses on establishing additional communal gardens.\textsuperscript{93} In conjunction, the program also fosters “new ‘social capital’ instead of merely preserving what communities create on their own.”\textsuperscript{94} One reason this program exemplifies a success story is because it gives Seattle’s Department of Housing and Human Services the authority to establish five-year leases for community gardens.\textsuperscript{95} Specifically in the Denny Triangle area of Seattle, the program’s goal is to expand to “[o]ne dedicated community garden for each 2,500 households.”\textsuperscript{96}

Municipal opinion that gardens are generally temporary in existence renders gardens especially susceptible to development and political schemes.\textsuperscript{97} For example, while New York City’s GreenThumb Program thrived for nearly two decades, it provides an unsuccessful example of

\textsuperscript{88} See, e.g., Gleason v. Tompkins, 375 N.Y.S.2d 247, 250, 253 (Sup. Ct. 1975) (“Consideration must be given to the uncontroverted testimony of the parties that in their course of dealing the lease was renewed for five consecutive terms covering a period of 25 years.”).
\textsuperscript{89} See, e.g., id. at 253 (failing to find a perpetual lease renewal of the lease from conduct).
\textsuperscript{90} Schukoske, supra note 4, at 365.
\textsuperscript{91} Id.
\textsuperscript{92} Id.
\textsuperscript{94} Id.
\textsuperscript{95} See Elder, supra note 93, at 791 (discussing Seattle’s “P-Patch” program dedicated to increasing community gardens in Seattle’s 1994 Comprehensive Plan); see also CITY OF SEATTLE DEPARTMENT OF PLANNING & DEVELOPMENT, CITY OF SEATTLE COMPREHENSIVE PLAN: TOWARD A SUSTAINABLE SEATTLE 1.27 (2005) (continuing to encourage community gardens).
\textsuperscript{96} CITY OF SEATTLE, supra note 95, at 8.82.
leasing community garden lots. Originally the program provided federal money to those who sought to convert vacant lots in their neighborhoods into community gardens.\(^98\) Since New York law reverts abandoned property back to city ownership, the lots are only leased to the community organizations. Additionally, New York law merely requires these leases to contain seasonal renewal provisions.\(^99\) Most notably, these one-year leases contain provisions allowing a city to develop the property regardless of the presence of a garden.\(^100\)

In 1994, New York City refused to approve new requests for gardens under the guise of the “important countervailing interest—neighborhood revitalization—[and] at a time when New York was experiencing an economic resurgence.”\(^101\) Additionally, in 1996 the City initiated a sale of “its entire disposable land inventory.”\(^102\) Next, in 1998, the City prohibited officials from re-issuing leases and permits granted to communities to garden under the GreenThumb program.\(^103\) At this time, the City also began “auctioning off community gardening land.”\(^104\) One of Professor Robert Elder’s major suggestions includes increasing the lease term for GreenThumb garden land “[i]n order to implement [a successful garden] policy, the standard lease for GreenThumb lots should be increased from one year to three years . . . .”\(^105\) Professor Elder reasons that such implementation would “still [be] less than the time period in the Seattle ‘P-patch’ program, but well within the amount of time that it could take to get new residential construction approved in New York City.”\(^106\) Additionally, three-year leases may provide the “predictability” with regards to garden permanence.\(^107\) This could encourage long-term planning and activities such as planting trees, adding more groundcover, and incorporating mixed uses.\(^108\)

\(^98\). See Elder, supra note 93, at 773 (describing lease provisions that allow New York City “to remove the community garden to enable development of the lot”).

\(^99\). N.Y. AGRIC. & MKTS. LAW § 31-h(2)(b) (McKinney 2004); see also Elder, supra note 93, at 773.

\(^100\). See Elder, supra note 93, at 773 (describing lease provisions that allow a city to allow development of a community garden’s lot under New York law).

\(^101\). Id. at 780.

\(^102\). Id. at 777.

\(^103\). Id.

\(^104\). Id.

\(^105\). Id. at 798–99.

\(^106\). Id. at 799.

\(^107\). Id.

\(^108\). Id.
C. Zoning

Zoning may represent a worthwhile approach to insure longevity of gardens. However, Baton Rouge’s green zoning provisions, as found in its Unified Development Code, presents an unsuccessful example of community gardening incorporated into zoning ordinances. Green zoning introduces cities to new ways of expanding the amount of their “green space, regardless of the cost.” For example, the City of Baton Rouge mandates urban gardening by dictating “numbers of trees and percentage and quality of ground cover for residential properties, commercial lots, and multiple other types of land use.” Additionally, the Baton Rouge zoning law outlines criteria for permits and inspecting procedures, and encourages “developers to preserve existing green space by offering credits for maintaining existing large trees.”

However, this approach ignores community development strategies included in other greening programs and forces individuals to be solely responsible for greening activities. Another fundamental problem with green zoning is that it can only work in areas where land is still available for development. It is also highly expensive and requires solid and strict enforcement, which is often lacking.

D. Municipal Ordinances

As the most common form of urban agriculture in hundreds of U.S. and Canadian cities, “[community] gardens are a function of specific municipality policies or initiatives.” Such policies or initiatives may be fulfilled through parks and recreation programs, or may be included in public housing or community services departments. A number of sources

109. Id. at 794 (“[Baton Rouge’s zoning laws for trees and groundcover] completely ignore[] the community development aspect of a program like GreenThumb, leaving all greening up to individuals.”).
110. Id.
111. Id. at 794; see also BATON ROUGE, LA., UNIFIED DEV. CODE § 18.3 (2007) (defining landscape standards for Baton Rouge, La.).
112. Elder, supra note 93, at 794; see also BATON ROUGE, LA., UNIFIED DEV. CODE § 18.7 (2007) (providing tree preservation requirements for Baton Rouge, La.).
113. Elder, supra note 93, at 794.
114. Id. at 794–95 (“Such a plan is impractical in New York City, where little land is left to be developed.”).
115. See id. (noting that credits or green space “would be an expensive proposition”).
116. See Neil D. Hamilton, Greening Our Garden: Public Policies to Support the New Agriculture, 2 DRAKE J. AGRIC. L. 357, 366 (1997) (“The most common form of urban agriculture, which exists in hundreds of cities in the United States and Canada, is the community garden.”).
117. Id.
such as the Department of Housing and Urban Development (HUD)
provide funding for these programs to fulfill the overlying purpose of
municipal policies and initiatives. 118

Even with some funding from HUD, the risk of presenting too much
regulation is one major challenge associated with municipal ordinances that
protect community gardening space. This detriment can be seen with
Seattle’s P-Patch program. The program “is controlled by an elaborate
regulatory scheme, which mandates everything down to the price
chargeable per plot of garden land.”119 As a result, such regulations make
initiating a garden excessively “time consuming and expensive.”120

Cities interested in adopting a municipal ordinance to facilitate
community gardening should refer to the model ordinance Professor Jane
Schukoske proposed in her article, Community Development Through
Gardening: State and Local Policies Transforming Urban Open Space.121
The model outlines ways in which local governments may implement
community gardening programs.122 With this proposal, Professor
Schukoske draws from gardening ordinances across the nation to
recommend the “best practices” in successful gardening initiatives.123 For
example, three elements particularly useful for addressing ownership
cconcerns include:

(1) Assign[ing] the duty of inventorying vacant public lots
and vacant private lots in low-income neighborhoods, and
the duty to make that information readily accessible to the
public;

(2) Authoriz[ing] contracting with private landowners for
lease of vacant lots;

(3) Authoriz[ing] the use of municipal land for minimum
terms long enough to elicit commitment by gardeners, such
as five years; and provid[ing] for the possibility of

118. Id.
119. Elder, supra note 93, at 792.
120. Id.
121. Schukoske, supra note 4, at 390–92 (listing what localities should consider when creating
model ordinances as well as elements from community gardening ordinances that have proven
workable).
122. Id.
123. Id. at 391.
permanent dedication to the parks department after five years’ continuous use as a community garden . . . . 124

With this compilation of best practices, cities do not have to experiment as much with types of gardening ordinances. Rather, they can rely on other cities’ experiences to understand which garden ordinances are worth implementing.

E. State and Federal Laws

Another public use technique for setting up communal gardens involves communities utilizing state and federal land use provisions. 125 Beginning with state initiatives, some state legislation provides “clear authorization of use of public lands” for establishing community gardens and gardening as permissible public uses of state and local land. 126 Specifically, communities may find this form of legal validation for gardens in “substantive codes, . . . municipal enabling law, state government codes, and one state’s state code.” 127 Similarly, housing authority laws may promote community gardening by planning and incorporating garden space within new development. 128

However, state laws tend to “focus on narrow governmental interests” and place time limits on gardening projects by imposing short lease terms. 129 Additionally, these laws often do not offer effective interim uses of the vacant land used for gardening. 130 Essentially the problem is that legislators overlook the value of gardening. Policymakers should instead “realize that community gardening is consistent with social policies such as the promotion of health and welfare, environmental protection, economic development, education, youth employment, and tourism.” 131 In order for state laws to promote and protect gardens effectively, they must promote the longevity of gardens as well as provide technical support and aid the acquisition of material supplies. 132

124. See id. (listing twenty “best practices”).
125. Id. at 371.
126. Id.
127. Schukoske, supra note 4, at 373.
128. See id. (discussing “housing projects”).
129. Id. at 371–72.
130. Id. at 372.
131. Id.
132. See id. (“Provisions permitting government officials to summarily close community gardens are inconsistent with the aforementioned social policies.”).
Despite the federal government’s current lack of focus on gardens, federal support can also promote and protect gardens where state laws are weak. “Greeners got a painful reminder . . . in 1993, when Congress essentially eliminated funding for the U.S. Department of Agriculture’s Urban Gardening Program.”133 Before Congress cut that funding, the program had assisted “over 150,000 low-income gardeners in 23 of the nation’s cities.”134 Regardless, federal legislation offers many benefits to protecting and promoting community gardens. First, federal legislation shows widespread support for gardening, legitimizing and promoting community gardens in a way that smaller localized projects cannot.135 Second, federal legislation may encourage more towns, cities, and states to establish gardening programs because their efforts will be shared by the federal government.136 Lastly, federal programs provide much needed financial assistance often unavailable at the state and local levels.137

F. Conservation Easements and Land Trusts

Conservation easements and land trusts represent the most ideal forms of property ownership of community gardens. Conservation easements illustrate a private-law property mechanism that has been used to protect gardens. A conservation easement represents “a legal agreement between a landowner and a land trust or government agency.”138 It permanently restricts certain uses of the land, but it allows the owner to continue to use her land, sell it, or pass it on to heirs.139 Conservation easements have been used successfully to protect various types of land.140

134. Id.
135. See Schukoske, supra note 4, at 371 (“[S]tate laws generally focus on narrow governmental interests such as: providing clear authorization of use of public lands; limiting time for gardening use by establishing short lease periods; and protecting governments from tort liability for injury during such use.”) Schukoske argues that such state laws fail to promote permanence and legitimization. Id. at 371–74.
137. Id.; see also Robert Garcia et al., Healthy Children, Healthy Communities: Schools, Parks, Recreation, and Sustainable Regional Planning, 31 FORDHAM URB. L.J. 1267, 1288 (2004) (providing a parallel example of open spaces generally requiring “national priority” status with “adequate funding”).
139. Id.
140. See id. (listing “coastlines; farm and ranchland; historical or cultural landscapes; scenic views; streams and rivers; trails; wetlands; wildlife areas; and working forests”).
Conservation easements are either affirmative or negative. “An affirmative easement is a nonpossessory right to use land that belongs to another, while a negative easement is a restriction that the owner places on her own land to benefit another person or other land.”

Community gardens illustrate a type of an affirmative easement—a right to use another’s land to grow a garden. Additionally, community garden easements do not have to be expressly written into land titles. They may be created by implication or prescription, thereby enhancing their longevity.

Gardens as easements appurtenant can enhance their longevity as well. In addition to express, implied, and prescriptive easements, easements can also be appurtenant or in gross. Easements appurtenant “benefit[] land that the holder of the easement owns.” Noteworthy is that easements appurtenant “run with the land” and therefore cannot be conveyed to successors without the dominant tenement. In other words, this type of easement “cannot be transferred to a third party or severed from the land.” In contrast, easements in gross attach to the owner of the easement instead of to the land. Consequently, the owner of an easement in gross may transfer it without the property. If an owner with an easement in gross for a community garden decides to sell her property, the community garden is left vulnerable to the next owner’s desired use of the property. Therefore, easements appurtenant protect community gardens more than easements in gross.

An easement may last as long as the time period of any possessory estate. For example, “an easement can be in fee simple (perpetual duration), or for life, or for a term of years.” If successfully established, a conservation easement will effectively ensure garden permanence. Such permanence is a major reason why a conservation easement is most often

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141. DANIEL P. SELMI & JAMES A. KUSHNER, LAND USE REGULATION 435 (2d ed. 2004).
142. See WILLIAM B. STOEBUCK & DALE A. WHITMAN, THE LAW OF PROPERTY 445 (2000) (“[An implied] easement arises initially by implication in the grantor’s conveyance.” [Such apparent use is] ‘necessary’ to the use of the part to which it would be appurtenant.”). Stoebuck and Whitman further state that prescriptive easements, or adverse possession, are acquired by ‘actual, open, notorious, hostile, ‘continuous,’ and ‘exclusive’ use of another’s land.” Id. at 451.
143. SELMI & KUSHNER, supra note 141, at 435 (2d ed. 2004).
144. Id.
145. Wisconsin Ave. Properties, Inc. v. First Church of Nazarene of Vicksburg, 768 So. 2d 914, 918 (Miss. 2000).
147. Id. at 767.
148. Id. at 768.
149. JESSE DUKEMINIER & JAMES E. KRIER, PROPERTY 790 (5th ed. 2002).
150. Id.
implemented to pass land to future generations. Easements generally “run with the land,” they commit all owners—prior and successive—to following the parameters outlined by the easement.

Easements are attractive techniques to conserve open space because they can effectively limit future growth and development. However, specific property laws governing easements make utilizing the mechanism challenging for gardening groups. Because establishing conservation easements requires “a willing grantor,” communities often find it difficult to create such protection for their gardens. When faced with this obstacle, land trusts can provide viable options.

A land trust is defined as a not-for-profit organization that “hold[s] title to land in perpetuity” specifically to benefit the public interest. Land trusts accomplish this conservation goal “by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements.” Land trusts may acquire such land in a variety of ways. For example, “[l]and trusts can purchase land for permanent protection, . . . accept donations of land or the funds to purchase land, accept a bequest, or accept the donation of a conservation easement . . .”

There are several advantages to owning community gardens through land trusts. First, land trusts work intimately with local communities as is particularly necessary for cultivating and fostering community gardens. Second, as non-profit organizations, land trusts are able to take advantage of numerous tax exemptions making them more economically feasible to maintain in the long-term. Lastly, because land trusts are independent organizations, they can make independent decisions without the restraints that often limit and delay public agencies. While conservation easements and land trusts provide some of the best techniques to ensure permanent garden status, private ownership rather than public is generally undesirable when considering the principles and purposes of community gardening.

151. Land Trust Alliance, supra note 138. “Whether the easement is donated during life or by will, it can make a critical difference in the heirs’ ability to keep the land intact.” Id.
152. Id.
153. Id.
154. Schukoske, supra note 4, at 371 (“[I]n distressed urban neighborhoods property owners have often neglected and abandoned their properties and these owners cannot be located.”).
155. Id.
156. Id. at 360–61, 369 (noting that such conservation purposes include the protection of natural, scenic, and open-space areas, as well as maintenance of areas for food or timber production).
157. Land Trust Alliance, supra note 138.
158. Id.
159. Id.
160. See id. (listing two tax benefits of land trusts, which include “income or gift tax savings”).
161. Id.
Moreover, as this Note will discuss, these ownership mechanisms cannot be realistically applied to all gardening situations.

III. THE PROBLEM: VALUING CREATES A BARRIER TO GARDEN PERMANENCE

A. The Role of Land Value: Traditional American Perspectives on Property Ownership

Even with all the available property mechanisms, community gardens remain threatened because none of these strategies ensure garden permanence. An underlying reason for this challenge involves the meaning of property and the related classical notions of American perceptions of property and land ownership. While such modes of thought must be reframed, such a feat would require drastically altering the concepts upon which America was founded. The notions and laws regarding property ownership threatening the permanence of community gardens have been instilled in American society since the country’s inception. Thus, our options to protect and increase community gardens are currently limited to the mechanisms based on ownership described previously.

Realistically, we cannot, nor should we, disregard or purge these mechanisms. In order to apply these mechanisms most effectively to community gardens, we need to reframe the context in which they are used. A related issue is that we tend not to value undeveloped land; that is to say, it is not worth anything unless we can build on and profit from it. Such a way of valuing land poses a barrier to the vitality and longevity of garden space.

B. The Challenge in Measuring the Benefits of Community Gardens

Another problematic issue with protecting community gardens is that the “high ideals” placed on garden benefits “rarely can be documented or verified.” An overarching threat to gardens is the notion that hard data on greening is needed before policy makers can give gardens legal protection and support. Arguments in favor of plants, vegetables, trees, and green

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162. See generally Johnson v. Mc'Intosh, 21 U.S. (8 Wheat.) 543, 586 (1823) (establishing the principle that land left as wilderness is considered waste).
163. LAWSON, supra note 7, at 11.
164. Malakoff, supra note 133, at 17 (quoting Roger S. Ulrich and Russ Parsons of Texas A&M University).
spaces “usually make little impression on financially-pressed local or state governments, or on developers concerned with the bottom line.”\textsuperscript{165} Furthermore, “[t]he tendency to layer multiple agendas on gardens makes achievable objectives difficult to ascertain, much less prove to a skeptical land developer or policy maker.”\textsuperscript{166} Additionally, “[p]oliticians, faced with urgent problems such as homelessness or drugs, may dismiss plants as unwarranted luxuries.”\textsuperscript{167} In other words, the abstract nature of a garden’s benefits makes it easy for people in different positions to value gardens differently.\textsuperscript{168} While numerous benefits to gardening have been mentioned, many are hard to measure in the traditional sense with numbers, charts, and graphs. It is apparent that in order to promote garden permanence, we need a system of measurement capable of convincing lawmakers to protect gardens adequately.

One suggestion for measuring the value of community gardens is to use American Forest’s CITYgreen GIS-based software program.\textsuperscript{169} Through analyzing various types of environmental information, this software measures the amount of plant life in urban areas.\textsuperscript{170} CITYgreen determines the value of green space by indicating how such spaces can decrease energy costs, maintain fluctuating and harsh temperatures, and improve air quality.\textsuperscript{171} The program reframes the way the public and decision makers view cities by presenting it as an ecosystem.\textsuperscript{172} However, CITYgreen cannot be successfully used in all urban areas due to impracticalities.\textsuperscript{173} While CITYgreen should not be entirely discounted, we need something more ground breaking—something that begins to solve the root of the problem.

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{165} Id.
\item \textsuperscript{166} LAWSON, supra note 7, at 11.
\item \textsuperscript{167} Malakoff, supra note 133, at 17 (quoting Roger S. Ulrich and Russ Parsons of Texas A&M University, researchers studying “why people have positive responses to plants and green spaces”).
\item \textsuperscript{168} LAWSON, supra note 7, at 11.
\item \textsuperscript{169} Elder, supra note 93, at 793 (asserting that CITYgreen represents a useful tool for measuring urban green space precisely).
\item \textsuperscript{170} See id. (“CITYgreen combines aerial photography and urban surveying to create detailed images of cover in urban areas.”).
\item \textsuperscript{171} Id.
\item \textsuperscript{172} Id. at 793–94 (“It looks at a city as an ecosystem, with the amount, concentration, and quality of its green space changing living conditions in ways that are not immediately apparent to the casual observer.”).
\item \textsuperscript{173} See id. (“For New York City to cultivate enough new green space to substantially improve health might require such an initial outlay of expenditures on new greenery and parkland as to be impractical.”).
\end{itemize}
\end{footnotesize}
C. Merging Politics and Environmental Ethics

The problem facing community gardens is rooted in how law and policy value land and the environment in general. Thus, an alternative solution is to incorporate environmental ethics even more into policy decisions and public debate. This will provide an adequate outlet to assess the value of gardens and the need to promote their permanency. Many scholars within the field of environmental ethics disagree about how exactly to value the environment—intrinsically or instrumentally. For example, Professor Eugene Hargrove, who argues strictly for intrinsic valuing of the environment, asserts that “instrumental values seem to inevitably reduce to economic values; thus, environmental values don’t stand a chance because aesthetics or moral respect can’t compete with other utilitarian goods in the marketplace.” However, this line of thinking only functions to disengage citizens from publicly debating environmental values and policy as well as participating in the democratic process. As a result, Professor Bob Pepperman Taylor suggests that a discussion of intrinsic values must be brought into the public debate. Promoting discussion of intrinsic values stimulates dialogue between all parties that is “entirely compatible with, even critical to, the building of human communities committed to . . . [a] mutual moral ground.”

A major reason explaining the general “bifurcation of politics and ethics” is the argument that effective political participation, policy formation, and a stable democracy can only be achieved through the process of rational policy making dominated by cost-benefit analysis, risk assessment, and other forms of rationalism. The effect of such an approach, however, ultimately ignores the implied values ensconced in the so-called objective strategies. This effect impedes desperately needed dialogue that could propose different approaches to measure the benefits of community gardens. Without dialogue, we are prevented from moving past existing value approaches and developing new techniques that protect...

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175. Id. at 81–83.
176. Id. (“[I]f we think of intrinsic value not as a trump, but as a name for a certain kind of moral respect for the natural world that recognizes its (nature’s) value beyond human advantage, . . . [I] would suggest that it is a rich and important part of our common moral traditions.”).
177. Id. at 86.
179. Id. at 80–81.
gardens and open spaces effectively. The fact that objective strategies do not acknowledge the intrinsic values in effect precludes discovery of flaws in these imperfect tools.

In response to this dilemma, Professor Joe Bowersox calls for a “deliberate democracy” that will allow society to begin debating and challenging its “conceptions of the world (our visions of our collective future) and facilitate the combination of our individual wills into a common enterprise.” He further asserts that when considering that ethics and politics both encourage human behavior to achieve individual and collective ends, and given the dangerous consequences of avoiding normative argument over such things as relative worth of species . . . or the equity effects of the siting of a hazardous waste incinerator, we must recognize that it is time for us . . . to get over the unnecessary bifurcation of the two.

Instead of allowing political decision making to rely so heavily on science and economics, we must force values to surface as “the explicit subject of politics and the conscious starting point for all policies.” Otherwise, development will almost always take priority over community gardens and open spaces.

IV. A SOLUTION: APPLYING A PLACE BASED ETHIC TO LAND USE PLANNING AND DECISION MAKING

Fundamentally, the problem is that the law fails to promote gardens because it lacks an adequate context within which to evaluate gardens. Community gardens are falling into ruin despite the effort that went into their establishment and the attempts to protect them through use of legal mechanisms. The ordinances are proving unsuccessful, the leases are expiring, states fail to enact statutes that adequately protect and recognize gardens, and the federal government replaced its program specifically aimed to create community gardens.

180. Id. at 86.
181. Id. at 84.
182. Id.
As an initial attempt to resolve issues that threaten garden permanence, communities can apply a number of grassroots strategies and other innovative techniques to protect their gardens. Grassroots solutions are critical when considering the current state of the law. For example, reflecting on the situation in New York City, “[t]his crisis points out the need for community gardeners to organize in their communities to gain popular and political support for the preservation of gardens.”

Furthermore:

[t]his is an important era for community gardening. Community gardeners and garden supporters have to be ready to work with their city councils, community planning boards and mayor’s offices to do community-based planning and policy making that includes community garden as an important component of permanent neighborhood open space.

But how are communities to do this? The answer: We need to shift our thinking.

A. Community Gardens Require an Ethics of Place

We are at a clear divide in the environmental movement. Thus, one strategy involves working toward implementing a fundamental paradigm shift, which is best accomplished by reframing the issue. However, given the current rigid legal structure, a creative approach could prevent the continued loss of gardens and to cultivate a dialogue of values so critical to the task of promoting garden permanence. For a creative approach, we must look beyond traditional legal theory, techniques, and even mainstream environmental thought. This approach consists of ways to encourage and promote the legal protection of green space, including gardens, by recognizing the value gardens have within an ethics of place. Then, we can apply that value to land-use planning and decision making. An ethics of place will provide an invaluable method to measure the benefits of gardens by creating the dialogue missing from current discussions regarding gardens.

A discussion of place has much to offer in promoting garden permanence. First, such a discussion confers “a position of renewed respect

(describing new elderly housing partially funded by HUD which includes a community garden as an amenity).

184. Librizzi, supra note 97, at 29.
185. Id.
by specifying its power to direct and stabilize [society], to memorialize and identify us, to tell us who and what we are in terms of *where we are.*”\(^{186}\) Since place surrounds us, it also forces us to acknowledge our immediate environments: “the environing subsoil of our embodiment, the bedrock of our being-in-the-world.”\(^{187}\) As Professor Casey argues, until we become aware of this field of thought and begin reflecting on and questioning what place involves and what it means to be in a particular place, “our own lives will continue to be as disoriented and displaced, as destabilized and dismayed as we know them to be at this . . . moment.”\(^{188}\)

An ethics of place applies relativism, as well as contextual and holistic approaches, to analyzing problems and questions.\(^{189}\) Such approaches create an awareness of context and force us to understand where things come from and how they connect to each other.\(^{190}\) As a result, adopting an ethics of place is particularly important because, as Professor Smith explains: “[a]n ethics of place might make explicit the links [] recognized between social and economic relations, land, locality, and ethics.”\(^{191}\) By reconnecting moral and physical spaces, this ethic weakens the current ethical status quo.\(^{192}\)

Bioregionalism offers a classic example of recognizing the role of place. Bioregionalism highlights the idea that humans are molded and influenced by more than their immediate surroundings and culture.\(^{193}\) Rather, the various places and resources upon which humans depend play crucial roles in shaping individuals and the way they exist in the world.\(^{194}\) Thus we must come to learn about and understand “the immediate specific place where we live” and the limits of that place’s natural resources.\(^{195}\) However, in inquiring about places we must be careful not to discount the role of culture in shaping place, which a bioregional perspective seems to

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187. *Id.* at xvii.
188. *Id.*
189. See *Smith,* *supra* note 5, at 193 (discussing the social theories of Pierre Bourdieu, which apply a similar form of relativism). According to Bourdieu, we must “apply to the social world the relational mode of thinking that is that of modern mathematics and physics, and which identifies the real not with substances but with relations.” *Id.* at 193 (citing *Pierre Bourdieu,* *In Other Words: Essays Towards a Reflexive Sociology* 125 (1990)).
190. *Id.*
191. *Id.* at 156.
192. *Id.* at 152.
194. *Id.* at 213.
195. *Id.*
Such caution is necessary because place encompasses more than the characteristics of any particular region. Instead, under an ethics of place framework, places are all different: “each is a specific set of interrelationships between environmental, economic, social, political and cultural processes.” In sum, within an ethics of place, we must reconsider how we define “place” to include interrelationships.

An ethics of place is particularly useful in bringing about the changes in land-use planning and decision-making needed to protect the longevity of community gardens. Primarily, it forces us to assess how we form opinions and assign values. This ethical framework increases the potential to develop an adequate way to measure the benefits of gardens. By examining the “interplay of the individual, culture, and nature,” a place-based ethic calls for “an ethical, rather than an instrumental, relation to the natural world.” Furthermore, an ethics of place only occurs by “fusing” one’s surrounding natural and cultural environments in a way that is ethical without seeking “to colonize or appropriate nature.”

B. Finding Wilderness in the Home

In order for long-term policy to change, a dialogue must be sparked discussing the role of nature in human life and, likewise, the role of humans in nature. Essentially, we need to look to other realms of thought for support, such as philosophy, environmental studies, and sociology to incorporate the meaning and role of place into policy. We must acknowledge the role that humans and gardens can play for each other, as well as the role that the establishment of a garden can play in protecting nature. In doing so, this will improve quality of life on a grander scale. The mutuality of this relationship must be seen in order for society and policy to advance to a point where it is possible to promote gardens, open space in general, and the quality of life for the disenfranchised. “[P]eople should always [] be conscious that they are part of the natural world, inextricably tied to the ecological systems that sustain their lives. Any way

196. Id. at 213–14.
197. Id. at 215.
198. Id. at 215 (citing GILLIAN ROSE, FEMINISM & GEOGRAPHY: THE LIMITS OF GEOGRAPHICAL KNOWLEDGE 41 (1993)).
199. Id. at 218 (“[An ethics of place] calls us to be aware of the context or our evaluations.”).
200. Id. at 218–19.
201. Id.
of looking at nature that encourages us to believe we are separate from nature . . . is likely to reinforce environmentally irresponsible behavior.\textsuperscript{202} One avenue through which to accomplish a reframing is, as Professor William Cronon proposes, to find a way—or ways—to make ourselves at “home” in the wilderness.\textsuperscript{203} Constructing wilderness as our “home” will allow for wilderness’s importance to manifest itself. He states that:

we need to discover a common middle ground in which all of these things, from the city to the wilderness, can somehow be encompassed in the word “home.” Home, after all, is the place where finally we make our living. It is the place for which we take responsibility, the place we try to sustain so we can pass on what is best in it (and in ourselves) to our children.\textsuperscript{204}

Further, Professor Iris Marion Young provides a useful way in which to define home; a “home . . . is personal in a visible, spatial sense.”\textsuperscript{205} Essentially, “[t]he home displays the things among which a person lives, that support his or her life activities and reflect in matter the events and values of his or her life.”\textsuperscript{206} A place becomes a home only as it acquires meaning through its connection with one’s sense of self. Home “enacts a specific mode of subjectivity and historicity” where a person comes to feel settled “through the process of interaction between the living body’s movement to enact aims and purposes and the material things among which such activities occur.”\textsuperscript{207}

Thus, we would have to make wilderness our home by seeing ourselves and our identity reflected in it. Professor Edward Casey insists that we must recognize how the natural world enters our dwelling in “built places from the edges.”\textsuperscript{208} Humans are primarily orienting themselves within buildings that appear cut off from nature.\textsuperscript{209} As a result, “[o]nce our bodies are comfortably ensconced in buildings, we simply tend to close out the

\begin{footnotes}
\item[203] Id. at 69 (“[W]ilderness presents itself as the best antidote to our human services, a refuge we must somehow recover if we hope to save the planet.”).
\item[204] Id. at 494.
\item[205] Iris Marion Young, \textit{House and Home: Feminist Variations on a Theme}, in \textit{FEMINIST INTERPRETATIONS OF MARTIN HEIDEGGER} 252, 270 (Nancy J. Holland & Patricia Huntington eds., 2001) (emphasis added).
\item[206] Id. at 269.
\item[207] Id. at 269–71.
\item[208] CASEY, supra note 186, at 148.
\item[209] Id. at 147.
\end{footnotes}
larger world of nature.”\textsuperscript{210} Regardless of human association with built places, the natural world continues to exist: “it remains around us as a mute presence tacitly waiting to be acknowledged.”\textsuperscript{211}

Associating gardens with the home can effectively accomplish this important recognition, but without needing to fully “move outside the city limits and into the margins of built place.”\textsuperscript{212} Nature can be effectively acknowledged by connecting it with the home because “[h]omemaking consists in the activities of endowing things with living meaning, arranging them in space in order to facilitate the life activities of those to whom they belong, and preserving them, along with their meaning.”\textsuperscript{213} Furthermore:

\[\text{[t]he work of preservation entails not only keeping the physical objects of particular people intact, but renewing their meaning in their lives . . . . The preservation of the things among which one dwells gives people a context for their lives, . . . gives them items to use in making new projects, and makes them comfortable.}\textsuperscript{214}\]

Expanding on this idea, Professor Casey states that “more than comfort is at issue in the elective affinity between houses and bodies: our very identity is at stake.”\textsuperscript{215} Since humans often identify themselves by and with the places where they dwell, we have much to gain from incorporating gardens into the concept of the home.

The concept of “[w]ilderness gets us into trouble only if we imagine that this experience of wonder and otherness is limited to the remote corners of the planet, or that it somehow depends on pristine landscapes we ourselves do not inhabit.”\textsuperscript{216} Professor Cronon provides an example of comparing a tree in the garden to a tree in an ancient forest, where “[t]he tree in the garden is in reality no less other, no less worthy of our wonder and respect.”\textsuperscript{217} This analogy suggests that “we abandon the dualism that sees the tree in the garden as artificial—completely fallen and unnatural—and the tree in the wilderness as natural—completely pristine and wild.”\textsuperscript{218}

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\textsuperscript{210} Id.
\textsuperscript{211} Id. at 148.
\textsuperscript{212} Id.
\textsuperscript{213} Id. at 148.
\textsuperscript{214} Id. at 273–74.
\textsuperscript{215} Id. at 120.
\textsuperscript{216} Id. at 273–74.
\textsuperscript{217} Id. at 205, at 272.
\textsuperscript{218} Id. at 88–89.
\end{flushleft}
Rather, humanity or society has a responsibility “for both, even though we can claim credit for neither.”

The “challenge is to stop thinking of such things according to a set of bipolar moral scales in which the human and the nonhuman, the unnatural and the natural, . . . serve as our conceptual map for understanding and valuing the world.” In contrast, we must appreciate the entire “natural landscape that is also cultural, in which the city, the suburb, the pastoral, and the wild each has its proper place.” Professor Cronon relates such concepts to his discussion of home. As discussed previously, Professor Cronon describes home as a place in which we can accomplish a middle ground and foster the existence of wilderness along with all others places such as the city and the suburb. Most importantly, “if we acknowledge the autonomy and otherness of the things and creatures around us— . . . label[ed] with the word ‘wild’—then we will at least think carefully about the uses to which we put them, [or] ask if we should use them at all.”

C. Associating Gardens with the Home

Gardens pose an excellent compromise to the challenge of bringing together the built and natural world allowing us to fully recognize the benefits of nature. Although gardens are so-called “built places,” they primarily consist of natural objects. Edward Casey articulates the significance of gardens well. He reflects that “[e]ven if I am not yet in wilderness, in a garden I am in the presence of things that live and grow, often on their own schedule.” Moreover, we must not discount the value of these “special places.” Although gardens do not tend to provide the typical “practical service[s], they are not merely ephemeral or superficial in status.”

219. See id. at 89 (“The tree in the garden could easily have sprung from the same seed as the tree in the forest.”).
220. Id.
221. Id.
222. See id. at 89 (“Wildness (as opposed to wilderness) can be found anywhere: in the seemingly tame fields and woodlots of Massachusetts, [or] in the cracks of a Manhattan sidewalk.”).
223. Id.
224. CASEY, supra note 186, at 154 (reflecting that gardens are intermediaries “between the completely constructed and the frankly wild”).
225. Id. (“When I [Professor Casey] stand in a garden . . . I have become marginal, halfway between the sacred and the profane, yet I have somehow gained a very special place to be.”).
226. Id. Professor Casey provides examples of places and cultures that gave more significance to gardens than the places in which the people resided. In particular, gardens “are the primary forms of landscape architecture and have been important presences from the time of ancient Mesopotamia and early China until the present moment.” Id.
In sum, by looking at gardens from the perspective of place, these spaces have much to offer. Generally, gardens are important to society because they “exhibit a range of relations between the naturally given and the intentionally cultivated.”

Gardens have a particular capacity for illustrating such relationships. Compared to “domestic or institutional buildings,” gardens do not “exclude or ignore the natural world.”

Moreover, according to Professor Casey, gardens carry three important lessons that should be incorporated into policy discussions. First, gardens reflect a close relationship “between mood and built place.” Second, within this relationship, gardens can teach communities about the “expanded building potential of certain material elements.” Such material elements are most easily defined as “landscape architecture,” including ground, wood, water, and rocks. Lastly, gardens offer a sense of dwelling through the experience of spending time in them.

CONCLUSION

The value of gardens can no longer be denied. We must establish an effective way of measuring the benefits of community gardens in order to promote their longevity. Ordinances, leases, legislation, and private mechanisms will all work much better if society begins to recognize the role that these gardens play in lives of urban communities and beyond. This can best be accomplished by reframing the issue and incorporating a dialogue of environmental ethics into land-use planning and decision-making. We can ensure such a paradigm shift by engaging in a discussion of the meaning of place in society.

227. Id. at 168.
228. Id.
229. See id. (“We go to a garden expecting to feel a certain set of emotions, and this expectation is not merely a subjective matter but is based on our perception (and memory) of the structure and tonality of the place.”).
230. Id. at 169.
231. Id. (emphasis omitted).
232. Id. at 169–70.
INTRODUCTION

Rumors of the death of the nuclear-power industry are greatly exaggerated. The Bush Administration’s 2007 budget provided $250 million for the Global Nuclear Energy Partnership, and U.S. energy policy continues to include nuclear power as a cornerstone. Nuclear power currently provides about one-fifth of the nation’s power from 103 active

plants. The technology is advertised as a clean, cheap, and stable energy source. On a global scale, 435 commercial nuclear power plants were operational as of June 2007, and France and Lithuania rely on nuclear power for about three quarters of their electricity. However, any analysis of nuclear power must include an evaluation of the economics behind the technology and the real risks associated with it—nuclear proliferation and plant safety. These are especially important in the evaluation of risks globally.

The economics of nuclear power are relevant in assessing whether the risks assumed are worth the costs. This Note analyzes the government’s assertion that the economics of nuclear power justify the expansion of the industry. It explores the ability of international law to manage the proliferation of nuclear weapons in the midst of an expansion of nuclear power proposed by the administration. The effectiveness of the Treaty on the Non-proliferation of Nuclear Weapons (NPT or Treaty) is questioned in light of historical and recent events. These include A. Q. Khan’s establishment of a black market for nuclear technology, the addition of Pakistan and North Korea into the nuclear weapons circle, and the current crises with Iran, North Korea, and now Pakistan. While the nuclear waste management problem is significant from a number of standpoints, it is analyzed here only within the scope of the proliferation issue.

Nevertheless, risk of proliferation is just one downside to the proposed expansion of nuclear power. Three Mile Island (TMI) and Chernobyl remain the poster children of nuclear power failures, although the industry hails its recent safety record as proof that the technology is within an

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acceptable range of risk.\footnote{World Nuclear Ass’n, Information and Issue Briefs, Chernobyl Accident, http://www.world-nuclear.org/info/chernobyl/inf07.htm (last visited Mar. 8, 2007); World Nuclear Ass’n, Information and Issue Briefs, Three Mile Island: 1979, http://www.world-nuclear.org/info/inf36.htm (hereinafter WNA TMI 1979) (last visited Mar. 8, 2007).} This Note reviews the adequacy of the current state of safety in American nuclear power plants and their ability to manage the safety risks inherent with the expansion of nuclear power. These real risks are closely tied to the acceptance of the technology within the general public. Ultimately, the analysis cannot avoid the salient issue—whether it is wise to take these additional risks when the fundamental benefit is to boil water.

I. BRIEF BACKGROUND ON NUCLEAR ISSUES

A. Uranium, Plutonium, and Nuclear Weapons

Natural uranium is mined and typically contains 0.7% of the isotope uranium-235.\footnote{Richard L. Garwin & Georges Charpak, Megawatts and Megatons: A Turning Point in the Nuclear Age? 118, 120 (2001); see also Elizabeth Roph, Nuclear Power and the Public Safety: A Study in Regulation 15 (1979) (uranium ore typically contains 0.1% extractable uranium oxide).} Most reactor technologies require the enrichment of uranium to about 3% uranium-235 concentration for it to be useful as a reactor fuel.\footnote{Garwin & Charpak, supra note 8, at 107–08.} By comparison, weapons grade uranium requires around 90% enrichment.\footnote{Id. at 135–36.} The bare numbers are deceptive, however, because the process requires about the same amount of work to enrich uranium from 0.7% to fuel-grade enrichment as it does from 3% to weapons-grade enrichment.\footnote{Mitchell B. Reiss & Robert Galluci, Red-Handed, 84 FOREIGN AFF. 142, 143 (2005), available at http://www.foreignaffairs.org/20050301faresponse84214/mitchell-b-reiss-report-gallucci/red-handed.html.} Therefore, enrichment technology enables a state to enrich uranium for weapons as well as for peaceful energy purposes.\footnote{E-mail from Peter Bradford, former Comm’r, Nuclear Regulatory Comm’n, to Richard Sieg (Mar. 6, 2007, 08:38:17 EST) [hereinafter Bradford E-mail] (on file with author); see also Reiss & Galluci, supra note 10, at 143 (noting that it “takes three times as much separative work to enrich uranium from its natural state to 5% LEU [low-enriched uranium] than does to enrich LEU to 90% [highly enriched uranium]”).}

Spent uranium fuel may be “reprocessed” to separate the plutonium from the waste fuel,\footnote{Garwin & Charpak, supra note 8, at 118, 120.} and only a small amount of plutonium is needed to
create a nuclear weapon.\textsuperscript{14} Because of this, which states should possess reprocessing technology is a divisive issue.\textsuperscript{15} “There is no disagreement among the United States, Britain and France that reprocessing plants in non-nuclear-weapon states should be discouraged. . . . There is disagreement among us, however, over whether provision of plutonium services for export helps the effort to contain proliferation.”\textsuperscript{16}

The historical debate over reprocessing illustrates the tension between security and energy that nuclear power engenders. In 1976 and 1977, Presidents Ford and Carter, respectively, announced that important nonproliferation objectives demanded suspension of the U.S. policy of reprocessing and recycling plutonium.\textsuperscript{17} In 1977, President Carter made the suspension indefinite.\textsuperscript{18} The United States banned the reprocessing of nuclear fuel within its borders and halted the export of reprocessed fuels to other countries.\textsuperscript{19} In the 1980s, President Ronald Reagan attempted to lift the ban on reprocessing in the United States, but the high cost and congressional movement toward establishing a central repository ensured the ban would remain effective.\textsuperscript{20} In 2001, the \textit{National Energy Policy} report indicated that, globally, the collection of plutonium would continue to be “discouraged.”\textsuperscript{21} Since 2005, however, support for the technology has grown within Congress (with Senator Peter Domenici leading the way), and it has sent signals to the Department of Energy (DOE) to develop a spent nuclear fuel recycling plan.\textsuperscript{22}

Senator Domenici’s efforts to revitalize the nuclear-power industry have become well known.

\begin{thebibliography}{22}
\bibitem{14} Id. at 314.
\bibitem{16} Id.
\bibitem{18} Carter Statement on Reprocessing, supra note 17.
\bibitem{19} Id. But see Gilinsky, supra note 15, at 375 (noting that the United States made an exception for export of its own reprocessed fuels to Europe to ensure Europe’s complicity in the ban on export to other countries).
\bibitem{20} BRICE SMITH, \textit{INSURMOUNTABLE RISKS} 116 (2006).
\bibitem{21} Id.
\end{thebibliography}
Casting himself as Congress’ “chief nuclear apostle,” Domenici has for years painted a glowing picture of nuclear energy’s potential to give Americans “a cleaner, healthier, sustainable and self-sufficient energy future” and even contribute to global peace, as he wrote in his 2004 book on the topic, “A Brighter Tomorrow.” To those ends, he worked tirelessly as the chairman of two powerful Senate committees with direct control of federal spending on nuclear energy and regulation.  

In 2006, the Bush Administration announced the formation of the Global Nuclear Energy Partnership (GNEP), which will encourage global expansion of nuclear energy using “new advanced recycling technologies” that do not generate plutonium but would still include reprocessing. Not surprisingly, Senator Domenici is a staunch proponent of GNEP.  

There are arguably barriers to the development of nuclear weapons from nuclear-energy fuels.  

Reprocessing and enrichment are hard to do and not hard to detect (eventually); nuclear bombs are hard to design and hard to build (though less so than before); thermonuclear (fusion) weapons development is not only enormously difficult but almost certainly requires testing. Nuclear power facilities are of little use with the hardest parts.  

The health hazards of managing plutonium also make this potential bomb material problematic for a terrorist inclined to use it. But despite these obstacles, “[t]he gravest danger . . . and the one requiring the most urgent attention is the possibility that terrorists could obtain highly enriched uranium . . . or plutonium for use in an improvised nuclear device.” If a terrorist were successful in detonating such a device in an urban area, “[h]undreds of thousand [sic] of people could die,” and hundreds of thousands of others would require treatment for acute radiation exposure,
not to mention the massive economic loss. Considering the danger posed by nuclear material, is its use as an energy source really worth it?

B. Economics of Nuclear Power

The Bush Administration has advertised nuclear power as the cheapest source of electricity. Despite the government’s assertions, however, a recent study by the Massachusetts Institute of Technology shows that including plant construction costs in the equation reverses the seemingly cheap price of this energy source. The economics of expanding nuclear power must be evaluated in light of the actual costs of the technology.

Peter Bradford, a former commissioner on the Nuclear Regulatory Commission (NRC), states, “A real revival can only come when privately financed nuclear power plants are being ordered on a regular basis in countries that use transparent and competitive processes to choose their power supply by building the least expensive plants.”

The Advanced Energy Initiative report plainly states that the cost of nuclear energy is less than coal. Furthermore, the 2001 Energy Policy compares the various energy sources and shows nuclear and coal energy operating costs well below that of oil and gas. Noticeably absent from the chart, however, are construction costs. Accounting for these, the cost of nuclear power generation increases to seven or eight cents per kilowatt-hour (kWh) (up from about 1.8 cents in Bush’s plan).

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29. CBS News: The Worst-Case Scenario (CBS television broadcast Jan. 29, 2006), available at http://www.cbsnews.com/stories/2006/01/27/60minutes/printable1245714.shtml; see also MATTHEW BUNN & ANTHONY WIER, SECURING THE BOMB 2006, at 4 (2006), http://www.nti.org/securingthebomb (“Such a crude terrorist bomb would potentially be capable of incinerating the heart of any city. A bomb with the explosive power of 10,000 tons of TNT (that is, smaller than the bomb that obliterated Hiroshima), if set off in midtown Manhattan on a typical workday, could kill half a million people and cause more than $1 trillion in direct economic damage.”).

30. See NAT’L ECON. COUNCIL, supra note 1, at 11 (alleging operating costs just below that of coal and at 1.8 cents per kilowatt-hour of electricity generated).

31. Compare JOHN DEUTCH ET AL., THE FUTURE OF NUCLEAR POWER 40 (2003) (“[N]uclear power is much more costly than the coal and gas alternatives . . . .”) [hereinafter MIT STUDY], with NAT’L ECON. COUNCIL, supra note 1, at 11 (showing nuclear energy in 1998 as just below the operating cost of coal as the cheapest form of electricity).


33. NAT’L ECON. COUNCIL, supra note 1, at 11.

34. 2001 ENERGY POLICY, supra note 5, at 5-16.

35. Id.

36. MIT STUDY, supra note 31, at 42; NAT’L ECON. COUNCIL, supra note 1, at 11.
moves from cheapest in the Bush plan to most expensive in the MIT study.\footnote{NAT’L ECON. COUNCIL, supra note 1, at 11; MIT STUDY, supra note 31, at 37, 42.}

Mr. Bradford points out that the MIT study showed that the 2003 market conditions would not support nuclear power.\footnote{NUCLEAR POWER’S PROSPECTS, supra note 32, at 12.} However, the study investigated whether “plausible but unproven” measures might narrow the gap somewhat between nuclear power and coal and natural gas.\footnote{Id. at 20.}

These measures are 1) reducing the cost of constructing a nuclear unit by 25% from the base case estimate of $2000 [per kWh]; 2) reducing construction times from five to four years; 3) eliminating regulatory, construction and operating cost uncertainties so as to allow nuclear projects to raise equity capital on the same terms as new coal or gas . . . ; and 4) reducing the already much improved nonfuel operation and maintenance expenditure by another 25%. If all of these are done, nuclear power is still more costly than coal, though it beats natural gas in the high and intermediate price cases.\footnote{Id. at 20–21 (footnotes omitted).}

The study also looked at whether a government-imposed “carbon tax” might reduce the cost gap between nuclear energy and coal and natural gas.\footnote{Id. at 21–22.} If all these measures are successful, and the taxes are added, then nuclear power becomes cheaper than both coal and natural gas.\footnote{Id. at 22.} Noticeably absent from the study were energy efficiency, distributed generation, low-carbon-emission coal technology, and other energy alternatives.\footnote{Id.}

Moreover, there are the safety and security costs: the $607 million spent by FirstEnergy because of the near-meltdown at the Davis-Besse facility (no accident occurred); and the $1 billion spent after the September 11, 2001, terrorist attacks at just one nuclear power plant, Indian Point, to increase security.\footnote{Debbie Van Tassel, Being a Watchdog of FirstEnergy Corp., NEIMAN REP., Summer 2004, at 27, 31; Homeland Security: Monitoring Nuclear Power Plant Security: Hearing Before the Subcomm. on Nat’l Sec., Emerging Threats and Int’l Relations of the H. Comm. on Gov. Reform, 108th Cong. 222 (2004) (statement of David Lochbaum), available at http://www.gpo.gov/congress/house. In an exchange with Congressman Dennis J. Kucinich, Mr. Lochbaum testified that $1 billion was spent on the Indian Point nuclear power plant after the September 11 terrorist attacks to “restore [the plant] to a
According to Mr. Bradford, “nuclear power’s asserted comeback” does not rest on a “newfound competitiveness in power plant construction.” Instead, it rests “on an old formula: subsidy, tax breaks, licensing shortcuts, guaranteed purchases with risks borne by customers, political muscle, ballyhoo and pointing to other countries ... to indicate that the U.S. is somehow ‘falling behind.’” In other words, nuclear power is economical only if the customers and taxpayers cover the cost of plant construction as well as the cost of the risks and, as discussed below, the consequences.

A clear indication that nuclear power may be too risky to warrant expansion is that the government must indemnify the industry in the event of a catastrophic accident. Buried within the cost of nuclear power is the money needed to clean up the damage from such an event. Mr. Bradford testified before Congress about the potential (now completed) renewal of the Price-Anderson Act, stating that the Act is anticompetitive for at least two reasons:

First, new nuclear capacity appears cheaper than it really is relative to other sources . . . . This is because the cost of capital does not reflect the risk of having to pay for damages in excess of $9 billion, when estimates of worst-case accident or sabotage scenarios are much higher than that. Second, any nuclear design that is truly inherently safe or that is at least incapable of doing more than $9 billion in damage does not enjoy the benefit of its improved safety in competition with those nuclear plants that do benefit from the liability limitation. Indeed, the liability limitation ultimately is less a subsidy of nuclear power than of nuclear catastrophe.
Responding to the industry’s claim that it still needs subsidies as it matures, Mr. Bradford pointed out, “If the technology is mature enough to cut public hearing and information rights to the vanishing point, if it is mature enough to circumscribe regulatory scrutiny with probabilistic risk assessment, then it is too mature to need a limitation on its liability for catastrophic accidents.”

Market economics provides an even more basic argument:

“If a thing is not worth doing,” said economist John Maynard Keynes, “it is not worth doing well.” Leaving aside bomb-proliferation, waste, sabotage and uninsurable accidents, nuclear power is simply uncompetitive and unnecessary. After a trillion-dollar taxpayer investment, it delivers little more energy in the U.S. than wood. Globally, it produces several fold less energy than renewable sources. The market prefers other options. In the 1990s, global nuclear capacity rose by 1% a year, compared with 17% for solar cells (24% last year) and 24% for wind power—which has lately added about 5,000 megawatts a year worldwide, as compared with the 3,100 new megawatts nuclear power averaged annually in the 1990s. The decentralized generators California added in the 1990s have more capacity than its two giant nuclear plants—whose debts triggered the restructuring that created the state’s current utility mess.

Historically, nuclear energy received about 59% of the energy research and development funding from 1948 to 1998, despite its associated high cost. At a time when other indicators suggest nuclear power’s time has past, global warming is now being touted by some as a justification for pursuing this energy source more vigorously. Assuming a trebling of the contribution of nuclear power to energy generation, one study shows that nuclear power can improve global warming stabilization by 7.5%–15%.

50. Id.
The MIT study shows as much as a 25% improvement. In either case, one must question whether it is wise to spend 50% of the energy research and development budget on a 7.5%–25% improvement in global warming.

II. THE RISK OF NUCLEAR PROLIFERATION

There is an obvious relationship between the expansion of nuclear power and the risk of proliferation—the more nuclear power expands, the more opportunities are available for diversion of nuclear material for non-peaceful uses. However, if the international community allows certain states to use a technology, it is inequitable to restrict its use by others. Once the power of the atom is harnessed by a country, it may be for peaceful or non-peaceful use. Within that country, the risks of proliferation from energy sources may arise from the transportation, storage, and use of uranium, plutonium, or spent fuel. Unlike other forms of waste, nuclear waste will linger in permanent storage for hundreds of thousands of years, and these wastes may be diverted for non-peaceful uses. In recent years, the desire to directly acquire nuclear weapons has expanded to non-state groups such as al Qaeda. “While concern over catastrophic accidents and long-term waste management are perhaps better known, the largest single vulnerability associated with the expansion of nuclear power is likely to be its potential connection to the proliferation of nuclear weapons.” The risks in managing nuclear technology are numerous and significant, and with respect to power generation, these vulnerabilities are increased dramatically as technology is shared internationally. Understandably, the global community relies on the framework of international law to manage these risks.

54. MIT STUDY, supra note 31, at ix (assuming global nuclear capacity expands threefold to one trillion watts by 2050).
55. See id. at 66 (noting that radioactive materials are generated by medicine and other industries as well).
56. FERGUSON & POTTER, supra note 28, at 2.
57. MIT STUDY, supra note 31, at 53.
58. FERGUSON & POTTER, supra note 28, at 2; BUNN & WIER, supra note 29, at 2.
59. SMITH, supra note 20, at 100–01.
A Call To Minimize the Use of Nuclear Power

A. Non-proliferation Law

1. Treaties

One of the most important events in the history of nuclear power was the signing of the Treaty on the Non-proliferation of Nuclear Weapons (NPT). A treaty is a traditional source of international law that "create[s] specific legal obligations between the treaty parties. Treaties are the most easily discernible sources of international law because they derive their legitimacy directly from the express consent of States." International law, whether by treaty or otherwise, is grounded in the concept that each country has autonomy. Sometimes states choose to contract away some sovereign right for the betterment of the international community.

International law may also be created through a process of creating international "norms" or "customary international law." "[T]o become customary international law[,] it must 'be of a fundamentally norm-creating character such as could be regarded as forming the basis of a general rule of law.'"

As a general proposition, a customary rule of law is binding on all nations, "not because it was prescribed by any superior power, but because it has been generally accepted as a rule of conduct." To prove that a customary norm exists, a court must establish general acceptance of the rule: first, by demonstrating that State practice is consistent with the rule; and second, by demonstrating that States act in accordance with the rule from a sense of legal obligation to do so. This sense of legal obligation is known as opinio juris.66

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62. Id. at 379.
63. Id.
64. Id. at 293, 313.
66. Id. at 311 (quoting The Scotia, 14 U.S. (Wall.) 170, 187 (1871)) (citation omitted).
Without unanimous participation in a treaty, the “traditional analysis of State practice and opinio juris” is necessary to evaluate whether a treaty is universally binding even among nonsignors.67

2. Enforcement of International Law Violations

While international law seems to bind parties to agreements, the practical means of enforcement are problematic. The infrastructure of international treaties often requires a flow of benefits arising from the voluntary limitation of state autonomy.68 By tying compliance to receipt of benefits, the international community enjoys some leverage with a non-compliant state.69 Some treaties provide other measures for encouraging compliance. These may include trade and other sanctions70 and in the most egregious situations possible military action.71

Within the realm of international law, the United States enjoys a position of greater influence because of its economic and military strength.72 This power allows the United States, more than other countries, to violate international law with little fear of consequences.73 Furthermore, the United States enjoys great influence when its preferred interpretation of international law pushes the envelope.74 This same power gives the United States the opportunity to exert great influence on the shape of new norms.75 One example is an “exceedingly testy meeting [in 2006] between Mohamed ElBaradei, . . . who won the Nobel Peace Prize last year, and Robert Joseph, the Under-Secretary of State for Arms Control.”76 According to one diplomat, Mr. Joseph bluntly stated,

We cannot have a single centrifuge spinning in Iran. Iran is a direct threat to the national security of the United States and our allies, and we will not tolerate it. We want you to

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67. Id. at 291, 313.
68. Id. at 482.
69. Id.
70. Id.
73. Id.
74. Id.
75. Id.
give us an understanding that you will not say anything
publicly that will undermine us.\textsuperscript{77}

But at the same time the United States calls for stringent enforcement
of international law against other countries, it has ignored attempts at
international law enforcement against itself. As just one example, on June
27, 1986, the International Court of Justice (ICJ) found that the United
States violated international law by supporting the Contras against the
Republic of Nicaragua.\textsuperscript{78} As a result of these violations, the ICJ decided
“that the United States of America is under an obligation to make reparation
to [Nicaragua]” and ordered funding of the Contras to cease.\textsuperscript{79} Soon after,
U.S. citizens living in Nicaragua sued in federal court for injunctive and
declarative relief against the United States for its policy of funding the
Contras.\textsuperscript{80} The plaintiffs used the ICJ decision as support for their claims
that continued funding of the Contras violated the law.\textsuperscript{81} The D.C. Circuit
Court of Appeals, however, was unmoved.

[A] treaty “depends for the enforcement of its provisions
on the interest and honor of the governments which are
parties to it. If these fail, its infraction becomes the subject
of international negotiations and reclamations . . . [but]
with all this the judicial courts have nothing to do and can
give no redress.”\textsuperscript{82}

The ICJ discovered that without enforcement powers, the same applied
to itself. On June 15, 1990, the ICJ registrar sent a letter to both parties in
an attempt to set a date for a hearing on possible reparations, but the United
States failed to respond.\textsuperscript{83} In 1991, Nicaragua simply discontinued the
proceedings.\textsuperscript{84} Likewise, the dynamics of geopolitical power are very much
in play as the global community grapples with nuclear power.

If an infraction is great enough, the Security Council may vote for
military action—article 2(4) of the U.N. Charter “prohibits members of the
United Nations from taking forcible action against the territorial integrity

\begin{itemize}
\item \textsuperscript{77} Id.
\item \textsuperscript{78} Military and Paramilitary Activities (Nicar. v. U.S.), 1986 I.C.J. 14, 145 (June 27),
\item \textsuperscript{79} Id. at 149.
\item \textsuperscript{80} Id.
\item \textsuperscript{81} Comm. of U.S. Citizens Living in Nicar. v. Reagan, 859 F.2d 929, 932 (D.C. Cir. 1988).
\item \textsuperscript{82} Id. at 937 (quoting The Head Money Cases, 112 U.S. 580, 598 (1884)).
\item \textsuperscript{83} Military and Paramilitary Activities (Nicar. v. U.S.), 1991 I.C.J. 47, 47–48 (Removal Order
\item \textsuperscript{84} Id.
\end{itemize}
and political independence of other states, unless authorized by the Security Council."85 While military action is an option, the Preamble to the United Nations Charter “oblige[s] the Member States of the U.N. to ‘settle their international disputes by peaceful means.’”86 The ICJ, in an Advisory Opinion published in 1996, stated,

This prohibition of the use of force is to be considered in the light of other relevant provisions of the Charter. In Article 51, the Charter recognizes the inherent right of individual or collective self-defence if an armed attack occurs. A further lawful use of force is envisaged in Article 42, whereby the Security Council may take military enforcement measures in conformity with Chapter VII of the Charter.87

In light of this, countries, including the United States, have chosen to take actions unilaterally to protect their sovereign interests.88

Article 51 of the U.N. Charter reads, “Nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security.”89 The plain language does not allow preemptive military action and seems to reserve “uses of force exclusively to the Security Council.”90 “However, the prevailing view is probably that . . . international law includes a right of anticipatory self-defense against an imminent attack.”91 The position of power enjoyed by the United States coupled with preemptive military ability creates an imbalance of power.

85. Frederick Michael Lorenz, Response to Terrorism: Military Force and International Law (Univ. of Wash. television broadcast, Nov. 14, 2001), transcript available at http://jsis.washington.edu/jsis/lorenzrev.pdf; see also U.N. Charter art. 2, para. 4 (“All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations.”).


89. U.N. Charter art. 51.
90. ACKERMAN, supra note 86, at 3.
shared with other nuclear-weapon states. The Iraq experience shows that nuclear-weapon countries, fearful of other states acquiring nuclear weapons but acting on inaccurate intelligence information, can seriously disrupt international peace. Yet, enforcement of international law is more likely to be against weaker countries, such as Iran, than those with military and economic might.

3. Background on the Treaty on the Non-proliferation of Nuclear Weapons

The idea that nuclear power generation brings with it the ability to pursue nuclear weapons is more than sixty years old. On March 16, 1946, the Acheson-Lilienthal Report came out, which recognized that “[t]he development of atomic energy for peaceful purposes and the development of atomic energy for bombs are in much of their course interchangeable and interdependent.” The Acheson-Lilienthal Report proposed a plan to set up international controls over nuclear technology in order to keep its non-peaceful uses in check. Bernard Baruch, President Truman’s special representative to the U.N. Energy Commission, presented a version of the plan to the U.N. that sought to address concerns raised by the Soviet Union, but ultimately the proposal foundered on the Soviet desire to “break the U.S. monopoly” on nuclear weapons. The development of nuclear energy technology around the globe moved forward. Countries, including the United States and Canada, contracted sales of nuclear-power technology with other countries, and with these contracts the buyers were required to sign paper agreements of “peaceful assurances.” These were signed to prevent misuse of the technology. Formal controls, however, were not

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93. Id. at 4.
94. Id.
95. Peter Bradford, Nuclear Power and Public Policy—The Beginnings of Civilian Nuclear Power, Course Presentation at Vermont Law School (June 20, 2006) [hereinafter Bradford June 20 Presentation] (PowerPoint on file with author); SMITH, supra note 20, at 139.
developed until the 1967 Treaty on the Non-proliferation of Nuclear Weapons (NPT) created a set of international safeguards.\footnote{97. Peter Bradford, Nuclear Power and Public Policy—Years of Growth and Optimism (1960–1972), Course Presentation at Vermont Law School (June 21, 2006) [hereinafter Bradford June 21 Presentation] (PowerPoint on file with author).}

The International Atomic Energy Agency (IAEA) was established in 1957 to promote peaceful uses of nuclear energy globally, and the NPT added a safeguard function to IAEA.\footnote{98. Id.; GARWIN & CHARPAK, supra note 8, at 315–17.} This gave the IAEA a dual purpose: (1) “accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world,” and (2) “ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used [for] . . . military purpose[s].”\footnote{99. Statute of the Int’l Atomic Energy Agency art. II, Oct. 26, 1956, 8 U.S.T. 1093, available at http://www.iaea.org/About/statute_text.html [hereinafter IAEA Statute].} This dual mission is strikingly similar to that of the U.S. Atomic Energy Commission (AEC), and the inability of the AEC to effectively balance the dual missions led to its demise in 1974.\footnote{100. See JOHN G. KEMENY ET AL., REPORT OF THE PRESIDENT’S COMMISSION ON THE ACCIDENT AT THREE MILE ISLAND 51 (1979) (noting that a purpose of the Energy Reorganization Act of 1974 was to “divorce the newly created NRC from promotion of nuclear power”).}

The NPT created two types of states—“nuclear weapon” (China, United States, France, U.K. and Russia) and “non-nuclear weapon”—each responsible for certain differentiated obligations.\footnote{101. NPT, supra note 60.} The Treaty requires nuclear-weapon states to avoid the direct and indirect transfer of nuclear weapons or devices to a non-nuclear-weapon state and also to not “assist, encourage or induce” such state in the manufacture or acquisition of nuclear weapons.\footnote{102. Id. art. I.} Also, the non-nuclear-weapon states agreed to neither accept nor request such assistance;\footnote{103. Id. art. II.} and agreed to safeguards established by the IAEA that are intended as “verification of the fulfillment of [their] obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices.”\footnote{104. Id. art. III(1).} Furthermore, transfer of material even for peaceful purposes is also restricted.

Each State Party to the Treaty undertakes not to provide (a) source or other fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any
non-nuclear-weapon state for peaceful purposes, unless the
source or special fissionable material shall be subject to the
safeguards required by this Article.\footnote{Id. art. III(2).}

Importantly, the NPT specifically places within government
sovereignty an “inalienable right . . . to develop research, production and
use of nuclear energy for peaceful purposes without discrimination.”\footnote{Id. art. IV(1).} The
NPT requires pursuit of “negotiations in good faith on effective measures
relating to cessation of the nuclear arms race at an early date and to nuclear
disarmament, and on a treaty on general and complete disarmament under
strict and effective international control.”\footnote{Id. art. VI.} Finally, article X allows
member states to withdraw from the NPT altogether.\footnote{Id. art. X.}

4. Treaty Non-Compliance

At first glance, the success of the Treaty appears great.\footnote{According to one recent assessment,
[s]ix nations abandoned indigenous nuclear weapon programs that were under
way or under consideration in the 1960s: Egypt, Italy, Japan, Norway, Sweden,
and West Germany. Since the late 1970s, Argentina, Australia, Belarus, Brazil,
Canada, Iraq, Kazakhstan, Libya, Romania, South Africa, South Korea, Spain,
Switzerland, Taiwan, Ukraine, and Yugoslavia have abandoned nuclear weapon
programs or nuclear weapons (or both) on their territory. North Korea and Iran
are the only two states that began acquiring nuclear weapon capabilities in this
later period and have not ceased the effort. J\O\SEP C\I\R\I\NC\I\ONE ET AL., D\E\AD\LY A\R\SEN\ALS: N\UC\LEAR, B\IO\LOG\ICAL, AND C\HE\M\ICAL T\H\REATS 24 n.4 (2d ed., rev. & expanded 2005).}
Many countries “eschewed or abandoned nuclear weapons programs” despite the
financial and technical ability to pursue these weapons.\footnote{Perkovich, supra note 6, at 128.} In fact, there are
“fewer nations with nuclear weapons programs than there were 20 or 30
years ago.”\footnote{CIRINCIONE ET AL., supra note 109, at 8.} Furthermore, if the ultimate goal of the Treaty is to prevent
the use of nuclear weapons against a state, its success in that regard is
obvious. The NPT, however, has another purpose: to disarm nuclear-
weapon states. The imbalance of power enjoyed by the nuclear-weapons
states has allowed them to violate their obligations under the NPT. These
countries, including the United States, have failed to meet their
disarmament responsibility,\footnote{Cf. NPT, supra note 60, art. VI (requiring each state to pursue negotiations in good faith).} assisted select non-NPT nations in the
achievement of nuclear technologies and discriminated against NPT signors, whom they perceived to be a threat.

B. The Imbalance of Power under the NPT

1. The Nuclear-Weapon States’ Obligations

The agreement struck in 1967 revealed that the non-nuclear-weapon states were willing to give up a greater portion of their sovereignty than the nuclear-weapon states. The agreement required an equalizing of this sovereignty through nuclear disarmament. “The non-nuclear-weapon States gave up their sovereign right to receive, manufacture and acquire nuclear weapons on the understanding that there would be a corresponding commitment by nuclear-weapon States to disarm. Regrettably, the nuclear [weapon] States . . . backtracked on their commitment.” Since the five permanent members of the U.N. Security Council are divided on how to respond to this obligation, doubts run rampant about “the capacity for action of the only international body with the legal writ to enforce nonproliferation commitments.”

When the NPT was ratified, disarmament was one of the major goals established to protect the global community from non-peaceful uses of the atom. “However, the US still has 10,600 nuclear bombs, Russia 18,000 and the U.K. 200—and they all want to keep them. Add France, China, and others, and the world tally is about 29,800 nuclear warheads, a relatively small drop from 38,000 in 1968.” More than thirty-five years later, the

113. Cf. id. art. I, art. III (requiring that each state not assist non-nuclear-weapon states in acquiring nuclear weapons).

114. Cf. id. art. II (requiring each state to act peacefully and not discriminate).


116. Id.

117. Id.

118. PERKOVICH, supra note 6, at 16.

119. See Jayantha Dhanapala, Under-Secretary-General for Disarmament Affairs, U.N., Reinforcing the NPT Regime, Address to the International Workshop on the 2000 Conference of the Strengthened NPT Review Process (Nov. 1, 1999), available at http://cns.miis.edu/pubs/ionp/nprein.htm (discussing the fundamental NPT obligations: non-proliferation (arts. I and II) and disarmament (art. VI)).

120. The Final Straw for a Fragile Treaty?, NEW SCIENTIST, June 19, 2004, at 7 [hereinafter Fragile Treaty?]; see also Carnegie Endowment for Int’l Peace, Nuclear Numbers July 2005, http://www.carnegieendowment.org/npb/numbers/default.cfm (Nuclear weapons numbers: U.S., approximately 10,300; Russia, approximately 16,000; China, 410; France, approximately 350; U.K.,
nuclear-weapon states remain a tight inner circle and show little interest in limiting their weapons. In 2006, U.N. Secretary-General Kofi Annan declared, “Today, the contract between the nuclear-weapon States and the rest of the international community, which is the basis of the NPT, has been called into question.” The nations that agreed to abstain from nuclear weapon development will not tolerate the nuclear-weapon states’ refusal to disarm indefinitely. Sooner or later, this attitude will result in an erosion of the effectiveness of the NPT. In fact, Japanese and Brazilian political leaders apparently are reweighing their nuclear-weapon options. These countries can legitimately argue that one country’s refusal to meet its obligations might justify another’s right to withdraw from its obligations as well. The failure to disarm, in the words of Kofi Annan, “blind[s] us to the [current] crisis facing the Treaty—a twin crisis, of compliance and of confidence.”

This issue has remained divisive between the North and the South since before the 1995 Review and Extension Conference of the Parties to the Treaty on the Non-proliferation of Nuclear Weapons. “In 1995, we were told that ‘the nuclear arms race has ceased,’ in a declaration issued at the Conference on Disarmament by France, Russia, Britain and the United States in anticipation of the [1995 Conference.] . . . Unfortunately, this optimistic claim is not true.” In 2000, the IAEA Director, Mohamed ElBaradei, complained that progress on the disarmament front was sluggish since the 1995 conference. In 2005, disarmament remained an important

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200; Israel, approximately 100; India, between 70 and 110; Pakistan, between 50 and 110; Global Total, approximately 27,600).

121. *Fragile Treaty?*, supra note 120.


123. PERKOVICH, supra note 6, at 16.

124. Id. at 30.

125. Id.


agenda item for the Review Conference. Mr. ElBaradei stated in his opening remarks, “As long as some countries place a strategic reliance on nuclear weapons as a deterrent, other countries will emulate them . . . .”

Meanwhile, the Bush Administration is pursuing new nuclear weapons to enhance the U.S. arsenal. In 2007, Bush recommitted the United States to a national strategy of producing new nuclear weapons on the basis that disarmament entailed too many strategic risks.

In the end, noncompliance with article VI erodes the effectiveness of the NPT framework. Mr. ElBaradei draws a clear picture saying, “We must abandon the unworkable notion that it is morally reprehensible for some countries to pursue weapons of mass destruction yet morally acceptable for others to rely on them for security—indeed to continue to refine their capacities and postulate plans for their use.”

2. Anything for Nuclear-Weapon States’ Friends—Article I Violations

Other Treaty failures include the imbalance of power between the NPT nuclear-weapon states and the non-nuclear-weapon states. In fact, the weapon states have violated the NPT for decades by assisting their “friends” in developing nuclear weapons. A successful strategy for inclusion in the nuclear-weapons inner circle is not signing the NPT, and aligning your country with at least one nuclear-weapon state. For example, Israel successfully became the sixth state (and the first Middle Eastern state) to gain nuclear weapons with the covert assistance of France and the United Kingdom and, at a minimum, the acquiescence of the United States; it now enjoys what is essentially a “don’t ask, don’t tell” U.S. policy.

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131. ElBaradei, supra note 129.

132. AVNER COHEN, ISRAEL AND THE BOMB 1–7 (1998). In 1968, the U.S. Central Intelligence Agency informed President Johnson that they believed Israel had achieved components of nuclear weapons, at a minimum. Id. at 295. The United States pressured Israel to sign the NPT and even offered to sell military aircraft as an added incentive. Id. at 299–311. This linkage was included within a memorandum of understanding between Israel and the United States. Id. at 311. Israel, however, later insisted that the NPT and aircraft sale be delinked politically and offered no firm assurances on the NPT. Id. at 313. This linkage was broken and, after President Richard Nixon took office, U.S. policy moved
India, another country aided by Western allies, shattered early indications of purely peaceful intentions in the use of nuclear technology. On May 18, 1974, it conducted underground testing of nuclear weapons under the guise of a peaceful nuclear experiment. As a result, India endured “an unexpectedly high diplomatic and economic price” leading to setbacks in its civil nuclear-power program and slowed growth in its industrial base and economy. The transfer of nuclear technology to India from Canada and the United States predated the NPT. Before the NPT, the only safeguards keeping civilian nuclear technology from being used for military purposes were paper assurances of peaceful use given in the Agreements for Cooperation. However, the United States “took the position that India had not violated [its] contract . . . on the Tarapur reactor, because the plutonium used in the explosion had been extracted from the spent fuel in the Canadian-supplied reactor, the CIRUS.” Canada condemned the testing as a violation of their contract and withdrew nuclear assistance to India permanently in 1976. The United States did not. It did, however, lose interest in dealing with India in 1980, but set up an agreement ensuring India would receive fuel from France. Later, China would provide this fuel to India. After the “peaceful” nuclear experiment, India denied any interest in pursuing a nuclear weapons program toward an assumption that Israel had nuclear weapons but it would not be recognized as a nuclear-weapon state. Id. at 321–38. Britain’s role in this affair has recently come to light. Meirion Jones, Britain’s Dirty Secret, NEW STATESMAN, Mar. 13, 2006, http://www.newstatesman.com/200603130011 (“Secret papers show how Britain helped Israel make the A-bomb in the 1960s, supplying tons of vital chemicals including plutonium and uranium.”); Statement from the Foreign Office, BBC Newsnight, Mar. 9, 2006, http://news.bbc.co.uk/2/hi/programmes/newsnight/4791360.stm (admission by U.K. government that it “was aware that Norway planned to sell the heavy water to the Israeli Atomic Energy Organisation,” though the statement goes on to say that the “[U.K.] was not a party to the sale”). 133. The nuclear weapon debate within India shifted toward development with China’s first nuclear test in 1964. MCDONOUGH, supra note 96, at 119 n.10. 134. MCDONOUGH, supra note 96, at 111; see also ROBERTA WOHLSTETTER, “THE BUDDHA SMILES”: ABSENT-MINDED PEACEFUL AID AND THE INDIAN BOMB 3-1 (1977) (on file with author) (noting that India had not fully explored the utility of nuclear energy before separating plutonium). 135. MCDONOUGH, supra note 96, at 112–13. 136. Id. 137. Bradford June 22 Presentation, supra note 96; MCDONOUGH, supra note 94, at 112; WOHLSTETTER, supra note 132, at i. 138. WOHLSTETTER, supra note 134, at ii. 139. MCDONOUGH, supra note 96, at 113. 140. Id. 141. Id. at 120 n.27. 142. Id.
program. However, in 1998, it conducted new testing and officially declared that it was a new nuclear-weapon power.

In 2006, the Bush Administration negotiated the ability to import nuclear fuel and technology into India despite its nuclear-weapons program. The Economist criticized President Bush for his showing favoritism to a friend (and not for the first time) at the expense of principle: “He is gambling that the future benefits of accepting a rising India in all but name as a member of the nuclear club will outweigh the shock to the global anti-proliferation regime.” The deal with India threatened to undermine U.S. efforts to prevent North Korea and Iran from acquiring nuclear technology. Despite this, on December 18, 2006, President Bush signed into law an exception to the Atomic Energy Act, allowing U.S. trade with one NPT outsider, India.

This law allowed U.S. private investment in Indian (civilian) nuclear plants and trade in nuclear fuel with the country. On its part, India “[opened] up its civilian nuclear facilities to international inspection.” However, India agreed to designate “only 14 of its 22 nuclear reactors as civilian,” with the remainder excluded from international scrutiny. It is estimated that this, coupled with the ability to import nuclear fuel, enables India to divert enough fuel from its facilities to build between forty and fifty nuclear weapons each year. President Bush suggests that this deal is good for nonproliferation, but Henry D. Sokolski, a former Pentagon official under President George H. W. Bush and executive director of the Nonproliferation Education Center, stated, “They have pretty much signaled the end to any benefit for following the rules.” In 2007, India got another “sweetheart deal,” receiving assurances from the United States...

“Perhaps the greatest surprise, however, was the U.S. agreement, in principle, to transfer sensitive nuclear technology to India that would allow for uranium enrichment and spent fuel reprocessing.”\footnote{155}{Id.}

Not only would this enable India to produce reactor fuel, but India could use this technology to produce nuclear weapons.\footnote{156}{Id.}

India’s testing in 1974 energized Pakistani efforts to develop nuclear weapons.\footnote{157}{Id.} In 1977 and again in 1979, the United States temporarily stopped any nuclear technology assistance to Pakistan to discourage the pursuit of weapons.\footnote{158}{Id.} In 1979, the United States passed a law ending assistance to states importing nuclear technology without IAEA inspection safeguards.\footnote{159}{Id.} However, the Reagan Administration, “in the wake of the Soviet occupation of Afghanistan,” suspended this requirement for Pakistan and bumped up military and economic assistance to the country.\footnote{160}{Id.}

President Reagan’s goal was the creation of a strategic partner in the struggle against the Soviets in Afghanistan.\footnote{161}{Id.} Subsequent administrations sporadically and temporarily stopped assisting Pakistan after finding plutonium production taking place.\footnote{162}{Id.} Meanwhile, China desired a strategic ally in Pakistan and provided assistance with a nuclear-fuel reprocessing plant.\footnote{163}{Id.}

In 1998, Pakistan was positioned to respond to India’s nuclear-weapons testing, and it too declared itself within the nuclear-weapon inner circle.\footnote{164}{Id.} Similar to the Bush Administration’s treatment of India, the Administration seems less concerned about Pakistan’s development of a nuclear-weapons program than with Iran’s. While some political backlash occurred over the years against Pakistan, alliances have kept its nuclear-weapons program moving forward.\footnote{165}{Id.}

In late 2007 and 2008, Pervez Musharraf’s presidency faced growing political opposition, and his country’s instability worsened.\footnote{166}{Rohde & Gall, supra note 6.}
2007, Mr. Musharraf declared de facto martial law, and many viewed this move as his effort “to crush his civilian opponents and cling to power.”

On December 27, 2007, Prime Minister Benazir Bhutto was assassinated; Pakistanis blamed Mr. Musharraf for the government’s failure to provide her adequate security. As the crisis deepened, the United States began looking at General Ashfaq Parvez Kayani as an important figure for Pakistan’s future. In any case, much uncertainty looms in an unstable Pakistan. The country is essentially run by the military: “The military not only sets Pakistan’s foreign policy, it also shapes domestic politics by nourishing a climate of insecurity and sectarian violence, allowing it to portray itself as the only bulwark against extremism.”

The Bush Administration fears political instability in Iran and continues to forbid Iran’s use of nuclear technology. Meanwhile, Pakistan, with the assistance of the West, entered the nuclear-weapon inner circle. Like Iran, Pakistan is not a democracy and is politically unstable. The current instability in Pakistan underlines the danger short-term political alliances present in the context of nuclear proliferation and global security. This type of foreign policy with Pakistan may result in the very harm the Bush Administration fears from a nuclear-powered Iran.

Israel, India, and Pakistan are all examples of countries outside the NPT legally developing nuclear weapons by aligning with one or more NPT nuclear-weapon states. In doing so, the assisting nuclear-weapon states violated article I and, in some cases, article III(2) of the NPT without consequences. The natural tendency for nations to build alliances with other states weakens the international control of nuclear technology and in the long term erodes the effectiveness of the NPT. As discussed below, the Bush strategy of controlling regimes rather than controlling nuclear technology “not only fails to solve tough cases but actually makes proliferation more likely.”

3. A Political Minefield for Perceived Foes—Article VII/IV Violations

Within the scope of the NPT, the nuclear-weapon states agreed to take a non-discriminatory approach to the distribution of nuclear-power

167. Id.
168. Id.
169. Id.
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technologies, including uranium enrichment and fuel reprocessing. While Iran’s covert activities won it membership into President Bush’s “Axis of Evil,” other countries’ covert programs draw little or no attention from the United States. The actions of the United States and other countries show that the non-discriminatory approach of the NPT is being ignored. As the international community applies the Treaty, states that make no attempt to sign and adhere to the NPT get favorable treatment over those states that do make an attempt but fall short of full compliance.

The unfair balance of power within the NPT is further exemplified by the international community’s treatment of Iran as it attempts to pursue nuclear power and uranium enrichment. While political instability and a country’s intentions are salient reasons for the international community to treat it with caution, the inequities present within the current system fly in the face of the NPT. For example, unlike India, Pakistan, and Israel, Iran signed the Treaty as a non-nuclear-weapon state. In August 2002, an Iranian opposition group alleged that Iran established a covert nuclear program in Natanz and a heavy-water production facility in Arak. After several years of investigation, it is apparent that for two decades Iran pursued nuclear weapon technology. However, Iran has cooperated with the international efforts to “rectify its past failures.” IAEA Director Mohamed ElBaradei states that Iran has complied with a protocol that the nation has never signed. However, he laid out his concern in Newsweek:

For the last three years we have been doing intensive verification in Iran, and even after three years I am not yet in a position to make a judgment on the peaceful nature of the [nuclear] program. We still need to assure ourselves through access to documents, individuals [and] locations

172. NPT, supra note 60, art. IV; see also Interview by Christopher Dickey, Newsweek, with Mohamed ElBaradei (Jan. 12, 2006), available at http://www.iaea.org/PrintFriendly/NewsCenter/Transcripts/2005/newsweek12012006.html [hereinafter ElBaradei Interview] (noting Iran’s right under the NPT to enrich uranium).


176. McDonough, supra note 96, at 169.


178. ElBaradei Interview, supra note 172.
that we have seen all that we ought to see and that there is nothing fishy, if you like, about the program.\footnote{Id.}{179}

Unlike Israel, Pakistan and India, Iran is expected to remove the “fishy” smell from its program.

Iran’s dissatisfaction with the negotiations led to the recommencement of its fuel enrichment operation in January 2006.\footnote{Press Release, IAEA, Iran To Resume Suspended Nuclear Research and Development, IAEA 2006/01 (Jan. 3, 2006), available at http://www.iaea.org/NewsCenter/PressReleases/2006/prn200601.html.}{180} In March 2006, the IAEA reported the Iranian nuclear concerns to the U.N. Security Council.\footnote{IAEA Staff Report, Report on Iran’s Nuclear Programme Sent to UN Security Council, Mar. 8, 2006, http://www.iaea.org/NewsCenter/News/2006/bog080306.html.} The Council, as recently as August 2006, demanded that Iran eliminate fuel enrichment and reprocessing activities as a confidence-building measure for the concerned U.N. membership.\footnote{Press Release, Security Council, Security Council Demands Iran Suspend Uranium Enrichment by 31 August, or Face Possible Economic, Diplomatic Sanctions, U.N. Doc. SC/8792 (July 31, 2006), available at http://www.un.org/News/Press/docs/2006/sc8792.doc.htm.} Mr. ElBaradei openly acknowledges that the NPT as written gives Iran the sovereign right to pursue uranium enrichment, despite the international efforts to convince its leaders to forego that right.\footnote{ElBaradei Interview, supra note 172.} Furthermore, article X of the NPT allows Iran (or any signor) to withdraw from the Treaty altogether.\footnote{NPT, supra note 60, art. X.} But now, Iran is tied up in a confrontation with the U.N. Security Council, whose permanent members are the United States, the United Kingdom, France, Russia, and China—nuclear-weapon states all.

The United States argues that Iran’s desire for nuclear power makes no economic sense in light of their supply of natural gas; therefore they must intend to manufacture nuclear weapons.\footnote{MIT STUDY, supra note 31, at 66–67. But see Daniel Benjamin, What Price, Peace?, LAW SCHOOL, Autumn 2006, at 12 (questioning Iran’s need for nuclear reactors given their vast oil supplies).} As shown earlier, the same could be said about the history of the U.S. nuclear-power industry. As The Economist put it, nuclear power has gone from “too cheap to meter” to “too expensive to matter.”\footnote{Atomic Renaissance, ECONOMIST, Sept. 6, 2007, available at http://www.economist.com/research/articlesBySubject/displaystory.cfm?subjectid=821240&story_id=9762843.} Iran may have a great supply of natural gas today, but the supply is finite. Iran has as strong an argument as the United States to justify its pursuit of nuclear power—energy diversity is wise given a host of environmental, economic, and security concerns. If nuclear power is prudent for the rest of the world, why, Iran may ask, is it not prudent for us?
The United States and others argue that Iran violated its commitment to the IAEA safeguards agreement and therefore the NPT. However,

Under the IAEA’s Statutes (Article XII: c) if states found in breach of their IAEA safeguards agreements, they will be provided with an opportunity to return back to compliance within a reasonable time, before any punitive action taken against them or before their cases are referred to the United Nations Security Council. Section 19 of the IAEA’s safeguards agreement (INFCIRC/153), which deals with measures in relation to verification of non-diversion and any possible non-compliance makes it clear that the IAEA’s Board of Governors ‘shall take account of the degree of assurance provided by the safeguards measures’ and ‘shall afford the State every reasonable opportunity to furnish the Board with any necessary reassurance.

Despite this, Iran, an NPT signor, is treated more harshly than India, Pakistan, and Israel, which have all consistently refused to accept the NPT framework.

The dual structure of government control in Iran also concerns some experts. According to these critics, bifurcation of political power, coupled with two decades of technical noncompliance, indicates either a lack of control over the nuclear program or outright defiance. Iran’s political structure is not new and neither is its original signature and ratification of the Treaty. No provision exists in the NPT to cover shifts in political control of a government to disfavored regimes in order to mitigate concerns within the international community. Instead, the president of the most powerful country in the world publicly labels that state a member of the “Axis of Evil,” and the international community demands a heightened standard of compliance. Meanwhile, many of these same countries turn a blind eye to nonsignors of the Treaty and, of course, to their own violations.

The reality is that all governments are prone to dynamics that change the prospect of nuclear-weapon development. The Bush Administration itself pursued “bunker busters” and other new nuclear weapons. In 2007,

187. Mohtasham, supra note 177.
188. Id.
189. Id.
190. Id.
the Administration issued a statement claiming that a new nuclear weapon, the Reliable Replacement Warhead, was essential to U.S. nuclear deterrence capabilities.\textsuperscript{192} In non-nuclear-weapon states geopolitical tensions may cause a change in the desire to develop these weapons.\textsuperscript{193} In fact, China’s testing of a nuclear weapon in 1964 led to India’s desire to do the same.\textsuperscript{194} It was India’s 1974 testing that energized Pakistan’s effort.\textsuperscript{195} Even if the U.N., the IAEA, and the United States have valid concerns about Iran, it is difficult to justify penalizing Iran for past wrongs, when the NPT weapons states have avoided compliance with numerous provisions under the Treaty without any consequences.

Compounding the issue, the United States and its allies link Iran to terrorist activities. Their accusations,

\begin{quote}
including the risk of nuclear materials falling into the hands of terrorists, have more than any other factor thrown doubt on the legitimacy of Iran obtaining nuclear material and technology. This is exemplified by statements and images of the clash of ideologies, war or dispute between Islamic and western democratic political systems.\textsuperscript{196}
\end{quote}

According to Professor Gary Sick, director of the Middle East Institute at Columbia University, “terrorism is murky and highly ambiguous” and any Iranian contribution is particularly complex.\textsuperscript{197} While their behavior in the late 1970s and 1980s can be categorized as terrorism, “Iran undoubtedly behaves differently today than it did nearly a quarter century ago.”\textsuperscript{198} Professor Sick believes that Iran’s prior behavior opened it to sweeping accusations:

\begin{quote}
Iran’s past reputation for supporting terrorism, the incendiary rhetoric of its ultraconservative clerical leaders, and its almost total lack of transparency concerning issues
\end{quote}

\textit{supra} note 130, at 32–33 (discussing the ability of potential U.S. nuclear “bunker buster” weapons to penetrate earth and reach underground targets).

\textsuperscript{192} Doyle, \textit{supra} note 130.


\textsuperscript{194} WOHLSTETTER, \textit{supra} note 134, at 3-3.

\textsuperscript{195} MCDONOUGH, \textit{supra} note 96, at 131.

\textsuperscript{196} Mohtasham, \textit{supra} note 177 (citation omitted).

\textsuperscript{197} Gary Sick, \textit{Iran Confronting Terrorism}, WASH. Q., Autumn 2003, at 83.

\textsuperscript{198} \textit{Id.} at 84.
of national security have created an environment in which it is easy to believe the worst. In fact, Iran’s behavior since the revolution has allowed its opponents to accuse it of almost anything and to find a receptive audience for their claims. Iran’s vigorous denial in all of the aforementioned cases ultimately undermined its credibility because the formula never varied, even when the evidence was quite incriminating, and there was never any visible effort by Iran to investigate the circumstances or to punish any of the individuals who might have been involved.\footnote{Id. at 86.}

Nonetheless, as Professor William O. Beeman, director of the Middle East Studies at Brown University, points out, Iran “has withdrawn virtually all of its support troops from Lebanon and Hezbollah.”\footnote{William O. Beeman, \textit{Iran is Cleaning Up Its Act—Why Won’t the United States Respond?}, \textsc{Agence Global}, May 2, 2005, \url{http://www.agenceglobal.com/article.asp?id=489}.}

Furthermore, Professor Beeman argues, Iran’s support of terrorism is overstated.\footnote{Id.}

This accusation is based on only one concretely verifiable action on Iran’s part—its support of Hezbollah in Lebanon. Other attempts to link Iran to Hamas, to Al-Qaeda, to the Taliban and other groups have proved utterly specious, and indeed completely improbable given the antipathy between these other groups and Iran’s Shi’a leaders both on doctrinal and on political grounds.\footnote{Id.}

At the same time that it criticizes other countries on this point, the United States historically has also supported terrorism. To reiterate the example above, the Reagan Administration funded the Contras, an anti-communist guerrilla organization that sought to overthrow the Sandanista government of Nicaragua,\footnote{See supra notes 78–84 and accompanying text.} even after the International Court of Justice declared the United States in violation of international law.\footnote{Comm. of U.S. Citizens Living in Nicar. v. Reagan, 859 F.2d 929, 932 (D.C. Cir. 1988).} Again, U.S. policy appears not to be driven by a concern for moral consistency, but by the considerations of realpolitik. Patrick Seale, a Middle East scholar, points out that the Bush Administration is under great pressure from the Israeli
government to take a hard line against Iran.\(^{205}\) According to Seale, Israel wants a commitment to bomb Iran “if it does not give up its programme of uranium enrichment.”\(^{206}\) Such policies have been called into question by newly released intelligence on Iran. “In December [2007], an American intelligence report concluded that Iran had suspended a nuclear weapons program in 2003, a finding that has delayed a new round of United Nations sanctions.”\(^{207}\) Not persuaded, President Bush stated, “[T]he United States is strengthening our longstanding security commitments with our friends in the gulf and rallying friends around the world to confront this danger before it is too late.”\(^{208}\)

As discussed above, Israel achieved nuclear-weapon status covertly. It attained this with the assistance and acquiescence of nuclear-weapon states, yet the government still denies its nuclear capabilities. The mere existence of these weapons in Israel has a destabilizing effect on the Middle East.\(^{209}\) It is not surprising that Middle Eastern states may seek to equalize the balance of power. Immanuel Wallerstein, a senior research scholar at Yale, questions the threat posed by a nuclear-armed Iran when nine other states are already nuclear-capable.\(^{210}\) Others suggest that the real risk may not be an attack on U.S. interests at all.\(^{211}\) “States are and will continue to be deterred from such attacks by the certainty of swift and massive retaliation.”\(^{212}\) Instead, the greater risk is the potential ripple effect through a region, triggering other states to pursue nuclear weapons.\(^{213}\) Wallerstein says that Iran might believe that joining the nuclear-weapons circle will protect its future sovereignty.\(^{214}\) It has not escaped Iran’s attention that the difference in American policy between the other two members of the “Axis of Evil,” Iraq and North Korea, has been motivated by the fact that one developed nuclear weapons and the other did not.\(^{215}\) In this context, Iran’s


\(^{206}\) Id.


\(^{208}\) Id. (emphasis added).

\(^{209}\) Perkovich, supra note 6, at 28–29.


\(^{211}\) Id. at 29.

\(^{212}\) Id.

\(^{213}\) Id.

\(^{214}\) Wallerstein, supra note 210.

\(^{215}\) Id.
decades-long support of terrorist networks may be less relevant to its leaders than the dynamics of realpolitik.\footnote{216}{Beeman, supra note 200.}

Under the NPT, Iran has an “inalienable right” to peaceful uses of nuclear technology.\footnote{217}{NPT, supra note 60, art. IV.} Iran also has a reasonable expectation of equitable treatment among member states and certainly among the non-signatory states.\footnote{218}{Id.; see also IAEA Statute, supra note 99, art. IV (accepting non-signatories as members of the IAEA who meet certain requirements and assuring each member’s “sovereign equality”).} It is the job of the IAEA to ensure adequate safeguards so that countries who participate in non-peaceful use of nuclear technology are not only discovered but prevented from diverting nuclear material into a weapon.\footnote{219}{See id. art. III (listing IAEA’s authorized anti-proliferation functions).} If these safeguards are inadequate, it begs the question whether the technology should be used anywhere; if sufficient, then Iran’s development of nuclear technology for peaceful use should be acceptable.\footnote{220}{The IAEA statute itself, however, suggests that the drafters recognized the IAEA would fail in some situations. See id. art. II (“The Agency . . . shall ensure, so far as it is able, that assistance provided by it . . . is not used in such a way as to further any military purpose.”) (emphasis added).}

4. The North Korean Crisis

North Korea signed the NPT (unlike Pakistan, Israel, and India) in 1985, but allowed no inspections of its facilities.\footnote{221}{PBS Frontline, Chronology: A Decade-Long Overview of Threats, Deceptions and Diplomatic Ploys That Have Shaped U.S.-North Korea Relations, http://www.pbs.org/wgbh/pages/frontline/shows/kim/etc/cron.html (last visited Dec. 23, 2006) [hereinafter PBS Chronology].} The end of the Cold War in 1989 brought with it a decline in Soviet power that cost North Korea the economic support and security guarantees it enjoyed for forty-five years.\footnote{222}{Id.} In 1989, U.S. intelligence suspected that North Korea was building an atomic bomb, and it became U.S. policy to urge compliance with the terms of the NPT.\footnote{223}{Id.} In May 1992, North Korea agreed to allow IAEA inspections at Yongbyon, where the agency and the United States suspected it was reprocessing spent fuel for use as weapons-grade plutonium.\footnote{224}{Id.} Despite being blocked at two of the suspected sites, the inspectors discovered evidence that North Korea was not fully disclosing its plutonium operations.\footnote{225}{Id.} In March 1993, North Korea threatened withdrawal from the NPT.\footnote{226}{Id.} The Treaty expressly requires a ninety-day
notice prior to a country’s withdrawal from the terms of the Treaty, and with just one day remaining, North Korea announced suspension of the withdrawal.  

As the IAEA lost confidence in the North Korea’s nuclear weapons status, the Clinton Administration engaged its leaders. The stakes were raised on April 19, 1994, when North Korea stated it would move its supply of irradiated fuel from a reactor without any international monitoring of the process. The Administration considered alternatives, including strategic bombing, but settled upon “‘coercive diplomacy’ . . . , diplomacy . . . backed up with a very credible threat of military force.” This approach worked and led to an agreement among the allies (United States, Japan, and South Korea) and North Korea. The October 1994 agreement stated first, that the allies would construct two safeguarded light-water reactors for North Korea; second, that at the completion of this construction, North Korea would dismantle its Yongbyon facilities; and third, that the allies would provide 500,000 metric tons heavy fuel oil annually to the country until construction of the first reactor was completed. The agreement included language that the countries would “work toward a harmonious relationship.” This agreement was not in the form of a treaty and many in Congress disagreed with the outcome, wishing instead that Clinton had applied pressure to overthrow North Korea’s dictatorial government. This led to delays in the allies fulfilling their obligations under the agreement.

In 1998, South Korea established a “Sunshine Policy” that encouraged openness and engagement with its neighbor to the North. In spite of South Korea’s conciliatory gesture, on August 31, 1998, North Korea surprised the world by launching a test missile over the Sea of Japan.

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227. Id.
228. Id.
229. Id.
231. Id.
232. PBS Chronology, supra note 221; McDonough, supra note 96, at 147, 149 (“To offset the energy deficit that North Korea claimed it would face by the freezing of its graphite-moderated reactors and related facilities, the United States was to arrange for the delivery to North Korea . . . of heavy oil for heating and electricity production ‘that will reach a rate of 500,000 tons annually.’”).
233. PBS Perry Interview, supra note 230.
234. Id.
235. PBS Chronology, supra note 221.
236. Id.
spurring Congress to require a review of U.S. policy toward it.\textsuperscript{237} North Korea agreed to inspections, but nothing was found—an embarrassment for the United States.\textsuperscript{238} In September of 1999, North Korea agreed to a long-range missile testing freeze when President Clinton lifted forty-nine-year-old economic sanctions.\textsuperscript{239} As tensions lessened between the South and the North, however, the construction delays of the promised reactors angered the North Korean government, and it threatened to restart the nuclear program.\textsuperscript{240} The Clinton Administration continued to pursue diplomacy, but shortly after the second Bush Administration took office this strategy changed.\textsuperscript{241}

President Bush publicly endorsed the Sunshine Policy, but behind closed doors stunned South Korea’s president by telling him that U.S.-North Korean talks would cease—U.S. policy was no longer engagement; it was confrontation.\textsuperscript{242} In June 2001, North Korea threatened to restart missile testing unless the Bush Administration reengaged with the diplomatic process.\textsuperscript{243} On January 29, 2002, President Bush’s State of the Union address placed the country in the “Axis of Evil” with Iraq and Iran.\textsuperscript{244} He openly accused North Korea of amassing weapons of mass destruction “while starving its citizens.”\textsuperscript{245} In October 2002, Pyongyang admitted that North Korea was engaged in a secret uranium enrichment program, but claimed that technically this program was not a violation of the prior agreement.\textsuperscript{246} The United States considered this a breach of the spirit of the agreement and shortly thereafter the allies stopped the promised shipments of fuel oil.\textsuperscript{247} The year 2003 marked an escalation of tensions as North Korea announced withdrawal from the NPT and demanded the United States participate in bilateral talks to end the conflict.\textsuperscript{248}
In early 2007, the Bush Administration reversed its policy towards North Korea problem.\textsuperscript{240} The Administration was entrenched in the Iraq “bloodbath” and faced “a series of setbacks in the Middle East and Afghanistan.”\textsuperscript{250} A diplomatic victory was needed as the Republican Party tried to recover from its 2006 election losses.\textsuperscript{251} Bush was criticized by some for caving in to nuclear blackmail,\textsuperscript{252} but many others surely welcomed the change.

Then, in September 2007, an event occurred that could have impacted the negotiation. Israel bombed a suspected Syrian reactor site, “apparently modeled on one North Korea has used to generate its stockpile of nuclear weapons fuel.”\textsuperscript{253} Interestingly, Syria, as a signor of the NPT, has a “legal right to complete construction of the reactor, as long as its purpose was to generate electricity.”\textsuperscript{254} Furthermore, Syria was not “obligated to disclose the existence of a reactor during the early phases of construction.”\textsuperscript{255} That Israel acted unilaterally to prevent another country from achieving nuclear-power capability drips with irony.

Despite the possibility that North Korea assisted Syria in the construction of the nuclear reactor, the Bush Administration continued to pursue a six-nation pact (North Korea, United States, China, South Korea, Russia, and Japan) to address the North Korean nuclear program.\textsuperscript{256} In October 2007, news reports indicated that the administration achieved a diplomatic victory when North Korea agreed to “disable all facilities in return for 950,000 metric tons of fuel oil or its equivalent in economic aid.”\textsuperscript{257} In return, the United States must work toward removal of North Korea from its terrorist list “‘in parallel’ with the North’s actions.”\textsuperscript{258} On November 5, 2007, the U.S. State Department announced that an American team of experts began disabling North Korea’s only facility with a

\begin{footnotes}
\footnote{250. Id.}
\footnote{251. Id.}
\footnote{252. Id.}
\footnote{255. Id.}
\footnote{256. Id.; Thom Shanker, North Korea Still a Threat, South Korea Tells Gates, N.Y. TIMES, Nov. 8, 2007, at A14.}
\footnote{257. Helene Cooper, North Koreans in Nuclear Pact, N.Y. TIMES, Oct. 4, 2007, at A1.}
\footnote{258. Id.}
\end{footnotes}
functioning nuclear reactor. But the North Korean policy reversal illustrates how arbitrary U.S. policies towards different countries can be when nuclear weapons are at stake.

The behavior of the North Korean government has been in some respects similar to India’s. In fact, one might argue that India exhibited more prolonged defiance of the international framework for the management of nuclear technology. India never signed the NPT, and it conducted nuclear testing and pursued nuclear technologies covertly. Nonetheless, in December 2006 the United States created an exception in its laws allowing companies to trade nuclear technologies with India, despite the fact that some reactors would not be under international safeguards. North Korea signed the NPT, but conducted nuclear testing and pursued nuclear technologies covertly. The only apparent distinction is that, in spite of the international framework for nondiscriminatory treatment, the current Administration chose to treat North Korea as an “evil” aberration rather than a co-equal sovereign. The political need for a Republican “victory” subsequently led Bush to reverse his hard-line policy and reach a diplomatic resolution. Thus, the geopolitical power imbalance, manifested in short-term and long-term alliances with the most powerful countries—and indeed in the whims of their leaders—has led to grossly inconsistent treatment under the nonproliferation regime.

5. Imbalance of Power—Conclusion

In light of the above, we can make the following observations. The NPT is applied discriminatorily against certain non-nuclear weapons states. The NPT weapon states shirk their obligations without significant consequences. They assist countries aligned with their interests to violate express provisions of the Treaty, but use belligerent rhetoric and threats when those perceived to threaten their interests do the same. Furthermore, Bush’s strategy for protecting against proliferation is incompatible with the framework established under international law. Bush shifted the emphasis from control of the weapons to control of certain regimes. Regime change as a nonproliferation strategy, however, is risky. First, if a government such as North Korea’s is toppled, who will ensure the existing nuclear weapons will fall in safe hands? Second, U.S. interventions will likely induce smaller countries to more quickly pursue nuclear technology.

260. PERKOVICH, supra note 171, at 1.
261. Id. at 3.
262. Id.
as the best protection against U.S. military action.\textsuperscript{263} Furthermore, the strategy of coalition-building diminishes enforcement capacity because any global coalition that hopes to unilaterally enforce an international norm is easily fractured when one state’s friend becomes another’s foe.\textsuperscript{264} The United States may not perceive Israel as a nuclear threat, but Egypt and the other Middle East states do.\textsuperscript{265} In stark contrast to Bush’s strategy, the NPT is built on a foundation of nondiscrimination and sovereignty. The power imbalance problem is significant. The nuclear-weapon states are seen as the “chief enforcers and the most advantaged beneficiaries [of the NPT].”\textsuperscript{266} This imbalance must be corrected: “To sustain—much less strengthen—the regime, this ‘advantaged’ minority must ensure that the majority sees it as beneficial and fair. The only way to achieve this is to enforce compliance universally, not selectively, and that includes the obligations the nuclear states have taken on themselves.”\textsuperscript{267}

C. Nuclear Waste and Proliferation

While environmental concerns surrounding nuclear waste outside the realm of proliferation are serious,\textsuperscript{268} this Note concentrates on the associated proliferation risks, such as diversion of plutonium and covert reprocessing. Whenever the United States sold nuclear fuel to other countries, the sales agreement required U.S. “control” over what could be done with resulting spent fuel.\textsuperscript{269} Despite this policy, the United States has carved out many exceptions allowing spent fuel to be reprocessed by other—primarily European—countries.\textsuperscript{270}

[S]trict consistency with its stated policy against premature reprocessing meant withholding assent to the transfer of spent fuel (arising from U.S.-supplied fuel and reactors) to the European plants, thereby pulling the rug from under

\begin{thebibliography}{99}
\bibitem{263} Id.
\bibitem{264} Id.
\bibitem{265} Id. at 3–4.
\bibitem{266} PERKOVICH, supra note 6, at 35.
\bibitem{267} Id.
\bibitem{269} Gilinsky, supra note 15, at 375.
\bibitem{270} Id.
\end{thebibliography}
close allies and friends. But total acquiescence in the fulfillment of the contracts implied acceptance of defeat in the effort to control reprocessing and the widespread use of plutonium before adequate protection is in place.\textsuperscript{271}

The U.S. exceptions for allies created stores of plutonium that remain vulnerable to diversion for non-peaceful use.

Britain studied the plutonium question during the “Windscale Inquiry.”\textsuperscript{272} By 1978, both the public and Parliament had become gravely concerned about “exporting bomb-ready materials.”\textsuperscript{273} Much of the concern centered on the fact that plutonium would be returned to its owners under flawed international safeguards.\textsuperscript{274} One commentator in the United States declared, “We have to accept the fact that we cannot put the plutonium we plan to separate into the stream of commerce until a fail-safe mechanism can be devised.”\textsuperscript{275} Furthermore, “The rules have to be strict, uniform and universal. There cannot be one set of rules for those inside the club and another for those outside.”\textsuperscript{276} In the end, the decision to reprocess spent fuel is the “choice between plutonium and [non-]proliferation.”\textsuperscript{277}

Thirty years later, the global store of separated plutonium shows that plutonium has been chosen over non-proliferation. “Despite the poor economics of reprocessing, by the end of 2001 there was already 262.5 tons of separated ‘civilian’ plutonium accumulated around the world.”\textsuperscript{278} It is interesting to compare this amount to that generated at both the Savannah River and Hanford Site complexes. These complexes produced about 103.4 metric tons “while the estimated inventory of separated plutonium in the former Soviet Union totaled approximately 150 metric tons.”\textsuperscript{279} The total amount of “civilian” plutonium is sufficient to create 32,800 nuclear weapons.\textsuperscript{280}

Moreover, mischief is created by the mere acquisition of spent fuel. The waste may be reprocessed to produce plutonium, but other uses, such as dirty bombs or distribution through the postal system, are limited only by one’s imagination. The public crisis created by the anthrax scares of 2001

\begin{itemize}
  \item \textsuperscript{271} Id.
  \item \textsuperscript{272} Id. at 381.
  \item \textsuperscript{273} Id.
  \item \textsuperscript{274} Id. at 381–82.
  \item \textsuperscript{275} Id. at 384.
  \item \textsuperscript{276} Id.
  \item \textsuperscript{277} Id. at 385.
  \item \textsuperscript{278} SMITH, supra note 20, at 117.
  \item \textsuperscript{279} Id.
  \item \textsuperscript{280} Id.
\end{itemize}
would be small in comparison. In any case, there are a number of ways that nuclear material might reach wrongdoers: diversion by a state; unauthorized assistance by an insider; mismanaged material in times of national unrest; fraud and organized criminal activities; or theft from facilities, among.281

In the United States, 125 sites in thirty-nine states store spent nuclear fuel at temporary facilities.282 “These storage sites are located in a mixture of cities, suburbs, and rural areas. Most are located near large bodies of water. . . . [And] more than 161 million people reside within seventy-five miles of temporarily stored nuclear waste.”283 These sites are logical targets for theft as well as direct attack by terrorists. However, the most likely targets for theft of nuclear weapons and materials remain “storage areas in the former states of the Soviet Union and in Pakistan, and fissile material kept at dozens of civilian sites around the world.”284 Expansion of nuclear power would increase targets for terrorists, by creating more waste and thus additional management and storage facilities.

D. Non-state Bad Actors

States clearly are not the only concern. Munir Ahmad Khan, the father of the Pakistani nuclear weapons program, developed a side-business selling nuclear technology to other countries while working for his government. North Korea, Libya, and Iran are among the beneficiaries of his illegal transfer of nuclear technology.285 Pakistani scientists are also alleged to have assisted al Qaeda.286 Khan publicly admitted to selling nuclear technology on February 4, 2004.287 “He [was] pardoned soon after by President Musharraf and has been under house arrest since. [Pakistan] claims that Khan acted independently and without state knowledge.”288 Khan’s actions proved that nuclear technology transfers may occur without appearing on the IAEA radar screen. Experts from around the world list

281. Ferguson & Potter, supra note 28, at 2; Bunn & Wier, supra note 29, at 7–8.
283. Id.
284. Perkovich, supra note 6, at 27.
288. Id.
this threat as one of the “top three challenges to the Nonproliferation regime.”

September 11, 2001 revealed that a country’s security may be breached by highly organized non-state actors. The National Security Strategy of the United States of America in 2002 (subsequently reinforced in 2006) reflects this threat:

The gravest danger to freedom lies at the crossroads of radicalism and technology. When the spread of chemical and biological and nuclear weapons, along with ballistic missile technology—when that occurs, even weak states and small groups could attain a catastrophic power to strike great nations. . . . [T]he nature and motivations of these new adversaries, their determination to obtain destructive powers hitherto available only to the world’s strongest states, and the greater likelihood that they will use weapons of mass destruction against us, make today’s security environment more complex and dangerous.

Stores of uranium remain vulnerable throughout the world. “Hundreds of tons of plutonium and weapons-usable uranium in Russia have yet to receive even rudimentary security improvements, while stocks of Soviet-origin, weapons-usable uranium remain vulnerable at research centers in other former Soviet states and elsewhere around the globe.” Even U.S.-origin material may be vulnerable at some locations abroad. U.S. materials at home are at risk as well because of flawed protective measures. Meanwhile, criminal activity relating to radioactive materials is increasing. Although the probability of a terrorist event involving nuclear materials remains lower than one involving “conventional means of violence,” the danger of the former is growing.


E. Can International Law Manage Nuclear Proliferation Risks?

A core problem with the international use of nuclear technology is its inseparable connection with nuclear weapons. The history of nuclear power shows that one country’s possession of nuclear weapons encourages others to develop weapons of their own. During the Cold War and its immediate aftermath, a strategy of nuclear deterrence arguably succeeded in keeping the Superpowers at peace. Smaller states, such as South Africa in 1993, could eschew the technology, convinced that they were unnecessary as a security measure. Now, the continual power imbalance between the nuclear-weapons states and the others has created a tension. This power imbalance, if left in place, will cause states who have rejected the technology to reconsider their decision in the name of security and to protect their sovereignty.

In William Perry’s view, for example, North Korea’s move toward nuclear-weapon technology resulted from the government’s determination that “they needed nuclear weapons for their own security.” Perry states that the “number one objective of the North Korean government is to ensure the survival of their regime.” As mentioned earlier, one must consider whether Iraq’s fate would be the same if Saddam Hussein had in fact successfully developed nuclear weapons prior to Bush’s invasion. The Bush strategy of controlling regimes rather than weapons is likely to encourage governments to pursue nuclear weapons as a protective measure to maintain their rule.

Naturally, the massive potential for harm posed by nuclear weapons leads countries to err on the side of their citizens’ security. This tendency causes weapons states to create new uses for the technology even though they are committed to eliminating nuclear weapons altogether. It has also led to preemptive warfare based on erroneous intelligence information.

297. McDONOUGH, supra note 96, at 243 (noting that South Africa is among the greatest success stories, having built nuclear weapons only to subsequently destroy them and renounce their development).
298. PBS Perry Interview, supra note 230.
299. Id.
300. See Nelson, supra note 130, at 32–33 (discussing tactical military uses of low-yield nuclear weapons).
By the same token, non-nuclear nations pursue the technology in secret to avoid preemptive strikes.\textsuperscript{302} The potential harm resulting from diversion of nuclear technology creates tension between countries that may result in military action. In this type of diplomatic environment, the nuclear “haves” enjoy inequitable influence on the international management of nuclear technologies and international issues in general, while the “have nots” are shut out. Expansion of nuclear power will only exacerbate this tension and provide the “have not” states the technology to develop their own nuclear weapons.

The current international framework for managing nuclear technology does not control the risk of proliferation effectively. No treaty can be effective when a select group of states may materially breach its provisions at will. Furthermore, these same states enable some countries to circumvent the NPT, but require others, such as Iran, to give up sovereign rights based on past violations. The irony is that Iran, a signor of the NPT, is treated discriminatorily in comparison to Israel, India and Pakistan—all NPT nonsignors. Numerous provisions of the Treaty have been violated by its signors, but only the states that were labeled “evil” suffer significant consequences.

1. A New Approach—”Universal Compliance”

A new approach to managing the international nuclear risks has been proposed by scholars at the Carnegie Endowment for International Peace.\textsuperscript{303} This strategy integrates a “force-based approach with the traditional multilateral, treaty-based approach.”\textsuperscript{304} This new approach is provided in a report titled \textit{Universal Compliance: A Strategy for Nuclear Security}\textsuperscript{305} and would place new requirements on both the non-nuclear-weapon and the nuclear-weapon states.\textsuperscript{306}

The strategy would prevent non-nuclear-weapon states from obtaining the technology by increasing penalties for withdrawal from the NPT; enforcing compliance with strengthened treaties; and radically reforming the nuclear fuel cycle to prevent states from acquiring dual-use technologies.
for uranium enrichment or plutonium reprocessing. The threat from existing arsenals would be reduced by shrinking global stockpiles; curtailing research on new nuclear weapons; and taking the weapons off hair-trigger-alert status. Finally, greater efforts would be devoted to resolving the regional conflicts that drive proliferation and bringing the three nuclear-weapon states outside the NPT into conformance with an expanded set of global nonproliferation norms.

Interestingly, the Report recommends that the U.N. Security Council (on which the United States, France, Great Britain, China, and Russia are permanent members) or a similar organization serve as the enforcing agency. The Report also recommends domestic legislation barring any entity from supporting states designated noncompliant by the IAEA.

The strategy outlined in Universal Compliance includes six core obligations resulting in 100 recommendations for change. The first core obligation is to “[m]ake [n]onproliferation [i]rreversible.” The strategy for fulfilling this obligation minimizes the vulnerability of the current regime by prohibiting the acquisition of nuclear reprocessing and enrichment facilities. In return, states with those capabilities would “provide internationally guaranteed, economically attractive supplies of the fuel and services necessary to meeting nuclear energy demands.” Furthermore, even if a state withdrew from the Treaty, it would be held responsible for violations that occurred prior to its withdrawal.

The second obligation requires an effort to “[d]evalue the [p]olitical and [m]ilitary [c]urrency of [n]uclear [w]eapons.” Here, the strategy mandates that all states “diminish the role of nuclear weapons in security policies and international politics.” This obligation is directly adverse to Bush’s strategy because it mandates that nuclear-weapon states “disavow the development of any new types of nuclear weaponry, reaffirm the current moratorium on nuclear weapon testing, and ratify the Comprehensive Test Ban Treaty.” Furthermore, there would be a requirement to “lengthen the

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307. Id. at 37.
308. Id. at 38–39.
309. Id. at 41–44.
310. Id. at 56.
311. Id. at 55.
312. Id. at 36.
313. Id. at 37.
314. Id.
315. Id.
316. Id.
317. Id. at 38.
318. Id.
319. Id.
time decision makers would have before deciding to launch nuclear weapons, and ... make nuclear weapon reductions ... irreversible and verifiable.”

The third obligation would require “all states [to] maintain robust standards for securing, monitoring, and accounting for all fissile materials in any form.” This obligation would require the United States and its partners to “identify, secure, and remove nuclear materials from all vulnerable sites within four years.” Meanwhile, “high-level” discussions should occur to “establish a new global standard for protecting weapons, materials, and facilities.”

The fourth obligation requires all states to create enforceable laws against “individuals, corporations, and states who assist others in secretly acquiring the technology, material, and know-how needed to develop nuclear weapons.” This obligation would also increase restrictions on the transfer of nuclear technology by the Nuclear Suppliers Group (NSG), making it mandatory for NSG to condition transfer on the existence of enforceable laws. Furthermore, the NSG’s sharing of information with the IAEA should be expanded and “obligatory for transfer of all controlled items.”

The fifth obligation requires nuclear-weapon states to lead the resolution of regional conflicts that have historically caused states to pursue nuclear weapons as a security measure. This obligation requires “the major powers [to] concentrate their diplomatic influence on diffusing the conflicts that underlie these and possibly other nations’ determination to possess nuclear weapons.”

The sixth obligation focuses on resolving the India-Israel-Pakistan problem. Efforts to demand these states to abandon their nuclear weapons “absent durable peace in their respective regions and progress toward global disarmament” are unrealistic. Instead, the international community should concentrate on “persuading the three states to accept all
the nonproliferation obligations accepted by the five original nuclear-weapon states, which they are now committed to do."\footnote{331}

Achieving the objectives laid out above is a major endeavor. The strategy demands a strengthened international legal regime that converts “soft” law into “hard” law.\footnote{332} This would create certainty within the world community that any violation of the rewritten Treaty would result in predictable economic sanctions and, if necessary, military action.\footnote{333} Individual states must pass domestic legislation to make this change. In addition, the Security Council and the U.N. General Assembly must adopt resolutions, such as that withdrawal from the NPT does not relieve a state from sanctions for previous violations of the Treaty.\footnote{334} Sanctions under such a resolution might include dismantling equipment associated with nuclear technology and, if a government proves recalcitrant, “destruction of the facilities, equipment, or material in question.”\footnote{335} However, the less-than-stellar nuclear records of the permanent members of the Security Council cut against its credibility.\footnote{336} This must be fixed—the NPT nuclear-weapon states (for example, the five permanent members of the Security Council) must meet their own NPT obligations in order to gain legitimacy. In any case, even the Universal Compliance strategy perpetuates remnants of the imbalance of power—for example, by accepting existing reprocessing and uranium enrichment plants while restricting other countries from doing the same.

Nonetheless, this strategy tackles many of the problems endemic to the status quo. In the context of current world events, the selective enforcement of NPT obligations further isolates less powerful states or those not aligned with a nuclear power. But history teaches that a friend today may be a foe tomorrow. By tightening the Treaty and ensuring predictable enforcement when it is violated, the United Nations may mitigate the tensions spawned by the imbalance of power. Conversely, continued imbalance in enforcement will only encourage states to pursue nuclear weapons to protect their national interests in an unpredictable international environment.

Universal Compliance sets out a compelling strategy but faces almost insurmountable political hurdles. As seen in Committee of U.S. Citizens

\footnote{331. Id.}
\footnote{332. See id. at 192 (calling for criminalization and prosecution of both state and non-state violations of the new framework).}
\footnote{333. Id. at 55–56.}
\footnote{334. Id. at 56.}
\footnote{335. Id.}
\footnote{336. Id. at 64 (“[The Council’s] disposition to enforce nonproliferation [is] gravely weakened when its members’ hands are not clean.”).}
Living in Nicaragua v. Reagan, U.S. courts are unwilling to enforce treaty obligations that are unsupported by domestic legislation. By demanding that all countries obey the NPT, the U.N. in effect asks states to sacrifice some autonomy. In the case of the United States, Congress and the Executive Branch would have to act in concert against a political climate that remains hostile to international regulation. Other global powers will be similarly resistant. Unfortunately, the permanent members of the Security Council “face a legitimacy deficit when it comes to enforcing nuclear nonproliferation.” This is for at least two reasons: “Not only do these five states possess nuclear arsenals and evince little genuine interest in fulfilling their commitments to dismantle them, their own track records betray varying degrees of imperfect adherence to nonproliferation norms and rules.” Considering the potential consequences of a failed international framework for the management of nuclear technologies, this trend must be reversed.

2. A Strengthened Non-proliferation Regime Does Not Support Expansion of Nuclear Power

Assuming the Report’s “hard law” recommendations can be achieved, these changes might improve the control of nuclear technology. Even if this were true, however, it in no way suggests that an expansion of nuclear power is wise. The risks involved with the current level of nuclear power generation have proved unmanageable within an international law framework. Furthermore, given the history of nuclear-power development, the GNEP Strategic Plan’s promise of new technologies to prevent misuse of nuclear materials must be viewed skeptically. In fact, the Plan itself acknowledges that this new technology is no guarantee against proliferation: “[T]here is no technology ‘silver bullet’ that can be built into an enrichment plant or reprocessing plant that can prevent a country from diverting these commercial fuel cycle facilities to non-peaceful use.”

The NPT, historically, was systematically violated by the nuclear-power states, the non-nuclear-power states and the non-NPT states. This systematic lack of adherence to the NPT strongly cuts against any claim that development and testing of nuclear weapons is a violation of international custom or law. As explained earlier, customary international law may be derived from the consistent behavior of state actors. If the

338. Id. at 34.
339. Id. at 34–35.
behavior of the global community is used to determine the law, then wholesale violations of the NPT seem to be the law. The Treaty itself has proven insufficient to effectively manage the increasing proliferation risks associated with the technology. The threats are no longer limited to state actors. Expansion of nuclear power will create more opportunities for diversion of nuclear material and more opportunities for bad actors to gain the expertise necessary to harness the destructive power of the atom. A finding in the MIT study on the future of nuclear power expresses the proliferation concern well: “The current international safeguards regime is inadequate to meet the security challenges of the expanded nuclear deployment contemplated in the global growth scenario.” In other words, there are less risky ways to boil water.

III. PLANT SAFETY AND PUBLIC ACCEPTANCE OF RISK

The more nuclear power plants, the higher the risk of nuclear accidents. As recognized by the Kemeny Commission, which investigated the cause of Three Mile Island (TMI) accident, there is a strong tie between nuclear accidents and public acceptance of the technology. “We are convinced that, unless . . . industry and [the NRC] undergo fundamental changes, they will over time totally destroy public confidence and, hence, they will be responsible for the elimination of nuclear power as a viable source of energy.” The industry claims that the safety record for nuclear power plants is outstanding, which is true compared to a less hazardous industry. However, this logic obscures the catastrophic potential of a nuclear accident. In addition to being relatively safe, so far the industry has been exceedingly lucky. Whether an accident is caused by faulty design, aging equipment, operator error, or outright negligence, the outcome may be the same. The expansion of nuclear power increases the likelihood that a serious accident could occur.

During the lifecycle of a nuclear power plant, the risk of a catastrophic accident follows a function some call the “bathtub curve.” The bathtub curve predicts high failure risks during the “break-in phase” and the “wear-out phase,” with relatively lower risks during a relatively stable “middle life

341. On the other hand, since World War II, no country has ever used nuclear weapons against another, and this is arguably an important international norm as well.
342. MIT STUDY, supra note 31, at ix.
343. KEMENY, supra note 100, at 25.
The break-in phase represents the early years where inexperience, previously undetected vulnerabilities, manufacturing defects, material imperfections and poor workmanship result in a higher failure rate. Fermi-1, Three Mile Island-2, St. Laurent, Browns Ferry, the Sodium Research Experiment, Chernobyl Unit 4 and the Idaho SL-1 reactor are among the worst failures occurring in this phase. During this phase, the failure rate declines until it reaches a near-constant rate. The middle life phase represents the “useful lifetime” of a plant, with the lower failure rate attributed to improvements in equipment design and a better operational understanding of the technology. A recent near miss at the Davis-Besse nuclear plant is a prime example of the type of safety issues that arise during this phase. After a certain point, the failure rate will begin to increase again as the product enters its wear-out phase. This stage is gaining analytical significance as many plants built a generation ago reach the end of their license periods and receive license extensions. In addition, the older plants appear to be susceptible to greater failures. “[W]hile the number of events is decreasing, their severity increases, with the near misses getting nearer to disaster.” Thus, while the nuclear-power industry has experienced a period of relative stability, this by no means indicates that a future catastrophe is becoming less likely.

A. Early Safety Studies

In 1957, the AEC’s WASH-740 Report (Brookhaven Report) was the first study of reactor hazards and it predicted 3400 deaths; 43,000 injuries; between 18 and 150,000 square miles affected by radiation fallout; and $7 billion in property damage resulting from a catastrophic accident. In 1964-1965, an update to the Brookhaven Report was developed with the goal of showing an improvement in safety. However, larger reactors resulted in worsened consequences, and the report was not published because the AEC believed that it would be misunderstood and that public...
disclosure would negatively impact licensing of new reactors.\textsuperscript{356} In 1973, the report was released in response to a Freedom of Information Act (FOIA) request by the Union of Concerned Scientists.\textsuperscript{357} The report stated that an accident at one of the newer plants could cause around 45,000 human deaths.\textsuperscript{358}

In 1972, the AEC funded a project intended to establish the probability of a nuclear accident.\textsuperscript{359} The project used the “Probabilistic Risk Assessment” method, which requires sound information about the failures that can lead to an accident as well as the likelihood of failure.\textsuperscript{360} The enormity of the project led the team to focus on one pressurized water reactor and one boiling water reactor.\textsuperscript{361} The team then extrapolated to the ninety-eight remaining reactors in the American fleet.\textsuperscript{362} In 1974, the resulting Rasmussen Report set the stage for an embarrassment that would deal nuclear-power industry a serious blow. This report claimed that the risks associated with living close to a nuclear plant were less than the chance of being struck by a meteorite.\textsuperscript{363} Five years later, the partial meltdown at Three Mile Island proved the report flawed—the “particular accident sequence that occurred . . . was predicted [by the report] to have a probability of occurring of just once every 100,000 years.”\textsuperscript{364}

1. Early Push for Nuclear Power

It is difficult to understand the safety issues surrounding nuclear power plants without taking a brief look at the early years. In 1953, President Dwight Eisenhower gave his famous “Atoms for Peace” speech and created the concept of an “atomic pool”; widespread international desire for nuclear-power programs followed.\textsuperscript{365} Soon thereafter, the AEC mentality of “too cheap to meter” developed, as did a strong drive for the promotion of

\textsuperscript{356} SMITH, supra note 20, at 206.
\textsuperscript{357} Id.
\textsuperscript{358} Id.
\textsuperscript{359} Id.
\textsuperscript{360} Id. at 207.
\textsuperscript{361} Id.
\textsuperscript{362} Id.
\textsuperscript{363} Id.; The Nuclear History Site, Development of the Nuclear Power Industry, http://www.nuclear-history.org/power.html (last visited Mar. 6, 2007).
\textsuperscript{364} SMITH, supra note 20, at 207.
\textsuperscript{365} President Dwight D. Eisenhower, Address Before the General Assembly of the United Nations on Peaceful Uses of Atomic Energy (Dec. 8, 1953), available at http://www.eisenhower.archives.gov/speeches/Atoms_For_Peace_UN_Speech.html; Bradford June 20 Presentation, supra note 95; Bradford E-mail, supra note 11.
nuclear power.\textsuperscript{366} The Atomic Energy Act of 1954 allowed private companies to own and operate nuclear facilities and gave licensing authority, as well as the dual missions of promotion and regulation of nuclear power, to the AEC.\textsuperscript{367} The ambiguous safety standards of “adequate protection” or “no unacceptable risk” were created for the AEC by statute.\textsuperscript{368} Perhaps the most telling indication of AEC attitude toward regulation of this toxic energy source was expressed by AEC Commissioner Willard Libby in 1955, when he said, “Our great hazard is that the great benefit to mankind will be killed aborning by unnecessary regulation.”\textsuperscript{369}

Despite the government’s strong desire to pursue nuclear power, the utilities were hesitant.\textsuperscript{370} The government overcame this hesitancy in several ways.\textsuperscript{371} The passage of the Price-Anderson Act in 1957 unburdened operators of liability in the event of a catastrophic accident.\textsuperscript{372} Large government subsidies paved the way for the atomic intoxication to come.\textsuperscript{373} On the international front, the IAEA was created in 1957 to promote peaceful uses of nuclear technology worldwide.\textsuperscript{374} In 1968, IAEA’s mission expanded to include proliferation concerns when the NPT created international controls and safeguards over nuclear technology and material.\textsuperscript{375}

2. Atomic Intoxication—Eyes Wide Shut

The Bandwagon Market of the 1950s and 1960s was a period characterized by government and industry intoxication with the toxic atom—an energy source and technology not understood by either.\textsuperscript{376} As manufacturers introduced this technology at a “turnkey” contract price well below cost (unknowingly to the buyer), enthusiasm for nuclear energy grew quickly, and eight more turnkey contracts were signed.\textsuperscript{377} The

\begin{itemize}
\item \textsuperscript{366} Bradford June 20 Presentation, \textit{supra} note 95; Bradford E-mail, \textit{supra} note 11.
\item \textsuperscript{367} Bradford June 20 Presentation, \textit{supra} note 95.
\item \textsuperscript{368} \textit{Id.}
\item \textsuperscript{369} \textit{Id.}
\item \textsuperscript{370} \textit{Id.}
\item \textsuperscript{371} SMITH, \textit{supra} note 20, at 7.
\item \textsuperscript{372} \textit{Id.}
\item \textsuperscript{373} \textit{Id.}
\item \textsuperscript{374} Bradford June 20 Presentation, \textit{supra} note 95.
\item \textsuperscript{375} SMITH, \textit{supra} note 20, at 9; Bradford June 20 Presentation, \textit{supra} note 95.
\item \textsuperscript{376} Bradford June 22 Presentation, \textit{supra} note 96.
\item \textsuperscript{377} IRVIN C. BUPP & JEAN-CLAUDE DERIAN, \textit{LIGHT WATER: HOW THE NUCLEAR DREAM DISSOLVED} 48–49 (1978). A “turnkey” offer was a manufacturer’s contract to build a complete nuclear generating facility at a guaranteed price, subject only to changes reflecting inflation. \textit{Id.} at 48. “All the electric utility had to do was ‘open the door’ of its complete plant at a specified date in the future and start the generating equipment—hence the name ‘turnkey.’” \textit{Id.}
manufacturers provided more plants, but modified the contracts to allow for cost adjustments.\textsuperscript{378} The pace of nuclear plant construction quickened despite a lack of knowledge about the costs of the technology.\textsuperscript{379} The intoxication was so great that Philip Sporn, president of the American Electric Power Company, who was nearly alone in criticizing the economic analyses supporting the market, was criticized not only by the industry, but also by the AEC for his skeptical view.\textsuperscript{380} Meanwhile, operational expertise was lacking because the technology requires time for operators to become familiar with it.\textsuperscript{381} Even more problematic was that experience with a low-capacity plant did not translate to experience in the newer, higher capacity plants.\textsuperscript{382} As a result, a lack of operating experience developed.\textsuperscript{383} Furthermore, the swift pace of expansion and a shortage of licensing personnel burdened the agency with delays and increasing pressure to meet demand.\textsuperscript{384} The emphasis on licensing took resources away from the safety side of the AEC program.\textsuperscript{385} This bandwagon market resulted in industry and government control of a technology that they did not know how to operate.

\textit{B. The Awakening}

The intoxication with nuclear power came to a screeching halt because of massive cost overruns, increased state scrutiny, and falling oil prices.\textsuperscript{386} The Rasmussen Report, paid for by the AEC, informed the public that the chance for a major nuclear incident was only one-in-a-million; five years later, this statement was difficult to believe, and public confidence was shaken.\textsuperscript{387} The accident at Three Mile Island (TMI) brought the general

\begin{itemize}
\item 378. Id. at 49.
\item 379. Id. at 47–50, 71; Bradford June 21 Presentation, supra note 97; Bradford E-mail, supra note 11.
\item 380. BUPP & DERIAN, supra note 377, at 45–47, 50, 80–81.
\item 381. Id. at 70–71; see also LOCHBAUM, supra note 344, at 6 (noting that nuclear accidents have “revealed problems that were not apparent on the blueprints, in the computer models, or in the laboratory”).
\item 382. BUPP & DERIAN, supra note 377, at 70–71.
\item 383. Id.
\item 384. Bradford June 21 Presentation, supra note 97.
\item 385. KEMENY, supra note 100, at 20; Bradford E-mail, supra note 11; Bradford June 21 Presentation, supra note 97.
\item 386. Bradford E-mail, supra note 11.
\item 387. Id.; see also SMITH, supra note 20, at 209 (discussing misleading uses of probability statistics); The Nuclear History Site, supra note 363; KEMENY, supra note 100, at 13. But see William A. Gamson & Andre Modigliani, Media Discourse and Public Opinion on Nuclear Power: A Constructionist Approach, 95 AM. J. SOC’Y. 1, 15–35 (1989) (evaluating media discourse and public
public into a situation that they had been told could not happen. In the wake of the accident, Arizona Congressman Morris Udall, chairman of the House Committee on Interior and Insular Affairs, said, “We may have rushed headlong into a dangerous technology without sufficient understanding of the pitfalls.”

1. Three Mile Island and Chernobyl

On Wednesday, March 28, 1979 at 4:00 a.m. the Three Mile Island nuclear plant was operating at nearly full power. A feed water pump in the non-nuclear section of the plant tripped off, causing heat to build up in the turbines. This resulted in increased pressure in the nuclear section of the plant, and a pilot-operated relief valve (PORV) on top of the pressurizer was opened to relieve excess pressure. However, the PORV stuck open, undetected by the operators, setting the stage for the worst nuclear reactor accident in U.S. history.

As early as 6:00 a.m. on Wednesday, there was evidence of a rupture in the fuel cladding that allowed radioactive gas to escape into the coolant water. The elevated radiation levels in the containment area were the first signs of a leak. The uncovered fuel cladding reacted with the steam and created hydrogen. A loud “thud,” as described by a utility employee, was heard at 1:50 p.m. in the control room. This “thud” was dismissed initially as “the slamming of a ventilation damper.” The recognition that the sudden pressure rise resulted from a hydrogen explosion came late Thursday.

The radiation released by Friday had caused higher radiation levels above the plant—a factor in determining whether to order a precautionary evacuation. But the big scare came with the realization opinion throughout the history of nuclear power development, including the TMI accident, and suggesting erosion of public confidence may have been short-lived).

388. See A Nuclear Nightmare, TIME, Apr. 9, 1979, at 8, 19. Robert Byrd, Senate Majority Leader at the time, said, “We’ve been assured time and time again by the industry and [government] agencies that this was something that was impossible, that could not happen, but it did happen.” Id.

389. Id.

390. 2 NUCLEAR REGULATORY COMM’N SPECIAL INQUIRY GROUP, THREE MILE ISLAND: A REPORT TO THE COMMISSIONERS AND TO THE PUBLIC, pt. 2, at 309 (1979) [hereinafter NRC SPECIAL INQUIRY GROUP].

391. KEMENY, supra note 100, at 99.

392. Id.

393. Id. at 107.

394. Id.

395. Id.

396. Id.

397. See id. at 116–23 (describing the decision-making process leading to the choice to evacuate).
that a hydrogen bubble was building within the containment building. On Saturday, the fear was that an explosion within the containment building would result in greater leakage of radiation into the environment. However, this risk was later proven unlikely since the oxygen level present in the building would not support an explosion.

In fact, industry was quite critical of the government’s “overreaction” to the event. The irony of the industry’s position was that the public risk was at its greatest during the first two days when the public concern was low because of a lack of information. However, as the condition of the plant was brought back under control and the public risk lowered, the public anxiety worsened—fueled by misinformation, hydrogen-bubble worries, confusion and a sense that the government’s actions to protect the local community were inadequate. While the industry’s criticism of the over-reaction to the accident at the end of the episode is perhaps understandable, it ignores the fact that during the first two days, industry and government reacted insufficiently to the potential public risk. If there is a public right-to-know regarding existing risk during a catastrophic accident, TMI did not afford this right to the public.

TMI taught the NRC and industry that the presence of human operators would not necessarily improve a situation where equipment fails. This “mindset” is addressed early in the Kemeny Commission Report as a substantial factor in the seriousness of the accident. “To prevent nuclear accidents as serious as Three Mile Island, fundamental changes will be necessary in the organization, procedures, and practices – and above all – in the attitudes of the Nuclear Regulatory Commission and . . . of the nuclear industry.” The absence of serious accidents lulled the NRC and industry into a “conviction” that the technology was safe. “The Commission is

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398. Id. at 126.
399. Id.
400. Id. at 134.
401. See WNA TMI 1979, supra note 7 (“[A] political storm was raging based on confusion and misinformation.”); see also KEMENY, supra note 100, at 126, 134 (criticizing NRC for failing to inform the public that fears of an explosion were unfounded).
402. KEMENY, supra note 100, at 18; Peter Bradford, Nuclear Power and Public Policy—Stalemate and Retrenchment, 1982-1992, Course Presentation at Vermont Law School (June 27, 2006) (PowerPoint on file with author) [hereinafter Bradford June 27 Presentation].
403. KEMENY, supra note 100, at 18; Bradford June 27 Presentation, supra note 402.
404. Bradford June 27 Presentation, supra note 402; see also KEMENY, supra note 100, at 112–15 (chronicling a lax official response until NRC became aware of the seriousness of core damage on March 29).
405. KEMENY, supra note 100, at 8–9.
406. Id.
407. Id. at 7
convinced that this attitude must be changed to one that says nuclear power is by its very nature potentially dangerous, and, therefore, one must continually question whether the safeguards already in place are sufficient to prevent major accidents. A comprehensive system is required in which equipment and human beings are treated with equal importance.\footnote{408}{Id. at 9.}

Operator training became a focus of improvements after this report. The Energy Reorganization Act of 1974 “divorce[d] the newly created NRC from promotion of nuclear power.”\footnote{409}{Id. at 51.} However, the Commission found that the NRC had not properly abandoned its prior mission and was still trying to “nurture a growing industry.”\footnote{410}{Id.} Also, the NRC failed to communicate known safety problems to facilities with similar reactors, thereby preventing lessons learned at one plant from being available to the entire industry.\footnote{411}{Id. at 10.} In fact, an accident at another plant involving operator error in turning off the cooling system had occurred prior to TMI.\footnote{412}{Id.}

\[W]e were lucky that the circumstances under which this error was committed did not lead to a serious accident[; a senior engineer] warned that under similar circumstances (like those that would later exist at Three Mile Island), a very serious accident could result. He urged, in the strongest terms, that clear instructions be passed on to the operators. This memorandum was written 13 months before the accident at Three Mile Island, but no new instructions resulted from it.\footnote{413}{Id.}

Perhaps the most disturbing fact is that the utility found itself operating a nuclear reactor under unknown and unpredictable conditions.\footnote{414}{Id. at 15.} In its report to the Commissioners, the NRC Special Inquiry Group stated that a meltdown of the core “almost occurred twice” on the first day.\footnote{415}{NRC SPECIAL INQUIRY GROUP, supra note 390, at 536.} The report estimates that “the reactor was probably within about 30 to 40 minutes of [meltdown],” but the lack of information on the condition of the core makes it impossible to reasonably estimate how close the reactor came to meltdown as the event approached its fourth hour.\footnote{416}{Id.} When the dust cleared, the industry and agency discovered that the TMI Unit 2 core
experienced a partial meltdown “just one year and one day after first achieving criticality.”  

The Chernobyl disaster proved that a worse event could result from operator error. The nuclear technology used at Chernobyl was dissimilar to the American light water reactors. Experts, however, urged that the accident held “important lessons for all nuclear power plants.” For example, radioactive contamination impacted land 100 miles away. At the time of the accident, this impact was ten times greater in distance than any emergency planning zone established in the United States.  

Other lessons learned from Chernobyl included the possibility that a “worst case” accident was no longer speculative; more safety devices than used even in the West were needed to prevent an accident; human error remained a significant risk in the safe operation of a nuclear power plant; many gaps existed in emergency response procedures; and timely notifications to the global community were needed when an event occurs. Dr. Morris Rosen, a top American staff member at the IAEA in 1986, stated that Chernobyl showed that even the existing containment vessels in the West are vulnerable to failure in the event of explosions that could result from a similar accident. Despite these lessons, one year later a spokesperson for the NRC and industry stated that a similar accident in the United States was “precluded by differences in design . . . including the requirement that commercial reactors have containment domes.” The salient question is whether this change in opinion was driven by sound science or by economic interests. As one commentator noted, “[O]ne could envision Pravda in 1979 [after TMI] saying, ‘It can’t happen here.’” The American nuclear industry may rightfully take pride in its safety and productivity record since TMI. Over that period (1981–2005), capacity increased by about 1.9 times, but production increased threefold.

417. SMITH, supra note 20, at 31.  
420. Diamond, supra note 418.  
421. Id. Within 100 miles of the Indian Point nuclear power plant lies New York City, Albany, Trenton and Hartford—and 20 million people.  
422. Id.  
423. Id.  
424. Id.  
425. Browne, supra note 419.  
427. Bradford June 29 Presentation, supra note 52.
plant capacity factors improved from 65% in 1990 to 90% in 2002. In addition to this significant improvement, the industry has reduced the number of detected “significant” safety events from fifty in 1990 (one for every two units) to one for every three units in 2000. The question is whether this avoidance was the result of sound industry practices or luck. The near miss at the Davis-Besse plant in Ohio in 2002 sheds some light on this.

2. Davis-Besse

After shutdown of the plant in February 16, 2002, the utility discovered that a boric acid leak had eaten through 6-3/4 inches (or seventy pounds) of carbon steel from a relatively important piece of equipment—the nuclear reactor head. The remaining 3/16-inch stainless steel liner, though “bulged,” managed to withstand the “2000-plus pounds per square inch pressure inside the pressure vessel.” After the discovery, the NRC evaluated the operator FirstEnergy’s performance and found its safety program weak. Davis-Besse’s corrective action program was ineffective in monitoring and fixing recurring leakage from the reactor cooling system. FirstEnergy personnel did not systematically enter equipment issues into the corrective action system because the individuals responsible for recording them were also responsible for fixing the problem. Finally, cost considerations appeared to be the primary rationale for FirstEnergy’s failing to complete modifications designed to more easily detect problems on the pressure vessel head. However, the spotlight soon turned to the actions of the NRC itself.

While the mere existence of a “pineapple-sized” hole in a reactor is a concern, the events leading up to that discovery indicated more severe

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429. Id.
431. LOCHBAUM & GUNTER, supra note 430, at 1.
433. Id.
434. Id.
435. Id.
436. Id. at 2.
concerns, such as the NRC’s tendency to continue to weigh economic concerns over public safety.\textsuperscript{437} In March 2001, circumferential cracking of control rod drive mechanisms were discovered at the Davis-Besse sister plant (Oconee in South Carolina).\textsuperscript{438} Cracking at other plants was found subsequent to the Oconee discoveries.\textsuperscript{439} In August 2001, the NRC issued a bulletin\textsuperscript{440} ordering certain units, including Davis-Besse, to inspect vessel heads by December 31, 2001, or to “provide technical justification for later inspections.”\textsuperscript{441} FirstEnergy challenged the deadline, but NRC staff continued to fight for the December 31, 2001 deadline.\textsuperscript{442} Ignoring established safety policies and procedures, NRC management overruled the staff order for FirstEnergy to meet the established deadline.\textsuperscript{443} “The NRC . . . wanted to avoid economically penalizing FirstEnergy by requiring Davis-Besse to be immediately shut down before the company had time to stage the personnel and equipment needed to conduct the vessel head inspections.”\textsuperscript{444}

A General Accounting Office (GAO) review and others were heavily critical of the NRC oversight at Davis-Besse. In its negotiation with Davis-Besse over shutdown, the NRC ignored four out of five safety principles, any of which would have been sufficient to order the shutdown of a nuclear power plant.\textsuperscript{445} The NRC’s mindset still favors the promotion of nuclear

\begin{thebibliography}{10}
\bibitem{footnote1} Id. at 37–38.
\bibitem{footnote2} Id. at 15; LOCHBAUM & GUNTER, supra note 430, app. 1.
\bibitem{footnote3} Id.
\bibitem{footnote4} The GAO report explained NRC’s use of bulletins:
\begin{quote}
NRC uses generic communications—such as bulletins, generic letters, and information notices—to provide information to and request information from the nuclear industry at large or specific groups of licensees. Bulletins and generic letters both usually request information from licensees regarding their compliance with specific regulations. They do not require licensees to take any specific actions, but do require licensees to provide responses to the information requests. In general, NRC uses bulletins, as opposed to generic letters, to address significant issues of greater urgency. NRC uses information notices to transmit significant recently identified information about safety, safeguards, or environmental issues. Licensees are expected to review the information to determine whether it is applicable to their operations and consider action to avoid similar problems.
\end{quote}
\bibitem{footnote5} GAO SHUTDOWN REPORT, supra note 432, at 11.
\bibitem{footnote6} Id. at 15; LOCHBAUM & GUNTER, supra note 430, at 9.
\bibitem{footnote7} Id. app. 1.
\bibitem{footnote8} GAO SHUTDOWN REPORT, supra note 432, at 37; LOCHBAUM & GUNTER, supra note 430, app. 2.
\bibitem{footnote9} Id. at 7; see also GAO SHUTDOWN REPORT, supra note 432, at 37–38 (“NRC’s decision was driven in large part by a desire to lessen the financial impact on FirstEnergy that would result from an early shutdown.”).
\bibitem{footnote10} LOCHBAUM & GUNTER, supra note 430, at 7, app. 1.
\end{thebibliography}
power over its role to regulate safety. Given Senator Domenici’s strong-arming of the NRC in 1998, this is not surprising. During a “showdown” with the NRC head, the Senator “threatened to slash the agency’s budget unless it became friendlier to industry.”

On November 1, 2005, in the wake of Davis-Besse, NRC staff reported that forty-eight out of forty-nine recommendations for improvement were implemented in response to findings surrounding the Davis-Besse near miss. However, the GAO concluded that the NRC was not addressing three major systemic issues: the inability to detect an eroding safety culture within a plant; deficiencies in making a reasoned decision to order a plant shutdown; and the lack of long-term tracking of fixes resulting from experiences similar to that found at Davis-Besse.

The following sequence of events reported by the Union of Concerned Scientists further emphasizes the fact that the NRC was aware of the safety problems that resulted in the Davis-Besse near miss.

Less than two years after another similarly skipped inspection contributed to an accident at the Indian Point 2 nuclear plant, the NRC allowed Davis-Besse to skip the mandated 2001 year-end inspection.

After CRDM nozzle cracking was reported at Bugey Unit 3 in 1991, the NRC initiated a research program to examine the issue for [U.S.] reactors. As the NRC research program was plodding along, Greenpeace International petitioned the NRC on March 24, 1993, to require inspections of CRDM nozzles at all US reactors and to make the inspection results publicly available. Greenpeace also sought to shut down all reactors with cracked nozzles. The NRC denied Greenpeace’s requests nearly two years later.

NRC denied Greenpeace’s petition in large part because of a research report prepared by the Idaho National Engineering Laboratory for the NRC. This report, released in October 1994, concluded “CRDM nozzle cracking is not a short-term safety issue. All the detected cracks on the nozzle inside surface are axially oriented. . . . Some

446. Stuckey, supra note 22.
448. GAO SHUTDOWN REPORT, supra note 432, at 45.
analyses have shown that short, circumferential cracks on the outside surface are possible; however, these cracks are not expected to grow through-wall . . . “ At the time of this conclusion, a grand total of one (1) US nuclear plant (Point Beach Unit 1 in Wisconsin) had been inspected for CRDM nozzle cracking.

After large, through-wall, circumferential cracking was found on the outside surface of two CRDM nozzles at Oconee Unit 3 in August 2001, the NRC asked plant owners to write them about inspections of CRDM nozzles and the extent of identified cracking. In essence, the NRC only did part of what Greenpeace asked eight years earlier.

After a huge gaping hole was found in the reactor head at Davis-Besse, the NRC finally sought the inspections that Greenpeace requested nine years earlier. 449

Both the NRC and industry were aware of the problem that caused the corrosion of the reactor head ten years earlier. 450 In fact, other countries took actions years before to resolve the identified problem. 451 However, both U.S. industry and the NRC dropped the concern because they believed leaks would be detected in time to prevent the corrosion. 452

C. Civilian Versus Military Nuclear Safety

A discussion of nuclear safety is incomplete without a comparison of civilian and military safety records. The accidents considered relevant for this Note are those where contamination reached the environment. In other words, accidents consisting of property damage, but no environmental release, are not included. Also, this analysis only includes civilian power generation facilities and military nuclear ships (including submarines). It should be noted that environmental releases of nuclear material occur at all stages of the nuclear-fuel lifecycle, including mining, power generation, reprocessing, and waste storage.

Historically, at least ten accidents have occurred at civilian power generation facilities causing releases to the environment.

450. Id.
451. GAO SHUTDOWN REPORT, supra note 432, at 31.
452. Union of Concerned Scientists, supra note 449.
Table 1. Civilian Accidents (Not Necessarily Releases)\textsuperscript{453}

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Accident</th>
<th>Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 12, 1952</td>
<td>Chalk River, Ontario</td>
<td>Damaged reactor core</td>
<td>Air release</td>
</tr>
<tr>
<td>Oct. 10, 1957</td>
<td>United Kingdom (Windscale)\textsuperscript{454}</td>
<td>Fire</td>
<td>Radioactive material – massive air releases</td>
</tr>
<tr>
<td>July 26, 1959</td>
<td>Santa Susana Field Laboratory, California</td>
<td>Partial Meltdown</td>
<td>Radioactive gases – significant air releases</td>
</tr>
<tr>
<td>Feb. 22, 1977</td>
<td>Jaslovské Bohunice, Czechoslovakia</td>
<td>Damaged fuel rod assembly</td>
<td>Release into plant area</td>
</tr>
<tr>
<td>Apr. 26, 1986</td>
<td>Prypiat, Ukraine</td>
<td>Meltdown</td>
<td>Radioactive material – major air release</td>
</tr>
<tr>
<td>May 4, 1986</td>
<td>Hamm-Uentrop, Germany</td>
<td>Fuel damaged</td>
<td>Radioactive material detected two kilometers away</td>
</tr>
<tr>
<td>Apr. 10, 2003</td>
<td>Hungary (Paks–2)\textsuperscript{455}</td>
<td>Fuel damaged during cleaning</td>
<td>Radioactive material – stack discharges</td>
</tr>
<tr>
<td>July 16, 2007</td>
<td>Japan (Kashiwazaki-Kariya)\textsuperscript{456}</td>
<td>Earthquake</td>
<td>Radioactive releases to air and water</td>
</tr>
</tbody>
</table>


\textsuperscript{455} KASTCHEV, supra note 454, at 77–78 (providing a summary of the radioactive releases and doses endured within the vicinity of the plant); WISE/NIRS Nuclear Monitor, Serious Incident at Hungarian Paks–2 Reactor, Apr. 25, 2003, http://www10.antenna.nl/wise/586/5507.html (last visited Feb. 11, 2008).
The number of civilian nuclear “accidents” listed above may seem misleading. While the incidents are characterized as accidents, the amount of radioactive material released during some “accidents,” if any, may present little risk to the public. The most recent major U.S. accident, TMI, caused some environmental releases, but investigations and assessments indicate that “most of the radiation was contained.”457 Studies estimated an average dose of one millirem for each of the two million people in the area.458 In comparison, “exposure from a full set of chest x-rays is about 6 millirem.”459 Maximum exposure at the property boundary was estimated at less than 100 millirem, and the “actual release had negligible effects on the physical health of individuals or the environment.”460

On the other hand, Chernobyl was a major accident with much worse environmental and health effects. According to Dr. Burton Bennett, chairman of the Chernobyl Forum, “This was a very serious accident with major health consequences, especially for thousands of workers exposed in the early days who received very high radiation doses . . . .”461 The accident was credited with 4000 cases of thyroid cancer (primarily in children), nine fatal.462 “As of mid-2005 . . . 50 deaths [were] directly attributed to radiation from the disaster . . . .”463 After the accident, some areas were restricted because of contamination by radiation materials.464 Despite the difference in environmental and health harm between Chernobyl and TMI, the significance is that the civilian nuclear power plant operators lost control of the reactor sufficiently to release radioactive material into the environment.

Information on military-reactor accidents causing only an environmental release could not be found, but the number of naval reactor accidents gives some sense of the frequency with which such releases may occur. Nine such accidents in the Soviet Navy occurred between 1960 and 1985, as shown below.

458. Id.
459. Id.
460. Id.
463. World Health Org., supra note 461.
464. Id.
### Table 2. Radiation Casualties and Naval Reactors

<table>
<thead>
<tr>
<th>Date</th>
<th>Vessel, Location</th>
<th>Accident Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct. 13, 1960</td>
<td>K-8 Sub, Barents Sea</td>
<td>Reactor leak</td>
<td>Radioactive gases leak into vessel</td>
</tr>
<tr>
<td>July 4, 1961</td>
<td>K-19 Sub, North Atlantic</td>
<td>Reactor accident</td>
<td>Coolant leak leads to exposure to radioactive steam</td>
</tr>
<tr>
<td>Feb. 12, 1965</td>
<td>K-11 Sub, Severodvinsk, USSR</td>
<td>Refueling reactor – accident</td>
<td>Criticality excursions during refueling</td>
</tr>
<tr>
<td>May 24, 1968</td>
<td>K-27 Sub, Barents Sea</td>
<td>Reactor accident</td>
<td>Coolant failure leads to radiation exposure</td>
</tr>
<tr>
<td>Jan. 18, 1970</td>
<td>Sormova, Russia</td>
<td>Construction accident</td>
<td>Radioactive vapor released</td>
</tr>
<tr>
<td>Dec. 28, 1976</td>
<td>K-386 Sub, Unknown</td>
<td>Reactor accident</td>
<td>No data</td>
</tr>
<tr>
<td>Dec. 28, 1978</td>
<td>K-171 Sub, Pacific Ocean</td>
<td>Reactor accident</td>
<td>Radiation exposure</td>
</tr>
<tr>
<td>1979</td>
<td>USSR Sub, Unknown</td>
<td>Reactor accident</td>
<td>No data</td>
</tr>
<tr>
<td>Aug. 10, 1985</td>
<td>K-431 Sub, Chazhma Bay, Vladivostok, Russia</td>
<td>Refueling reactor – accident</td>
<td>Explosion during refueling, radiation exposure, releases</td>
</tr>
</tbody>
</table>

This data shows that, similar to civilian nuclear-power operators, military operators experienced difficulties operating nuclear power plants. The U.S. Navy has proven more successful. Admiral Hyman Rickover, who is widely acknowledged as the father of the U.S. “Nuclear Navy,” is credited with imbuing the Navy nuclear program with a strong safety culture that resulted in an excellent safety record. Since 1948, “[U.S.] nuclear-powered ships . . . safely steam[ed] more than 128 million miles, equivalent to over 5,000 trips around the Earth . . . without a reactor accident . . . indeed, with no measurable negative impact on the

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environment.” Admiral Skip Bowman stated, “Our record of safety is the result of our making safety part of everything we do, day to day, not a magic formula.” Interestingly, some credit Admiral Rickover’s “obsessive fixation on safety and quality control [with giving] the U.S. nuclear Navy a vastly superior safety record to the Soviet one.” The very nature of nuclear technology and its consequences demand application of the so-called “obsessive fixation” on safety. This fixation must not be limited to the nuclear side of a nuclear plant. History has shown that the failure of non-nuclear components may cascade to problems with the nuclear reactor itself. Interestingly, it was Rickover’s drive for “perfection” that motivated defense contractors to pursue his removal from the Navy—a purge carried out under Reagan.

This data is not all bad for the civilian industry—it indicates that since Chernobyl, no major nuclear accident has occurred. The civilian nuclear industry has operated more than twenty years without a catastrophic release of radiation. The problem is that society is likely unwilling to tolerate high-risk technology with such severe consequences if the industry cannot assure safety. During the twenty years since Chernobyl, history showed an industry willing to sacrifice safety for cost savings and, in the United States, a regulatory agency willing to allow such sacrifices. Historically, the safety mindset within the civilian nuclear-power industry was not even close to the Rickover philosophy of excellence. Such a mindset is a necessary component for the future of civilian nuclear power.

D. The Recipe for Failure with High-Risk Technologies

Nuclear power is not the only high-risk technology society tolerates everyday, but it is likely the one with the worst consequences should failure occur. Other technologies include petrochemical plants, aircrafts, dams,


467. Bowman Testimony, supra note 466.

468. Sieff, supra note 466 (emphasis added).

469. 60 Minutes: Interview by Dianne Sawyer with Admiral Rickover (CBS television Broadcast Dec. 9, 1984), transcript available at http://www.people.vcu.edu/~rsleeth/rickover.htm; see also Rickover Says He Accepted Gifts from General Dynamics Corp. ‘So Did Others,’ He Claims on TV, but Doesn’t Identify Them, BOSTON GLOBE, Dec. 10, 1984, at 3, available at 1984 WLNR 69854 (noting that Rickover received gifts from at least five defense contractors during his career).
Typical ingredients of system accidents that relate to human behavior include:

(1) initial incomprehension about what was indeed failing; (2) failures are hidden and even masked; (3) a search for a *de minimus* explanation, since a *de maximus* one is inconceivable; (4) an attempt to maintain production if at all possible; (5) mistrust of instruments, since they are known to fail; (6) overconfidence in ESDs and redundancies, based upon normal experience of smooth operation in the past; (7) ambiguous information is interpreted in a manner to confirm initial (*de minimus*) hypotheses; (8) tremendous time constraints, in this case involving not only the propagation of failures, but the expending of vital consumables; and (9) invariant sequences, such as the decision to turn off a subsystem that could not be restarted.\(^\text{471}\)

Some of these ingredients, as outlined above, played a role in the TMI accident and the Davis-Besse near miss. These same ingredients played a role in the Apollo 13 accident,\(^\text{472}\) and the space shuttle Challenger and Columbia accidents.\(^\text{473}\) An important distinction between the nuclear-power events and these space flight accidents is that NASA, a government entity, is responsible for space flight.\(^\text{474}\) The analogy to space flight is not perfect, yet some interesting similarities in flawed decision-making exist. Both shuttle accidents resulted from known system deficiencies that remained unresolved: ambivalence about an identified, critical problem as successful operations continued; the push for production over safety; and ultimate failure or near-failure as decision-makers ignored the problem (and the

\(^{471}\) Id. at 277.  
\(^{472}\) Id.  
\(^{474}\) At least with respect to flight, “the more commercial the activity, the safer it is.” Perrow, *supra* note 470, at 126.
advice of their own experts) because of a sound safety record. “In both the Challenger and Columbia accidents: ‘The machine was talking to us, but nobody was listening.’”\textsuperscript{475}

While FirstEnergy and the NRC dodged a bullet at Davis-Besse, there are striking similarities to the shuttle disasters. FirstEnergy and the NRC knew of the nozzle leakage problem ten years before the accident. The industry and regulators agreed that the risk was so low that no immediate action was required. While pursuing some work on the safety concern, any other work was indefinitely delayed with the permission or acquiescence of the NRC. Worsening signs of the corrosion problem were found by FirstEnergy employees, and evidence—including a picture of the corroding reactor head—was in the possession of NRC inspectors well before shutdown. More than sufficient information was available for the industry and the regulators to conclude that the problem was serious. Furthermore, continued operation without incident was taken as a sign that all was well with the plant. Finally, despite staff arguments to the contrary, the NRC and the industry decision-makers sacrificed safety to the protection of other interests (i.e., economic and production). At Davis-Besse (and at its sister plants), the reactor was talking, but nobody was listening.

\textit{E. Safety—Conclusion}

History shows that an expansion of nuclear power is risky. While equipment failures are a concern (especially as plants age), human failures were significant factors in the worst accidents and near misses thus far. Mr. Bradford puts the importance of the human factor into context, stating, “The abiding lesson that Three Mile Island taught Wall Street was that a group of [NRC] Reactor operators, as good as any others, could turn a $2 billion asset into a $1 billion cleanup job in 90 minutes.”\textsuperscript{476} This history shows that the old mindset of production over safety still imbues the nuclear-power industry—a mindset seemingly shared by regulators.

Unfortunately, the cutting of corners by the nuclear-power industry is not limited to U.S. plants. In 2002, the “Japanese Nuclear Industrial Safety Agency (NISA) shocked the nation with the public revelation of a massive data falsification scandal at [the Tokyo Electric Power Company] (TEPCO).”\textsuperscript{477} TEPCO, the largest Japanese utility and among the largest

\textsuperscript{475}. \textit{DOE LESSONS LEARNED}, \textit{supra} note 473, at 21.
\textsuperscript{477}. Kastchiev et al., \textit{supra} note 454, at 88.
worldwide, falsified records covering 200 events over twenty-five years.\footnote{478} Two other Japanese utilities were found to have falsified records as well, but not to the extent of TEPCO.\footnote{479} Despite the embarrassment suffered by the Japanese nuclear-power industry and NISA because of the revelation, more falsification incidents followed.\footnote{480} “The scandal of the data falsification, cover-up and misleading of safety authorities does not seem to end.”\footnote{481} In 2007, Hokuriku Electric “admitted to a criticality incident” occurring nearly eight years ago.\footnote{482} Two similar incidents, though unconfirmed, followed at plants owned by Tohoku Electric and Chuba Electric.\footnote{483}

The events leading up to nuclear accidents are avoidable yet seem inevitable, repeating a familiar pattern of human failure to adequately anticipate disasters that have a low probability of occurring. Domestically, the NRC continues to prove that safety is not paramount in its regulatory mission and indeed has openly questioned whether it needs to play any role in regulating for public safety. Dr. Meserve, a former Chairman of the NRC, states that the NRC has resisted regulation of safety culture for a number of reasons: safety culture is very subjective; regulation “would intrude inappropriately on management prerogatives”; the best safety cultures develop because of the management’s commitment; and regulatory pressure is viewed as unnecessary by some.\footnote{484} While he recognizes as critical the development of a strong safety culture within the nuclear industry, he states that, in the end, it will not be the NRC who determines whether a real safety culture will flourish.\footnote{485} “Ultimately [the nuclear industry itself] will determine whether an appropriate safety culture is created and maintained.”\footnote{486}

Historically, the civilian industry failed to create a safety culture similar to Admiral Rickover’s standard. As revealed by the Davis-Besse near miss, the domestic industry is willing to cut corners at the expense of public safety. Safety must compete with economics and this is a battle that led both the industry and the regulators to put the public at significant risk. By all accounts, Davis-Besse could have been much worse. Where the industry and NRC failed, Lady Luck saved the day. With or without an
expansion of the industry, accidents are inevitable, but any expansion of this industry increases the risk of nuclear catastrophe. If Dr. Meserve is correct that the NRC cannot imbue a real safety culture within the nuclear industry, the question is whether the nuclear industry can be trusted to place the public interest above its own economic interest. The history of nuclear-power development suggests the answer is no.

CONCLUSION

The industry’s recent successes show that nuclear power can be generated safely. However, as with other high consequence technologies, nuclear-power generation must be managed with a determined safety culture willing to resolve even the smallest risks with due care and diligence. While nuclear power can be generated safely, it is more likely that the competing economic priorities will lead to another Three Mile Island or worse. If this is not bad enough, the false divorce between peaceful and non-peaceful uses of the atom leave the global community vulnerable to state or terrorist-group mischief. While the U.S. and the global nuclear industry may survive another Three Mile Island, the diversion of nuclear material for a successful terrorist strike would threaten its very existence. Finally, the economics of nuclear power make little sense. The advertised economic competitiveness of this technology is an illusion created to move high and unpredictable costs away from the industry to the customer and taxpayer. Given the high cost, inherent risks and current vulnerabilities of this technology, an expansion of the nuclear-power technology is unwise.

While this Note has not discussed the environmental hazards of nuclear energy, these too raise significant questions about the industry’s viability. If the NRC’s approach to nuclear waste management documented in Natural Resources Defense Council v. U.S. Nuclear Regulatory Commission represents the current NRC mentality, expansion of nuclear power will be undermined by lack of government planning. In this 1976 case, the Natural Resources Defense Council alleged that the agency inadequately assessed the environmental effects of the generation and management of nuclear waste. Dr. Frank K. Pittman, who directed the AEC’s Division of Waste Management and Transportation, provided the

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only information on “high-level waste disposal techniques” in the record.\textsuperscript{488} The AEC (now NRC) plan to create a repository in a salt mine was deferred and his new plan for a surface storage facility was delayed indefinitely.\textsuperscript{489} Unable to offer a specific solution for disposal of this extraordinarily toxic waste, Dr. Pittman’s “vague, but glowing” statement is best conveyed by quoting his words: “I hope I will be able to allay what I feel are unwarranted fears . . . and show that the bugaboo of waste management cannot logically be used as a rationale for delays in the progress of an essential technology for meeting our growing power demands.”\textsuperscript{490} His “conclusory reassurances” did not convince the court.\textsuperscript{491} Spent fuel storage remains a divisive political and environmental issue, even as the government plans for the central nuclear waste repository at Yucca Mountain to start operating in 2017.\textsuperscript{492}

Furthermore, as Davis-Besse’s near hit indicates, the nuclear-power industry remains vulnerable to real safety risks. The deregulation of the electricity sector in 1992 subjects these power companies to pressures characteristic of a competitive marketplace.\textsuperscript{493} “A disturbing but inevitable side-effect of nuclear power’s need to cut costs is that it will resist costs of all kinds, including safety and safeguards.”\textsuperscript{494} The existence of this pressure heightens the need for the NRC to regulate nuclear safety firmly.

\textsuperscript{488} Id. at 647.
\textsuperscript{489} Id. at 648.
\textsuperscript{490} Id. (emphasis added).
\textsuperscript{491} Id. at 653–55. On appeal the Supreme Court reversed, finding that the court could not require an agency to use additional procedures in creating the record for informal rulemaking under the Administrative Procedure Act, 5 U.S.C. § 552 (1976). Vt. Yankee Nuclear Power Co. v. Natural Res. Def. Council, 435 U.S. 519, 525 (1978). The Supreme Court upheld the NRC’s decisions, but only on a relatively deferential standard of judicial review. Id. at 554.
\textsuperscript{493} Nuclear Power’s Prospects, supra note 32, 9–10.
\textsuperscript{494} Id. at 32.
It is also apparent that the international framework for managing nuclear-power technology cannot handle proliferation adequately. The signors of the NPT violate its provisions continually. Division among the weapons and non-weapons states grows as inequities abound. The countries that have defied the international community for decades by never signing the Treaty get preferential treatment over states that signed the Treaty and exhibit similar behavior. The Bush Administration’s strategy of regime control rather than technology control will lead smaller countries to consider pursuing nuclear weapons for their own national security. In the end, enforcement of NPT provisions is selective, depending on subjective criteria heavily influenced by the most powerful nations. “Soft” international law depends on the good faith of countries to abide by decisions of international tribunals. But U.S. behavior towards the ICJ in the dispute over its support of the Contras in Nicaragua viscerally demonstrates that power has its perks in the international realm.

In Universal Compliance the Carnegie Institute recommends strengthening international law by creating an expectation of consequences when the NPT is breached. While interesting in theory, it is unlikely that countries will be willing to sacrifice more of their sovereignty in today’s international climate. Such a change may require a shift in U.S. jurisprudence on the integration of international law and domestic law; enforcement must be mandatory.

Finally, the economics of nuclear power cut against the expansion of the industry. While the government claims that electricity from nuclear power is the cheapest method of generation, a closer look at the costs of the technology reveals otherwise. Nuclear power remains an attractive investment only because it benefits from “subsidy, tax breaks, licensing shortcuts, guaranteed purchases with risks borne by customers, political muscle, ballyhoo and pointing to other countries . . . to indicate that the U.S. is somehow ‘falling behind.’” Government handouts and indemnification through the Price-Anderson Act might draw investors to the industry, but the cost of nuclear power is unchanged—the cost is borne by taxpayers and customers. As stated earlier, the MIT study on the future of nuclear power did not include an evaluation of alternative energy sources of electricity, low-carbon coal technology, and conservation efforts. Any solution to the global energy crisis should maximize these sources and minimize nuclear power. While this will not rid the world of nuclear weapons, it will greatly reduce the risk of nuclear technology intended for peaceful purposes being diverted for non-peaceful purposes.

495. Id. at 30.
After Three Mile Island, President Jimmy Carter stated,

[I]n this country nuclear power is an energy source of last resort. By this I mean[] that as we reach our goals on conservation, on the direct use of coal, on development of solar power and synthetic fuels, and enhanced production of American oil and natural gas—as we reach those goals, then we can minimize our reliance on nuclear power.496

India’s nuclear weapons tests and the TMI accident in the 1970s awoke the American public to the multiple risks of nuclear energy technology. The days of blind faith in the toxic atom were thought to be over. As the government chooses to pursue this technology vigorously once again, it would be wise to reconsider the risks and costs of using the atom to boil water. Nuclear power was the “energy source of last resort” in 1979; it should remain so today.