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Andrew P. Morriss

Texas A&M University School of Law, amorriss@tamu.edu

Roger Meiners

University of Texas at Arlington, meiners@uta.edu

Bruce Yandle

Clemson University, yandle@bellsouth.net

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FINDING BETTER WORDS: MARKETS, PROPERTY RIGHTS, AND RESOURCES

Andrew P. Morriss,^{*} Roger Meiners,^{**} and Bruce Yandle^{***}

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ABSTRACT

To use or conserve environmental and natural resources effectively is complex. Many economists believe that institutional solutions built around markets and property rights can help improve results. This approach addresses what Peruvian economist Hernando de Soto termed the “missing lessons of U.S. history”—institutions whose designers may not have understood the outcomes that would occur, but the results were generally beneficial. However, technical economic analysis generally fails to persuade many at the policy level. Adding a focus on the practicality of solving issues by voluntary action will enrich the policy discussions. To do so requires economists to provide concrete examples of how to resolve environmental issues.

^{*} Dean, School of Innovation; Professor, Bush School of Government and Public Service; Professor, School of Law, Texas A&M University. A.B. Princeton; J.D., M.Pub.Aff., The University of Texas at Austin; Ph.D. (Economics), M.I.T.; M.Ed.Tech. (2018), Texas A&M University. Thanks to Terry Anderson, Donald Boudreaux, Dean Lueck, Shawn Regan, Robert Shandley, and Julia Woislaw for comments on earlier versions.

^{**} Goolsby-Rosenthal Chair in Economics & Law and Chair, Department of Economics, The University of Texas at Arlington. B.A. Washington State University; M.A. University of Arizona; Ph.D. (Economics) Virginia Tech; J.D., University of Miami.

^{***} Dean Emeritus, College of Business and Professor of Economics Emeritus, Clemson University; A.B. Mercer University, MBA and PhD (Economics), Georgia State University.

In this Article, we contrast the narratives given to support markets and property rights and state-centered solutions. The analysis suggests how to frame issues to increase opportunities for market and property rights solutions to be more broadly considered. In short, economists must stop talking past the dedicated environmentalists who have learned to communicate effectively with the public but often lack cost-effective alternatives to address environmental problems that economists can provide. Better narratives allow economists to join the public conversation successfully.

INTRODUCTION

People concerned with solving environmental and natural resource problems often talk past each other. They use different discourses to describe problems and solutions. On the one hand, many passionate advocates for state-centric solutions to these problems invoke a combination of rights-based, scientific, and quasi-religious discourses to support a call for increased national and international regulatory action. On the other hand, passionate academic advocates for private property-rights solutions to those same problems respond in the language of law-and-economics, while land-owners objecting to regulation rest their arguments on property rights claims. All point to bits of the other's discourse from time to time. State-centric environmentalists point to the discovery of environmental externalities and demand Pigovian taxes and other mandatory controls to address the problems. On the other side, free market environmentalists invoke science and drift into their own discourse built around 'economic religion' and land-owners focus on individual rights claims. And, of course, many fall along a spectrum, resorting to one discourse at times and to others at other times.

The late Robert Nelson aptly captured these battling religious discourses in *The New Holy Wars: Economic Religion vs. Environmental Religion in Contemporary America*,¹ largely annoying both groups rather than provoking the dialogue he aspired to create. When there are competing narratives, a political struggle may ensue over which narrative will form the basis for resource policy. A richer set of such narratives increases the chances for effective solutions to important policy problems. While our focus is on environmental issues, the macroeconomics economist Robert

¹ ROBERT H. NELSON, *THE NEW HOLY WARS: ECONOMIC RELIGION VS. ENVIRONMENTAL RELIGION IN CONTEMPORARY AMERICA* (2010).

Shiller recently developed a sub-chapter in economics called “narrative economics” in which he seeks to formalize the study of narratives that we believe affect social ordering.² Among other goals, Shiller seeks to explain how some narratives can become dominant. What might explain the rise of dominant narratives is a central question that motivated our efforts.

This Article explores how market economists can better engage in environmental policy debates.³ A change is needed, we believe, because environmental policy is stagnant. The major environmental statutes, which in some cases are 50 years old in fundamental features, are out of date. There appears to be little chance that a gridlocked Congress will bring them up to date. Debate is shrill and unproductive.

Analysis of resource issues will benefit from a structure that forces analysts to work through key steps so major issues are seriously considered. This can be done in a narrative manner rather than the formal mathematical approach common among economists, who thereby lose interest of those not members of the profession, as we explain later. Key steps to be considered in resource analysis include:

1. Identification of the resource that requires investment in discovery or development.
2. Identification of the parties who have a legal claim to determine use of the resource.
3. Determination of resource use for exploitation in combination with other resources or allocation of capital to assist in preservation of the resource in a desired state.
4. Clearing the legal hurdles necessary to execute a development or conservation plan.
5. Dealing with competitive use ideas under alternative institutional regimes for the resource after it has been identified and come to general knowledge.

² ROBERT J. SHILLER, NATIONAL BUREAU OF ECONOMIC RESEARCH, NARRATIVE ECONOMICS: WORKING PAPER 23075 3 (2017), <https://www.nber.org/papers/w23075.pdf> (This was Shiller’s presidential address to the 2017 American Economic Association meeting, in which he defines the approach as follows: “By narrative economics I mean the study of the spread and dynamics of popular narratives, the stories, particularly those of human interest and emotion, and how these change through time, to understand economic fluctuations.” Shiller expanded on the topic in his book NARRATIVE ECONOMICS: HOW STORIES GO VIRAL & DRIVE MAJOR ECONOMIC EVENTS (2019).

³ There is considerable diversity within this group on different issues. For example, there is an ongoing debate on the appropriateness of carbon taxes as a means of addressing climate change. A carbon tax is more market-like than a non-transferable permitting scheme but still involves a considerable degree of government decision-making (e.g. setting the level of the tax).

6. Effective investment in the resource for its highest valued use as determined by participants in the institutional process.

Open dialogue as the process of evaluation proceeds, in a manner accessible to interested parties, allows a richer understanding of the value of the resource from alternative perspectives and increases the likelihood that resources will be used in their most valued condition. How this process can evolve is illustrated in Prof. Charlotte Epstein's insightful book *The Power of Words in International Relations: Birth of an Anti-Whaling Discourse*,⁴ which examines how whales went from the killer Moby Dick to "sea pandas" and so transformed policies on whaling. (To some extent, white tail deer have made a journey in the opposite direction, from Bambi to "garden terrorists" and spreaders of Lyme disease.) Epstein argues that the change came from a "powerful discourse" about whales, defining "discourse" as "a cohesive ensemble of ideas, concepts, and categorizations about a specific object that frame that object in a certain way and, therefore, delimit the possibilities for action in relation to it. "It is a structured yet open and dynamic entity" and a "powerful discourse" as "one that makes a difference."⁵ We apply a similar methodology to consider how changing the economic discourse about the environment could open more room for dialogue to help break the logjam in environmental policy.⁶

In the first section, we examine the narratives about environmental and natural resource problems (which we refer to as "resource problems" to avoid repeating the longer phrase). In the second section, we identify the core resource problems and the issues the markets and property-rights narrative have with addressing each. The third section explores market-based and property-rights solutions to those problems and suggests how a more convincing account might be constructed. Examples from the nineteenth century American West fit into these conversations and shift the narratives towards decentralized, property-rights based solutions. Finally,

⁴ CHARLOTTE EPSTEIN, *THE POWER OF WORDS IN INTERNATIONAL RELATIONS: BIRTH OF AN ANTI-WHALING DISCOURSE* (2008).

⁵ *Id.* at 2.

⁶ Environmental law professors launched an effort to find common ground on environmental policy that led to their book, DAVID SCHONBROD, RICHARD STEWART, & KATRINA WYMAN, *BREAKING THE LOGJAM: ENVIRONMENTAL PROTECTION THAT WILL WORK* (2010) (focusing on how environmental legislation in the United States has long been stuck and advocating for nonpartisan public understanding to break this stalemate). The logjam proved largely resistant to their best efforts. Of course, the logjam is partly due to the institutional structure of government—the American system deliberately makes it hard to pass legislation—but our argument is that institutional barriers are more likely to be overcome when there is a common discourse than when there is not.

we conclude with suggestions for how to engage using better narratives.

I. CONTRASTING NARRATIVES

History is written primarily by the victors. After the Lakota⁷ had been driven from what we now call the Dakotas, Wyoming and Montana, immigrants vied for control of the land. There are two contrasting accounts of the evolution of resource rights in the nineteenth century American west. Most common is a tale of over-exploitation of resources by denizens of the “wild, wild West.” Cattle and sheep men overgrazed the land, land squatters claimed more water than was available, timber barons decimated old-growth forests, and mining companies looted the nation’s natural wealth.⁸ In their wake, they left a despoiled landscape.⁹ Only the heroic intervention of the government, usually federal, prevented further devastation.¹⁰ The other, less common, story is of institutional evolution to solve conflicting claims to resources without violence using decentralized means. This story of “The Not So Wild, Wild West” is the centerpiece of Terry Anderson and P.J. Hill’s landmark account of the evolution of western property rights solutions to commons problems on the frontier.¹¹ This story is less susceptible to Hollywood-style treatment of sensitive

⁷ For an overview of the scope of Lakota (the name given to multiple tribes that were loosely confederated) control, at the expense of other tribes, see PEKKA HAMALAINEN, *LAKOTA AMERICA: A NEW HISTORY IN INDIGENOUS POWER* (2019). Hamalainen explains that Lakota control of the area existed for less than 200 years as existing tribes were pushed further south and west. Quasi-nomadic Lakota notions of property were not concerned with metes and bounds so much as access to valuable goods, such as buffalo, during hunting season.

⁸ GEORGE WUERHNER & MOLLIE MATTESON, *WELFARE RANCHING: THE SUBSIDIZED DESTRUCTION OF THE AMERICAN WEST* (2002) (discussing overgrazing); JOHN FLECK, *WATER IS FOR FIGHTING OVER* (2016) (discussing water issues); DAVID OWEN, *WHERE THE WATER GOES: LIFE AND DEATH ALONG THE COLORADO RIVER* (2017) (discussing water issues); GORDON G. WHITNEY, *FROM COSTAL WILDERNESS TO FRUITED PLAIN* (1994) (discussing logging); DAVID BOLLIER, *SILENT THEFT: THE PRIVATE PLUNDER OF OUR COMMON WEALTH* (2003) (discussing mining).

⁹ Environmentalists often suggest this occurs widely. *See, e.g.*, BART JOHNSON & KRISTINA HILL, *ECOLOGY AND DESIGN* 174 (2002) (“Our most ubiquitous model of development really does represent a despoiled landscape . . .”).

¹⁰ Theodore Roosevelt is often credited for saving much of the west. *See, e.g.*, DOUGLAS BRINKLEY, *THE WILDERNESS WARRIOR: THEODORE ROOSEVELT AND THE CRUSADE FOR AMERICA* (2009); BARB ROSENSTOCK, *THE CAMPING TRIP THAT CHANGED AMERICA: THEODORE ROOSEVELT, JOHN MUIR, AND OUR NATIONAL PARKS* (2012). This narrative is common in modern fiction about the development of the west.

¹¹ TERRY L. ANDERSON & P.J. HILL, *THE NOT SO WILD, WILD WEST: PROPERTY RIGHTS ON THE FRONTIER* (2004).

preservationists and noble politicians protecting resources from despoliation, so it runs counter to popular notions of western history.

Shane, one of the few westerns to offer more than a single point of view of the conflicts over resources in the nineteenth century American west, captures the conflicting narratives.¹² The movie revolves around the role of a wandering gunman, Shane, who stops at the Wyoming territory homestead of Joe and Marian Sterret. He becomes involved in the dispute between the homesteaders fencing the land and the cattlemen, led by Rufus Ryker, who want open range grazing. In the key scene, Ryker offers to buy the Sterrets out of their homestead, to hire Joe, and to allow the Sterrets to run their cattle with his. (Ryker is in essence offering a Coasian bargain.) He reasons that if he deprives the homesteaders of their leader he can eliminate the conflict between their fences and his cattle. When Ryker refuses to agree to make similar offers to the other homesteaders, Sterret challenges Ryker's right to the range.

Here we see the core of both narratives. Ryker's claim arises from self-help and extra-legal behavior. Sterret insists that only rights recognized by the government count, thereby telling the common story about the origin of rights and the appropriate means of resolving conflicts. Ryker's assertion that "we made this country" tells a different story, resting on both a Lockean claim¹³ derived from people mixing their labor with the land and an understanding of rights that excluded other parties whose claims might have predated theirs (non-ranchers, Native Americans) but did not involve much mixing of labor with the land. Behind both men loom Shane and Wilson, whose conflict represents the role of force in establishing rights.

¹² SHANE (Paramount Pictures 1953).

¹³ In section 27 of his treatise Locke argues:

Though the earth, and all inferior creatures, be common to all men, yet every man has a property in his own person: this no body has any right to but himself. The labour of his body, and the work of his hands, we may say, are properly his. Whatsoever then he removes out of the state that nature hath provided, and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property. It being by him removed from the common state nature hath placed it in, it hath by this labour something annexed to it, that excludes the common right of other men: for this labour being the unquestionable property of the labourer, no man but he can have a right to what that is once joined to, at least where there is enough, and as good, left in common for others.

JOHN LOCKE, TWO TREATISES OF GOVERNMENT § 5.27 (1690). *See also* David Schmidtz, *The Institution of Property*, 11 SOC. PHIL. & POL'Y 42 (1994) (exploring the Lockean notion of property rights).

Because it is a Hollywood western, the outcome is that the virtuous violence, embodied by Shane, triumphs over the evil violence, embodied by Wilson. Nobody bothers to get a lawyer and head to court.

Shane captures a key dimension of the underlying conflict over resources in the American West and can inform debates over resources today. Ryker is a villain, responsible for bringing violence into the community by hiring Wilson and setting off the events that leads to the climactic gun battle. If *Shane* is the narrative, evolving property rights solutions have lost the day before the discussion has begun.

Similarly, Ivan Doig's 1996 novel of two Scottish immigrants who become sheep ranchers brings in the federal government as the savior of the range.¹⁴ Angus McCaskill, the narrator, comes to accept the need for federal supervision in the person of forest ranger Stanley Meixell; his former partner, Rob Barclay, does not. Doig uses the differing reactions of his two central characters, both of whom have become successful Montana sheep ranchers, to the arrival of a wise forest ranger, Stanley Meixell, bringing word of the creation of the national forests to provide the final moral to his story. When narrator and hero Angus Alexander McCaskill first meets Meixell on the mountain and learns of the idea of a national forest that will cover some of the range he grazes his sheep on, Meixell reassures him that the creation of the forest need not end sheep ranching. Angus then asks:

“But then, if we can still use the range, why bother to – Mr. Meixell, just what in holy hell do you and President Teddy have in mind for us?”

“The idea ain't to keep the range from being used,” Meixell said as if it was a catechism. “It's to keep it from being used to death.”¹⁵

Such narratives go beyond being bits of popular culture. They shape how people *think* about institutions.¹⁶ As economist Deirdre McCloskey argues, “persuasive knowledge is social.”¹⁷ As economists, we need to think about how the narratives we offer in public debate are heard by our audience. If we wish to be persuasive, we must examine our “language in action and converse more politely with others in the conversations of humanity.”¹⁸ Unfortunately, much economic rhetoric in resource debates

¹⁴ IVAN DOIG, *DANCING AT THE RASCAL FAIR* (1996).

¹⁵ *Id.* at 230-231.

¹⁶ *See, e.g.*, Epstein, *supra* note 4, at 13-14 (“Whaling was normal until the mid 1960s. The new anti-whaling discourse displaced the norm, such that it became ‘unacceptable,’ even ‘barbaric.’ Normality is thus relative and discursively ordained.”)

¹⁷ DEIRDRE N. MCCLOSKEY, *THE RHETORIC OF ECONOMICS* 61 (2nd ed., 1998).

¹⁸ *Id.* at 167.

comes close to Prof. C. Steven Bradford's brilliant parody of legal academic writing, *As I Lay Writing*, which includes a prisoner's dilemma diagram with the comment "Once you've created a prisoner's dilemma, you can forget about it. You've justified whatever type of regulation you want to propose, and economics is no longer a problem."¹⁹ While Bradford was writing satire, we think economics is more than a cut-and-paste justification for a regulatory intervention or avoiding one, but all too often is invoked as just that.

Expanding public discourse to include market and property rights solutions for resource problems is important for reasons beyond making practitioners of the "dismal science" actually be more valuable in public discourse.²⁰ The evolution of public policy in many environmental areas has been stalled for decades and new perspectives might offer ways to "break the logjam."²¹ The Endangered Species Act ("ESA") needs revision to reflect better the role of habitat in species protection so as to discourage perverse incentives to destroy habitat to forestall restrictions on otherwise legal property use under the law;²² national parks, while often termed

¹⁹ C. Steven Bradford, *As I Lay Writing: How to Write Law Review Articles for Fun and Profit: A Law-and- Economics, Critical, Hermeneutical, Policy Approach and Lots of Other Stuff That Thousands of Readers Will Find Really Interesting and Therefore You Ought to Publish in Your Prestigious, Top-Ten, Totally Excellent Law Review*, 44 J. LEG. EDUC. 13, 22 (1994).

²⁰ As long-time practicing economists, we can attest that economists often are self-assured their objective science is superior to other fields held in disdain. The public is often assumed to be beyond the pale of comprehending important matters.

²¹ Schonbrod et al., *supra*, note 8. "Breaking the Logjam" was a multi-year project at the New York Law School and New York University School of Law that focused on problems with outdated environmental statutes and noted the political forces that worked to derail efforts at reform. See Carol A. Casazza Herman, David Schoenbrod, Richard B. Stewart, & Katrina M. Wyman, *Breaking the Logjam: Environmental Reform for the New Congress and Administration*, 17 N.Y.U. ENV'T L. J. 1 (2008). William Reilly, EPA administrator from 1989 to 1993, noted that administrations leave "ticking hand grenades" for the next administration—one after another for decades. David Schoenbrod, *How REINS Would Improve Environmental Protection*, 21 DUKE ENV'T L. & POL'Y F. 347, 348 (2011).

²² Endangered Species Act of 1973, Pub. L. No. 93-205, 87 Stat. 884 (1973). Habitat destruction spurred by the Act is explained in Dean Lueck and Jeffrey Michael, *Preemptive Habitat Destruction Under the Endangered Species Act*, 42 J. L. & ECON. 27 (2003). On the issues involving species protection that are now better understood than decades ago, See, e.g., Holly Doremus, *The Endangered Species Act: Static Law Meets Dynamic World*, 32 WASH. U. J. L. & POL'Y 175, 234 (2010) ("For the ESA to effectively serve our conservation goals, it must adopt a more realistic view that accounts for nature's dynamic qualities and avoids freezing legal obligations."). The Act is currently under again consideration for revision. For how revisions could help. John G. Slide & David B. Bowman, *Habitat Protection Under the Endangered Species Act*, 2 CONSERVATION BIOLOGY 116 (1988). ("the major cause of extinctions has been the destruction of natural habitat.") See also, Tate Watkins, *Changing the Endangered Species Act Could Actually Help Conservation*,

treasures, are not properly maintained;²³ the General Mining Law needs to be updated to reflect changes in technology and knowledge;²⁴ the Clean Air Act has not been updated since 1990;²⁵ the Federal Water Pollution Control Act's last major update was in 1987;²⁶ the Federal Insecticide, Fungicide,

WASHINGTON POST (Jul. 24, 2018),

<https://www.washingtonpost.com/news/posteverything/wp/2018/07/24/changing-the-endangered-species-act-could-actually-help-conservation/>.

²³ Yellowstone and Yosemite are hailed as sacred places. *See, e.g.,* NPR, *Yellowstone: Evolution of a National Treasure* (2008), <https://www.npr.org/series/94333829/yellowstone-evolution-of-a-national-treasure>. Despite this, they are grossly mismanaged due to Congressional funding decisions that ignore maintenance needs. *See, e.g., Restore Our Parks Act of 2018: Hearing on S. 3172 Before the S. Energy and Natural Resources Comm.*, 115th Cong. (2018) (testimony of Holly Fretwell, Outreach Director and Research Fellow, Property and Environmental Research Center), https://www.energy.senate.gov/public/index.cfm/files/serve?File_id=80E9D20E-A569-468C-AF6F-6772692AF3AA.

²⁴ The General Mining Law of 1872, 30 U.S.C. § 22, has been amended over the years but not significantly revised. The Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1744 provides the basis for a wide range of administrative controls that can affect mining claims. *See*, BUREAU OF LAND MANAGEMENT, *THE FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 AS AMENDED* (2016), https://www.blm.gov/sites/blm.gov/files/AboutUs_LawsandRegs_FLPMA.pdf (overview). This means shifting regulatory standards based on the administration of the day rather than clear statutory standards. While we think the 1872 statute has much merit, most commentators are critical of it as outdated Andrew P. Morriss, Roger E. Meiners, & Andrew Dorchak, *Between a Hard Rock and a Hard Place: Politics, Midnight Regulations and Mining*, 55 ADMIN L. REV. 551 (2003); MINERAL POLICY CTR., *THE LAST AMERICAN DINOSAUR . . . THE 1872 MINING LAW* (2000), https://www.earthworks.org/publications/the_last_american_dinosaur_the_1872_mining_law/.

²⁵ The modern Clean Air Act dates to 1970 (42 U.S.C. § 7401 *et seq.*). Its last major revision was in 1990. *See*, EPA, *Summary of the Clean Air Act* (2020), <https://www.epa.gov/laws-regulations/summary-clean-air-act>, the addition of first chemical to be added to the original list of 189 hazardous air pollutants in the 1990 Amendment was approved. *See*, EPA, *Petitions to Add 1-BP (nPB) to the Clean Air Act List of Hazardous Air Pollutants* (2020), <https://www.epa.gov/haps/petitions-add-1-bp-npb-clean-air-act-list-hazardous-air-pollutants>. Calls for major reforms are continual, now often focusing on climate change. *See*, Ann E. Carlson, *The Clean Air Act's Blind Spot: Microclimates and Hotspot Pollution*, 65 UCLA L. REV. 1036 (2018); Jessica Bulman-Pozen, *Preemption and Commandeering Without Congress*, 70 STAN. L. REV. 2031 (2018).

²⁶ The Federal Water Pollution Control Act of 1948 (33 U.S.C. 1251 *et seq.*) was subject to major revision in 1972, producing what is commonly referred to as the Clean Water Act; *See* EPA, *History of the Clean Water Act*, (2020), <https://www.epa.gov/laws-regulations/history-clean-water-act>. Other than changes in the structure of federal subsidies for sewer and water treatment plants, dealing with Great Lakes agreements with Canada, storm sewers, via the Water Quality Act of 1987 (Pub. L. No. 100-4, 101 Stat. 7 (codified as amended in scattered sections of 33 U.S.C.)), the statute has not had substantive revisions. The basic structure of the Act provides perverse incentives and injures the ability of various regions to handle their unique needs; *See*, Andrew P. Morriss, Bruce Yandle, & Roger E.

and Rodenticide Act (FIFRA) has been overhauled just three times since 1970;²⁷ the Resource Conservation and Recovery Act (RCRA) passed in 1976 to deal with municipal and industrial waste was amended in 1984 to limit hazardous waste disposal, in 1992 to include federal facilities, and in 1996 to provide greater regulatory flexibility for disposal of certain wastes but has not had a major update since then;²⁸ the Toxic Substances Control Act (TSCA) of 1976 addresses “the production, importation, use, and disposal of specific chemicals” and was last amended in 2016, in a fashion that disappointed many environmentalists.²⁹ And, notably, despite years of

Meiners, *The Failure of EPA’s Water Quality Reforms: From Environment-Enhancing Competition to Uniformity and Polluter Profits*, 20 UCLA J. ENV’T L & POL’Y 25 (2001). As is well known, the statute intentionally ignores many of the problems caused by agricultural runoff. See, e.g., Eric M. Dirth, *Successful Agriculture and Clean Water? A Workable Path Forward for Regulating Drainage Districts as Point Sources Under the Clean Water Act*, 103 IOWA L. REV. 1213 (2018). It also fails to address other substantive water issues. See, e.g., See, e.g., David A. Strifling, *Reducing Chloride Discharges to Surface Water and Groundwater: A Menu of Options for Policymakers*, 48 ENV’T L. 167 (2018); A. Dan Tarlock, *Western Water Law and the Challenge of Climate Disruption*, 48 ENV’T L. 1 (2018); Damien Schiff, *Keeping the Clean Water Act Cooperatively Federal – Or, Why the Clean Water Act Does Not Directly Regulate Groundwater Pollution*, 42 WM. & MARY ENV’T L. & POL’Y REV. 477 (2018).

²⁷ FIFRA, as commonly known, arose out of the Federal Insecticide Act of 1910, which evolved into the Federal Insecticide, Fungicide, and Rodenticide Act in 1947 (7 U.S.C. §§ 136-136y), which was amended by the Federal Environmental Pesticide Control Act of 1972, and was again amended by the Food Quality Protection Act of 1996, and the Pesticide Registration Improvement Extension Act of 2012. While it is lumped with the environmental statutes, its focus is on registration of products and product labeling.

²⁸ EPA, *History of the Resource Conservation and Recovery Act (RCRA)* (2020), <https://www.epa.gov/rcra/history-resource-conservation-and-recovery-act-rcra>. Some commentators have suggested extreme adaptations for the statute, e.g., Note, *RCRA as a Tool for Environmental Justice Communities and Others to Compel Climate Change Adaptation*, 131 HARV. L. REV. 2409 (2018), but this is likely illusory. More practical matters, such as coal ash disposal, have yet to be firmly resolved under the statute. See, Carol J. Miller, *For a Lump of Coal & a Drop of Oil: An Environmentalist’s Critique of the Trump Administration’s First Year of Energy Policies*, 36 VA. ENV’T L. J. 185, 227-230 (2018) (discussion of how ash treatment flipped between the Obama and Trump administrations).

²⁹ EPA, *Summary of the Toxic Substances Control Act* (2020), <https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act>; the 2016 amendment is the Frank R. Lautenberg Chemical Safety for the 21st Century Act. As might be expected of a statute directed at the chemical industry that was sponsored by a senator from a state with significant chemical production facilities, the amendments have been derided as a failure by the Obama administration to deal with major shortcomings in the original statute. See, e.g., Kalyn Behnke, *Toxic Preemption: Why the Lautenberg Chemical Safety Act’s Erosion of State Authority Contaminates Environmental Law*, 57 JURIMETRICS J. 459 (2017) and Sanne H. Knudsen, *Regulating Cumulative Risk*, 101 MINN. L. REV. 2313, 2316 (2017) (“That Act, like its predecessor, is largely silent on how and whether to integrate concerns about cumulative risk into the new framework.”).

shrill talk about near infinite costs to be imposed by climate change, no substantive legislation has been enacted. In short, major environmental statutes enacted during the Nixon, Ford and Carter administrations have not been subject to substantive overhauls despite advances in scientific knowledge and general agreement about some of the shortcomings of the statutory and subsequent administrative regimes.³⁰ We think this is at least partly because the narratives of environmental law are outdated.

Proponents and opponents of changes to these statutes have exhausted themselves in zero-sum battles over their favored ideas for improving them because they have been talking past each other, using different discourses.³¹

Moreover, many of the issues we face today are not readily resolved by appeals to science. As Epstein notes, “the whaling case has shown that when political differences run deep, science does not have the power to provide a rational basis for the development of a common understanding, and from there, of successful collective policies.”³² Further, she concludes:

[S]cience cannot overwrite a fully entrenched dominant discourse. When its conclusions run counter to the expectations inscribed in a dominant discourse, they are simply overlooked. Thus in the pro-1964 whaling order, despite the creation of an international regime that conferred a key role upon science, scientists could not tell whaling policy makers what they did not want to hear—that some whales were rapidly disappearing. Conversely in the anti-whaling order, scientists could no longer tell (a majority of) anti-whaling policy makers what *they* did not want to hear, namely, that certain stocks of whales might not be so endangered. For the implication is that they could sustain some measure of controlled exploitation, a possibility that is simply precluded by the anti-whaling discourse.

³⁰ Environmental law scholars have been noting this for some time, *see*, Richard B. Stewart, *A New Generation of Environmental Regulation?* 29 *CAP. U. L. REV.* 21, 182 (2001) (“The command regulatory status quo is coming under increasingly severe pressure because of its inherent inability to meet demands for maintaining or improving environmental quality at acceptable economic and social cost.”). Of course, the regulations issued under these statutes have been updated from time to time, but this is not sufficient to address the structural problems caused by mistakes in theory (ESA), bad design (Superfund), failure to address major issues (Clean Air Act), and so on.

³¹ Stasis has multiple causes and we are addressing only one here. For example, existing regulatory regimes give some participants advantages, which then encourages them to maintain the status quo, sometimes forming “bootleggers and Baptists” coalitions to do so. *See* Bruce Yandle, *Bootleggers and Baptists – The Education of a Regulatory Economist*, May/June 1983, 12; ADAM SMITH & BRUCE YANDLE, *BOOTLEGGERS AND BAPTISTS: HOW ECONOMIC FORCES AND MORAL PERSUASION INTERACT TO SHAPE REGULATORY POLITICS* (2014).

³² Epstein, *supra* note 4, at 136.

In fact, the anti-whaling discourse does more than foreground the scientific question of whales' endangeredness. It answers that question in the affirmative. A key articulatory practice of the anti-whaling discourse is not only to associate any evocation of the whales with the powerful notion of their endangeredness ... but it is to provide the automatic answer to the underlying question, such that they are assumed to be endangered prior to the question of having actually been asked. Thus a key articulatory effect of that discourse is that it forecloses the scientific question of their endangeredness from the onset.³³

In an era of global populism, believing that Congress will thoughtfully address environmental issues is a less credible narrative today than when the major environmental laws were passed. Resource issues are more difficult than in 1970. Many clean air debates are now about marginal improvements rather than control of "killer smogs."³⁴ Clean water debates are no longer about burning rivers but about less visible, and far trickier, problems such as non-point sources.³⁵ Pesticide debates are no longer driven by the emotional narrative of *Silent Spring* but combine public health issues with complex pesticide-environment interactions.³⁶ Hazardous

³³ Epstein, *supra* note 4, at 136-137.

³⁴ See, e.g., INDUR GOKLANY, CLEARING THE AIR: THE REAL STORY OF THE WAR ON AIR POLLUTION (1999); Andrew P. Morriss, *The Politics of the Clean Air Act*, in POLITICAL ENVIRONMENTALISM: BEHIND THE GREEN CURTAIN 263 (Terry Anderson, ed., 2000). A recent air pollution issue surrounds Volkswagen (and others) use of sophisticated engine controllers in diesel cars to "defeat" air pollution controls, resulting in higher particulate and NOX emissions that regulators expected. See, Russell Hotten, *Volkswagen: The Scandal Explained*, BBC News (Dec. 10, 2015), <https://www.bbc.com/news/business-34324772>. While quite serious, these violations required sophisticated testing to detect rather than the visual evidence provided in the "killer smogs" of the 1950s. Moreover, crucial terms, including "the environment" remain poorly defined. See, e.g., Epstein, *supra* note 4, at 102 ("it was not clear what exactly 'the environment' was, beyond 'that thing' that was being threatened by human activity. In this sense it was a signifier still waiting to be settled.").

³⁵ See Jonathan H. Adler, *Fables of the Cuyahoga: Reconstructing a History of Environmental Protection*, 14 FORDHAM ENV'T L. J. 89 (2002); Roger Meiners, Stacie Thomas, & Bruce Yandle, *Burning Rivers, Common Law, and Institutional Choice for Water Quality*, in THE COMMON LAW AND THE ENVIRONMENT 54-85 (Roger E. Meiners & Andrew P. Morriss eds., 1999). On the problems of non-point source pollution within a traditional water pollution framework, See, e.g., Domenico Siniscalco, *Foreward to NONPOINT SOURCE POLLUTION REGULATION: ISSUES AND ANALYSIS*, at vii (Cesare Dosi & Theodore Tomasi eds., 1994) (noting the difficulty in adapting the traditional point source regulatory tool kit to the specific features of nonpoint source problems").

³⁶ See, e.g., G.M. Gray & J.K. Hammitt, *Risk/risk Trade-Offs in Pesticide Regulation: An Exploratory Analysis of the Public Health Effects of a Ban on Organophosphate and Carbamate Pesticides*, 20 RISK ANAL. 665 (2000). For an overview of Rachel Carson's environmental masterpiece in the perspective of modern science and evidence, See, SILENT

waste is an issue no longer defined by Love Canal but by innovation in converting wastes into new products.³⁷ Yet, each of these statutes is built around the notion that command-and-control technology-based standards, rather than performance standards or use of economic incentives, is the most effective way to address the central environmental problem. The same issues arise now with respect to the discussion about how to address climate change and carbon emissions. After decades of experience, we have learned that command-and-control—typically with a one-size-fits-all solution—is usually not the most cost effective way to provide environmental protection. At the very least, a system of waivers should be introduced so that demonstrably superior resource protection approaches can be applied. Command-and-control became the dominant narrative in the 1970s, but we can do better now. If the lessons of law and economics, from contracting and the role of property rights, are to contribute more to environmental progress than a cut-and-paste prisoner’s dilemma diagram, those who, like us, favor such approaches need to find better ways of talking about them.

Property and market solutions are particularly useful for improvements in environmental quality. Those achieved thus far mean the issues are no longer about whether to protect the environment but about tradeoffs required by choosing one method of doing so over another.³⁸ Property

SPRING AT 50: THE FALSE CRISES OF RACHEL CARSON (Roger Meiners, Pierre Desrochers, & Andrew Morriss eds., 2013).

³⁷ See, e.g., U.S. CHAMBER OF COMMERCE FOUNDATION, *ACHIEVING A CIRCULAR ECONOMY: HOW THE PRIVATE SECTOR IS REIMAGINING THE FUTURE OF BUSINESS* (2015), <https://www.uschamberfoundation.org/sites/default/files/Circular%20Economy%20Web.pdf>

³⁸ See, e.g., YVETTE TAMINIAU, *ROOM FOR MANOEUVRE 217* (2001). Taminiiau describes a report on negotiations over the final report of a joint oil-auto program to develop technological data to inform regulators in the EU which illustrates the tradeoffs between emissions controls based on fuel changes and those based on engine changes:

[T]ensions arose between the two industries who were fighting hard to get the most results favorable for their industry. It often was a win-lose situation where improvements for the auto industry meant a loss for the oil industry and vice-versa.... [The discussions] was also described as "physically, mentally and morally very hard" and the competition between the two industries was compared to European warfare.

See also Andrew P. Morriss, *The Next Generation of Mobile Source Regulation*, 17 N.Y.U. ENV'T L. J. 325 (2008). Shortcomings of vehicle emission standards became ever more apparent with the diesel emission scandal. See, Cary Conlianese & Jennifer Nash, *The Law of the Text: Performance-Based Regulations and Diesel Emissions Control*, 34 YALE J. ON REG. 33 (2017). See also, *RISK VERSUS RISK: TRADEOFFS IN PROTECTING HEALTH AND THE ENVIRONMENT* (John D. Graham & Jonathan B. Wiener eds., 1995). As Cass R. Sunstein notes in that volume, "If ... government tries to protect human health by imposing fuel economy requirements on cars, it may lead companies to produce smaller and less safe cars..." Cass R. Sunstein, *Foreword*, in *RISK VERSUS RISK*, *supra*, at viii.

rights offer important institutions for incentivizing rights holders to consider tradeoffs, and markets excel at resolving tradeoffs.³⁹ Crucially, property rights solutions can favor environmental values, such as when anglers challenged pollution of English rivers or when individuals can compete in EPA sulphur-dioxide emission permit auctions and purchase and retire the right to pollute.⁴⁰ Giving such tools a more prominent place in the policy toolkit would create opportunities even for those not concerned about the environment *per se*.⁴¹ Moreover, many environmental and natural resource issues today arise in locations with weak governance institutions.⁴² Many regulatory solutions place heavy demands on governments.⁴³ Putting such demands on weak governments is an unlikely recipe for success. Developing strong public sector institutions, while desirable, is a long, uncertain, and costly process.⁴⁴ There will be times—

³⁹ See Daniel C. Esty, *Environmental Protection in the Information Age*, 79 N.Y.U. L. REV. 115 (2004) (overview of the issues often raised about command and control versus property rights). See also, Jonathan H. Adler, *Water Rights, Markets, and Changing Ecological Conditions*, 42 ENV'T L. 93, 112 (2012) (“[M]arket institutions and private rights in natural resources will be necessary to overcome the profound ecological challenges faced by humanity today and those that will emerge in the future.”).

⁴⁰ See Roger Bate, *Saving Our Streams*, 14 FORDHAM ENV'T L. J. 375 (2003) (Recounting litigation efforts by fishermen in the U.K. to protect the rivers they fish in). The private litigation saga in the U.K. that Bate recounts to stop polluters by suing them to protect fish, because many people like to fish, has been so successful that litigation handled by the Anglers' Conservation Association is now partly overshadowed by organizing volunteers who assist in stopping illegal fishing. See, Angling Trust, <https://anglingtrust.net/> (follow “Fish Legal” hyperlink); Also see, EPA, *2019 SO2 Allowance Auction* (2020), <https://www.epa.gov/airmarkets/2019-so2-allowance-auction>.

⁴¹ Some of the tools have long been present and were commonly employed prior to the rise of administrative environmental law. See, Roger E. Meiners & Bruce Yandle, *Common Law and the Conceit of Modern Environmental Policy*, 7 GEORGE MASON L. REV. 923 (1999).

⁴² Environmental protection is generally lacking in developing countries. Michael Faure, Morag Goodwin, & Franziska Weber, *Bucking the Kuznets Curve: Designing Effective Environmental Regulation in Developing Countries*, 51 VA. J. INT'L. 95, 100-107 (2010). Even if *government* is strong it can be ineffective in providing incentives to engage in productive activity.

⁴³ China has been noteworthy as a developing economy where the government is quite aware of environmental degradation and has laws on the books to deal with pollution, but in the past failed to enforce standards. See, Alex L. Wang, *The Search for Sustainable Legitimacy: Environmental Law and Bureaucracy in China*, 37 HARV. ENV'T L. REV. 365, 367 (2013) (“Although China has constructed an expansive environmental law framework over the past 30 years, implementation of laws and regulations in practice has been notoriously weak.”). The effectiveness has recently improved. See Haitao Yin, Xuemei Zhang, & Feng Wang, *Environmental Regulations in China*, in OXFORD RESEARCH ENCYCLOPEDIA OF ENVIRONMENTAL SCIENCE (2019). This can be interpreted as China's economic growth creating demand for improved environmental quality.

⁴⁴ Even countries with huge resource bases, which should lead to higher standards of living often fail to achieve that due to poor governance structures. See, e.g., Macartan Humphreys,

when, for example, the transfer agent is a thief—that a market solution built around transferable property rights merely provides the thieves a lower cost means of theft. Where corruption exists or formal governance matters little, non-governmental solutions built around family, tribal, clan, or other social groupings, may be preferable.⁴⁵

To persuade policymakers and citizens to consider markets and property rights solutions requires a narrative that puts these solutions in a context they can understand and make sense of as more than the result of a partial equilibrium analysis or tables of regression results. The narrative must be seen as a coherent, attractive explanation. To do that, we must break resources problems down and consider how different institutional solutions fit into the narratives.

II. RESOURCE PROBLEMS

We define six problems posed by resources questions, using general statements of the problems to focus attention on institutional structure

Natural Resources, Conflicts, and Conflict Resolution, 49 J. CONFLICT RESOLUTION 508 (2005) (Drawing primarily from the experiences of Sahelian and West African states, this article discusses the connection and effect of natural resources and conflicts ultimately supporting the idea that a weak state is more impactful than any existence of rebel greed in potential resource exploitation); James D. Fearon & David Laitin, *Ethnicity, Insurgency and Civil War*, 97 AM. POL. SCI. REV. 75 (2003) (Reflecting upon countries' experiencing civil conflict after the end of the Cold War and argues these conflicts are occurring because of factors such as poverty or rough terrain rather than religious or ideological differences). Attempts by developed nations to deter bad behavior by firms and governments working together to strip assets from a country, such as the Dodd-Frank Act's conflict minerals provisions, often fail miserably and can make conditions on the ground worse. Dominic P. Parker, Jeremy D. Foltz, & David Elsea, *Unintended Consequences of Sanctions for Human Rights: Conflict Minerals and Infant Mortality*, 59 J. L. & ECON. 731 (2016) (By analyzing the effect of sanctions on countries experiencing a resource conflict, particularly the Democratic Republic of the Congo, this article argues that sanctions against these countries actually harm the innocent citizens of those countries that they are trying to protect); Dominic P. Parker & Bryan Vadheim, *Resource Cursed or Policy Cursed? U.S. Regulation of Conflict Minerals and Violence in the Congo*, 4 J. ASSN. ENV'T & RES. ECON. 1 (2017) (This article discusses the unintended impacts of the Dodd-Frank Act on the Democratic Republic of the Congo to highlight how it led to further harm on the country's residents).

⁴⁵ There are some narratives. Most notable are those by ELINOR OSTROM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* (1990). Ostrom was the first woman to be awarded the Nobel Prize (in 2009) "for her analysis of economic governance, especially the commons." See <https://www.nobelprize.org/prizes/economic-sciences/2009/ostrom/facts/>. We recall that some economists were aghast at this award, not only because she was not trained as an economist, but because her work was largely one of narratives, not formal mathematical models and regression analysis. Her work at Indiana University continues in the Ostrom Workshop, especially the Program on Natural Resource Governance. See <https://ostromworkshop.indiana.edu/research/governance/index.html>

rather than on minutiae of examples. By doing so, we intend to develop narratives which may serve to broaden the discussion. These broadly defined classes of problems span most resource issues:

(1) The resources must be identified. This can mean locating a mineral deposit, realizing that a river has potential for trout fishing that can attract anglers, or that a wetland provides ecological services to migrating waterfowl. This is an *incentivizing knowledge problem*: what is a resource? How can it be used? Where is it? What are the alternative uses for it? Solving this requires a wide range of knowledge of how to effect *entrepreneurial vision* in the policy arena.

(2) Conflicting uses of resources are inevitable. Conflicts may be between making use of different aspects of the resource (extracting minerals, maintaining a trout stream or wetland) or between making use of the resource now or later. Or among these, who gets the right once the value has been recognized? This is a *rights recognition problem*.

(3) If a resource is to be developed or left undeveloped, capital often must be assembled to enable development or preservation.⁴⁶ Investors need security that their assets will not be stolen or confiscated. This is a *rights security problem*.

(4) Valuable resources in which ownership rights are less than clear present corruption opportunities. How enforceable claims to resources are allocated, how disputes over claims are resolved, and who makes decisions about resource use are central to the degree of corruption. This is a problem of providing *effective public institutions*.

(5) Those holding resource claims may interfere with the rights of others. How those conflicts are resolved will have important impacts on resource decisions. This is a *conflict resolution problem*.

⁴⁶ Preserving resources is costly and requires sophisticated designs so donors believe their contributions will be used as promised. The American Prairie Reserve is a good example of a success in doing so, having raised tens of millions of dollars since 2001 to piece together parcels of land in north-central Montana to create a protected habitat for bison and other species. See, AMERICAN PRAIRIE RESERVE, <https://www.americanprairie.org>.

(6) There is debate over whether resource endowments constitute a “curse” for states in which the resources exist. The argument for the curse points to destructive conflicts over control of resources and economic distortions from the impact of the resource sector on the remainder of the economy.⁴⁷ Those who believe there is no curse argue that these are symptoms of broader institutional failings, not specific to resources.⁴⁸ This is an *external impact problem*.

In this section, we describe each of these problems and provide examples against which we test institutions’ claims to be able to resolve the problems in the following section.

A. *Incentivizing Knowledge: Creating New Information*

The knowledge problem for resources encompasses where particular resources are (is there oil under this piece of land?), the environmental value (is this vital habitat?), the potential use value of the resource (is this a spot where people will pay a premium to ski?), and the spiritual value (is this a place held in reverence by some?). Before a resource can be integrated into a market, it must be identified as a resource.⁴⁹ This requires people to know it exists and to know its potential value. This is true of both a mineral deposit and a spectacular vista—in neither case does the resource have value to people until someone has identified it.⁵⁰ Value can shift as technology and tastes change. California was once thought remote by the

⁴⁷ When parties devote significant resources to political/corrupt fights over control of resources, rather than devoting human and physical capital to build constructive economies, there is a drag effect that reaches beyond the immediate scrap over who controls the resources. This argument is most developed in Jeffrey Sachs & Andrew Warner, *The Curse of Natural Resources*, 45 EURO. ECON. REV. 827 (2001). *See also*, Xavier Sala-I-Martin & Arvind Subramanian, *Addressing the Natural Resource Curse: An Illustration from Nigeria*, 22 J. AFR. ECON. 4 (2013) (similar result focused on oil); Benjamin Smith, *Oil Wealth and Regime Survival in the Developing World, 1960-1999*, 48 AM. J. POL. SCI. 232 (2004) (same).

⁴⁸ *See* DARON ACEMOGLU & JAMES ROBINSON, *WHY NATIONS FAIL: THE ORIGINS OF POWER, PROSPERITY, AND POVERTY* (2012); PAUL COLLIER, *THE BOTTOM BILLION* (2007).

⁴⁹ Here we focus on physical resources but recognize that the human mind is, as Julian Simon popularized, the ultimate resource. *See generally* JULIAN L. SIMON, *THE ULTIMATE RESOURCE 2* (1998).

⁵⁰ Of course, there is a vigorous debate over existence value and whether human valuation is sufficient (or even necessary). As economists, we start with the value of resources to people and leave the more esoteric claims to others. *See, e.g.*, VALUING NATURE?: ECONOMICS, ETHICS AND ENVIRONMENT (John Foster ed., 1997); Paul Milgrom, *Is Sympathy an Economic Value? Philosophy, Economics, and the Contingent Valuation Method*, in *CONTINGENT VALUATION: A CRITICAL ASSESSMENT* 417 (J. A. Hausman ed., 1993).

European settlers in eastern America and, before the discovery of gold, not very desirable, but property prices now suggest people see it as a highly attractive place to live.⁵¹ As the cost of getting to California changed, and as jurisdiction shifted from Mexico to the United States, more people found it desirable.⁵² Legal regimes enable the values of mineral deposits and agricultural land to become concrete. Oil seeps in Pennsylvania were widely known before they were valuable as sources of energy; once demand for petroleum grew, prospectors invested in improved methods of exploiting petroleum deposits.⁵³ More recently, the development of fracking techniques turned low value gas and oil trapped in rock into high value deposits.⁵⁴

⁵¹ Santa Barbara, a highly desirable location today, was a tiny, stinking village in the 1830s when its primary purpose was tanning cattle hides for export. RICHARD HENRY DANA, Jr., *TWO YEARS BEFORE THE MAST* 92 (1840) (“everything being as still as death, the people hardly seeming to earn their sunlight.”).

⁵² Dana’s son, Richard Henry Dana III, who revised the book in 1911, added a supplement by his father which he wrote after he returned to California in 1859. *Id.* at 174-194. Then, instead of there being only “Richardson’s shanty of 1835” he reported San Francisco to be “the great center of a world-wide commerce” with “one hundred thousand inhabitants.” He learned that the rise as a significant city had not been easy. Crime has been rampant until suppressed by “the solemn, awe-inspiring Vigilance Committee of the most grave and responsible citizens, the last resort of the thinking and the good, taken to only when vice, fraud, and ruffianism have intrenched themselves behind the forms of law, suffrage, and ballot, and there is no hope but in organized force.” Dana was no wild west man; he taught law at Harvard and, in private practice in Boston, helped indigent sailors abused by their employers and assisted fugitive slaves seeking freedom, as his son notes in his closing remarks. *Id.* at 189.

⁵³ Changing from small wells putting oil into wooden barrels to more efficient operations was difficult. Many small operators could not compete with John D. Rockefeller, who employed economies of scale in all phases of operations. Ida M. Tarbell portrayed this as destructive in her which was a major “expose” of the anticompetitive practices of John D. Rockefeller’s organization, predatory pricing (price cutting). IDA M. TARBELL, *THE HISTORY OF STANDARD OIL COMPANY* (1904). Tarbell’s attack played a major role in influencing the antitrust litigation against the company that began soon after her book appeared. (This led to *Standard Oil Co. v. United States*, 221 U.S. 1 (1911).) Daniel Yergin concluded that the book was “the single most influential book on business ever published in the United States.” DANIEL YERGIN, *THE PRIZE* 105 (1991). More recent scholarship interprets the facts differently, portraying Standard Oil as a victim of its success and concluding that “it is prudent to be cautious whenever antitrust concerns are raised by competitors who are losing the race for innovation.” Michael Reksulak & William F. Shughart II, *Tarring the Trust: The Political Economy of Standard Oil*, 85 S. CAL. L. REV. 23A, 32A (2012).

⁵⁴ See, e.g., ERIC GEORGE & JACQUELINE GEORGE, *FRACKING 101: A BEGINNER’S GUIDE TO HYDRAULIC FRACTURING* (2016); BETHANY MCLEAN, *SAUDI AMERICA: THE TRUTH ABOUT FRACKING AND HOW IT’S CHANGING THE WORLD* (2018); and DANIEL RAIMI, *THE FRACKING DEBATE: THE RISKS, BENEFITS, AND UNCERTAINTIES OF THE SHALE REVOLUTION* (2017).

Tastes change too. Early advocates of wilderness preservation were—almost literally—prophets in the wilderness, such as John Muir.⁵⁵ As Americans grew to value wild spaces, popular support for conservation grew. More generally, considerable data suggests that there is an “environmental Kuznets curve,” with demand for cleaner air and other natural agents growing once a society reaches around \$5,000 GDP per capita for air, suggesting that greater wealth at some point increases demand for environmental protection to the point that uncontrolled use of air, water, and other agents becomes limited.⁵⁶

Developing the knowledge necessary to evaluate a resource may require considerable investment (e.g. mineral surveys) as well as entrepreneurial insight (people will like to live here to appreciate the view if there are sufficient amenities and it is expected we can protect the views), technical knowledge (how to draft conservation easements, how to separate valuable minerals from rock, the ecological value of a habitat), and intrinsic value (claims based on heritage or preference for static use).

There are multiple narratives competing to explain how knowledge problems are solved. One of the most enduring is of the lone prospector, wandering the hills with minimal equipment and getting the “lucky” strike.⁵⁷ The persistence of this narrative helps explain the failure of environmental activists to repeal the General Mining Law of 1872, despite considerable efforts to do so in the 1990s.⁵⁸ Some prospectors, unlucky in California, moved to Nevada and in 1850 struck it rich with the Comstock

⁵⁵ See ROBERT H. NELSON, HOW MUCH IS GOD WORTH? THE PROBLEMS – ECONOMIC AND THEOLOGICAL – OF EXISTENCE VALUE 5 (May 1996), <http://cei.org/sites/default/files/Robert%20Nelson%20-%20How%20Much%20Is%20God%20Worth.pdf>.

⁵⁶ BRUCE YANDLE, MAYA VIJAYARAGHAVAN & MADHUSUDAN BHATTARAI, THE ENVIRONMENTAL KUZNETS CURVE: A PRIMER 02-1 (2002), <https://www.perc.org/wp-content/uploads/2018/05/environmental-kuznets-curve-primer.pdf>.

⁵⁷ That was true in much of the west. Tens of thousands of prospectors poured into California in 1849 alone when they heard of the 1848 gold discovery. J.S. HOLLIDAY, THE WORLD RUSHED IN: THE CALIFORNIA GOLD RUSH EXPERIENCE 292 (1981) (An account of the mass migration of thousands to California in search of gold drawing from the personal writings of William Swain and hundreds of other aspiring prospectors). The original discovery of gold at Sutter’s Mill may not have been just a lucky strike. A biography of James Marshall, the man who found the gold, claims Marshall believed the area contained minerals and was in the habit of inspecting the mill race for signs. George Frederic Parsons, *The Life and Adventures of James W. Marshall*, in FROM MEXICAN DAYS TO THE GOLD RUSH 89 (Doyce B. Nunis, Jr., ed., 1993). Whether luck or skill, investment is less likely to be made in prospecting if mineral finds cannot be exploited.

⁵⁸ Andrew P. Morriss, Roger E. Meiners, & Andrew Dorchak, *Homesteading Rock: A Defense of Free Access Under the General Mining Law of 1872*, 54 *Env’tl. L.* 745, 786 (2004).

Lode.⁵⁹ To motivate them to undertake the hazardous journey and investment of time and labor in searching for resources, the prospectors (and later, the investors who funded development of the Comstock) needed some assurance of ability to keep what they found and developed. The customary law developed by mining camps provided that assurance.⁶⁰ Another story is of the innovator who develops a new theory that predicts the existence of a resource but which the mainstream of the profession does not accept. For example, the discovery of the Spindletop oil field in Beaumont, Texas in 1900 by Anthony Francis Lucas, was based on Lucas' salt dome theory, which was not accepted by others prior to his discovery.⁶¹ In more recent times the investment is often in research and data analysis by teams of scientists and engineers, which ultimately leads to discovery of valuable natural resources.⁶²

More recently, a counter-narrative of rapacious and often foreign-owned businesses seeking to exploit a local population's resources has become an important tool in campaigns by opponents of extractive industries to prevent development of mineral resources or for governments to extract higher payments when efforts are successful.⁶³

⁵⁹ See GRANT H. SMITH, *THE HISTORY OF THE COMSTOCK LODGE: 1850-1997* 2 (1998). The first person to discover gold in Nevada was on his way to California from Utah when he poked around in the Carson River in 1850. It was several more years before the Comstock Lode was discovered, but the news of any gold brought many prospectors to Nevada. *Id.* at 1.

⁶⁰ JOHN R. UMBECK, *A THEORY OF PROPERTY RIGHTS* 132 (1981) (providing details of the "not once but 500 times" miners in California, in the absence of formal law, established contract and property law among themselves to allow for productive exploitation of resources).

⁶¹ See JAMES ANTHONY CLARK & MICHEL T. HALBOUTY, *SPINDLETOP* (1952).

⁶² Industry news is routinely filled with stories about data analytics. See, e.g., Piyuch Pankah et al., *Boosting the Power of Big Data for Completions*, in *WORLD OIL* (June 2018).

⁶³ Peru, a major source of minerals, has experienced opposition by environmental groups to mining practices. See, e.g., Toni Johnson, *Peru's Mineral Wealth and Woes*, in *COUNCIL ON FOREIGN RELATIONS* (2010), <https://www.cfr.org/backgrounder/perus-mineral-wealth-and-woes>; Brant McGee, *The Community Referendum: Participatory Democracy and the Right to Free, Prior and Informed Consent to Development*, 27 *BERKELEY J. INT'L L.* 570 (2009) (discussing national governments working with mining interests to exploit mineral with little or no benefit for people residing in the area and, in some instances, their facing violence and environmental destruction). Recent episodes of raising the price of mining include threats against the industry by the president of the Philippines. See Louise Maureen Simeon, *Miners Say They Follow Environmental Laws after Duterte Warning*, *PHILSTAR GLOBAL* (July 13, 2017), <http://www.philstar.com/business/2017/07/13/1719224/miners-say-they-follow-environmental-laws-after-duterte-warning>. After much bluster, deals were apparently cut to allow operations to resume. Manolo Serapio, *Philippines Lifts Two-Year Ban on Mining Exploration*, *REUTERS* (July 31, 2018), <https://www.reuters.com/article/us-philippines-mining/philippines-lifts-two-year-ban-on-mining-exploration-idUSKBN1KL11S>. Indonesia, as has occurred in earlier episodes, "renegotiated" existing

Finally, there are business and entrepreneurial narratives that connect to resources. One counter narrative about Rockefeller to the robber baron story is that his genius for organizing the petroleum development, refining, and marketing underlay his success as he drove down prices for an array of new products.⁶⁴ Today, entrepreneurs find opportunities in things from creative water rights contracts⁶⁵ to housing in areas of ecological importance that does not destroy habitat.⁶⁶

The nineteenth century American West offers many examples for entrepreneurial narratives: miners who innovated in governance to create mining districts,⁶⁷ cattlemen who recognized the value of the grasslands of the Great Plains,⁶⁸ and entrepreneurs who saw that the mineral booms were not a flash in the pan but the beginning of a long-term migration so they built businesses to serve the miners.⁶⁹ Now, markets and property rights proponents can build these into narratives about property rights entrepreneurs. Environmental entrepreneurs protect habitat for waterfowl by raising funds from hunters to help assure a healthy supply of game birds

deals for successful mining operations. *See Indonesia Issues New Tax Rules as Freeport Seeks Fiscal Guarantee*, REUTERS (August 8, 2018), <https://www.reuters.com/article/us-indonesia-tax-mining/indonesia-issues-new-tax-rules-as-freeport-seeks-fiscal-guarantee-idUSKBN1KT0MZ>.

⁶⁴ The firm was not the monster it is still often portrayed to be. *See* Elizabeth Granitz & Benjamin Klein, *Monopolization by 'Raising Rivals' Costs': The Standard Oil Case*, 39 J. L. & ECON. 1 (1996); *see also* John S. McGee, *Predatory Price Cutting: The Standard Oil (N.J.) Case*, 1 J. L. & ECON. 137 (1958); RON CHERNOW, *TITAN: THE LIFE OF JOHN D. ROCKEFELLER, SR.* 50 (1998).

⁶⁵ The Jicarilla Apache Nation, once its water rights were established, has been able to lease water rights to public and private users. Justin Nyberg, *The Promise of Indian Water Leasing: An Examination of One Tribe's Success at Brokering Its Surplus Water Rights*, 55 NAT. RESOURCES J. 181, 182 (2014). Functioning water markets can help deal with the problems of drought. *See, e.g.,* Vanessa Casado-Perez, *Missing Water Markets: A Cautionary Tale of Government Failure*, 23 N.Y.U. ENV'T L.J. 157, 163 (2015).

⁶⁶ *See, e.g.,* Jessica B. Wilkinson & Robert Bendick, *The Next Generation of Mitigation: Advancing Conservation Through Landscape-Level Mitigation Planning*, 40 ELR 10023 (2010).

⁶⁷ *See* Umbeck, *supra* note 60; CHARLES R. SHINN, *LAND LAWS OF MINING DISTRICTS* (1884). *See also* Andrew P. Morriss, *Miners, Vigilantes & Cattlemen: Overcoming Free Rider Problems in the Private Provision of Law*, 33 LAND & WATER L. REV. 581 (1998) (discussing role of private methods of establishing order).

⁶⁸ *See* LEWIS ATHERTON, *THE CATTLE KINGS* (1961); ERNEST STAPLES OSGOOD, *THE DAY OF THE CATTLEMEN* (1929); HELENA HUNTINGTON SMITH, *THE WAR ON POWDER RIVER* (1966); ROBERT H. FLETCHER, *FREE GRASS TO FENCES* (1960); MARI SANDOZ, *THE CATTLEMEN* (1958); WALTER PRESCOTT WEBB, *THE GREAT PLAINS* (1931).

⁶⁹ Often the service providers, such as Leland Stanford, did better than the prospectors. RICHARD RAYNER, *THE ASSOCIATES: FOUR CAPITALISTS WHO CREATED CALIFORNIA* 14-15 (2009).

by paying farmers to leave or enhance prairie potholes.⁷⁰ Anglers in England join associations to sue polluters who reduced water, and therefore fish quality.⁷¹ Fish have been protected in rivers during times of low flow by organizations that contract with farmers who own water rights to ensure water stays in rivers rather than be directed to crops.⁷² People pay to see the land kept in agricultural production rather than developed, so millions of acres are protected by easements.⁷³

The narrative that frames the issue connects with knowledge problems because it either poses the resource discoverer as a virtuous person (or organization), who is rewarded for creating value, or as someone merely transferring value (often in ways of questionable legitimacy) from others to himself. If the former narrative governs, then the goal will be to enable the virtuous entrepreneur to create value, as we next discuss. If the latter narrative governs, then the goal will be to find ways to contain the scoundrel who seeks to rob us of our patrimony. Environmental entrepreneurs who want to make use of existing legal tools, rather than press for one-size-fits-all legislated mandates, have much work to do. So-called “green” energy projects threaten Native American heritage and inflict environmental damages anew.⁷⁴

Problem 1: An economic actor (individual, organization) invests to identify a valuable resource (place of natural beauty, critical habitat, mineral deposit, etc.) Without investment, the resource would not be discovered, developed, or protected.

B. *Rights Recognition: Tradeoffs Among Conflicting Uses*

⁷⁰ Henry Holmes, *Protecting Wetlands: Environmental Federalism and Grassroots Conservation in the Prairie Pothole Region*, 10 ARIZ. J. ENV'T L. & POL'Y 365, 396 (2020).

⁷¹ Roger Bate, *Protecting English and Welsh Rivers: The Role of the Anglers' Conservation Association*, in COMMON LAW AND THE ENVIRONMENT Ch. 3 (Roger Meiners & Andrew Morriss eds., 2000).

⁷² Barton H. Thompson Jr., *Markets for Nature*, 25 WM. & MARY ENV'T L. & POL'Y REV. 261, 286-291 (2000).

⁷³ Jess R. Phelps, *Defining the Role of Agriculture in Agricultural Conservation Easements*, 45 ECOLOGY L. Q. 647, 650 (2018).

⁷⁴ Allison M. Dussias, *Room for a (Sacred) View? American Indian Tribes Confront Visual Desecration Caused by Wind Energy Projects*, 38 AM. INDIAN L. REV. 333 (2013). We are often remiss in admitting that “Green projects ... sometimes they are not so green after all. Even the most environmentally friendly projects may result in some kinds of environmental harm.” John Copeland Nagle, *Symposium on Green Technology & Infrastructure Article: Green Harms of Green Projects*, 27 ND J. L. ETHICS & PUB. POL'Y 59-60 (2023).

There are often multiple uses for resources. A river can be a water source for agriculture, paper mills, city dwellers' homes, trout habitat, or a wild place for the contemplation of nature. In political struggles about water, among other resources, Native American rights have often been ignored despite treaties that promised to protect them.⁷⁵ Which use is chosen depends in part on tastes (which may change over time), technology (how expensive is it to treat discharges and how valuable is the output?), knowledge (how much water do fish need?), and other factors. Conflict over uses may be resolved one way at one time and another way at a different time and one way under one set of institutional constraints and another way under a different set of constraints. The proposed Mineral King ski resort in California is an example of such conflict.

In 1965, the U.S. Forest Service awarded the Walt Disney Co. a permit to develop a ski resort in the Sierra Nevada mountains on Sequoia National Forest land in the Mineral King valley, a former silver mining area. Constructing the resort would require access via an all-weather highway, or, in a later version, a cog railway through the Sequoia National Park. The Sierra Club, which had backed the idea of a ski resort in the area, later sued to block the development and it was eventually abandoned.⁷⁶

Of course, to the environmentalists trying to stop the ski resort development, it *was* a battle between good (environmentalists) and evil (developers and the skiers). Turner and Clifton's *Wild by Law: The Sierra Club Legal Defense Fund and the Places it Has Saved* called the court opinion resulting from the fight over Mineral King "one of the most important Supreme Court decisions ever rendered on environmental matters."⁷⁷ A later commentator suggested that the Sierra Club "places more importance on *Sierra Club v. Morton* (1972) [the court decision that resulted], and its role in Mineral King controversy, than it may actually deserve."⁷⁸ To the Sierra Club, when it became an opponent of the resort, *any* intrusion into the national park (even light rail) was unacceptable and opponents of the resort believed that the Mineral King valley "belonged" in

⁷⁵ See, e.g., Roger E. Meiners & Lea-Rachel Kosnik, *Restoring Harmony in the Klamath Basin* PS-27 (Property and Environment Research Center, 2003),

<https://www.perc.org/2002/12/20/restoring-harmony-in-the-klamath-basin/>.

⁷⁶ Werner Weiss, *Walt Disney's Mineral King*, YESTERLAND (Dec. 16, 2011), <http://www.yesterland.com/mineralking.html>.

⁷⁷ TOM TURNER & CARR CLIFTON, *WILD BY LAW: THE SIERRA CLUB LEGAL DEFENSE FUND AND THE PLACES IT HAS SAVED* 3 (1990).

⁷⁸ Alexandra K. Vicknair, *Mindsets, Motivations, Mickey Mouse, and the Mountains: The Social, Political, and Intellectual Foundations of the Mineral King Controversy, 1965–1978* 8

(2013), <https://scholarworks.csustan.edu/bitstream/handle/011235813/265/VicknairA.spring2013thesis.pdf?sequence=1>. See *Sierra Club v. Morton*, 405 U.S. 728 (1972).

the park rather than the national forest, and so should not be made into a recreation site.⁷⁹ Disney, on the other hand, envisioned creating access to the site as a benefit—he had said of the valley “When I first saw Mineral King five years ago, I thought it was one of the most beautiful spots I had ever seen and we want to keep it that way.”⁸⁰ Disney did not want to destroy it, he wanted to expand access to it. And, of course, make money while doing so. Disney thus solved Problem 1 in a way that conflicted with the Sierra Club’s vision for Mineral King in which lack of access was a bug and not a feature.

The legal battle over Mineral King gets at the critical question in conflicting resource uses: whose claim for exclusive rights will be recognized? In Mineral King, the initial decision makers were the Forest Service and the National Park Service, who controlled the land. They did not recognize the Sierra Club as having a role in making the decision. The Forest Service brought Disney and capital markets, where funds would be raised for the development, into the discussion. The Forest Service’s initial narrative of itself as a guardian of the public interest and evaluator of the proposition of the resort was supported by Disney and the capital markets. The Sierra Club disrupted this narrative, casting itself as the guarantor of the public and the environment’s interest, relegating the Forest Service to a subservient role. The Sierra Club suit raised the issue of whether others had an interest that needed to be recognized. The Supreme Court’s decision opened the door to include broader interests by allowing the Sierra Club standing to object based on members’ interest in hiking in National Forest lands that would become the resort. Justice William O. Douglas suggested in a dissent that he would go further, allowing the valley to itself appear, represented by the Sierra Club.⁸¹

To state the obvious, conflicting use problems arise when there are differences of opinion over the use of a resource. The problem is choosing a decision rule that allocates authority to resolve the conflict. A key part of the decision rule is deciding whose rights are recognized in the decision process. The narrative supporting property rights solutions focuses on incentives for individual property owners to be free to maximize the value of resources they control as they see best, which could include doing nothing. To the Forest Service and other government entities, Disney would develop the area in the manner they believed most beneficial. The Disney narrative was giving more of the public access to “one of the most beautiful spots.”⁸²

⁷⁹ *Id.* at 132.

⁸⁰ Weiss, *supra* note 76.

⁸¹ *Morton*, 405 U.S. at 741 (Douglas, J. dissenting).

⁸² Weiss, *supra* note 76.

By contrast, the narrative supporting state-centric solutions focuses on the divergence between the private and public valuations of different uses. In that account, Disney would benefit from the resort but the broader public would potentially lose a valued wilderness site. Inserting a public guardian was necessary to protect public values and make the tradeoff. The problem was that there were public guardians involved in developing the valley: the Forest Service and the National Park Service, as well as various California state and local authorities, and the outcome was still not what environmentalists wanted. Their solution was to broaden the discussion beyond simply asserting public values to a structure that granted a private association the right to participate in the decision-making process at its discretion.⁸³ The debate over standing to challenge agency actions is how the legal system addressed this problem. In that lens, the Sierra Club's victory reflected a change in the underlying public narrative rather than initiating it.⁸⁴ No longer were government agencies sufficient to represent the public interest, it now became simple for private parties to intervene in such decision processes. In this sense, there are multiple yet to be completed but competing stories that seek to become the controlling narrative of how Americans utilize and respect the Mineral King.

An earlier resource conflict illustrates a similar iteration of this problem. In California, between 1870 and 1884, hydraulic miners battled with downstream farmers over the substantial runoff (tons of rock and mud) from mining that threatened the farmers' fields.⁸⁵ In 1884, the farmers won a federal court injunction that effectively ended the practice of hydraulic mining based on its destructive impact on downstream land.⁸⁶ This was a significant win for the capacity of ordinary property law to adjudicate the relative rights of parties—but it required applying legal principles to a new problem in a new context and reframing the narrative from facilitating mining (California's original view) to preserving California farmland's productive capacity.⁸⁷ Similarly, in the U.K., a

⁸³ See, e.g., Don Harris, *Mineral King: Breaking Down the Courthouse Door*, EARTHJUSTICE, <https://earthjustice.org/features/mineral-king-breaking-down-the-courthouse-door> (last visited Apr. 17, 2021).

⁸⁴ As Finley Peter Dunne's fictional Mr. Dooley observed, the Supreme Court follows the election returns and 1970's Earth Day happened on its doorstep. FINLEY PETER DUNNE, MR. DOOLEY'S OPINIONS 26 (New York: R.H. Russell, 1901) ("th' supreme coort follow th' iliction returns.")

⁸⁵ ROBERT L. KELLY, GOLD VS. GRAIN: THE HYDRAULIC MINING CONTROVERSY IN CALIFORNIA'S SACRAMENTO VALLEY (1959) (A detailed history of hydraulic gold mining in California and the battle between miners and farmers over the practice ending with the Sawyer decision of 1884).

⁸⁶ *Woodruff v. N. Bloomfield Gravel Mining Co.*, 18 F. 753, 756 (C.C.D. Cal. 1884).

⁸⁷ Kelly, *supra* note 85.

private association of anglers successfully used its members' recognized legal claims to fishing rights to force the cleanup of rivers.⁸⁸ Actors equipped with rights are capable of solving conflicts of use.

Problem 2: The owner of a resource has a choice between two uses, one of which preserves more 'natural' aspects of the area containing the resource than the other. Others seek to assert an interest in the decision. Which interests have a right to a say in the resolution?

C. *Rights Security: Funding Development and Preservation*

Preservation or development of resources both involve costs. Preservation incurs monitoring, remediation, and opportunity costs. Where preservation requires taking valuable rights from private parties, compensation may need to be paid. For example, in *Lucas v. South Carolina Coastal Commission*, the Supreme Court held that a South Carolina administrative agency's refusal to allow a landowner to build any structure on his property amounted to a taking.⁸⁹ Similarly, to induce conservation, governments may offer incentives. For example, conservation easements that meet particular criteria are eligible for tax benefits that reduce the cost of conservation for landowners.⁹⁰ Preservation efforts may have political impacts that reduce authorities' support for conservation. For example, efforts by (mostly foreign) conservationists to stop development in the Argentine region of Patagonia has been opposed by some local residents.⁹¹

A central difference in opinion in the competing narratives over resources rests on who should compensate whom when conservation measures require foregoing development or development efforts

⁸⁸ Bate, *supra* note 40.

⁸⁹ See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1030-1032 (1992). Lucas had been told he could walk or sit on his property and pay property taxes on it, but otherwise do nothing despite it being zoned for single family construction at the time of purchase. The Court noted that the administrative ruling effectively destroyed all value of the property (on which he still had to pay taxes). Had the agency limited what he could do on the land, such as only park an RV rather than build a house, it seems likely he would not have received compensation.

⁹⁰ C. Andrew Lafond & Jeffery J. Schrader, *Charitable Contributions of Conservation Easements*, J. ACCOUNTANCY (2011), <http://www.journalofaccountancy.com/issues/2011/nov/20103603.html>.

⁹¹ Oliver Balch, *Private Parks*, THE GUARDIAN (Oct. 4, 2005), <https://www.theguardian.com/business/2005/oct/04/argentina.internationalnews>.

compromise conservation.⁹² Those inclined to support property rights solutions see the collective compensating the individual for taking of valuable rights as fundamental to properly align incentives for governments. The *Lucas* case, in which a South Carolina state agency sought to prevent construction on a beachfront lot without paying compensation, is a prime example. When the Supreme Court ruled that the Takings Clause required it to pay compensation, the South Carolina Coastal Commission decided it was willing to have the property developed after all.⁹³ On the other hand, some advocates for preservation reject the notion that resource owners should be compensated for not engaging in what they see as socially detrimental activities.⁹⁴ For many environmental activists, paying someone not to do something they should not do in the first place is wrong as a matter of principle.⁹⁵ This conflict of view is a recurrent feature of resource disputes.

Those inclined to support state-centered approaches often seek compensation from those seeking to develop property. In *Dolan v. City of Tigard*, the owner of a plumbing store sought a permit to expand the store.⁹⁶ The city planning commission conditioned the permit on dedication of land to a public greenway.⁹⁷ While the Supreme Court rejected this as an unconstitutional taking of Dolan's land,⁹⁸ the city's supporters saw the requirement as reasonable compensation by the store owner for the environmental burden the expansion would place on the community.⁹⁹

⁹² Coase, *infra* note 129. Coase identified the assignment of rights as critical where transactions costs prevented bargaining to reallocate them. One resolution to such differences is reducing the cost of reaching such bargains.

⁹³ WILLIAM A. FISCHER, REGULATORY TAKINGS: LAW, ECONOMICS AND POLITICS 61 (1995).

⁹⁴ See Oliver A. Houck, *More Unfinished Stories: Lucas, Atlanta Coalition, and Palila/Sweet Home*, 75 U. COLO. L. R. 331 (2004) (This article examines four cases to describe how litigation efforts have shaped massive change in the area of environmental law). This commentary is hostile to Lucas and his construction projects.

⁹⁵ Epstein makes a similar point about anti-whaling discourse.

Speaking the anti-whaling discourse marks you as someone who cares about whales. In other words, it does not just do something for the whales (according to the discourse itself) but it says something about the individual who has stepped into that subject-position. It casts her as a compassionate, environmentally mindful, and quintessentially 'good' person. First, this 'stepping into' is envisaged here as a dynamic process.

Epstein, *supra* note 4, at 168-9.

⁹⁶ *Dolan v. City of Tigard*, 512 U.S. 374 (1994).

⁹⁷ *Id.* at 379-80.

⁹⁸ *Id.* at 396.

⁹⁹ See, e.g., David Ackerly, *Exactions for Transportation Corridors After Dolan v. City of Tigard*, 29 LOY. L.A. L. REV. 247, 249 (1995) (decision "fails to allow city planners the flexibility necessary to design creative solutions to reduce the negative impacts of regional development.").

When preservation requires ongoing monitoring, that must be funded.¹⁰⁰ Restoring a resource to a prior state or improving its condition can require substantial funding as well and innovative funding mechanisms can be important.¹⁰¹ Similarly, development is expensive; the process of physically extracting a mineral resource is often costly.¹⁰² The long and capital-intensive nature of many resource development projects make them vulnerable to expropriation.¹⁰³

Developing or protecting a resource goes beyond physical costs. Creating legal infrastructure to support new resource uses can be costly. Many western states' water law, based on prior appropriation principles, relied on a definition of "beneficial use" that required removal of water from the stream.¹⁰⁴ This prevented in-stream uses from qualifying and required changing state laws to permit contractual arrangements to keep water in stream for wildlife conservation use.¹⁰⁵ Conservation easements

¹⁰⁰ "Often, land trusts often ask landowners to make a stewardship contribution when they donate an easement. But the costs of stewardship sometimes exceed the amount a landowner can reasonably contribute — so you may need to raise funds from other sources, as well." See, e.g., *Funding for Stewardship*, LAND TRUST ALLIANCE, <https://www.landtrustalliance.org/topics/stewardship> (This article discusses failings related to the perpetuity requirement of section 170(h) conservation easement tax incentives, and proposes solutions for the long-term effectiveness of this conservation program); Nancy A. McLaughlin, *Tax-Deductible Conservation Easements and the Essential Perpetuity Requirements*, 37 VA. TAX REV. 1 (2017). An example of (costly) litigation to enforce conservation easements is *Four B Properties, LLC v. Nature Conservancy*, 458 P.3d 832 (Wyo. 2020).

¹⁰¹ John Schwartz, *Envisioning Profit in Environmental Good Works*, N. Y. TIMES (July 12, 2014), <https://www.nytimes.com/2014/07/13/us/equity-firm-restores-louisiana-marshland-to-earn-credits-it-can-sell.html>.

¹⁰² E.g., Will Kennedy & Felix Njini, *Fate of South African Gold Rests on Giant, Loss-Making Mine*, BLOOMBERG (July 30, 2018), <https://www.bloomberg.com/news/articles/2018-07-29/fate-of-south-african-gold-rests-on-one-giant-loss-making-mine> (the "South Deep" mine near Johannesburg has cost Gold Fields Ltd. \$2.3 billion to develop without great promise of recovery); Darren Gray, *PNG Gold and Copper Mine to Cost JV Partners an Extra \$1bn Upfront*, SYDNEY MORNING HERALD (Mar. 19, 2018), <https://www.smh.com.au/business/companies/newcrest-to-spend-extra-1bn-on-png-gold-and-copper-mine-20180319-p4z53q.html> (Newcrest Mining had to come up with more funds to push forward on a mine in Papua New Guinea).

¹⁰³ See Harold L. Cole & William B. English, *Expropriation and Direct Investment*, 30 J. INT. ECON. 201 (1991) (This article discusses the conditions for expropriation of foreign investments and means of avoiding such a scenario through cost-benefit analysis of host countries in a variety of investment scenarios).

¹⁰⁴ Sandra Zellmer, *Legal Tools for Instream Flow Protection*, in INTEGRATED APPROACHES TO RIVERINE RESOURCE STEWARDSHIP: CASE STUDIES, SCIENCE, LAW, PEOPLE, AND POLICY 285, 287 (Allan Locke, et al. eds., 2008).

¹⁰⁵ *Id.* at 289-93.

also require legal infrastructure to be effective.¹⁰⁶ In such cases, there is a need to recognize the beneficial aspects of making rights fully transferable, which is to say, those who wish to purchase in-stream flow rights and hold them should be able to compete evenly with others who wish to purchase rights for withdrawal purposes. Ownership asymmetries, such as those seen with Bureau of Land Management grazing rights and Forest Service auctioning of timber cutting rights, prevent environmentalists, for example, from purchasing or leasing those rights and retiring them.¹⁰⁷

In general, funding either development or conservation requires capital market or philanthropic support. Both impose their own disciplines. The fixed capital intensity and long timelines of many resource extraction projects pose particular challenges.¹⁰⁸ Donors may be unwilling to accept tradeoffs that make preservation less costly.¹⁰⁹

¹⁰⁶ See Gerald Korngold, *Globalizing Conservation Easements: Private Law Approaches for International Environmental Protection*, 28 WISC. INT'L L. J. 585 (2011).

¹⁰⁷ See Kristen Byrne and Hannah Downey, *Competition Can Help Resolve Public Lands Conflicts* (2017), <https://www.perc.org/2017/07/12/competition-can-help-resolve-public-lands-conflicts/> (outlining the argument that ownership asymmetries prevent stakeholders from purchasing or leasing rights to retire them).

¹⁰⁸ E.g., Amber Smith, *Head of Tucson Chamber: With Mining in City's Blood, it's Time to Move Ahead with Rosemont*, ARIZONA DAILY STAR (Aug. 27, 2018), https://tucson.com/opinion/local/amber-smith-with-mining-in-tucson-s-blood-it-s/article_ae6239a6-314d-53e7-84ca-8669f86a40c7.html (a mining project in Arizona spent 10 years in EIS and other review processes). See also Meredith A. Wegener, *Changing Federal Priorities Midstream in Upstream Development: Federal Energy Development Lease Cancellations, Environmental Policy, Historic Preservation and Takings*, 46 ENV'T L. 979, 987-989 (2016) (examples of delays running over three decades).

¹⁰⁹ Jen DeGregorio, *Audubon Society Sanctuary Considers Allowing Oil and Gas Drilling*, THE TIMES-PICAYUNE (Jan., 3, 2010), http://www.nola.com/business/index.ssf/2010/01/audubon_society_sanctuary_cons.html. The description of the debate is illustrative and so worth considering at length:

Audubon's internal debate over the sanctuary resembles a problem that has long confounded Louisiana political leaders as they attempt to preserve what's left of the coast without disrupting the oil and gas industry, a major source of jobs and tax dollars for the state. A key difference, however, is Audubon's uncertainty that healthy wetlands and fuel production can coexist: The group has tapped consultants to weigh the pros and cons of drilling in the marsh. State regulators, by contrast, have treated oil and gas extraction as a foregone conclusion, issuing hundreds of permits each year to drill or replumb old canals in the coastal zone. "This is actually quite an interesting opportunity for both conservationists and the oil industry to see if development can be done differently and if it can be done economically and in a way that protects the environment," said Denise Reed, a coastal scientist at the University of New Orleans, of Audubon's proposal. Still, Audubon risks giving the impression that the group is willing to "damage their property to get money to fix it," Reed said. Delve into the history of the sanctuary, and the irony thickens. Audubon, which has owned the Rainey preserve since 1924, allowed prospectors to dredge oilfield access canals across the property

Funding constraints can influence resource use decisions. Fear of confiscation of a resource can affect extraction rates.¹¹⁰ Developing a resource stream from a conservation use can shift the balance to include more conservation, as in the development of a forest reserve by International Paper.¹¹¹ Conversely, a regulation that imposes costs on particular conditions can lead resource owners to shift their strategy to reduce those costs. For example, ESA regulations reduced timberland owners' land values in areas where red cockaded woodpeckers nested.¹¹² By reducing the age at which they harvested trees, the landowners could reduce the desirability of the land for the woodpeckers.¹¹³ The increased presence of woodpeckers led to harvesting younger trees, reducing habitat.¹¹⁴

Narratives over resource decisions rarely center around funding. Conservation narratives are typically framed in terms of removing considerations of financing from the discussions and are cast as moral imperatives (which suggest that financing should be irrelevant) or efforts to align private and alleged social costs, usually to stop investment in development.¹¹⁵ Framing decisions this way tends to reduce opportunities

beginning in the 1940s. Fuel production continued until 1999, when the last of Audubon's energy leases expired and the group banned such activity. Audubon's former chief operating officer, Daniel Beard, condemned the policy in 2001, saying that the oil production caused "irreparable, long-term damage" to Paul J. Rainey's wetlands. But Kemp argues that Audubon can do better this time by forcing companies to go beyond the requirements of Louisiana drilling laws, which an Audubon study found to be lax compared with those of other states. New technology has made drilling less invasive, and careful monitoring could minimize damage -- making it worth the cash for coastal restoration. "That's the tightrope that we walk," Kemp said. "We don't necessarily want to do drilling unless there is some environmental gain."

See also Shawn Reagan, *What Would Environmentalists Do if They Owned ANWR?*, REASON (Feb. 5, 2015), <https://reason.com/archives/2015/02/05/what-would-environmentalists-do-if-they>.

¹¹⁰ Wegener, *supra* note 108, at 982 (claiming endless delays in permitting is close to confiscation and raises Fifth Amendment issues regarding compensation).

¹¹¹ TERRY L. ANDERSON & DONALD R. LEAL, *ENVIRO-CAPITALISTS: DOING GOOD WHILE DOING WELL* 4-8 (1997).

¹¹² Lueck & Michael, *supra* note 22. See also Richard L. Stroup & Andrew P. Morriss, *Quartering Species: The "Living Constitution," the Third Amendment, and the Endangered Species Act*, 30 ENV'T L. 769, 790-91 (2000).

¹¹³ Lueck & Michael, *supra* note 22, at 31-55.

¹¹⁴ *Id.* at 35-51.

¹¹⁵ E.g., Peter Manus, *One Hundred Years of Green: A Perspective on Three Twentieth Century Nature Philosophers*, 59 U. PITT. L. REV. 557, 659-60 (1998) ("As a religious man, [Al] Gore brings to environmental law and politics [John] Muir's morality of nature preservation.") The moral ethic applies globally. See Amelia Chizwala Peterson, *Articulating Moral Bases for Regional Responses to Deforestation and Climate Change:*

for compromise and loses the opportunity for creative win-win scenarios.¹¹⁶ Compromising a moral imperative is costlier for the parties than compromising over a pragmatic point.¹¹⁷ By contrast, market and property rights narratives are often focused on incentive structures for decision-makers, seeking to align incentives properly without adding the complexity of the impact of financing structures.¹¹⁸ This opens space for creative solutions.

Problem 3: A resource owner decides between a development or conservation use that requires capital to accomplish. The owner must account for the constraints imposed by the funding mechanism. For development, investors must be compensated for risks; for conservation, investors must receive monetary and/or non-monetary returns that can impact the form of the investment.

Africa, 38 WM. & MARY ENV'T L. & POL'Y. REV. 81, 117 (2013) (“Harnessing the old morality, a seemingly gigantic feat for any civilization, is probably the only way that Africa can begin to reverse the demise of its natural landscape and mount an appropriate, moral response to its own role in the destruction of the global ecosystem.”) *See also* CHRISTOPHER D. STONE, SHOULD TREES HAVE STANDING?: LAW, MORALITY, AND THE ENVIRONMENT (2010).

¹¹⁶ *See, e.g.*, BEATRICE CHAYTOR & JONA RAZZAQUE, LIBERALISING TRADE IN ENVIRONMENTAL GOODS AND SERVICES: IN SEARCH OF ‘WIN-WIN-WIN’ OUTCOMES, 38 (2011) (“The prospects for ‘win-win-win’ achievements depend on determining a more precise definition of environmental goods and services, which will facilitate the identification to barriers to trade in goods and services included in the industry.”) *See also* Vanessa A. Masterson, Maria Spierenburg & Maria Tengö, *The Trade-Offs of Win-Win Conservation Rhetoric: Exploring Place Meanings in Community Conservation on the Wild Coast, South Africa*, 14 SUSTAINABILITY SCIENCE 639 (2019) (a critical assessment of focusing on “win-win” outcomes framed by economics).

¹¹⁷ Organizations might not compromise as a way of showing their commitment to supporters that they can be trusted to keep the faith; those who “sell out” may lose prospective supporters. Jonathan H. Adler, *Money or Nothing: The Adverse Environmental Consequences of Uncompensated Land Use Controls*, 49 B.C. L. REV. 301, 310-11 (2008) (“Although some environmental economists support compensation on efficiency or environmental conservation grounds, environmental lobbying organizations are unanimous in their opposition to statutory or judicially imposed compensation requirements. According to the Sierra Club, takings compensation proposals are part of ‘an overt and calculated attack on the environment.’”).

¹¹⁸ HERNANDO DE SOTO, THE MYSTERY OF CAPITAL: WHY CAPITALISM TRIUMPHS IN THE WEST AND FAILS EVERYWHERE ELSE (2000) (explaining the impact of insecure property rights on the availability of capital and its adverse impact on the poor).

D. *Providing Effective Public Institutions: Corruption*

Resources involve decisions about valuable assets. When decision makers do not own the assets, there is an opportunity for the decision maker to trade a decision for benefits that accrue to the decision maker.¹¹⁹ Those controlling access to valuable activities may be bribed to secure permission for a wide range of activities.¹²⁰ Corruption is not simply a matter of bribes to individuals, although political decisions that allocate access to valuable resources can be influenced by campaign contributions and other gifts, legal and illegal. Decision makers can use their power to steer resources to favored interest groups. Such behavior by regulators could be classified as corruption as decision makers seek to benefit favored constituents at the expense of others.¹²¹ This problem exists anywhere decision makers do not bear the full costs or reap the full benefits of their decisions. The problem appears to be particularly widespread where resources are involved because of the high value of many resource decisions.¹²²

The structure of the institutions dealing with resources affects the likelihood and scope of corruption. As Hernando de Soto noted in his study of the informal sector in Peru, where the regulatory state intruded into

¹¹⁹ Government actors can threaten to impose costs on economic actors in return for campaign support and other benefits. See Fred S. McChesney, *Rent Extraction and Rent Creation in the Economic Theory of Regulation*, 16 J. LEGAL STUDIES 101, 107-108 (1987). The seminal work on this point is George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. 3 (1971).

¹²⁰ Many nations do little to discourage international bribery, including countries that are often thought of as having a strong legal system, such as Denmark. See TRANSPARENCY INTERNATIONAL, EXPORTING CORRUPTION 2020: DENMARK (2020), <https://www.transparency.org/en/projects/exporting-corruption/data/denmark>. Firms must also deal with bribery issues. E.g., Jon Emont et al., *Amazon Investigates Employees Leaking Data for Bribes*, W.S.J. (Sep. 16, 2018), <https://www.wsj.com/articles/amazon-investigates-employees-leaking-data-for-bribes-1537106401>.

¹²¹ Voters rarely know the details of how policies are implemented. No politician admits to playing politics with the environment, but special interests appear to play a big role in how the details work out. The best documented story is how the Clean Air Act was crafted to respond to special interests. See BRUCE A. ACKERMAN & WILLIAM T. HASSLER, CLEAN COAL/DIRTY AIR OR HOW THE CLEAN AIR ACT BECAME A MULTIBILLION-DOLLAR BAIL-OUT FOR HIGH-SULPHUR COAL PRODUCERS AND WHAT SHOULD BE DONE ABOUT IT (1981).

¹²² See Eleanor R.E. O'Higgins, *Corruption, Underdevelopment, and Extractive Resource Industries: Addressing the Vicious Cycle*, 16 BUS. ETHICS Q. 235, 235 (2006) (describing extractive resource industry as “an arena wherein the conditions for corruption and its link with low human development are especially intense and pernicious, and subject to a self-reinforcing vicious cycle.”) See also *Organized Crime and Corruption Reporting Project*, <https://www.occrp.org/en/> (last visited Apr. 16, 2021) (on-going reporting of widespread corruption).

virtually all decisions in the 1980s, the lack of inclusion in the formal legal system creates the conditions under which corruption can flourish:

In the redistributive state, the enviable capacity to be generous with other people's money is an invitation to corruption. In the struggle for wealth and favorable redistribution, no means are spared. And as corruption grows, so does anarchy. In a country where the law can be bought, where both left- and right-wing political parties agree that it is the state's prerogative to regulate and legislate in detail, and where the false ethic of redistributive justice has evaded and consigned to oblivion the ethic of productive justice, there are no secure property rights and no legal incentives for creating wealth.¹²³

Ironically, many state-centered resource narratives focus on corruption at external individual or firm levels and fail to focus on natural resource states' internal incentive structures.¹²⁴ The affected states seek to control corruption by restricting opportunities to move the proceeds of corruption out of the corrupt state or by changing the behavior of external natural resource business.¹²⁵ For example, efforts to restrict use of “conflict minerals,” where funds flow to those engaged in violence (often over control of the minerals) fall into this category.¹²⁶ These narratives focus the corruption inquiry away from the creation of opportunities for corruption by giving discretionary authority to state actors and focus instead on the

¹²³ HERNANDO DE SOTO, *THE OTHER PATH* 199 (1989).

¹²⁴ *E.g.*, Galit A. Sarfaty, *Shining Light on Global Supply Chains*, 56 *HARV. INT'L. L.J.* 419 (2015) (focusing on the fact that most firms fail to engage in honest reporting about the origins of minerals as related to human rights and labor practices).

¹²⁵ In 2000 the World Bank pressed Chad, ranked one of the most corrupt nations by Transparency International (and as the most corrupt nation in 2005. *See Corruption Perceptions Index*, TRANSPARENCY INTERNATIONAL, <https://www.transparency.org/en/cpi/2005> (last accessed Apr. 16, 2021)) to take steps to avoid the resource curse problem as a condition for funding for an oil pipeline. The agreed solution was for ExxonMobil to deposit oil revenues in an escrow account at Citibank. An independent committee would oversee spending to ensure that most oil money went for poverty-reduction measures. Once the oil revenue began to arrive in 2005, Chad reneged. *See* Jeffrey Frankel, *The Natural Resource Curse*, NBER WORKING PAPER 15836, 33 (2010). *See also* Uwafiokun Idemudia, *The Resource Curse and the Decentralization of Oil Revenue: The Case of Nigeria*, 35 *J. CLEANER PROD.* 183, 185 (2012), (noting that these “agencies and laws are managed and implemented by government officials that benefit from corruption”).

¹²⁶ Attempting to “discipline” bad actors in such instances, as the United States has done in the Congo, can backfire. *See* Parker & Vadheim, *supra* note 44.

disposal of the proceeds of corruption.¹²⁷ Market and property rights narratives often focus on the corruption potential by public decision makers, seeking to avoid the problem by shifting decisions to property owners who bear the loss of poor decisions. State-centric narratives focus on corruption in the private sector. Neither can exist without the other. Of course, when corruption prevails across government agents, agencies, and law enforcement, the slim prospects for gaining improved management of resources that remain may rest on the actions of extended families and other groups that provide private protection for important resource assets.

Problem 4: A resource owner seeks to implement a conservation or development plan that requires public or private approvals from a public or private organization. Securing approvals requires action by a bureaucracy. The bureaucracy demands certain/specific favors in exchange for granting the approvals.

E. *Conflict Resolution: Interfering with Others' Rights*

Resource use by one entity can impact use by others. In *Sturges v. Bridgeman*,¹²⁸ the 1879 British case around which Ronald Coase built some of his analysis in *The Problem of Social Cost*, a confectioner's thumping machinery made a doctor's consulting room on the other side of a party wall useless.¹²⁹ Often, ordinary principles of tort and property law suffice to settle such disputes and the primary economic problem is whether or not barriers to bargaining prevent value-increasing deals from being struck. The barriers may not be as difficult as commonly asserted. For example, in the U.K., a private association of fishers repeatedly sued polluters and won

¹²⁷ Mark Zuckerberg of Facebook found this problem on Indian reservations—the lack of a trustworthy rule of law keeps investors out. See Mark Zuckerberg, FACEBOOK (July 16, 2017), <https://www.facebook.com/zuck/posts/10103892215949831>.

¹²⁸ *Sturges v. Bridgeman* [1879] 11 Ch.D. 852 (UK App. Cas.).

¹²⁹ Ronald Coase, *The Problem of Social Cost*, 3 J. LAW & ECON. 1, 8-10 (1960) (holding that the doctor, who came to the noise, had the right not to suffer from the noise) Legal historian A.W. Brian Simpson challenged Coase's interpretation of the *Sturges*, suggesting that there were already community norms in place that solved the conflict and that the economic analysis proposed by Coase was alien to how courts considered such conflicts. See A.W.B. Simpson, *Coase v. Pigou Re-examined*, 25 J. LEG. STUD. 53 (1997); A.W.B. Simpson, *Coase v. Pigou Re-Examined: An Addendum*, 25 J. LEG. STUD. 99-101. We take Simpson's point and are not arguing that courts are using economic logic unconsciously (we wish they would, of course), but that the executive and legislative branches ought to be doing so explicitly and the courts ought to pay more attention to the on-the-ground norms developed by real people making real choices about real resources.

injunctive relief, forcing clean ups of streams and rivers.¹³⁰ Where legal systems are underdeveloped or corrupt, this option is not available. In those instances, the problem is not peculiar to resources but larger in scope.

In some cases, there are problems that traditional tort and property law may not address. For example, where a mine poses an environmental hazard long after closure, the mine owner may no longer exist or have assets capable of resolving the problem.¹³¹ Some collective response may be needed to address these cases, both *ex post* where the problem is now in existence and *ex ante* by preventing it through bonding requirements. Abandoned contaminated property was part of the narrative that supported creation of the Superfund.¹³² Conflating the *ex post* and *ex ante* problems can create conceptual confusion in economic terms; *ex post* requires a societal response, *ex ante* adequate bonding and insurance.¹³³

The primary problems for rights interference are where the harms asserted or the rights sought to be vindicated are not cognizable under current legal rules. For example, if extraction of a resource contributes to a global environmental problem, the potential class of parties seeking input into a resource decision goes beyond national boundaries.¹³⁴ The claims of low-lying island state governments that their physical existence is threatened by greenhouse gases emissions that mean rising oceans is an example of such claims.¹³⁵

Claims can come from conservation measures as well. A farming community can be devastated by restrictions on farmers' water use.¹³⁶ The

¹³⁰ Numerous small membership fees paid the cost of litigation, which was routinely in favor of the fishers. Bate, *supra* note 40, at 384.

¹³¹ John F. Seymour, *Hardrock Mining and the Environment: Issues of Federal Enforcement and Liability*, 31 *ECOLOGY L.Q.* 795, 807 (2004) ("No one knows how many abandoned ... mining sites are scattered across the lands of the west" but the Western Governors' Association estimates hundreds of thousands).

¹³² See RICHARD STROUP, *SUPERFUND: THE SHORTCUT THAT FAILED* (1996), <https://www.perc.org/wp-content/uploads/2018/02/ps5.pdf>.

¹³³ Morriss et al., *supra* note 58 at 786 ("With the support of both environmental pressure groups and mining interests, BLM created bonding requirements that safeguard against future harms.").

¹³⁴ See generally Andrew P. Morriss & Roger E. Meiners, *Borders & the Environment*, 39 *ENV'T L.* 141 (2009) (Asserting that citizens of rich nations could do more for the environment and people simply by shifting future expenditures to funding remediation measures in countries with poor, less rigid environmental laws thereby creating a more efficient and environmentally productive structure).

¹³⁵ Corel Davenport, *The Marshall Islands are Disappearing*, *N.Y. TIMES* (Dec. 2, 2015), <https://www.nytimes.com/interactive/2015/12/02/world/The-Marshall-Islands-Are-Disappearing.html>.

¹³⁶ The long fight in California arising from the delta smelt is one example. See *Tiny Endangered Fish Highlights California Drought Conflicts*, *CBS NEWS* (Aug. 4, 2015),

farmers will no longer spend money at the equipment dealer or the seed supplier, who in turn reduce their spending at other businesses. Expanding recognition of rights “too far” can lead to a “tragedy of the anti-commons” in which activity grinds to a halt because the transaction costs of negotiating agreements with everyone holding a rights claim that can veto a solution exceed the benefits of the agreement.¹³⁷ The fundamental problem here is determining the scope and scale of the rights recognized as implicated by the resource allocation decision. Traditional legal principles keep both relatively small through requirements of showing direct harm attributable to the resource owner’s decision and non-recognition of many types of harm.¹³⁸

State-oriented narratives focus on the state preventing A from harming B through resource decisions. These generally seek to broaden the scale and scope of rights to be recognized and protected by the state. Their solution to the transactions costs problem of large numbers is to shift bargaining and decision authority to state actors or to NGOs by allowing broad standing to bring claims.¹³⁹ Property rights narratives focus on narrower rights definitions and seek to reduce barriers to transactions. The advantage for state-oriented narratives is that they can point to a concrete change (“EPA will protect you from poisoned rivers”) even if the claim is unsubstantiated or false.

A key underlying challenge is the adaptability of the institutions involved. Demand for resources, whether for conservation or development changes with knowledge and preferences.¹⁴⁰ Nassim Nicholas Taleb contends that we need institutions that are “antifragile,” a concept for

<https://www.cbsnews.com/news/tiny-endangered-fish-highlights-california-drought-conflicts/>.

¹³⁷ See generally, Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998) (Arguing that anti-commons is a useful tool for property theory and thus a greater awareness of anti-commons may help inform legal policymaking).

¹³⁸ See RICHARD A. EPSTEIN, *SIMPLE RULES FOR A COMPLEX WORLD* (1995) (containing a general discussion of this principle).

¹³⁹ Sanne H. Knudsen, *Remedying the Misuse of Nature*, 2012 UTAH L. REV. 141, 205 (2012) (“a modified citizen suit provision might include the right to intervene in cases brought by public trustees upon showing of standing and good cause . . .”); Randy Lowell, *Private Actions and Marine and Water Resources: Protection, Recovery and Remediation*, 8 S.C. ENV’T L. J. 143, 149 (2000) (“The standing requirement represents one of several obstacles to a private person’s recovery for damages to water-based natural resources.”).

¹⁴⁰ Bison were open access resources hunted to near extinction in the late nineteenth century. See Geoff Cunfer, *Overview: The Decline and Fall of the Bison Empire*, in *BISON AND PEOPLE ON THE NORTH AMERICAN GREAT PLAINS: A DEEP ENVIRONMENTAL HISTORY* 1, 18-22 (2016). Now significant private resources are devoted to providing them and other species habitat to encourage population expansion in a natural setting. See American Prairie Reserve, <https://www.americanprairie.org/> (last visited Apr. 16, 2021).

which there is no easy word.¹⁴¹ Things that are antifragile *improve* with shocks rather than weaken or merely endure. The idea of antifragility encompasses more than simply surviving a shock (which we might term robustness or resilience). Instead it means that “[t]he antifragile loves randomness and uncertainty, which also means—crucially—a love of errors, a certain class of errors. Antifragility has a singular property of allowing us to deal with the unknown, to do things without understanding them—and do them well.”¹⁴² Unfortunately, many institutions dealing with resources are fragile rather than antifragile.

Embedding solutions in statutes and relatively-hard-to-change regulations—which themselves help create interest groups invested in continuing those particular structures¹⁴³—does not promote learning. Superfund is an example of a program that has failed miserably at its stated purpose—although it has enriched the legal profession—without a great deal of learning taking place.¹⁴⁴ Neither Congress nor EPA appears institutionally capable of making adjustments to programs quickly in response to feedback. The common law, which does a better job of adjusting to new facts, could enhance antifragility.¹⁴⁵

Taleb’s central argument is that we must keep “fragilistas” away from the levers of power. These are people who make “you engage in policies and actions, all artificial, in which *the benefits are small and visible, and the side effects potentially severe and invisible.*”¹⁴⁶ One key characteristic of Taleb’s solution is requiring people to keep some “skin in the game” to prevent them from transferring fragility to others. Each party needs “to have something to lose from it.”¹⁴⁷ The idea of “skin in the game” offers a potential way to determine which claims will be recognized.¹⁴⁸ Property rights solutions provide one avenue for ‘skin in the game.’ Taleb also argues for building in redundancy as a way to make institutions more

¹⁴¹ NASSIM NICHOLAS TALEB, ANTIFRAGILE 32-33 (2012).

¹⁴² *Id.* at 4.

¹⁴³ See Darcy Parks & Anna Wallsten, *The Struggles of Smart Energy Places: Regulatory Lock-In and the Swedish Electricity Market*, 110 ANNALS AM. ASSOC. GEOGR. 525, 532 (2020) (describing “regulatory lock-in to the existing spatial arrangements of the electricity market” as a barrier to success in developing renewable energy market).

¹⁴⁴ THOMAS MORE HOBAN & RICHARD OLIVER BROOKS, GREEN JUSTICE: THE ENVIRONMENT AND THE COURTS 5-6 (1996) (“Even its most ardent supporters have come to acknowledge that whatever else the Superfund may be accomplishing, it is blotting up immense amounts of money with frustratingly little to show for it.”)

¹⁴⁵ Roger E. Meiners & Bruce Yandle, *Common Law Environmentalism*, 94 PUB. CHOICE 49, 53-61 (1998) (illustrating flexibility and adaptability of common law).

¹⁴⁶ Taleb, *supra* note 141, at 10.

¹⁴⁷ *Id.* at 381.

¹⁴⁸ NASSIM NICHOLAS TALEB, SKIN IN THE GAME: HIDDEN ASYMMETRIES IN EVERYDAY LIFE 13 (2018) (“government interference in general tends to remove skin in the game”).

antifragile. As he more colorfully puts it: “make sure there is also a copilot” on any plane you board.¹⁴⁹ Redundancy can come from making options available, which broadening the narrative can help reveal.

Antifragility may also be enhanced by designing regulations so they are outcome oriented as opposed to being technology specific. Instead of instructing resource users as to how they must design, build and operate their facilities, which then raises the risk of systemic failure or fragility, the use of outcome or performance standards focuses on the required outcome and penalties or rewards related to such.¹⁵⁰ Parties are then set free to experiment, yielding multiple solutions and limiting the prospect of systemic failure. All along, of course, protection of the scarce resource can be assured by way of penalties or rewards. This approach has been used in controlling U.S. sulfur-dioxide emissions and in locating industrial manufacturing plants in U.S. regions that have not attained national air quality standards.¹⁵¹ In each case, a constraint to be achieved is set and the emitter is free to discover and apply approaches for achieving the standard. Failure to meet the constraint can result in penalties and loss of permits to operate or produce and sell, as in the case of automobiles. Competitive incentives to reduce the cost for improving environmental outcomes have delivered large cost savings.

Problem 5: A resource owner seeks to use a resource (a conservation or development use). A party alleging it is affected by the decision seeks to require its interests to be taken into account. Institutional solutions need to avoid creating fragility.

F. *External Impacts: Resource Curses*

There is some evidence to support the existence of a “resource curse”—a penalty for states with large deposits of resources—although the idea remains hotly contested.¹⁵² Resource-rich countries such as Angola,

¹⁴⁹ Taleb, *supra* note 141, at 381.

¹⁵⁰ That is, in the case of, say, pollution standards, parties would be free to determine how to meet the standards rather than be bound by technological requirements set by regulators. This would create incentives to create new technology and amend industry practices, rather than be bound by technology known at the time a regulation was put in place.

¹⁵¹ See generally T.H. Tietenberg, *Emissions Trading: An Exercise in Reforming Pollution Policy*, 62 Land Econ. 214, (1985) and Roger K. Rauber & Stephen L. Feldman, *Acid Rain and Emissions Trading: Implementing a Market Approach to Pollution Control* (1987).

¹⁵² See generally Victor Menaldo, *The Institutions Curse: Natural Resources, Politics, and Development* (2016) (The ‘resource curse’ is a view that countries with extensive natural resources tend to be victims of a weakened state capacity, authoritarianism, scarcity of

Congo, and Nigeria do poorly on many measures of development and freedom; resource-poor jurisdictions such as Hong Kong, Japan, and South Korea have done comparatively well.¹⁵³ A variety of arguments are made for the existence of the curse: (1) long term real declines in commodity prices harm resource-dependent economies; (2) resource sectors crowd out higher value added sectors; (3) commodity prices are volatile and volatility harms economic growth; (4) governments are less willing to invest in developing economies where they have secure revenue streams from resources; (5) resource-rich jurisdictions are prone to armed civil conflict over control of the resources; and (6) price swings for commodities produce macroeconomic instability.¹⁵⁴ Others argue that “natural resource wealth does not need to be produced. It simply needs to be extracted (even if there is often nothing simple about the extraction process)” and is nonrenewable.¹⁵⁵ This produces “[r]ampant opportunities for rent-seeking by corporations and collusion with governmental officials.”¹⁵⁶

It is certainly the case that resource-rich economies face different challenges from resource-poor ones. Some resource-rich economies have done well economically (e.g. Canada, Norway, the United States). As Jeffrey Frankel notes, “[i]t is safe to say, that the destruction or renunciation of resource endowments, to avoid dangers such as the corruption of leaders, will not be” a policy to increase the odds of prosperity.¹⁵⁷ Frankel’s survey of the types of policies that promote prosperity in resource-rich economies mostly identified ones that reduce government officials’ discretion over resource management and investment as well as index government spending and debt to commodity prices.¹⁵⁸

The competing narratives here focus on different parts of the government’s response to resource endowments. State-oriented narratives

public goods, war and economic stagnation. Menaldo argues that this is an ‘institutions curse,’ arguing that natural resources have the potential to play a positive role in resource rich countries).

¹⁵³ Singapore, which is basically a hot-weather rock, has a Human Development Index of 0.938; Uganda, which is rich in natural resources, has an Index of 0.544. *See* United Nations Development Programme, Human Development Reports (2018), <http://hdr.undp.org/en/2018-update>. As the HIS site explains, the Index focuses on “the richness of human life, rather than simply the richness of the economy.” Key measures are standard of living, knowledge (years of schooling), and life expectancy.

¹⁵⁴ *See* Jeffrey Frankel, *The Natural Resource Curse: A Survey of Diagnoses and Some Prescriptions* (Harv. Kennedy Sch. Fac. Res. Working Paper Series, RWP12-0144, 2012).

¹⁵⁵ Macartan Humphries, Jeffrey D. Sachs & Joseph E. Stiglitz, *Introduction: What is the Problem with Natural Resource Wealth?*, in *Escaping the Resource Curse* 1, 4 (Macartan Humphries, Jeffrey D. Sachs & Joseph E. Stiglitz eds., 2007).

¹⁵⁶ *Id.* at 4.

¹⁵⁷ *See* Frankel, *supra* note 125, at 35.

¹⁵⁸ *Id.*

place the blame for problems with the development of resources on multinational businesses engaged in extraction and marketing. For example, Humphries, Sachs, and Stiglitz are critical of how the United States has handled resource sales, arguing that:

Even in democracies, when governments privatize natural resources they often receive less than their full market value. Firms in extractive industries care first and foremost about minimizing what they have to pay for access to the resources. They therefore seek to ensure that the deals are structured in a way the benefits them over the government. Often, this is achieved through political action such as campaign contributions and other forms of public-private alliances.¹⁵⁹

That is, rather than deal with substantive problems, companies and nations may prefer to transfer difficult resource decision-making beyond national borders to transnational entities or NGO-driven supranational principles.¹⁶⁰ For example, efforts to restrict multinationals from involvement with “conflict minerals” in places like Congo center on changes to laws in countries where the minerals are used, such as the United States, and on trying to track the proceeds from the sale of conflict minerals.¹⁶¹

Property-oriented narratives, on the other hand, attribute failures in resource-rich economies to non-resource institutional failures.¹⁶² In this view, the problem in Congo is not that it has resources but that it lacks both legal and physical infrastructure necessary for a non-extractive economy to develop. It is no surprise that resource businesses “seek to ensure that the deals are structured in a way the benefits them.” The puzzle is why the governments do not hire good negotiators to seek contracts favorable to them and identify the problem as that the officials seek personal benefits rather than national welfare. The solution can be to focus on the growth

¹⁵⁹ The irony of criticizing campaign contributions in a book whose forward is written by George Soros appears to have escaped the authors. *See* Humphries, Sachs & Stiglitz, *supra* note 155, at 14.

¹⁶⁰ The National Democratic Initiative (NDI), chaired by former Secretary of State Madeline Albright, offers better government proposals. *See* The National Democratic Initiative, <https://www.ndi.org/>. In years past, the Extractive Industries Transparency Initiative (EITI) was a prominent effort to get governments to bind themselves to honesty in resource revenue use. Today EITI is barely mentioned on the NDI site likely because transparency initiatives have not gone well. *See Id.*

¹⁶¹ Parker, Foltz & Elsea, *supra* note 44, at 736–738.

¹⁶² For an overview, *see* Daron Acemoglu, Simon Johnson & James A. Robinson, *Chapter 6 Institutions as a Fundamental Cause of Long-Run Growth*, in 1 *Handbook of Economic Growth* 385 (2005).

that use of the resources will bring, rather than the one-time value of the sale itself.¹⁶³

Problem 6: Entrepreneurs and investors in a resource-rich economy choose between investments in extractive industries (and investments within those industries) and other investments. Poor institutions bias choices toward rapid exploitation of resources.

III. PROPERTY RIGHTS SOLUTIONS TO RESOURCE PROBLEMS

Having outlined the broad classes of problems resource issues pose, we now turn to the narratives that suggest potential market and property rights solutions to each. As resource problems are as diverse in their individual characteristics as any other economic problem, we sketch only broad outlines of possible solutions, based on the experience in the American West. In each case, we offer ideas about how to create a narrative to promote market and property-rights solutions in the set of policies to be considered.

A. *Incentivizing Knowledge*

In principles of economics we learn that supply curves generally slope up, which implies that to induce more of a behavior, we must increase the rewards.¹⁶⁴ This seems obvious but appears to be less so to those not fully imbued in the economic model. The economic narrative is straightforward: if we want individuals and organizations to devote more effort to creating value from resources, from extraction, use value, or value from conservation uses, we need increased rewards for developing that knowledge. Even existence values ultimately depend on knowledge of the value of the existence of a resource if they are to be translated into concrete action.

The nineteenth century United States hit on a solution to this problem for hard rock minerals: it gave title to the minerals and the surface estate to anyone who located a resource and made minimal development efforts. In prior work, two of us explored how this arose from the combination of the

¹⁶³ See generally Morriss, Meiners & Dorchak, *supra* note 58 (Arguing that Mining Law offers an important model for governments looking for the means to privatize public property thus serving as a model for privatization of such resources).

¹⁶⁴ The COVID episode generated discussion of providing large financial incentives for firms to supply vaccines.

earlier experience of American policymakers with lead deposits and the European norm of state-ownership as well as some politics regarding popular sovereignty.¹⁶⁵ Whether a clever or accidental solution, the General Mining Law of 1872 effectively solved the knowledge incentivization problem for locating mineral deposits.¹⁶⁶ We argue it later also solved the problem of developing environmental-amenity-based resources, with land claimants using the existence of mineral deposits to claim surface estates with potential for recreation.¹⁶⁷

However, “finders keepers” proved less satisfactory as a solution for mobile mineral resources, such as oil and gas. The law then developed modified property claims to take into account efficiency in exploitation by pooling and unitization under the supervision of state regulators.¹⁶⁸

Water falls in between the two end points. In the arid west, it was initially allocated by a first-in-time method, but soon fell under state control.¹⁶⁹ One of us previously argued that this was driven by the desire of special interests to avoid the general legal system’s reliance on juries, where those interests were less successfully pursued than they were in state and territorial capitals.¹⁷⁰ Whatever the motive, water law became more bureaucratic and codified over time, restricting the ability of entrepreneurs who invented ways to deploy water to promote environmental amenities.¹⁷¹ Once those obstacles were removed, water markets showed increased entrepreneurial activity.¹⁷² In all three cases, relatively simple legal frameworks were sufficient to allocate rights to incentivize the

¹⁶⁵ See generally Morriss, Meiners & Dorchak, *supra* note 58; Andrew P. Morriss, Roger E. Meiners & Andrew Dorchak, *Hard Rock Homesteads: Free Access and the General Mining Law of 1872*, 24 J. Energy & Nat. Res. L. 255, (2006) [hereinafter *Hard Rock*]; Andrew P. Morriss & Roger E. Meiners, *The Mining Landscape: Bootleggers, Baptists, and the Promised Land*, in *Accounting for Mother Nature: Changing Demands for Her Bounty* (Anderson, Huggins & Power eds., 2007).

¹⁶⁶ *Id.* at 257-59.

¹⁶⁷ *Id.* at 269.

¹⁶⁸ See generally Steven N. Wiggins & Gary D. Libecap, *Oil Field Unitization: Contractual Failure in the Presence of Imperfect Information*, 75 Am. Econ. Rev. 368 (1985) (Using quantitative and empirical data to argue that the principal causes of contractual failure are imperfect and asymmetric information that prevent agreement on lease values and hold-out strategies of firms to increase their share of unit rents).

¹⁶⁹ Andrew P. Morriss, *Lessons from the Development of Western Water Law for Emerging Water Markets: Common Law vs. Central Planning*, 80 Oregon L. R. 861, 862–864 (2002).

¹⁷⁰ *Id.* at 888.

¹⁷¹ *Id.* at 935.

¹⁷² *Id.* at 939; see also Terry L. Anderson & Pamela Snyder, *WATER MARKETS: PRIMING THE INVISIBLE PUMP* 105 (1997).

development of knowledge. Investment into more complex property rights came as resource interests developed.¹⁷³

Anti-developers, such as former Interior Secretary Bruce Babbitt, brilliantly undercut the knowledge creation narrative in the General Mining Law, by terming it a “giveaway” and using giant “checks” that represented alleged lost government revenue from awarding mineral rights to those who located them.¹⁷⁴ Developing support for solutions that increase knowledge about resources must focus on the need to incentivize knowledge creation. Whether involving mineral or other resources, the goal should be to shift discussion to entrepreneurs who create new ways of approaching environmental amenities and prospectors who invest resources in locating resources. Works such as Terry Anderson and Donald Leal’s *Enviro-Capitalists* recount case studies of how such solutions evolved and operate.¹⁷⁵ If solutions to resource problems are to incorporate incentives to produce knowledge, those seeking solutions need to develop ways to tell the stories of knowledge creation rather than allowing the narrative to be framed as a “giveaway” of known resources. Shifting economic arguments to focus on knowledge creation incentives is not simple. These are different narratives than have traditionally been economists’ favorites; these are not tales of partial equilibrium analyses or optimal tax/subsidy calculation. In many respects, these draw on economic traditions outside the mainstream, such as the Austrian tradition.¹⁷⁶

Solution 1: Awarding property rights to the party that develops the knowledge that identifies a resource incentivizes increases in such knowledge.

Narrative 1: Focus on links between investment that produces knowledge and rewards.

B. *Rights Recognition: Tradeoffs Among Conflicting Uses*

¹⁷³ Bruce Yandle & Andrew P. Morriss, *The Technologies of Property Rights: Choice among Alternative Solutions to Tragedies of the Commons*, 28 *ECOLOGY L. Q.* 123, 139-141 (2001).

¹⁷⁴ John H. Cushman, Jr., *Forced, U.S. Sells Gold for Trifle*, *N.Y. TIMES*, May 17, 1994, at A12.

¹⁷⁵ See Anderson & Leal, *supra* note 111 (Recounting the story of Tom Bourland, who believes that the growing demand for wildlife and recreation provides landowners with powerful incentives to produce more wildlife habitat and more recognition opportunities).

¹⁷⁶ See, e.g., Ferry Stocker, *Can Austrian Economics Provide a New Approach to Environmental Policy?*, in *Voluntary Approaches in Environmental Policy* 91-103 (Carlo Carraro & Francois Leveque, eds., 1999).

When faced with deciding how to use a particular piece of land, property owners bear many of the costs of their choices. If a farmer plants a subdivision instead of an orchard, she forgoes the opportunity to farm in order to gain revenue from the subdivision. If she continues her orchard and rejects a developer's offer, she forgoes money she could have reaped from the developer and keeps the opportunity to farm.¹⁷⁷ Importantly, decisions about assets have incentive effects even if the owner does not care about a particular characteristic of the property in the future, so long as others do.¹⁷⁸ This insight enables us to point to Coasian bargaining as a potential solution to many resource problems.¹⁷⁹

There are successful examples of just such bargaining. If a farm regularly visited by migratory waterfowl is worth more to some potential buyers because of the birds' presence, even a current owner who does not care whether he can see flocks of birds landing on the property will suffer a loss in value if he does not manage the property to encourage the birds. However, the preferences of people who aren't interested in buying the property will have little impact unless alternative mechanisms can be created to allow them to express those preferences. Ducks Unlimited's "Prairie Pothole" program provides such a mechanism. The organization raises funds from hunters who want migratory bird populations to grow. Ducks Unlimited pays farmers to remove marginally productive wetlands on their properties from cultivation, and leave potholes in place rather than fill them in, creating places for birds to rest while migrating.¹⁸⁰

Proponents of state-centered narratives have several objections to such ideas. First, they argue that property owners may not 'correctly' value their

¹⁷⁷ In his book *COST AND CHOICE* (1969), Nobel laureate James M. Buchanan argues that cost is the subjectively experienced consequence of cost—a consequence that often cannot be observed or objectively measured by third parties. Our focus on explicit market prices, which are only revealed when transactions occur, cause us often to focus, improperly, only on measured accounting costs.

¹⁷⁸ David R. Henderson, *Opportunity Cost*, THE LIBRARY OF ECONOMICS AND LIBERTY, available at <https://www.econlib.org/library/Enc/OpportunityCost.html>.

¹⁷⁹ See generally Terry L. Anderson, *Donning Coase-coloured glasses: a property rights view of natural resource economics*, 48 AUSTRALIAN J. AG. & RES. ECON. 445 (2004) (Arguing that by focusing on the transaction costs associated with the use of environmental assets economists can begin to make the environment more of an asset and less of a liability)

¹⁸⁰ See Jonathan H. Adler, *Wetlands, Waterfowl and the Menace of Mr. Wilson: Commerce Clause Jurisprudence and the Limits of Federal Wetland Regulation*, 29 ENV'T L. 1, 59-60 (1999) (describing the role of private conservation efforts in protecting wetlands for migratory birds and the use of small payments). For a recent overview, see Henry Holmes, *Protecting America's Duck Factory: Lessons from Ducks Unlimited*, 38 PERC REPORTS 2 (Winter 2019), <https://www.perc.org/2019/12/06/protecting-americas-duck-factory/>

properties because they do not consider a factor that is relevant to others.¹⁸¹ Second, property owners have idiosyncratic tastes and may have a strong preference for one outcome over another even if that preference is “irrational” from an accounting (or other preferred) perspective.¹⁸² Subjective preferences account for decisions that to an outsider may be hard to understand.

An even stronger objection is that the property owner will not properly value impacts their decisions have on others and will thus have insufficient incentive to bargain with them absent a state mandate to do so or state action representing the public interest.¹⁸³ Where property rights solutions often do not satisfy those who are skeptical, conflicts arise from the apparent lack of a mechanism to adjust for claims by people whose interests are not represented by either the would-be buyer or the potential seller. If a plot of land is valuable for its environmental function, such as a wetland that filters runoff, neither the farmer nor the real estate developer is incentivized to consider the city dweller’s valuation of the environmental function. Asserting existence value is quite different from acting upon it—having skin in the game—by putting money on the table.¹⁸⁴ In a very similar way, saltwater marshlands that are aquatic life-forming resources for a vast range of species may be largely undervalued by the general public and, because of a lack of transferable property rights, difficult for commercial fishers to purchase and manage. But conservation organizations can meaningfully address this problem by lobbying for and gaining specific environmental easements and development rights that limit marshland destruction. When successful in doing this, the conservation organization has skin in the game and therefore bears a recognizable opportunity cost for conserving specific tracts of marshland.

¹⁸¹ See Bryan Caplan, *Externalities*, ENCYCLOPEDIA OF ECONOMICS AND LIBERTY, <https://www.econlib.org/library/Enc/Externalities.html> (defining externality argument).

¹⁸² Many, and even most, economists would not find it a problem to defer to the property owner’s subjective valuation of the property. See Nicole Stelle Garnett, *The Neglected Political Economy of Eminent Domain*, 105 MICH. L. REV. 101, 107-109 (2006) (discussing subjective value).

¹⁸³ Property expert John Sprankling makes a particularly robust case for a radical reshaping of property law generally to correct for environmental problems. See generally John G. Sprankling, *Property Law for the Anthropocene Era*, 59 ARIZ. L. REV. 737 (2017) (Arguing that property law will evolve from the rigid and absolutist approach prevalent in current American property rights today, toward a more flexible and less categorical system of property rights by utilizing the modified Takings Clause jurisprudence to guide the evolution).

¹⁸⁴ See generally Donald J. Boudreaux, Roger E. Meiners, & Todd J. Zywicki, *Talk is Cheap: The Existence Value Fallacy*, 29 ENV’T L. 765 (1999) (discussing existence value claims—Value measurements are unavoidably spurious. The authors argue that even though existence values are real, attempts to protect them are legally misguided).

Property law does not generally provide for a stranger to a piece of land to assert rights over the land.¹⁸⁵ For some proponents of property solutions, that is often a sufficient reason to say “tough luck,” a response unlikely to sway someone to switch narratives.¹⁸⁶ A second response, one we have often resorted to, is that the alternative of state institutions is unattractive due to the wide variety of problems grouped together under public choice theory.¹⁸⁷ Again, however, this does not seem to persuade skeptics to switch narratives.¹⁸⁸ In both instances, the counter-narrative is firmly embedded that private actors are greedy and focused on short-term gains, while government actors—no matter how many times problems with government actors are demonstrated—are benevolent, long-term oriented, thoughtful social planners.¹⁸⁹ Even technical environmental economists

¹⁸⁵ The debate over standing to assert environmental harms goes back to the beginning of the modern environmental law era. See Christopher D. Stone, *Should Trees Have Standing?—Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 450 (1972) (Arguing that the environment should be granted legal rights); Christopher D. Stone, *Should Trees Have Standing? Revisited: How Far Will Law and Morals Reach? A Pluralist Perspective*, 59 S. CAL. L. REV. 1, 154 (1985).

¹⁸⁶ Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 578 (1996) (“Because of the nature of environmental problems, however, the relevant property rights are often poorly defined, and the transaction costs of negotiating their sale and purchase are frequently high. Both circumstances entail market failures and a concomitant need for environmental regulation.”).

¹⁸⁷ James M. Buchanan & Gordon Tullock, *THE CALCULUS OF CONSENT: THE LOGICAL FOUNDATIONS OF CONSTITUTIONAL Democracy* (1962) (foundational work on topic). The analysis is applied widely. See, e.g., Jim Rossi, *The Political Economy of Energy and Its Implications for Climate Change Legislation*, 84 TUL. L. REV. 379 (2009) (applying it to climate change).

¹⁸⁸ Jonathan B. Wiener, *On the Political Economy of Global Environmental Regulation*, 87 GEO. L. J. 749, 749 (1999) (“Although public choice theory has explained much of economic regulation as the product of concentrated group politics, the theory has not furnished a convincing account of environmental regulation.”).

¹⁸⁹ The environmental area is dominated by governmental controls yet many observers believe more controls are needed. See e.g., James P. Morris, *Who Controls the Waters? Incorporating Environmental and Social Values in Water Resource Planning*, 6 HASTINGS W.-N.W. J. ENV'T L. & POL'Y 117, 117 (2000) (“Planning for the use and control of water is planning for the most basic functions of the life of the Nation.”); Don C. Smith, *The European Union's Commitment to Sustainable Development*, 13 COLO. J. INT'L ENV'T L. & POL'Y 241, 256 (“The [European Community] shall have as its task, by establishing a common market ... to promote ... a harmonious and balanced development of economic activities, sustainable and non-inflationary growth respecting the environment.”); William L. Thomas, *Rio's Unfinished Business: American Enterprise and the Journey Toward Environmentally Sustainable Globalization*, 31 ELR 10873, 10882 (2002) (“The quest for sustainability will involve other tools, including management systems that encompass organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining the company's sustainable development or sustainability policy.”); Mitchell F. Crusto, *Green Business: Should We Revoke Corporate Charters for Environmental*

often follow the model of comparing market outcomes to the bliss points achieved by an omnipotent social planner who implements solutions with zero transactional costs.¹⁹⁰

Changing the narrative thus requires a different story than “private landowners good, bureaucrats bad” or “private landowners so-so, bureaucrats worse.” One opportunity to do so comes from the narrative in James Scott’s landmark *Seeing Like a State*.¹⁹¹ Scott, a professor of political science and anthropology at Yale who describes himself as an anarchist, examines how state actions shaped societies.¹⁹² One of his many powerful examples is how nineteenth century Prussian forestry practices changed the nature of forests. The government carefully counted only valuable trees (and parts of trees), and so transformed Prussian forests from diverse ecosystems into highly regimented monocultures because it incentivized care only of the bits the government counted.¹⁹³ Similarly, he points to how the French window tax adopted under the Directory and not repealed until 1971, reduced the number of windows in French houses.

Its originator must have reasoned that the number of windows and doors in a dwelling was proportional to the dwelling’s size. Thus a tax assessor need not enter the house or measure it but merely count the doors and windows. As a simple, workable formula, it

Violations?, 63 LA. L. REV. 175, 190 (2002) (“[L]aw breaking corporations can be dissolved, put out of business, their assets sold to others under a judge’s order that will protect jobs, the environment, and the public interest.”).

¹⁹⁰ The idea that social welfare can be enhanced by government decision makers dates back, at least in part, to A.C. Pigou, a noted economist who held a chair at Cambridge early in the last century. He explained that we should distinguish between social and private costs because “[i]n general industrialists are interested, not in the social, but only in the private, net product of their operations.” A.C. Pigou, *THE ECONOMICS OF WELFARE* 172 (1920). Hence, “market failure” would occur, thereby requiring legislative or regulatory action, as it is “possible for the State, if it so chooses, to remove the divergence in any field [between private and social costs especially by the use of] bounties and taxes” (*Id.* at 192). For an extensive discussion, see Donald J. Boudreaux & Roger E. Meiners, *Externality: Origins and Classifications*, 59 NAT. RES. J. 1 (2019). Those favoring state control over market solutions focus on Pigouvian analyses. Jeanne M. Dennis, Comment, *Smoke for Sale: Paradoxes and Problems of the Emissions Trading Program of the Clean Air Act Amendments of 1990*, 40 UCLA L. REV. 1101, 1111 (1993) (“Generally, environmentalists have adopted a Pigovian approach to the value of the environment while pro-growth forces have adopted a Coasean approach....”).

¹⁹¹ James C. Scott, *SEEING LIKE A STATE* (1998).

¹⁹² James C. Scott, *TWO CHEERS FOR ANARCHISM* (2012) (Distinguishing his approach from the Hayekian model). Scott, *SEEING LIKE A STATE*, *supra* note 191, at 8. Nonetheless, his work has been embraced by a number of market advocates. See, e.g., Tom Palmer, *Life on the Edge*, REASON (June 2010) (reviewing Scott’s *The Art of Not Being Governed*).

¹⁹³ Scott, *SEEING LIKE A STATE*, *supra* note 191, at 14-19.

was a brilliant stroke, but it was not without consequences. Peasant dwellings were subsequently designed or renovated with the formula in mind so as to have as few openings as possible. While the fiscal losses could be recouped by raising the tax per opening, the long-term effects on the health of the rural population lasted for more than a century.¹⁹⁴

More generally, Scott's primary narrative illustrates the lengths that the Southeast Asian hill peoples he studied went to avoid incorporation into states whose rulers wished to tax and conscript them.¹⁹⁵ Although Scott's story is not one of overburdened entrepreneurs heading for the hills to escape regulators, his approach includes a critical point that needs consideration in modern regulatory discussions: states choose rules based on what is best for the state, not based on what is best for "the people" or "society."¹⁹⁶ If citing Scott rather than Buchanan and Tullock and framing the discussion in terms of "seeing like a state" rather than "public choice" advances the consideration of this point, then this is a better avenue for persuasion for proponents of market-oriented solutions.¹⁹⁷ Because the adoption of a rule—by identifying what is important—changes the underlying society, we need to think carefully about the impact of regulations on society as part of analyzing how to regulate. Shifting the discussion to detailed accounts of how private rights holders and government employees both behave, moves the narrative to terrain at least open to market and property rights solutions. Doing so is not simple. Scott's book is based on deep knowledge of the societies he studies. We need equivalent efforts to develop anthropological accounts of how regulations work if we are to realistically and convincingly make arguments about how states "see" resource problems.

¹⁹⁴ *Id.* at 47-48.

¹⁹⁵ See Scott, TWO CHEERS FOR ANARCHISM, *supra* note 192 (Examining social and political interactions through the lens of Anarchism in order to understand the full spectrum of the human condition).

¹⁹⁶ Scott, SEEING LIKE A STATE, *supra* note 191, at n. 106.

¹⁹⁷ The point of public choice analysis pioneered by Buchanan and Tullock, *supra* note 187, which can be explained as politics without romance, is that actors in the political sector are presumed to maximize self-interests, just like actors in the for-profit sector. Rhetoric aside, we should not expect political actors to divine optimal solutions to problems because they respond to political market forces dominated by a host of special interests. These things are not bad, just a reflection of the reality of what is required to be successful in politics. Even in times of extreme national emergencies, "petty" politics dominates, as discussed in detail in Maury Klein, *A Call to Arms; Mobilizing America in World War II* (2013).

Solution 2: Focus on detailed accounts of alternative institutional regimes and incentives, not broad sweeping claims.

Narrative 2: Comparing institutions based on deep analysis of the incentives created by actual rules, not hypothetical claims.

C. *Rights Security: Funding Development and/or Preservation*

Development and preservation of resources are costly, in technology, opportunity costs, and institutions. These investments are often invisible to consumers, voters, and policy makers, yet are critical to making development or preservation occur.¹⁹⁸ Because these may be invisible investments to those outside the transactions, there appears to be little recognition of the circumstances necessary to induce the investments.¹⁹⁹ The narrative thus focuses on events that occur after a resource is developed. Energy companies are visible targets for consumer anger when prices rise or shortages occur.²⁰⁰ Similarly, former Secretary of the Interior

¹⁹⁸ See Anderson & Leal, *supra* note 111, at 3 (discussing need for “enviro-capitalists” who “invent new products, attract venture capital, contract with resource owners, and market their products.”).

¹⁹⁹ Casual observers, or even participants, of actions in the private and public sector are often profoundly ignorant of the details behind the structure of institutions and policies. Eugene Volokh, *The Mechanisms of the Slippery Slope*, 116 HARV. L. REV. 1026, 1076 (2003) (“But voters often lack the time and knowledge base needed to evaluate proposals on their merits. Rationally ignorant voters need a simple heuristic that they can use when evaluating uncertain empirical matters.”); Ilya Somin, *Political Ignorance and the Countermajoritarian Difficulty: A New Perspective on the Central Obsession of Constitutional Theory*, 89 IOWA L. REV. 1287, 1293 (2004) (“[L]ow levels of voter knowledge ... are in large part a result of ‘rational ignorance’ caused by the insignificance of any one vote to electoral outcomes.”). Attempts to deal with ignorance often fail. See, e.g., John P. Freeman, *The Mutual Fund Distribution Expense Mess*, 32 IOWA J. CORP. L. 739, 809 (2007) (“[T]he SEC’s approach to fund marketing ... have paved the way for industry marketing ploys calculated to exploit investor ignorance.”); Lynn A. Stout, *Are Takeover Premiums Really Premiums? Market Price, Fair Value, and Corporate Law*, 99 YALE L. J. 1235, 1257 (1990) (“Ignorance encourages greater divergence of investor opinion, allowing not just optimism, but wild optimism.”).

²⁰⁰ This is true of real property in general. Ronald A. Cass, *Property Rights Systems and the Rule of Law*, THE ELGAR COMPANION TO THE ECONOMICS OF PROPERTY RIGHTS 239 (Enrico Colombatto, ed., 2004) (“Because the owner cannot remove the property to another jurisdiction, local regulators can—subject only to the limits of political possibility—impose conditions up to the value of the improvement.”). Mining and oil extraction firms make large investments literally in the ground that cannot be moved so are even more vulnerable to exploitation.

Bruce Babbitt’s “giveaway” charge about the General Mining Law played on this post-discovery focus.

This is true even on the investment side. For example, there is often less sophistication among resources investors than many market advocates presume. For example, not only did the 1990s Bre-X gold mine fraud in Indonesia continue for years, but the principals of the company were named “Mining Engineers of the Year” by *The Northern Miner*—the “geologists’ bible”²⁰¹—while the fraud was underway.²⁰² Because *ex ante* investments are not part of the narrative, proponents of increased state involvement have often focused attention on controlling investment in resource development to add transparency to resource investments as a means of controlling *ex post* problems.²⁰³ Unsurprisingly, they pay relatively little attention to the opportunities for fraud or mal-investment on the conservation side.²⁰⁴ They also ignore the unknown opportunities foregone by dedicating valuable resources to preservation.

Changing the narrative to be more open to market and property rights solutions requires shifting away from portrayals of resource entities as robber barons and a greater focus on the complexity of resource development. Attention should be directed toward how many “dry holes” are drilled by private parties on the way to the discovery of a gusher. Recognition of the total amount invested to obtain a producing well or mine can change attitudes regarding what otherwise appears to be excessive revenues generated by gushers. Recognizing all costs incurred in the development of resources also can bring different expectations of what politically managed institutions might accomplish if given jurisdiction over resource development. Taking a broader perspective brings a more nuanced view of conservation investments, moving away from viewing them as always beneficial and paying more attention to their total cost and opportunities for fraud. The narratives markets and property rights advocates must challenge are deeply embedded in popular culture.

²⁰¹ Douglas Goold & Andrew Willis, *THE BRE-X FRAUD* 56 (1997).

²⁰² Brian Hutchinson, *FOOL’S GOLD* 205-06 (1998). Lest we snicker at the rubes in mining, remember that Bernie Madoff bamboozled many sophisticated investment professionals for years. Just as Madoff produced audited financial documents that showed good returns, the Bre-X fraud took place in a warehouse in Indonesia, using a top laboratory to test the salted samples as a distraction. People like things that are too good to be true.

²⁰³ See, e.g., *The Extractive Industries Transparency Initiative*, available at <https://eiti.org/> (promoting a “global standard for the good governance of oil, gas and mineral resources.”). See also Andreanna M. Truelove, *Oil, Diamonds, and Sunlight: Fostering Human Rights Through Transparency in Revenues from Natural Resources*, 35 *GEO. J. INT’L L.* 207 (2003).

²⁰⁴ See, e.g., Dana Joel Gattuso, *Conservation Easements: The Good, the Bad, and the Ugly*, NATIONAL POLICY ANALYSIS (May 2008), <http://www.nationalcenter.org/NPA569.html>.

Through pension funds and other vehicles many Americans are invested in resource and conservation vehicles,²⁰⁵ although few appreciate the scale of the investments needed to deliver products, energy, or services. Similarly, despite the widespread growth of conservation investments, from water resource funds to conservation easements, few appreciate the costs incurred to structure these. Neither of these facts are likely to change in the short term. Shifting the narrative likely requires something that operates at a deeper level.

Economist Deirdre McCloskey argues that the Industrial Revolution, or what she calls “the Great Enrichment,” was the result of changes in culture, which are revealed in words. “Free innovation led by the bourgeoisie became at last respectable in people’s words.”²⁰⁶ This shift in rhetoric constituted a revolution in how people viewed themselves and how they viewed the middle class, “the Bourgeois Revaluation. People have become tolerant of markets and innovation.”²⁰⁷ Combined with the freedom to innovate, dramatic innovations occurred. Recapturing that rhetoric for innovators in both property development and conservation is a necessary step to create space for innovation today as well. It requires recasting the story of development around enabling investment through secure rights.²⁰⁸ This is unfamiliar terrain for economists. It requires a focus on entrepreneurs working on resource problems and diving deeply into the challenges they face and overcome (or fail to overcome). Revisiting Joseph Schumpeter’s deeply detailed analyses of economic development provides one such lens through which to develop such narratives, but Schumpeter’s prose is dense and difficult.²⁰⁹

²⁰⁵ There is growing attention to strategic investing based on personal values, but the total is relatively small. Nicolas Pascal, *et al.*, *Impact Investment in Marine Conservation*, 28 DUKE ENV’T L. & POL’Y F. 199, 199 (2018) (“Impact Investors have invested over US \$8 billion since 2004 in food and agriculture, forestry, habitat protection, clean water initiatives, and other conservation projects.”).

²⁰⁶ Deirdre N. McCloskey, *BOURGEOIS DIGNITY: WHY ECONOMICS CAN’T EXPLAIN THE MODERN WORLD* 386 (2010).

²⁰⁷ *Id.* at 390.

²⁰⁸ This is challenging, as Hernando de Soto noted in *The Mystery of Capital* – the role of incorporating property rights in the formal legal system in development is not understood even by experts. de Soto, *supra* note 118, at 105 (“All the experts I queried, all the professionals associated with the myriad property-related institutions and agencies I visited admitted they had never thought about the question.”).

²⁰⁹ Joseph A. Schumpeter, *The Creative Response in Economic History*, *ESSAYS ON ENTREPRENEURS, INNOVATIONS, BUSINESS CYCLES, AND THE EVOLUTION OF CAPITALISM* 223 (Richard V. Clemence, ed., 2008 [1947]). *See also* Joseph A. Schumpeter, *Economic Theory and Entrepreneurial History*, *ESSAYS ON ENTREPRENEURS, INNOVATIONS, BUSINESS CYCLES, AND THE EVOLUTION OF CAPITALISM* 259 (Richard V. Clemence, ed., 2008 [1949]) (“entrepreneurship, as defined, essentially consists in doing things that are not generally

Solution 3: Invest in institutions that reduce transactions costs to lower the costs of developing and preserving resources.

Narrative 3: Focus on narratives that showcase the challenges and successes in overcoming those challenges in developing resources and finding new ways to conserve them.

D. *Providing Effective Public Institutions: Corruption*

Most people—including us—have little idea where the materials for most products we use come from or how they work. We thus have little sense of the cost of finding and producing the materials that make an iPhone, Tesla, Google Maps, or even a humble ball-point pen, work.²¹⁰ Often we do not like what we see when we look: a *Financial Times* column complained that “[b]ehind every clean electric car there is cobalt. And behind cobalt is the Democratic Republic of Congo,” then pointing out the human rights abuses and corruption rampant there.²¹¹

Corrupt autocrats with control of valuable resources appear remarkably resistant to pressure from outsiders.²¹² This is not too surprising given the scale of the rewards of corruption when there are valuable resources available to allocate—and there is significant demand for resources. Efforts to control corruption have focused on blocking accumulation and spending

done in the ordinary course of business routine” and so comes under “the wider aspect of leadership”).

²¹⁰ For an overview, see Nick Allum *et al.*, *Science Knowledge and Attitudes Across Cultures: A Meta-Analysis*, 17 PUBLIC UNDERSTANDING OF SCIENCE 1 (2008). Surveys find the public at odds with scientific consensus. See Brian Kennedy and Cary Funk, *Many Americans are skeptical about scientific research on climate and GM foods*, PEW RESEARCH CENTER (Dec. 5, 2016), <http://www.pewresearch.org/fact-tank/2016/12/05/many-americans-are-skeptical-about-scientific-research-on-climate-and-gm-foods/>. A disconnect in agriculture led Matt Ridley to forecast a shift in tastes against animal-based foods. Matt Ridley, *One day we will see that meat is murder*, THE TIMES (London, April 24, 2017).

²¹¹ David Pilling, *Clean electric cars are built on pollution in Congo*, FINANCIAL TIMES (July 26, 2017).

²¹² Bruce Bueno de Mesquita, Alastair Smith, Randolph M. Silversson, & James D. Morrow, THE LOGIC OF POLITICAL SURVIVAL 94-95 (2005) (When states are rich in natural resources such as oil, leaders do not have to rely on the economic activity of residents to provide the resources they need to reward their supporters as much as when such resources are absent. Without the need to hold in check their desire to expropriate income, leaders dependent on small winning coalitions can attempt to seize all of the pie. This has disastrous economic and social consequences, as witnessed by the experience in Nigeria and elsewhere. . . .”)

outside the allegedly corrupt jurisdictions themselves via pressure on multinational resource firms and financial institutions.²¹³ The narrative that justifies these measures focuses on the complicity of firms sensitive to both regulation and reputation, posing the choice as between virtuous public investment and corruption. Absent from the discourse is the failure of state institutions in the corrupt jurisdictions as well as the absence of property rights for resources in those jurisdictions. It may be that Swiss bankers look the other way when Congolese government officials open large accounts for family members,²¹⁴ but those payments would never occur without the failings of the Congolese state that allow a clique to reap the benefits of the resource wealth of the country.²¹⁵ Advocates for property rights solutions are less vocal about corruption than those suggesting state control as a solution. If the narrative is going to shift, market and property rights advocates must confront corruption issues directly and focus attention on the institutional causes of corruption within jurisdictions, not just on the proceeds of corruption.

The narrative cannot be solely built around narratives of corruption, for it must disrupt the baseline of a competent state to create a debate with a realistic appraisal of the capacity of governments to cope with the challenges presented by resources. Good governance is a public good. It is difficult to create and provide and is resource intensive. As Paul Rubin noted in his assessment of how to reform post-Communist legal systems, focusing scarce resources on the most pressing problems is critical.²¹⁶

Because resources are so valuable—whether cobalt or Mineral King—political allocation creates opportunities for corruption that must be addressed on both the demand and supply sides. Here economists have an

²¹³ Parker & Vadheim, *supra* note 44, at 2.

²¹⁴ Illegal cash flows out of African countries may be \$50 billion a year. Economic Commission for Africa, *High Level Panel on Illicit Financial Flows*, UNITED NATIONS (2018), <https://www.uneca.org/iff>. See also Peter Fabricius, *Swiss Bankers swear they are trying to help Africa get its dirty money back* QUARTZ (Jun. 13, 2016), <https://qz.com/africa/705509/swiss-bankers-swear-they-are-trying-to-help-africa-get-its-dirty-money-back/>.

²¹⁵ The Republic of Congo is ranked 165th most corrupt in the world, Transparency International, (last visited Apr. 19, 2021), <https://www.transparency.org/en/countries/republic-of-the-congo>, while the Democratic Republic of Congo is ranked 170th most corrupt in the world. Transparency International, <https://www.transparency.org/en/countries/democratic-republic-of-the-congo> (last visited Apr. 19, 2021); The popular press notes the depth of the problem. Yomi Kazeem, *Two investigations into corruption in resource-rich DR Congo shows why it stays so poor*, QUARTZ (Jul. 26, 2017), <https://qz.com/africa/1038143/two-investigations-into-corruption-in-resource-rich-dr-congo-show-why-it-stays-so-poor/>.

²¹⁶ Paul H. Rubin, *Growing a Legal System in the Post-Communist Economies*, 27 CORNELL INT'L L. J. 1, 10-11 (1994).

array of tools to contribute to the debate. The economics literature is filled with articles examining alternative ways to allocate valuable resources, from designing auctions to writing contracts.²¹⁷ Finding transparent means of resource allocation, combined with initiatives such as mineral royalty funds to help reduce the opportunities for corruption in distribution of the rewards, could be a useful contribution. Providing statistical studies that demonstrate the existence of corruption—as with the Ziobrowski, *et al.*, study on insider trading in the U.S. Congress²¹⁸—can, at least, help identify areas for reform. Most importantly, by clarifying the pressure point as the allocation of valuable resources, economics can help shift the narrative towards finding a solution.

Solution 4: Focus attention on corrupt jurisdictions and tie corruption in resources to the lack of protection for personal rights, including property rights.

Narrative 4: Instead of a focus on how much a particular autocrat deposits in his foreign bank account or the property the autocrat’s family buys externally, develop accounts of how creating discretionary authority within weak states facilitates corruption.

E. *Conflict Resolution: Interference with Others’ Rights*

As noted earlier, part of the debate over rights’ interference are disputes over *whose* rights get counted. Here, the state-oriented solutions seem to have a clear advantage: they offer everyone (or, at least, those in the majority) a chance to have their “rights” counted in resource decisions involving other people’s property. Of course, having a voice heard when political approaches are taken in the management of resources does not preclude wayward outcomes from developing when the fine print of resulting regulations are written. Special interest demand for politically-determined benefits generally influences the fine print while those who hoped to place resource development on what they see as a higher plane may unwittingly celebrate the outcome. Even so, exercising political rights

²¹⁷ See, e.g., Elizabeth Wall & Remi Pelon, *Sharing Mining Benefits in Developing Countries: The Experience with Foundations, Trusts and Funds*, (World Bank Working Paper, Executive Industries for Development Series No. 62498, 2011).

²¹⁸ Alan J. Ziobrowski, Ping Cheng, James W. Boyd, & Brigitte J. Ziobrowski, *Abnormal Returns from the Common Stock Investments of the U.S. Senate*, 39 J. FINANCIAL & QUANT. ANAL. 661, 662 (2004) (“the behavior of common stocks purchased and sold by Senators indicates that Senators trade with a substantial informational advantage.”).

comes at low or no direct cost, as the state stands in for them. The challenge for proponents of property rights solutions is to persuade the public and policymakers who respond to voters that inclusion of additional rights holders is not the costless decision it appears to be. Regardless of whose interests are ultimately recognized as rights, and so “counted,” resource use decisions will inevitably involve the just-described fine-print problem as well as conflicts over these rights. This requires a decision-making process, including a way to use the resolution to further develop relevant rules.

How best to develop a framework of rules fair to all concerned to decide disputes in a cost-effective manner, particularly with respect to assets that are fixed in location and valuable (e.g. spots of great natural beauty, mineral deposits)? The state-centric solution has been to put a government agency in charge. The problems with that—from Nevada Territory to the Congo today—are evident, but property rights solutions have tended to fall back on wishful thinking (“the World Bank will help”) or into the “assume a can opener” model.²¹⁹ Fortunately, there are some insights. Simple, general rules avoid many problems;²²⁰ gradual development of legal frameworks are helpful;²²¹ and jurisdictional competition can promote quality rules and processes.²²² These ideas are not routinely part of standard narratives.

Changing the narrative requires two complementary strategies. First, there needs to be a conversation about the advantages market and property rights solutions have in resolving these issues and the conditions necessary to make them work. The core problem for these narratives is that nobody “wins” 100 percent of the disputes. (Of course, no one “wins” all of the political disputes over resource allocation either, but that gets talked about less and losses are generally attributed to the malign influence of money or despicable opponents and so require redoubled efforts rather than a

²¹⁹ A reference to a classic economist joke:

A physicist, an engineer and an economist are stranded in the desert. They are hungry. Suddenly, they find a can of corn. They want to open it, but how?

The physicist says: “Let’s start a fire and place the can inside the flames. It will explode and then we will all be able to eat”.

“Are you crazy?” says the engineer. “All the corn will burn and scatter, and we’ll have nothing. We should use a metal wire, attach it to a base, push it and crack the can open.”

“Both of you are wrong!” states the economist. “Where the hell do we find a metal wire in the desert?! The solution is simple: ASSUME we have a can opener”...

Oleg Komlik, *The Joke Goes Like This*, Econ. Socio. & Pol. Econ. Blog, (Dec. 27, 2014), <https://tinyurl.com/y84ypkq>

²²⁰ See, e.g., Richard A. Epstein, *SIMPLE RULES FOR A COMPLEX WORLD* (1995).

²²¹ Rubin, *supra* note 216.

²²² See Erin O’Hara & Larry E. Ribstein, *THE LAW MARKET* (2009).

different approach.) Property rights solutions handle disputed terrain better than political solutions precisely because they are good at finding compromises, but compromises are messy and unattractive. While economists have been good at describing the abstract virtues of market and property rights solutions, they have done less well at developing narratives that focus on how those institutions help resolve disputes.²²³ Economists often treat institutions, including businesses, as black boxes that magically produce certain results.

Second, there needs to be a shift away from the idea that leaving property rights owners alone to make decisions misses important social costs. Economics textbooks often reinforce the mistaken idea that there is an externality under every rock, just waiting for the benevolent, all-seeing social planner to step in to resolve the problem with the optimal subsidy or tax or cap.²²⁴ That works well in a partial equilibrium analysis in a textbook but works less well in the real world of political economy. Social costs are notoriously hard to define, as the debate over the social cost of something as important as carbon illustrates.²²⁵ Merely pointing this out is not enough.

²²³ In his working paper, Robert J. Shiller observes that “economics has lagged behind most other disciplines in attending to the importance of narratives.” Shiller, *supra* note 2, at 12. And that “most economists appear [not] interested in using the enormous databases of written words that they might work with to study narratives.” Shiller, *supra* note 2, at 13).

²²⁴ See Boudreaux & Meiners, *supra* note 190. Almost every economics textbook discusses externalities, even at the principles level. A text by leading economists at Chicago, Harvard and MIT is standard: “An externality occurs when there is a spillover from one person’s actions to a bystander. . . . In this chapter, we will see that in the case of externalities, governments can enact policies to push market outcomes toward a greater level of social wellbeing.” Daron Acemoglu, et al., MICROECONOMICS 199 (2015).

²²⁵ Estimates of the social costs of carbon vary widely. See Michael Greenstone, Testimony to House Committee on Science, Space and Technology, Subcommittee on Environment, Subcommittee on Oversight (Feb. 28, 2017). Some argue, mistakenly in our view, that any “reasonable” positive price of carbon would be an improvement over an implicit price of \$0 set by a failure to regulate. Ever since Lipsey and Lancaster’s classic article on second best theory, the inability to predict a welfare improvement based on ‘fixing’ a single distortion in a market has been both well-established and resolutely ignored by policymakers, academics, and economists generally. The key insight is that some market imperfections offset others; removing a single imperfection may move society closer to the socially optimal equilibrium or may move it further away. See R.G. Lipsey and R.K. Lancaster, *The General Theory of Second Best*, 63 REV. ECON. STUD. 11 (1956). Efforts to improve academic analysis have been mostly unsuccessful. For example, Prof. Richard Markovits has diligently prodded the economics profession to develop a theoretically coherent analytical framework for coping with second best problems for many years. See Richard S. Markovits, *The General Theory of Second Best and Economic-Efficiency Analysis: The Theory, Its Negative Corollaries, the Appropriate Response to It, and a Coda on the Economic Efficiency of Reducing Poverty and Income/Wealth Inequality*, 49 AKRON L. REV. 437 (2016). See also Andrew P. Morriss, *Implications of Second-Best Theory for Administrative and Regulatory Law: A Case Study of Public Utility Regulation*, 73 CHI.-KENT L. REV. 135 (1998).

What the narrative market and property rights advocates need is one that uncovers how institutions can unlock creative solutions to such conflicts. Designing water rights contracts that divert irrigation water to in-stream flows during droughts while tapping insurance markets to compensate farmers whose crops suffer is an example of one such solution.²²⁶ In the arid West, this was sometimes accomplished by way of mutual irrigation companies organized and owned by landowners who wished to provide effective management of irrigation water.²²⁷ Giving recognition to the fact that the creative development of green investment and credit market investor portfolios that require environmentally sensitive changes in corporate and government behavior enables occurrence of invisible markets for environmental quality is another example.²²⁸

Solution 5: Focus on examples of creative, entrepreneurial solutions rather than broad, theoretical claims about incentives. Pay attention to failures of political institutions that derail accomplishment of goals.

Narrative 5: Attempt to shift the discussion away from “sky is falling” claims to focus on building antifragile institutions that adapt to changing circumstances.

F. *External Impacts: Resource Curses*

When economists and others cannot even agree if such a thing as a resource curse exists, it may be premature to think about solving it. However, the narrative of the resource curse is an important part of the debate over the role of the state for three reasons. First, resource curse stories cast governments as victims of forces beyond their control—they are “cursed” with resources that somehow prevent them from doing

²²⁶ This market is actively evolving. For example, the firm WestWater has pioneered innovative water contracts. See Westwater Research, www.waterexchange.com (last visited Apr. 20, 2021). See also Tatyand Deryugina & Megan Konar, *Impacts of Crop Insurance on Water Withdrawals for Irrigation*, 10 ADVANCES IN WATER RESOURCES 437 (2017) (discussing the impact of insurance on water usage).

²²⁷ See Randy T. Simmons, *Yandle, Coase, Pigou and Irrigation in the American West*, The Legacy of Bruce Yandle 108-112 (Donald J. Boudreaux & Roger E. Meinert eds., 2020).

²²⁸ See generally Bruce Yandle, *Will Free Markets Rise to Meet the Environmental Regulation Challenge?* 44 REGULATION 8 (2020) (Arguing that climate change is seen as the most serious long-term threat to our world which has caused sustainability-linked loans to rapidly increase thus pushing the environmental movement towards a market driven approach).

creative things to stimulate growth.²²⁹ The story then becomes that rapacious companies seek advantageous contracts.²³⁰ In so doing, these narratives reduce accountability and deflect conversations from comparative strengths and weaknesses of different institutions. Second, resource curse narratives are premised on the notion that there is an ideal path to development; the presence of the resources distorts a jurisdiction from that path.²³¹ If development is part of a discovery process in which jurisdictions must find their competitive and comparative advantages, this is a distraction.²³² Third, while the resource curse literature focuses attention on the impact on state institutions, it generally does not consider the alternative of shifting resource decisions to private actors and the benefits of doing so.²³³

²²⁹ See Jeffrey A. Frankel, *The Natural Resource Curse: A Survey*, (Nat'l Bureau of Econ. Research, Working Paper 15836, 2010), <http://www.nber.org/papers/w15836> (overview); Tomas Havranek, Roman Horvath, & Ayaz Zeynalov, *Natural Resources and Economic Growth: A Meta-Analysis*, 88 *WORLD DEV.* 134 (2016); Norman Loayza, Alfredo Mier y Teran, & Jamele Rigolini, *Poverty, Inequality, and the Local Natural Resource Curse*, (World Bank, Policy Research Working Paper No. 6366, 2013), <http://documents.worldbank.org/curated/en/783851468170967093/Poverty-inequality-and-the-local-natural-resource-curse> (discussing how mining activity worsens inequality and increases social discontent).

²³⁰ Henry Clark et al., *Oil For Nothing: Multinational Corporations, Environmental Destruction, Death and Impunity in the Niger Delta* (2000), https://www.essentialaction.org/shell/Final_Report.pdf (“The profit-driven collusion between multinational oil companies and the past and present Nigerian governments has cost many lives and continues to threaten the stability of the region.”). In many instances the companies are governments operating through state-owned enterprises. China has been especially aggressive in structuring deals that allow it to seize assets. See Maria Abi-Habib, *How China Got Sri Lanka to Cough Up a Port*, *N.Y. TIMES*, Jun. 25, 2018), <https://www.nytimes.com/2018/06/25/world/asia/china-sri-lanka-port.html>.

²³¹ Carlos A. Leite & Jens Weidman, *Does Mother Nature Corrupt?* 8-9 (Int'l Monetary Fund, Working Paper No. 99/85, (1999), <https://www.imf.org/en/Publications/WP/Issues/2016/12/30/Does-Mother-Nature-Corrupt-Natural-Resources-Corruption-and-Economic-Growth-3126>.

²³² Michael E. Porter, *THE COMPETITIVE ADVANTAGE OF NATIONS* 1 (1998) (“We must focus on ... why does a nation become the home base for successful international competitors in an industry?”).

²³³ Proposed solutions to the resource curse frequently suggest the creation of alternative government control mechanisms, such as marketing boards, higher taxes during boom times, government stockpiles of commodities, and other strategies to limit the ill effects of existing government control of resources. See Int'l Monetary Fund, *Fiscal Policy Formulation and Implementation in Oil-Producing Countries* (Jeffrey Davis, Rolando Ossowski, & Annalisa Fedelino, eds., 2003); Jeffrey Sachs, *How to Handle the Macroeconomics of Oil Wealth*, *ESCAPING THE RESOURCE CURSE* 172 (Macartan Humphreys, Jeffrey Sachs, & Joseph Stiglitz, eds., 2007).

Changing the narrative here requires recovering one of de Soto's "missing lessons of U.S. history."²³⁴ The United States underwent spectacular commodity booms during the nineteenth century. Its experiences with problems during the first round of booms involving lead deposits informed its decision to avoid state claims on resources in the second half of the nineteenth century.²³⁵ Where there were identifiable resource curse-like impacts, they occurred in territorial governments where institutions were weaker. When strong institutions were present, the resource curse effects we observe today were largely absent. This is consistent with political scientist Victor Menaldo's analysis; he argues that it is more appropriate to talk of an "institutions curse" than a "resource curse".²³⁶ Building strong, decentralized institutions is thus a powerful means of addressing these problems. Compelling narratives can play a strong role in attracting interest to non-traditional views.

Recovering the narrative of past success and focusing on institutions is an opportunity to shift the discussion towards finding appropriate solutions, an arena where we think property rights and markets can play a constructive role. To make that shift, economists should move their arguments away from the resource curse framework and focus on the, admittedly harder, discussion of appropriate institutional design. Developing detailed case studies of how institutions function is an important step in beginning that discussion.²³⁷

One of the most compelling narratives arises from the degradation of indigenous peoples in many nations. The history of Native Americans in the United States is one of long abuse as people were slaughtered, driven from their lands, and warehoused on lands generally considered to be undesirable, called reservations. Many indigenous people are treated as if they are colonial subjects. They do not enjoy the kinds of secure property rights key to the development of wealth. Projects such as Renewing Indigenous Economies bring together powerful narratives and practical recommendations for developing conditions to allow these peoples to

²³⁴ de Soto, *supra* note 118, at 105.

²³⁵ Morriss et al., *Homesteading Rock*, *supra* note 58, at 259-60.

²³⁶ See Menaldo, *supra* note 152 (Arguing that natural resources, especially oil, are not a cure and in fact assist in improving the quality of political and economic institutions, which in turn, strengthen state, democracy and the rule of law).

²³⁷ People are creative at solving problems. In Bolivia, tree harvesting in Los Negros Valley was destroying a watershed that downstream farmers relied upon. Natura Bolivia, headed by Maria Theresa Vargas, stepped in to pay farmers to protect the trees by giving them beehives. They used honey from the hives to pay upstream land users to not harvest trees. The costs of the program are low and those involved on both sides of the issue benefit from the resolution. Hannah Downey, *Trading for Water in Bolivia*, 34 PERC REPORTS 2 (2015), <https://www.perc.org/2015/11/24/trading-for-water-in-bolivia/>.

restore their dignity, culture, and make use of *their* resources as *they* see best.²³⁸

Solution 6: ‘Solve’ the resource curse by shifting resources away from states and toward private actors and adopting mechanisms to smooth revenue flows to states from resources.

Narrative 6: Abandon the “curse” narrative and focus on building institutions capable of handling the wealth flowing from resources.

CONCLUSION

We proposed six classes of resources problems for which market-and-property-rights-based methods offer potential solutions as well as some thoughts on ways to change the narrative to bring these into the discussion. These are set out in the following table.

	Problem	Solution	Narrative
1	An economic actor (individual, firm) invests resources to locate a valuable resource (place of natural beauty, critical habitat, mineral deposit, etc.). Without investment, the resource would not be discovered or developed.	Awarding property rights to the party that develops the knowledge that identifies a resource incentivizes increases in such knowledge.	Focus on links between investment that produces knowledge and rewards.
2	The owner of a resource has a choice between two uses, one of which preserves more	Focus on detailed accounts of alternative institutional regimes and incentives, not	Comparing institutions based on deep analysis of

²³⁸ See Terry L. Anderson, *Renewing Indigenous Economies*, <https://www.policyed.org/indigenous-econ> (last visited, Apr. 20, 2021).

	<p>‘natural’ aspects of the area containing the resource than the other. Others seek to assert an interest in the decision. Which interests have a right to a say in the resolution?</p>	<p>broad sweeping claims.</p>	<p>the incentives created by actual rules, not hypothetical claims.</p>
3	<p>A resource owner decides between a development or conservation use that requires capital to accomplish. The owner must account for the constraints imposed by the funding mechanism. For development, investors must be compensated for risks; for conservation, investors must receive monetary and/or non-monetary returns that can impact the form of the investment.</p>	<p>Invest in institutions that reduce transactions costs to lower the costs of developing and preserving resources.</p>	<p>Focus on narratives that showcase the challenges and successes in overcoming those challenges in developing resources and finding new ways to conserve them.</p>
4	<p>A resource owner seeks to implement a conservation or development plan that requires public or private approvals from a public or private organization. Securing the approvals requires</p>	<p>Focus attention on corrupt jurisdictions and tie corruption in resources to the lack of protection for personal rights, including property rights.</p>	<p>Instead of a focus on how much a particular autocrat deposits in his foreign bank account or the property the autocrat’s family buys externally, develop accounts of</p>

	action by a bureaucracy. The bureaucracy demands favors in exchange for granting the approvals.		how creating discretionary authority within weak states facilitates corruption.
5	A resource owner seeks to use a resource (a conservation or development use). A party alleging it is affected by the decision seeks to require its interests to be taken into account. Institutional solutions need to avoid creating fragility.	Focus on examples of creative, entrepreneurial solutions rather than broad, theoretical claims about incentives. Pay attention to failures of political institutions that derail accomplishment of goals.	Attempt to shift the discussion away from “sky is falling” claims to focus on building antifragile institutions that adapt to changing circumstances.
6	Entrepreneurs and investors in a resource-rich economy choose between investments in extractive industries (and investments within those industries) and other investments. Poor institutions bias choices toward rapid exploitation of resources.	“Solve” the resource curse by shifting resources away from states and toward private actors and adopting mechanisms to smooth revenue flows to states from resources.	Abandon the “curse” narrative and focus on building institutions capable of handling the wealth flowing from resources.

These classifications do not resolve a debate that has been long running about the benefits and weaknesses of alternative property regimes. They point in the direction that advocates of market-based and property-rights solutions need to move if we are to have more influence in the debates

about natural resources and environmental issues. Prof. Epstein's account of the dramatic change in how whales are viewed and the consequences for policy toward whaling illustrates the potential and the danger present here for all sides. As Epstein demonstrates, the rhetorical shift in whaling discourse dramatically changed the debate over whaling. Captain Ahab characters went from heroic if tragic to villains; whales morphed from frightening "sea cannibals" (portrayed as such as late as the 1950s) to cuddly "sea pandas."²³⁹ Epstein's story is not a simple one of virtue triumphant, however. Whaling discourse became a means of virtue signaling, international regulation of whales a contested political terrain that ignores important differences among whale species, and the narrative is often dismissive of indigenous traditions built around whaling.²⁴⁰

Rather than replicating the evolution of whaling discourse, we advocate more open dialogue. Sometimes markets and property rights solutions are best. Sometimes they are not.²⁴¹ The same is true of state-centric solutions. What is necessary is a discourse with room for dialogue; thus far, the market-and-property-rights side has failed in finding the right words. What is to be done? Broadly speaking, we think there are three steps "our side" can take to broaden the discussion to include the ideas we believe can help address important problems concerning natural resources. Of course, these steps will not make instant converts or lead to "dogs and cats living together."²⁴² They might produce incremental progress, however.

- Develop more well-researched historical and current case studies that include real people solving real problems, often imperfectly, through markets and property rights.²⁴³ Scott's work should inspire economists to attempt similar studies.
- Use stories that convey the insights of theoretical and empirical work to compliment the models and statistics. As

²³⁹ Epstein, *supra* note 4, at 89.

²⁴⁰ *Id.* at 212 (virtue signaling), *Id.* at 205-6 (population differences); Rupa Gupta, *Indigenous Peoples and the International Environmental Community: Accommodating Claims Through a Cooperative Legal Process*, 74 N.Y.U. L. REV. 1741 (1999) (describing conflict over indigenous claims to whaling rights).

²⁴¹ We, and like-minded colleagues, have thought hard about a market solution to the problem of greenhouse gasses and have come to the conclusion that if they should be reduced it will be through government regulation and taxes. Economists can discuss the merits of alternative government actions, but have not devised a pure market "solution."

²⁴² *Ghostbusters* (RCA/Columbia Pictures 1984). In our context, the incompatible pairing might be deep ecologists and economists.

²⁴³ See Anderson, *supra* note 238 (exemplifying novel work in the area).

McCloskey notes, economists are terrible at story telling. Often academic legal writing (including our own) is little better, which is ironic given that practicing lawyers are often master storytellers. We should not stop the hard work of developing theoretical and empirical insights, but we have to communicate results in language outsiders can understand.

- Pay attention to culture. The late Andrew Breitbart's mantra that politics was downstream of culture is a pithier version of a similar idea in the Italian Marxist Antonio Gramsci's work.²⁴⁴ If right and left agree culture is important, it seems obvious that unless our ideas are part of the cultural narrative, our ideas will not be part of the solution.

Lou Cannon is a reporter who covered Ronald Reagan for over three decades. Cannon said Reagan was “the first (and some would say only) nationally popular conservative leader in American history,” who “had a gift for narrative, and the famous stories he told to make his points with audiences were also his way of explaining to himself how the world worked.”²⁴⁵ In addition to Ronald Reagan's story-telling abilities, he had the ability to show respect for those who disagreed with him. He listened well. Too often, we fear, those in the law and economics camp appear to be so convinced that they have a pipeline to the divine that they are literally unable to demonstrate graceful and honest consideration of a competing narrative. As we see it, narrative competition is not a stock car race where winners and losers will be defined by who crosses the finish line first. Narrative competition is about ongoing conversations where, ultimately, society determines the dominant story. This determination may appear in novels, news coverage, or in political speeches. Narratives are more than marketing, discourse more than wrapping paper around ideas. Ultimately, however, the world is a practical place. Narratives that prevail must be about policies that will work effectively and competitively. The lessons we pass to our children are about things that enable a more prosperous life. We think there is more to be gained from a broader conversation than from talking to ourselves. We need to find better words.

²⁴⁴ See Andrew Breitbart, *RIGHTEOUS INDIGNATION: EXCUSE ME WHILE I SAVE THE WORLD* 112 (2011).

²⁴⁵ Lou Cannon, *GOVERNOR REAGAN: HIS RISE TO POWER* 116-118 (2003).