Pace Environmental Law Review

Volume 32
Issue 2 *Reconceptualizing the Future of Environmental Law*
Spring 2015

Article 5

April 2015

Distributed, Nega-, and Reclaimed: Setting Expectations in the "New" Resource Base

Michael Pappas
University of Maryland Francis King Carey School of Law

ARTICLE

Distributed, Nega-, and Reclaimed: Setting Expectations in the "New" Resource Base

MICHAEL PAPPAS*

I. INTRODUCTION

At this point in time, environmental law faces the task of drawing a budget for living within our resource means, and this budget will be tightly stretched. It must provide energy, water, food, and materials to a growing population; it must cope with the depletion of formerly abundant resources; and it must act both to mitigate climate impacts and adapt to the changes already manifesting. To do this, the budgeting must consider resources and uses that have previously been considered insignificant and that have not received attention in terms of ownership, allocation, or governance. Thus, the future of environmental law will involve charting individual property expectations in previously unconsidered resources: society's cast-offs, scraps, and leavings.

The history of environmental law has involved defining and refining expectations in property and resource use. Environmental law has addressed the resource impacts of development, set parameters for further resource development, and resolved conflicting uses or claims to resources. In each of these ways, environmental law has served to establish and adjust expectations. Thus, in a generalized sense, environmental law can be described as the governance of resource use with a particular attention to the impacts on the human and natural environment.

* Assistant Professor, University of Maryland Francis King Carey School of Law. Thanks to the members of the Pace Environmental Law Review for organizing a thoughtful symposium and for the editorial work on this article.

The future of environmental law will be a variation on this past. It will still involve defining and refining expectations, only this time for a fresh set of new resources, ripe to be utilized. Well, at least for a semi-fresh set of new-ish resources, but certainly ones that are ripe to be utilized. This emerging resource stock is cobbled from formerly insignificant discards and leftovers. For example, new resource stocks can be found in wastewater streams used as water and energy sources, roofs and backyards assembled as power and food production spaces, and foregone consumption considered to be an alternative to increased supply. Distributed generation, nega-watts, reclaimed sewage, conserved water, vacant-lot farming, and rooftop gardens: these are the new resource base, and a major role for environmental law will be in figuring out how to manage them for their maximum potential benefit.

II. ENVIRONMENTAL LAW AND EXPECTATIONS

The challenge of shaping property expectations and harmonizing them with environmental governance is not a new one. In fact, much of environmental law to date has faced this challenge and needed to directly address what is a core tension in property law to begin with: balancing strong individual autonomy principles, represented in the extreme by the well-worn characterization of property as the "sole and despotic dominion . . . in total exclusion of the right of any other individual in the universe,"[1] with more societally focused goals and values.[2] Since its earliest roots in nuisance actions, environmental law has attempted to strike this balance via allegiance to the *sic utere* principle "that no one has a right to use her property in a manner that causes harm to

1. 2 WILLIAM BLACKSTONE, COMMENTARIES *1 (characterizing property as "that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe").

2. *See, e.g.*, David Schorr, *How Blackstone Became a Blackstonian*, 10 THEORETICAL INQUIRIES L., 103, 104-05 (2009) (describing juxtaposition of Blackstonian view with more "community-oriented property law" theories). These societally-focused views can include environmental focus. *See* Michael Pappas, *Anti-Waste*, 56 ARIZ. L. REV. 741, 766-67 (2014).

another."[3] Following this principle, environmental law has informed property expectations by preventing resource users from causing harms or externalizing costs during production, development, and extraction operations. This has come in various forms, whether by limiting discharges to air or water,[4] curtailing property modifications that harm protected species,[5] or requiring avoidance and mitigation of impacts to certain environments.[6] However, the common thread in each instance is that environmental law measures shape expectations regarding how resources can be used.

The future of environmental law will continue to shape expectations, with the same central challenge of navigating between the poles of individual autonomy and social benefit, but the resources and resource users at issue will be different. While in the past environmental law focused primarily on large-scale actors such as industrial operations, environmental law is now turning its attention to smaller-scale, individual level behaviors that can have large aggregate impacts.[7] As individual behaviors are bundled together and considered cumulatively, marginal changes in aggregate individual behavior can yield enormous differences, and tweaking individual expectations can produce just such changes.

The same aggregation principle applies to resources as well; seemingly insignificant resource uses become substantial when considered at scale. Moreover, as a practical matter resource uses simply cannot be considered in isolation because the use of one

3. *See, e.g.*, PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY 65 (6th ed. 2009).

4. *See generally* Clean Air Act, 42 U.S.C. §§ 7401-7671q (2012); Clean Water Act, 33 U.S.C. §§ 1251-1388.

5. *See generally* Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544.

6. *See generally* 33 U.S.C. § 1344; 33 C.F.R. § 332.3 (2014).

7. *See, e.g.*, Katrina Fischer Kuh, *When Government Intrudes: Regulating Individual Behaviors That Harm the Environment*, 61 DUKE L.J. 1111, 1116 n.12 (2012) (citing a number of scholarly observations regarding the impact of individual behaviors); Michael P. Vandenbergh & Anne C. Steinemann, *The Carbon-Neutral Individual*, 82 N.Y.U. L. REV. 1673, 1693-94 (2007). Individual emissions constitute thirty-two percent of annual emissions in the United States. *Id.* at 1694. For an excellent, in-depth explanation of the environmental impact of individual behaviors on climate change, see JASON J. CZARNEZKI, EVERYDAY ENVIRONMENTALISM: LAW, NATURE AND INDIVIDUAL BEHAVIOR 33-88 (2011).

resource almost always impacts other resources as well. So, individual decisions to consume, conserve, produce, or expend resources can add up to substantial impacts and tradeoffs. Finally, with resource exploitation nearing capacity, and with climate change threatening current resource levels, tradeoffs between different resource uses are becoming more pronounced, and resources formerly taken for granted are gaining importance. For example, scarcity has driven innovative uses for resources formerly considered valueless (or even negative-value) as well as increased conservation of traditionally used resources, and the aggregate impacts of these initiatives can also be great.

The result is that many individual resource uses take on increased significance when considered cumulatively, and the total costs or benefits of seemingly small individual actions and resource decisions are worth accounting for. What was once pocket change now adds up to a substantial asset.

III. THE NEW RESOURCE BASE

Filling in the general sketch of how formerly insignificant individual resource decisions can amount to a new resource base worthy of consideration, this section offers particular and illustrative examples in the energy, water, and agriculture contexts. These examples arise from both individual decisions about resource use and previously unrecognized, low value, or even negative-value resources, and while this set is neither exhaustive nor exclusive, it is representative of the types of resources that will be of growing importance for environmental law.

First, the quest for cheap, clean, and secure energy sources has recently uncovered an array of new energy resources, and the rise of hydraulic fracturing ("fracking") to access previously unprofitable reserves of hydrocarbons presents the most conventional example of a new resource base discovered among formerly low-value dregs. In the past, shale fields had not been economically feasible for oil and gas extraction, but development and application of new drilling techniques opened up a major new energy source. The current expansion of fracking has introduced ongoing environmental law challenges and debates about rights of ownership and access, avoidance of externalized costs and

harms, and management of the resource for the most benefit. At their core, these are issues of defining expectations.

Similarly, distributed generation, though tapping a less conventional energy source than hydrocarbons, represents an emerging resource base on the verge of broader exploitation, and it too poses issues related to defining expectations. Distributed generation involves on-site electrical generation facilities, with common examples including solar- or wind-power installations on residential and commercial rooftops.[8] Since these power sources can be located across multiple properties with multiple owners, the installation and siting of distributed generation facilities implicates private property choices, so any policy promoting or curtailing distributed generation is faced with defining the parameters for such private property choices. Taking installation of rooftop solar panels as an example, some jurisdictions have left the decision about such installations up to the autonomy of individual property owners, while others have adopted mandates for rooftop solar installations,[9] while others still have banned the most common approach to individual rooftop solar facilities (third-party installation and power purchase agreements).[10] Each approach involves setting expectations in the resource. Further, distributed generation poses additional questions about the terms and compensation for distributed generators who feed power to the electrical grid,[11] efforts to promote community power and microgrids,[12] or even neighbors' and home owners' associations' power to object. In all of these instances, jurisdictions seek to balance individual property interests with social policy in defining and allocating property expectations for distributed generation.

Finally, the "nega-watt," or energy savings through conservation and efficiency measures, represents a new energy source by making available more energy without increasing generation

8. *See* Michael Pappas, *Energy Versus Property*, 41 FLA. ST. U. L. REV. 435, 439 (2014).

9. *See* Michael Pappas, *Defining Power Property Expectations*, ENVTL. L. REP. (forthcoming 2015); Pappas, *supra* note 8, at 457.

10. *See* PW Ventures, Inc. v. Nichols, 533 So. 2d 281, 282-83 (Fla. 1988); Pappas, *Defining Power Property Expectations*, *supra* note 9.

11. *See* Uma Outka, *The Renewable Energy Footprint*, 30 STAN. ENVTL. L.J. 241, 256-57 (2011).

12. *See* Pappas, *supra* note 8, at 440.

needs.[13] Since individual energy conservation lowers energy costs, production of nega-watts is in individuals' self-interest, but efforts to grow the nega-watt supply have involved additional market incentives, such as payments beyond the avoided energy costs,[14] as well as technology restrictions that ultimately limit consumer choice.[15] These approaches have not been without controversy,[16] and future policies to induce nega-watt production will continue to encounter fundamental questions about the appropriate level of autonomy or government intervention regarding individual energy consumption choices.

Second, in the case of water supplies, droughts, competing uses, and projections of long-term shortages (whether climate change-related or not) have compelled a reexamination of previously untapped water resources. For example, desalination, the process of producing freshwater by extracting the salt from saline water, opens up potential new resource bases in salty waters of the ocean, as well as saline aquifers and surface waters.[17] However, desalination also raises previously unexamined questions of rights in saline source-waters as well as in the freshwater produced through desalination.[18] Additionally, new uses for wastewater, such as the reuse of treated wastewater for municipal water supplies[19] or for biogas energy production,[20] raise issues over rights and expectations in wastewater streams.

13. *See, e.g.*, Amory B. Lovins, *The Negawatt Revolution*, 27 ACROSS BD. 18, 19 (1990), *available at* http://www.rmi.org/Knowledge-Center/Library/E90-20_NegawattRevolution, *archived at* http://perma.cc/KJ5E-H2BV.

14. *See, e.g.*, Demand Response Compensation in Organized Wholesale Energy Markets, 134 F.E.R.C. ¶ 61,187 (2011) (setting payment rates for demand response reductions). *See also* 18 C.F.R. § 35.28(g)(1)(v) (2014).

15. *See, e.g.*,10 C.F.R. § 430.32(n), (x) (2014) (phasing out certain inefficient light bulbs). *See generally* Energy Conservation Program for Consumer Products, 10 C.F.R. pt. 430 (2014).

16. *See, e.g.*, Elec. Power Supply Ass'n v. FERC, 753 F.3d 216, 218 (D.C. Cir. 2014), *petition for cert. filed*, 2015 WL 217293 (U.S. Jan. 15, 2015) (No. 14-840).

17. *See* Michael Pappas, *Unnatural Resource Law: Situating Desalination in Coastal Resource and Water Law Doctrines*, 86 TUL. L. REV. 81, 85 n.7 (2011).

18. *See id.* at 93.

19. *Water Recycling and Reuse: The Environmental Benefits*, EPA, http://www.epa.gov/region9/water/recycling/ (last updated Apr. 1, 2015).

20. *See, e.g.*, EPA, CASE STUDY PRIMER FOR PARTICIPANT DISCUSSION: BIODIGESTERS & BIOGAS (2012), *available at* http://www.epa.gov/agstar/documents/biogas_primer.pdf, *archived at* http://perma.cc/U9XM-45S9; MELISSA

Moreover, similar to energy conservation, the reduction in water use could lead to significant quantities of "nega-gallons,"[21] more commonly referred to as simply "conserved water," which represent a potentially substantial water resource. Common examples of such conservation measures are landscaping restrictions, which have, in some instances, vastly reduced water consumption and obviated the need for adding additional water sources or infrastructure.[22] Gray-water recycling[23] and tiered pricing[24] also represent possibilities for reducing water use. In each case, as with energy conservation, efforts to reduce water use call into question the best approach to balancing individual choice with broader social goals. Additionally, water conservation measures in the agricultural sector, which account for 80–90% of consumptive water use in the United States,[25] could have enormous impacts on water supplies; however, legal questions surround what property rights a farmer might retain or lose in conserved water and what incentives will encourage farmers to adopt more efficient practices.[26]

Even state governments potentially face reexamination of expectations in water resources as increasing droughts reopen

SCANLAN, SUSTAINABLE SEWAGE, IUCN COLLOQUIUM PROCEEDINGS 2014, EDWARD ELGAR PUBLISHING (FORTHCOMING 2015).

21. *Nega-Watts and Nega-Gallons: Saving Water, Saving Energy,* NCARE, http://nevadanscleanenergy.org/saving-water-saving-energy/ (last visited Mar. 3, 2015), *archived at* http://perma.cc/JT36-56NR.

22. *See generally* Pappas, *supra* note 17, at 91-92 (discussing how "water conservation measures" averted the need for a desalinization plant).

23. *See Conserving Water*, EPA, http://www.epa.gov/greenhomes/ConserveWater.htm (last updated Apr. 24, 2014), *archived at* http://perma.cc/66F8-UHN3.

24. *Pricing Structures*, EPA, http://water.epa.gov/infrastructure/sustain/pricing_structures.cfm (last updated Sept. 14, 2012), *archived at* http://perma.cc/K489-FEEA.

25. Econ. Research Serv., *Irrigation and Water Usage*, USDA, http://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use.aspx (last updated June 7, 2013), *archived at* http://perma.cc/T77C-X2SW.

26. *See, e.g.*, Water Res. Dep't, *Allocation of Conserved Water*, OREGON.GOV, http://www.oregon.gov/OWRD/Pages/mgmt_conserved_water.aspx (last visited Apr. 11, 2015), *archived at* http://perma.cc/Q33X-8UPD (discussing Oregon's approach to conserved water).

questions about state "ownership" of water resources and the extent of state power to retain water for in-state uses.[27]

Third, new resource possibilities exist in uses of atypically agricultural land for food production and in uses of agricultural land for pollution reduction. For example, use of urban land for food production, such as through rooftop gardens, farms on vacant lots, or even indoor hydroponics, present the potential to add to the food supply, reduce the footprint of food production, and eliminate food deserts.[28] However, such urban agricultural initiatives raise issues of property expectations such as land access and tenure. Additionally, growing interest and potential value in the use of front and back yards for food production challenge settled uses and restrictions related to these properties.[29]

At the same time, traditional agricultural lands are finding alternate value as possible sources of pollution credits for water-pollution trading programs (possibly "nega-nutrients" to continue the theme, though more commonly "load reductions").[30] Non-point sources, such as agricultural operations, are not typically subject to regulatory mandates under the Clean Water Act, but by reducing their nutrient runoff they can become producers of pollution credits to be traded with highly regulated point sources.[31] However, establishing, designing, and implementing successful pollution markets will require much work in defining the expectations in the pollution credits and reductions produced on agricultural lands.[32]

27. *See* Sporhase v. Nebraska *ex rel.* Douglas, 458 U.S. 941, 951-52 (1982); Mark S. Davis & Michael Pappas, *Escaping the Sporhase Maze: Protecting State Waters Within the Commerce Clause*, 3 LA. L. REV. 175, 176, 179 (2012) (discussing *Sporhase*, 458 U.S. 941).

28. *See, e.g.*, Sarah Schindler, *Unpermitted Urban Agriculture: Transgressive Actions, Changing Norms, and the Local Food Movement*, 2014 WIS. L. REV. 369, 371-74 (2015) [hereinafter Schindler, *Unpermitted Urban Agriculture*]; Sarah B. Schindler, *Banning Lawns*, 82 GEO. WASH. L. REV. 394, 414-15 (2014); Sarah B. Schindler, *Of Backyard Chickens and Front Yard Gardens: The Conflict Between Local Governments and Locavores*, 87 TUL. L. REV. 231, 263-68 (2012).

29. *See* Schindler, *Unpermitted Urban Agriculture*, *supra* note 28, at 395-96.

30. *See, e.g.*, Victor Flatt, *C(r)ap and Trade: The Brave New World of Non-Point Source Nutrient Trading and Using Lessons from Greenhouse Gas Markets to Make it Work*, 52 HOUS. L. REV. 301 (2014).

31. *See id.* at 301-02.

32. *See, e.g.*, *id.*

In each of these examples, formerly insignificant resources have the potential to take on greater importance and value, and in each instance this increase in value comes with an attendant need for clarification of property expectations.[33]

IV. CONCLUSION

Environmental law's history and future are tied to expectations about the use of resources. The nature of the resources at stake, however, is evolving. To meet coming challenges, an important role for environmental law will be addressing not only the traditionally valuable resources but also resources and individual resource uses that had previously been considered marginal or low-value. Shaping expectations for emerging resources such as these presents an opportunity for a considered, planned approach because the historical insignificance of these resources means that they come with fewer entrenched expectations or reliance interests than do traditionally exploited resources. Thus, policymakers have the opportunity to devote conscious attention to the optimal development of these expectations to best meet the needs of society. That is not to say that such decisions will be without controversy. The examples noted above include many instances of current or brewing disputes over these resources. There are and will be interested parties who stand to gain or lose based on the establishment of expectations, and they will attempt to influence these decisions.[34] Nonetheless, policymakers are currently shaping the expectations in these resources and face a relatively blank slate on which to strike the balance between expectations of stability to encourage planning and investment versus flexibility to adapt to changed conditions and between expectations of individ-

33. *See generally* Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 350 (1967) (asserting that as a resource becomes more valuable, cultures will establish, define, and enforce property rights in the resource so long as the cost of doing so is less than the value to be captured through the definition of such rights).

34. *See, e.g.*, Marc Gunther, *With Rooftop Solar on Rise, U.S. Utilities are Striking Back*, YALE ENV'T 360 (Sept. 3, 2013), http://e360.yale.edu/feature/with_rooftop_solar_on_rise_us_utilities_are_striking_back/2687/, *archived at* http://perma.cc/3XMS-SDZ5 (providing one example documenting utilities' opposition to solar installations).

ual autonomy versus broader governance in resource management.

Resolving these expectations will be an important part of environmental law, and much of it will likely take place outside of the reach of federal environmental laws and agencies. The decision makers will be diverse, and each may bring distinct goals or respond to differing resource contexts. As a result, these issues may be resolved differently in different jurisdictions, and it may be undesirable to strive for too much consistency across these scenarios. Nonetheless, the unifying feature is that all of these resources stand to figure more prominently as part of the human environment, and their management will be a growing aspect of environmental law.