

2015

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Ann M. Eisenberg

University of South Carolina - Columbia, ameisen@law.sc.edu

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Recommended Citation

Ann M. Eisenberg, *Beyond Science and Hysteria: Reality and Perceptions of Environmental Justice Concerns Surrounding Marcellus and Utica Shale Gas Development*, 77 *University of Pittsburgh Law Review* 183 (2015).

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BEYOND SCIENCE AND HYSTERIA: REALITY AND PERCEPTIONS OF ENVIRONMENTAL JUSTICE CONCERNS SURROUNDING MARCELLUS AND UTICA SHALE GAS DEVELOPMENT

Ann M. Eisenberg*

ABSTRACT

The debate surrounding the use of hydraulic fracturing (also known as “fracking” or “HF”) to extract natural gas from the Marcellus and Utica Shale deposits is often characterized as a tension between economic development and environmental risks. However, frequently missing from this dichotomy is the fact that the concerns of many who oppose HF use extend beyond the purely “environmental,” and include concerns about issues such as “the natural resource curse” and losing autonomy. These concerns ring of “environmental justice” rather than “environmentalism.” Environmental justice espouses the belief that no group should bear disproportionate environmental consequences resulting from industrial activity, and that people affected by industrial activity should be meaningfully involved in implementation. Although some federal and state policies acknowledge principles of environmental justice, it has yet to be meaningfully incorporated into any legal framework in the United States.

This Article argues that a nuanced characterization of the HF controversy should include a more robust discussion of both environmental justice and discourse in order to account for the inordinate burden residents of Appalachia have historically borne in fossil fuel production. Part I examines relevant regional

* LL.M. Fellow in Energy and Sustainable Development Law, West Virginia University College of Law. The author would like to thank colleagues at WVU, friends, and family for their helpful comments on this Article. Special thanks to Patrick McGinley for his insights and contributions in shaping the Article’s direction, and to Josh Fershee for his support. The views expressed here are the author’s alone.

economic and social dynamics, including the natural resource curse, Appalachia's unique vulnerabilities, efforts to portray opponents of shale gas development as "anti-science," and the environmental justice movement's relationship to extractive industries. Part II reviews the use of modern HF technology and applicable legal frameworks in West Virginia, Pennsylvania, Ohio, and New York. Part III argues that across Ohio, Pennsylvania, and West Virginia, environmental justice issues have arisen from shale gas development, including problems stemming from information asymmetries, power asymmetries, and limited access to justice. In Part IV, the Article argues that the "anti-science" portrayal of shale gas opponents is unjustified, and that such "discourse-framing" obfuscates the actual costs and limitations on benefits of HF use, and thus, becomes an environmental justice issue itself. Part IV also argues that environmental justice concerns shaped public sentiment in New York, and that the resulting "moral outrage" added to New York's policy decision to ban HF altogether. In Part V, the Article suggests that ideas which transcend the study of "moral outrage," risk assessment, and environmental justice advocacy may offer a way forward.

INTRODUCTION

Ever since recent refinements have made large volumes of natural gas newly accessible,¹ hydraulic fracturing, also known as “fracking,” “hydrofracturing,” or “HF”²—a process used to extract oil and natural gas from shale deposits—has been a lightning rod for the nation’s conversation on energy. Supporters view HF use as the key to “our energy future,”³ while opponents see it as a burgeoning threat.⁴ Although issues such as energy independence arise at the broadest level of conversation, as to the localized costs and benefits of shale gas development, the mainstream to-frack-or-not-to-frack dialogue has focused primarily on tensions between economic development and environmental risks.⁵ While proponents point to the mostly economic advantages of HF use, citing cheaper fuel and job opportunities,⁶ opponents point to environmental threats as a reason either to

¹ David B. Spence, *Responsible Shale Gas Production: Moral Outrage vs. Cool Analysis*, 25 FORDHAM ENVTL. L. REV. 141, 141–42 (2013).

² All of these terms are used interchangeably to refer to hydraulic fracturing. See *Introduction to Hydraulic Fracturing*, U.S. GEOLOGICAL SURV., http://www.usgs.gov/hydraulic_fracturing/ (last visited Sept. 24, 2015). In the interest of using the shortest, most politically neutral term, this Article will use “HF” as its default, but the other terms are considered synonymous and are used throughout as well.

³ E.g., Monika Ehrman, *The Next Great Compromise: A Comprehensive Response to Opposition Against Shale Gas Development Using Hydraulic Fracturing in the United States*, 46 TEX. TECH L. REV. 423, 427 (2014).

⁴ See *id.* at 434 (“Shale gas appears to be a panacea for the country’s energy demands.”); Joshua P. Fershee, *Facts, Fiction, and Perception in Hydraulic Fracturing: Illuminating Act 13 and Robinson Township v. Commonwealth of Pennsylvania*, 116 W. VA. L. REV. 819, 820–22 (2014); Alyssa W. Kovach, Note, *Fracking Wars: Severance Tax, the Solution that Makes Sense*, 32 TEMP. J. SCI. TECH. & ENVTL. L. 317, 317–18 (2013) (“[D]epending on one’s individual and perhaps political perspective, drilling for natural gas in Pennsylvania may generate thoughts of regional economic development, personal wealth[,] and energy independence or images of polluted waters and fractured landscapes.”); Mark Gongloff, *How the New York Times Overhyped the Benefits of Fracking*, HUFFINGTON POST, Sept. 12, 2014, http://www.huffingtonpost.com/2014/09/11/ohio-fracking-job-boom_n_5804676.html; Amy Myers Jaffe, *Shale Gas Will Rock the World*, WALL ST. J., May 10, 2010, <http://www.wsj.com/articles/SB10001424052702303491304575187880596301668> (predicting that shale gas will “revolutionize the industry—and change the world”).

⁵ See, e.g., Fershee, *supra* note 4, at 820–22; Derrick Howard, *Hydraulic Fracturing in the Appalachian Basin: Incorporating Environmental Justice to Regulate Natural Resource Exploration*, 7 APPALACHIAN NAT. RESOURCES L.J. 113, 114 (2012–2013).

⁶ Kovach, *supra* note 4, at 317.

proceed with caution or to ban HF entirely.⁷ Thus, the public debate is often characterized in media, literature, and legal scholarship as pitting jobs and cheap energy against protection of water resources and the environment—in effect, a debate of environment versus economy.⁸

However, the public and legal academic discourse, and the characterization of the discourse, surrounding the use of HF in the Marcellus and Utica Shale region are often too narrowly focused. Namely, the environment-economy dichotomy discounts other significant aspects of the issue. For instance, in New York State, where a ban on HF was imposed in 2014 after a more than five-year *de facto* moratorium,⁹ a more informal discourse among HF's critics shows that opposition has been driven by more than physical, environmental concerns. Critics' reasons for their opposition include concerns about losing local decision-making power over land use,¹⁰ "corporate secrecy and greed" that fuels a "drill first, ask questions later" approach,¹¹ "boom-bust" cycle risks,¹² and so-called "fracking tricks" and

⁷ Adam Garnezy, Note, *Balancing Hydraulic Fracturing's Environmental and Economic Impacts: The Need for a Comprehensive Federal Baseline and the Provision of Local Rights*, 23 DUKE ENVTL. L. & POL'Y F. 405, 406 (2013).

⁸ Fershee, *supra* note 4, at 821–22; Rebecca Lave & Brian Lutz, *Hydraulic Fracturing: A Critical Physical Geography Review*, 8 GEOGRAPHY COMPASS 739, 742 (2014) (discussing water and air pollution as main focus of both scientific and public debate); Kovach, *supra* note 4, at 322–23 (discussing water and air pollution as HF opponents' main concerns); Brendan Seibel, *Powerful Photos Go Deep Inside America's Fracking Boom*, WIRED (Jan. 22, 2014), <http://www.wired.com/2014/01/marcellus-shale-documentary-project/>. *But see* Jeffrey B. Jacquet, *Landowner Attitudes toward Natural Gas and Wind Farm Development in Northern Pennsylvania*, 50 ENERGY POL'Y 677, 679 (2012) (stating that fracking debate is framed as "haves" versus "have-nots," i.e., those landowners who stand to benefit directly from fracking leases and royalties versus those who will not receive those benefits); Emily C. Powers, *Fracking and Federalism: Support for an Adaptive Approach that Avoids the Tragedy of the Regulatory Commons*, 19 J.L. & POL'Y 913, 918 (2011); Mark T. Wilhelm, "All" Is Not Everything: *The Pennsylvania Supreme Court's Restriction of Natural Gas Conveyances in Butler v. Charles Powers Estate ex rel. Warren*, 59 VILL. L. REV. 375, 377 (2014).

⁹ See Thomas Kaplan & Jesse McKinley, *Citing Health Risks, Cuomo Bans Fracking in New York State*, N.Y. TIMES, Dec. 18, 2014, http://www.nytimes.com/2014/12/18/nyregion/cuomo-to-ban-fracking-in-new-york-state-citing-health-risks.html?_r=0; *New York Bans Fracking Over "Significant Health Risks"*, BBC (Dec. 17, 2014), <http://www.bbc.com/news/business-30525540>.

¹⁰ *No Fracking Way!*, COMMUNITY ENVTL. DEF. COUNCIL INC., <http://www.cedclaw.org> (last visited Sept. 24, 2015); Jeff Stein, *Big Win for Dryden Officials as Top Court Approves Fracking Bans*, ITHACA VOICE (June 30, 2014), <http://ithacavoices.com/2014/06/big-win-dryden-officials-top-court-approves-fracking-bans>.

¹¹ Howard, *supra* note 5, at 139.

¹² Sarah Ferguson, *Fracktivists Boo Obama Upstate*, VILLAGER (Sept. 5, 2013), <http://thevillager.com/2013/09/05/fracktivists-boo-obama-upstate/>; Margaret McCasland, *What Do Friends Need to Know*

“bullying” by the industry in the form of companies pressuring landowners and manipulating political processes.¹³ These less-discussed concerns raised by HF’s opponents relate to perceptions of power disparities, industry misconduct or exploitation, and adverse economic consequences of shale gas extraction. Although these issues relate to the physical landscape indirectly, they also reflect more complex and far-reaching worries about social aspects of how the land is ultimately managed and who bears the costs or reaps the benefits of shale gas development.¹⁴

Many of these issues evoke principles of environmental justice. Environmental justice is defined as “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations[,] and policies.”¹⁵ “Fair treatment,” in turn, “means that no group . . . should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal[,] and commercial operations or the execution of . . . policies.”¹⁶ Although left out of narrow environment-economy rhetoric,

about Fracking?, ITHACA MONTHLY MEETING RELIGIOUS SOC’Y FRIENDS (QUAKERS), <http://ithacamonthlymeeting.org/committees/earthcare-committee/what-do-friends-need-to-know-about-fracking> (last visited Oct. 21, 2015).

¹³ Susan Christopherson & Ned Rightor, *NIMBYs or Concerned Citizens? How Communities Evaluate the Costs and Benefits of Shale Oil and Gas Development*, 198 PROGRESSIVE PLAN. 32, 32–33 (2014), available at http://www.greenchoices.cornell.edu/downloads/development/shale/NIMBYs_or_Concerned_Citizens.pdf; *Speaking Out to Protect Our Communities and Environment*, NO FRACKING WAY, <http://www.nofrackingway.us> (last visited Oct. 21, 2015).

¹⁴ Carla R. Lawson, *Fracking Frames: A Framing Analysis and Comparative Study of Hydraulic Fracturing Coverage in American Newspapers 67–68* (2014) (unpublished M.S. thesis, Ohio State University), available at https://etd.ohiolink.edu/!etd.send_file?accession=osu1397153132&disposition=inline (discussing framing of fracking as it relates to community activism as “likely corresponding with citizen distress regarding the threat of values identified by Nelkin, which include intrusion on individual right, potential for social control, threat to democratic values, affected interests and resistance, possibility of biohazards, morality, and tampering with nature”).

¹⁵ *What is Environmental Justice?*, EPA, <http://www.epa.gov/environmentaljustice> (last visited Oct. 21, 2015).

¹⁶ ROBERT D. BULLARD ET AL., *TOXIC WASTES AND RACE AT TWENTY 1987–2007, A REPORT PREPARED FOR THE UNITED CHURCH OF CHRIST JUSTICE & WITNESS MINISTRIES 2* (2007), available at http://www.ucc.org/justice/advocacy_resources/pdfs/environmental-justice/toxic-wastes-and-race-at-twenty-1987-2007.pdf. In other words:

[E]nvironmental justice demands that everyone (not just the people who can “vote with their feet” and move away from threats or individuals who can afford lawyers, experts and lobbyists to fight on their behalf) is entitled to equal protection and equal enforcement of our environmental, health,

fairness, legal protections, and equal access to decision-making processes may, indeed, be just as important to critics of shale gas development as the risks inherent in the HF process itself. Yet, the mainstream and scholarly discourse surrounding HF rarely includes an environmental justice component that is identified as such, despite diverse voices raising these issues.¹⁷

The framing of public discourse surrounding a topic as controversial as HF is fundamental to disseminating information, legitimizing concerns, shaping public sentiment, and providing an avenue for people to be heard.¹⁸ Exclusion from discourse can also mean invisibility.¹⁹ Holding too narrow a view of the situation risks discounting the historical struggles and current interests of those affected by shale gas development. Likewise, the ability to shape discourse may also translate into tangible developments of power relations. The issue of power in Appalachia, where the Marcellus and Utica Shale plays are located, is particularly poignant due to the region's struggles with poverty and its conflicted history with natural resource extraction.²⁰

housing, land use, transportation, energy, and civil rights laws and regulations.

Id.

¹⁷ See Jeanne Marie Zokovitch Paben, *Green Power & Environmental Justice—Does Green Discriminate?*, 46 TEX. TECH L. REV. 1067, 1069, 1072 (2014) (noting that missing from academic focus on green power movements is both a broad look at environmental justice risks and consequences of development of green energy and a substantive classification of environmental justice issues in energy context; arguing that, while environmental decision-making often involves trade-offs, the ability to alleviate or mitigate a problem can exist only by first admitting that there is a problem); Emily Atkin, *Fracking Booms Near Schools with Minority Students*, THINK PROGRESS (Nov. 18, 2014), <http://thinkprogress.org/climate/2014/11/18/3475882/fracking-near-schools>; Eric Moll, *Is the Denton Fracking Ban an Environmental Justice Victory?*, FREE PRESS HOUSTON (Dec. 1, 2014), <http://www.freepresshouston.com/denton-fracking-ban-environmental-justice-victory>; Michele Morrone, *Environmental Justice, Hydraulic Fracturing and Appalachia*, TRIPLE PUNDIT (Aug. 12, 2013), <http://www.triplepundit.com/2013/08/environmental-justice-hydraulic-fracturing-appalachia>.

¹⁸ For a discussion of comparable concerns in the coal-mining context, see JOHN GAVENTA, *POWER AND POWERLESSNESS: QUIESCENCE AND REBELLION IN AN APPALACHIAN VALLEY* 12, 200 (1980).

¹⁹ See *id.* (discussing that one dimension of power is myths, language, and symbols—all of which are constructed to shape or control public opinions of situations); cf. Dean Hill Rivkin, *Doing Environmental Justice in Appalachia: Lawyers at the Grassroots and the Aspiration of Social Change*, 96 W. VA. L. REV. 1109, 1109 (1994) (criticizing Professor Roberto Unger for calling environmental cases in Appalachia “petty disturbances,” because it diminished importance of local struggles to people who waged them).

²⁰ GAVENTA, *supra* note 18, at 12, 200.

This Article argues that a nuanced characterization of the HF controversy should include a more robust discussion of environmental justice and discourse.²¹ More specifically, the Article considers the burdens rural residents of Appalachia have historically borne for fossil fuel extraction and questions why this significant part of our “energy past” has not been incorporated more centrally into the dialogue on fracking. Part I.A recounts the emergence of environmental justice as a social movement and area of study and the movement’s relationship with extractive industries. Part I.B discusses the “natural resource curse” and the curse’s implications for natural gas development and regional vulnerability to environmental injustice. Part I.C discusses attempts throughout history to marginalize community organization efforts aimed at challenging extractive industries, the centrality of public discourse and public sentiment to “power,” and the likelihood that industry proponents’ “anti-science” rhetoric may be an attempt to discredit opposition as much as it is an effort to engage in a good-faith dialogue on the science of HF. The relationship between discourse and power drives the necessity of (1) focusing more on environmental justice and (2) treating industry “framing” with skepticism, since environmental justice communities will only be protected if their needs are adequately incorporated into public dialogue and policy conversations.

Part II reviews the use of modern HF technology and applicable legal frameworks in West Virginia, Pennsylvania, Ohio, and New York. In Part III, the Article posits that across these states, where shale gas development has gone forward, environmental justice issues have arisen. The discussion also suggests that “discourse framing,” as discussed in Part I, becomes an environmental justice issue in and of itself because it contributes to keeping environmental injustice invisible. Part IV.A argues that environmental justice concerns contributed to shaping public sentiment in New York, and that the resulting “moral outrage” added to social momentum that resulted in New York’s ban on HF. Based on the discussion of environmental justice and issues with resource extraction exemplified throughout Appalachia, this section also argues that labeling opponents of HF as “irrational” is

²¹ The past twenty years have seen increasing attention paid to the development of environmental justice as a substantive area of American law. Although no federal legislation on environmental justice currently exists, the Environmental Protection Agency (“EPA”) has made ongoing efforts to incorporate environmental justice into its policies and regulations. Most states have some form of environmental justice law or policy in place or under development. *See* U.C. HASTINGS PUBLIC LAW RESEARCH INSTITUTE, ENVIRONMENTAL JUSTICE FOR ALL: A FIFTY STATE SURVEY OF LEGISLATION, POLICIES AND CASES (4th ed. 2010), *available at* <http://gov.uchastings.edu/public-law/docs/ejreport-fourthedition.pdf>; *see generally* BARRY E. HILL, ENVIRONMENTAL JUSTICE: LEGAL THEORY AND PRACTICE (3d ed. 2014).

unjustified. Part V suggests that ideas which transcend the study of “moral outrage,” risk assessment, and environmental justice advocacy may offer a way forward.

I. HISTORICAL AND SOCIAL CONTEXT BEHIND THE MODERN USE OF HF IN MARCELLUS AND UTICA SHALE STATES

A. *History of the Environmental Justice Movement and Its Relationship to Natural Resource Extraction*

The birth of the American energy industry took place in Appalachia when the first successful oil well was drilled in Titusville, Pennsylvania, in 1859.²² By the 1880s, John D. Rockefeller’s Standard Oil Company held nearly all of the world’s market of oil refining and marketing, with Pennsylvania wells producing the bulk of the world’s oil supply.²³ Shortly after that period, oil was discovered elsewhere in the United States and around the world.²⁴ Energy demands more than doubled from 1950 to 1972,²⁵ and an extractive economy became linked to the American way of life.²⁶ Throughout the past century, since the heyday of “muckrakers,” extractive industry magnates have gained notoriety for their power,²⁷ and the

²² Judith E. Koons, *Earth Jurisprudence and the Story of Oil: Intergenerational Justice for the Post-Petroleum Period*, 46 U.S.F. L. REV. 93, 97, 106 (2011).

²³ *Id.* at 107.

²⁴ *Id.* at 108.

²⁵ Paben, *supra* note 17, at 1088.

²⁶ Shannon Bell & Richard York, *Community Economic Identity: The Coal Industry and Ideology Construction in West Virginia*, 75 RURAL SOC. 111, 113 (2010); Koons, *supra* note 22, at 111–12.

²⁷ See, e.g., SHIRLEY STEWART BURNS, BRINGING DOWN THE MOUNTAINS: THE IMPACT OF MOUNTAINTOP REMOVAL ON SOUTHERN WEST VIRGINIA COMMUNITIES 3 (2007); Julia Fox, *Mountaintop Removal in West Virginia: An Environmental Sacrifice Zone*, 12 ORG. & ENV’T 163, 168 (1999); Jeff Goodell, *The Dark Lord of Coal Country*, ROLLING STONE (Nov. 29, 2010), <http://www.rollingstone.com/politics/news/the-dark-lord-of-coal-country-20101129>.

impacts of their industries' activities on both workers²⁸ and surrounding communities in the United States and abroad.²⁹

The environmental justice movement emerged in the 1980s as awareness spread about “environmental racism”—the fact that communities comprised of people of color are disproportionately burdened with the harms of hazardous waste and other industrial activity.³⁰ A 2005 EPA report concluded that African-Americans were 79% more likely than whites to live in neighborhoods where the greatest health danger was posed by industrial pollution.³¹ Numerous other reports have concluded that race is highly correlated with residence near pollution and unequal protection from industrial activity.³² Since the 1980s, factors known to correlate with environmental injustice have expanded beyond race to include economic status, traditional exclusion from decision-making processes, mortality rates, and proximity to natural-resource extraction activities.³³

The driving principle behind the environmental justice movement is to strive for

²⁸ See Dave Jamieson, *Black Lung Disease Rates Skyrocket to Highest Levels Since 1970s*, HUFFINGTON POST, Sept. 15, 2014, http://www.huffingtonpost.com/2014/09/15/black-lung-disease-levels-letter_n_5824470.html; *Oil and Gas Extraction*, OCCUPATIONAL SAFETY & HEALTH ADMIN., <https://www.osha.gov/SLTC/oilgaswelldrilling> (last visited Sept. 24, 2015) (publishing that from 2003 to 2010, oil and gas extraction workers were killed at a job-fatality rate seven times greater than the rate for all U.S. industries).

²⁹ Keith J. Zullig & Michael Hendryx, *Health-Related Quality of Life Among Central Appalachian Residents in Mountaintop Mining Communities*, 101 AM. J. PUB. HEALTH 848, 850 (2011); Paul M. Barrett, *A Way to Clean Up Ecuador's Oil Mess*, BLOOMBERG BUSINESSWEEK (Sept. 18, 2014), <http://www.businessweek.com/articles/2014-09-18/the-chevron-pollution-war-and-how-to-clean-up-ecuadors-oil-mess>; *Shell and Nigeria Have Failed on Oil Pollution Clean-up, Amnesty Says*, GUARDIAN (Aug. 4, 2014), <http://www.theguardian.com/environment/2014/aug/04/shell-nigeria-oil-pollution-clean-up-amnesty>.

³⁰ BULLARD ET AL., *supra* note 16, at 2; Mfon Etukeren, *Hydrofracking and Environmental Justice: A Proposal to Lower the Threshold for Evidence of Discriminatory Impact in Title VI Complaints*, 4 SEATTLE J. ENVTL. L. 51, 60–62 (2014) (discussing emergence of the environmental justice movement); Paben, *supra* note 17, at 1071–72.

³¹ BULLARD ET AL., *supra* note 16, at 3.

³² *Id.* at 3–4.

³³ See generally Paben, *supra* note 17, at 1071–72; CENTER FOR COALFIELD JUSTICE, COMMUNITY INDICATORS OF ENVIRONMENTAL JUSTICE: A BASELINE REPORT FOCUSING ON GREENE AND WASHINGTON COUNTIES, PENNSYLVANIA (2013), available at <http://coalfieldjustice.org/files/Community-Indicators-Environmental-Justice-2014.pdf>.

fair treatment and meaningful involvement of all people regardless of race, color, national origin[,] or income with respect to the development, implementation[,] and enforcement of environmental laws, regulations[,] and policies. Fair treatment means that no group . . . should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal[,] and commercial operations or the execution of . . . policies.³⁴

Environmental justice literature has traditionally focused on urban issues.³⁵ Recent attention has also centered on the “meaningful involvement” aspect of environmental justice, i.e., the actual participation of traditionally disenfranchised groups in decision-making processes that determine their communities’ futures.³⁶ Yet, public health concerns in rural areas offer a striking illustration of environmental injustice. For instance, residents of Appalachia living near mountaintop removal surface mining zones show substantially higher rates of poor physical health, poor mental health, and birth defects than those living outside mountaintop removal zones.³⁷

Americans as a whole have a conflicted relationship with fossil fuel extraction. On one hand, society bears significant costs for oil, gas, and coal production.³⁸ From a local standpoint, extraction is associated with public health problems, localized water and air pollution, and stresses on infrastructure.³⁹ From a broader perspective, extraction and consumption of fossil fuels contribute to acid precipitation and greenhouse gas emissions.⁴⁰ Major disasters, such as the

³⁴ BULLARD ET AL., *supra* note 16, at 2.

³⁵ Paben, *supra* note 17, at 1077.

³⁶ Evan Barret Smith, *Implementing Environmental Justice in Appalachia: The Social and Cultural Context of Mountaintop Removal Mining as Seen through the Lenses of Law and Documentaries*, 4 WM. & MARY POL’Y REV. 170, 204 (2012).

³⁷ Melissa M. Ahem et al., *The Association between Mountaintop Mining and Birth Defects among Live Births in Central Appalachia, 1996-2003*, 111 ENVTL. RES. 838 (2011); Zullig & Hendryx, *supra* note 29, at 850.

³⁸ See, e.g., Zullig & Hendryx, *supra* note 29, at 850.

³⁹ See *id.*

⁴⁰ Ibrahim Dincer & Marc A. Rosen, *Energy, Environment, and Sustainable Development*, 64 APPLIED ENERGY 427 (1999).

Deepwater Horizon oil spill in the Gulf of Mexico, occasionally, and dramatically, pull the extractive industry into the public consciousness for a time.⁴¹

However, the other side of the argument is that everyone benefits from having energy in abundance. The availability of economical fossil fuels has driven American economic development for over a century.⁴² In states such as West Virginia, the advantages and disadvantages of an extraction-based economy have played out over decades: many residents have been employed by the coal industry, and similarly, many residents have borne related costs ranging from black lung to cyclical economic depressions.⁴³

Examining shale gas development through an environmental justice lens is necessary for several reasons. First, raw material development, raw material transportation, and waste transportation have historically had a disparate impact on communities that are low-income or of-color.⁴⁴ Notably, the Marcellus and Utica Shale deposits are found in the Appalachian region, which already has a history of marginalization, extraction-related health issues, and a cycle of poverty linked to the “natural resource curse.”⁴⁵ West Virginia, also known as “coal country,”⁴⁶ has been described as a “sacrifice zone”—a region exposed to hazardous activities so the rest of the country can benefit from its energy production.⁴⁷ Communities engaging in shale gas development may be undergoing a process of being similarly “sacrificed” despite the allure of quick financial gain.

Second, HF’s novelty and surrounding gold rush mentality raise new concerns that remain unexplored. It involves a novel and risky approach to land use by

⁴¹ David Spence, *Corporate Social Responsibility in the Oil and Gas Industry: The Importance of Reputational Risk*, 86 CHL.-KENT L. REV. 59, 59 (2011).

⁴² *Id.*

⁴³ See Zullig & Hendryx, *supra* note 29, at 851; *Black Lung*, UNITED MINE WORKERS AM., <http://www.umwa.org/?q=content/black-lung> (last visited Sept. 22, 2015) (defining “Black Lung”).

⁴⁴ Paben, *supra* note 17, at 1076, 1079.

⁴⁵ Hannah C. Halbert, *From Picket Line to Courtroom: The Changing Forum for Regional Resistance, Environmental Reform and Policy Change in Appalachia*, 25 HAMLINE J. PUB. L. & POL’Y 375, 377 (2004) (claiming that Appalachia is “plagued by debilitating poverty.”).

⁴⁶ See, e.g., Goodell, *supra* note 27.

⁴⁷ Fox, *supra* note 27, at 165.

placing industrial and residential activity side by side.⁴⁸ The HF process also requires vast amounts of water from communities with smaller, older infrastructures. Evidence as to the actual risks that communities are facing is still “equivocal,”⁴⁹ although some consensus may be emerging that certain environmental risks will be a challenge to overcome.⁵⁰

Third, natural gas development mostly affects rural, low-income communities. These communities do not traditionally receive significant attention in legal literature and environmental justice dialogue.⁵¹ They also tend to have limited access to justice.⁵² Thus, while rural communities may also stand to reap financial benefits, many factors that contribute to environmental injustice are present with shale gas development, namely, likely limitations on decision-making power and the risk of communities bearing disproportionate or unforeseen hazards. Further, as discussed in the next section, the “natural resource curse” renders suspect the much-touted claims of regional economic benefits that result from natural gas development. While commentators acknowledge many arguments against shale gas development and strive to address them,⁵³ economic *non*-development does not tend to be included among them.

B. *The “Natural Resource Curse”: Its Significance in Appalachia and Implications for Shale Gas Development*

Despite their abundant fossil fuel resources and special place in the history of resource extraction, Appalachian states are not known for prosperity.⁵⁴ The “natural

⁴⁸ Elisabeth N. Radow, *Homeowners and Gas Drilling Leases: Boon or Bust?*, N.Y. ST. B. ASS'N J., Nov.–Dec. 2011, at 10, 12 (discussing concerns that homeowners who have leased their land may be confronted with uninsurable property damage for activities out of their control).

⁴⁹ Benjamin E. Apple, Note, *Mapping Fracking: An Analysis of Law, Power, and Regional Distribution in the United States*, 38 HARV. ENVTL. L. REV. 217, 218–19 (2014).

⁵⁰ Paolo Davide Farah & Riccardo Tremolada, *A Comparison between Shale Gas in China and Unconventional Fuel Development in the United States: Health, Water and Environmental Risks* (Oct. 11, 2013) (unpublished paper) (part of the gLAWcal Working Paper Series and the IUSE Turin Working Paper Series) (presented at the Colloquium on Environmental Scholarship at Vermont Law School), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2341738.

⁵¹ Paben, *supra* note 17, at 1079, 1086.

⁵² See Lisa R. Pruitt & Bradley E. Showman, *Law Stretched Thin: Access to Justice in Rural America*, 59 S.D. L. REV. 466, 467 (2014).

⁵³ E.g., Ehrman, *supra* note 3.

⁵⁴ Halbert, *supra* note 45, at 377.

resource curse” may be the reason behind this counter-intuitive stagnancy. The “curse” denotes the phenomenon that, “[c]ontrary to basic intuition, . . . higher national or regional resource dependence tends to be associated with lower economic growth.”⁵⁵ In fact, “[g]enerally, economists find that energy development is associated with small or even negative long-run impacts.”⁵⁶ Although traditionally discussed in relation to developing countries, a more recent study has shown that the curse holds true at the state and county level in the United States as well.⁵⁷

Scholars have offered numerous explanations for the resource curse. The most popular ones posit that: (1) resource production results in a decline in manufacturing, and manufacturing is more conducive to growth; (2) excess resources result in under-investments in human capital; and (3) sudden exploitation of a resource may result in social and economic turmoil.⁵⁸ Scholars also identify problems such as poor long-term planning, lack of accountability, weak institutions, social inequality, and limited access to information as factors that feed into the curse.⁵⁹

The boom-bust cycle—the natural resource curse’s close cousin—denotes the related phenomenon that economies based on natural resource extraction benefit from a “boom” when development is robust and suffer from “busts” when production slumps.⁶⁰ Naturally, communities highly dependent on one industry suffer when a resource is depleted.⁶¹ Generally, the “pattern of booms and busts

⁵⁵ Alex James & David Aadland, *The Curse of Natural Resources: An Empirical Investigation of U.S. Counties*, 33 RESOURCE & ENERGY ECON. 440, 440 (2011).

⁵⁶ Amanda Weinstein & Mark Partridge, *The Economic Value of Shale Natural Gas in Ohio: The Ohio State University Swank Program in Rural-Urban Policy Summary and Report*, OHIO AGRIC. RESEARCH & DEV. CENTER 1 (2011), available at http://www.fe.doe.gov/programs/gasregulation/authorizations/2013_applications/SC_Exhibits_13-30-Ing_13-42-Ing/Ex._111_-_Ohio_Study.pdf.

⁵⁷ James & Aadland, *supra* note 55, at 441.

⁵⁸ *Id.* at 442–43.

⁵⁹ Matthew Genasci & Sarah Pray, *Extracting Accountability: The Implications of the Resource Curse for CSR Theory and Practice*, 11 YALE HUM. RTS. & DEV. L.J. 37, 38 (2008).

⁶⁰ Sean O’Leary & Ted Boettner, *Booms and Busts: The Impact of West Virginia’s Energy Economy*, ECON. DEV.: W. VA. CENTER BUDGET & POL’Y, July 2011, at 3, available at <http://www.wvpolicy.org/downloads/BoomsBusts072111.pdf>.

⁶¹ *Id.*

causes volatility in revenue streams, leaving communities vulnerable, underdeveloped, and less economically secure.”⁶²

Some areas of West Virginia exemplify both the natural resource curse and the fluctuations of a boom-bust economy.⁶³ The foundation for West Virginia’s economy was laid in the late nineteenth century, when the state established a corporate-friendly legal framework and power paradigm.⁶⁴ State leaders subsequently “created a single-industry, resource-dependent economy,” with little attention paid to diversification.⁶⁵ Despite the goal of emerging on national and global markets, a report of that era observed that “the vast majority of West Virginia’s natural-resource wealth was being devoured by outside interests by any means necessary.”⁶⁶ Since this period, many areas of Appalachia have ridden the rollercoaster of a boom-bust economy in a “cycle of despair” as, throughout the decades, reserves of timber were exhausted and the price of coal dramatically fluctuated.⁶⁷

Much of Appalachian society continues to struggle with these issues that took root over a century ago. As recently as President George W. Bush’s administration, coal continued to be hailed as the key to the nation’s energy future.⁶⁸ Currently, the “War on Coal” is maligned as an assault on regional “economy boosters.”⁶⁹ However, communities dependent on mining struggle substantially compared to other areas, showing lower earnings, lower income growth, and lower employment rates.⁷⁰ In fact, a controversial 2009 article by West Virginia University researchers

⁶² *Id.*

⁶³ Weinstein & Partridge, *supra* note 56, at 1 (citing West Virginia as an example of a “surprisingly poor performance of a resource abundant econom[y]”).

⁶⁴ BURNS, *supra* note 27, at 1.

⁶⁵ *Id.* at 2.

⁶⁶ *Id.*

⁶⁷ Amy K. Glasmeier & Tracey L. Farrigan, *Poverty, Sustainability, and the Culture of Despair: Can Sustainable Development Strategies Support Poverty Alleviation in America’s Most Environmentally Challenged Communities?*, ANNALS AM. ACAD. POL. & SOC. SCI., Nov. 2003, at 131, 138–39.

⁶⁸ Halbert, *supra* note 45, at 385–86.

⁶⁹ Travis H. Brown, *The War on Coal Is a War Against American Jobs*, FORBES (June 6, 2014), <http://www.forbes.com/sites/travisbrown/2014/06/06/the-war-on-coal-is-a-war-against-american-jobs/>.

⁷⁰ O’Leary & Boettner, *supra* note 60, at fig.1, fig.4, fig.7.

concluded that “[t]he human cost of the Appalachian coal mining economy outweighs its economic benefits.”⁷¹

The Appalachian example suggests that promises of prosperity from natural resource extraction should be treated with skepticism. If any sustained, regional benefits of West Virginia’s abundant natural resources remain unclear after more than a century of coal production and entry into the natural gas industry, it is unclear how much weight to give the argument that natural gas development will bring “economic development” to Appalachian areas overlying shale deposits.⁷² Appalachia has already “b[orne] the burden of U.S. energy production.”⁷³ Economists and sociologists have warned that both the resource curse and boom-bust cycles will apply to natural gas development, casting doubts on the economic benefits promised by industry and government representatives.⁷⁴ HF development’s questionable promise of jobs and prosperity juxtaposed against the multilayered risks thus places rural communities in Pennsylvania, West Virginia, Ohio, and New York⁷⁵—already vulnerable areas—in a high-stakes game for the region’s economic future.⁷⁶ These phenomena, showing that payoffs for costs borne for

⁷¹ Michael Hendryx & Melissa M. Ahern, *Mortality in Appalachian Coal Mining Regions: The Value of Statistical Life Lost*, 124 PUB. HEALTH REP. 541, 541 (2009); Ken Ward, Jr., *Alpha Presses Court for Records about WVU Mining Health Research*, CHARLESTON GAZETTE-MAIL (Mar. 4, 2015), <http://www.wvgazette.com/article/20150304/GZ01/150309626>.

⁷² Weinstein & Partridge, *supra* note 56, at 1 (arguing that the natural resource curse must be considered in forming good policy in Ohio).

⁷³ For example, communities close to mountaintop removal had heightened rates of health problems and an increased rate of birth defects. Howard, *supra* note 5, at 117–19.

⁷⁴ Apple, *supra* note 49, at 218–19.

⁷⁵ Southern New York State is considered part of the Appalachian Region. *New York*, APPALACHIAN REGIONAL COMMISSION, http://www.arc.gov/appalachian_region/NewYork.asp (last visited Oct. 21, 2015).

⁷⁶ Shale gas production has begun and is expanding rapidly in the states of North Dakota, Montana, Wyoming, Colorado, Texas, and other western states. Jacquet, *supra* note 8, at 679. This Article’s scope is limited to natural gas development in Ohio, West Virginia, Pennsylvania, and New York. The histories, laws, and cultures of western and southern states differ significantly from states in the Appalachian region. See generally Colin Woodard, *Up in Arms: The Battle Lines of Today’s Debates Over Gun Control, Stand-Your-Ground Laws, and Other Violence-Related Issues Were Drawn Centuries Ago by America’s Early Settlers*, TUFTS MAG., Fall 2013, available at <http://www.tufts.edu/alumni/magazine/fall2013/features/up-in-arms.html>; Joseph W. Dellapenna, *The Law of Water Allocation in the Southeastern States at the Opening of the Twenty-First Century*, 25 U. ARK. LITTLE ROCK L. REV. 9 (2002). Communities in the eastern United States are characterized by higher population density and lower regional historical knowledge of natural gas operations than communities in states such as Texas and Wyoming. See Jacquet, *supra* note 8, at 679. Thus, although many of the environmental justice issues in other states overlap with those in Appalachia, for the sake of a

extraction may be fleeting or elusive, underscore Marcellus and Utica Shale communities' vulnerability to environmental injustice.

Of course, this argument is not meant to denigrate the importance that a new job, a higher paying job, royalty payments, or lower utility prices can have for virtually any household, and particularly one in a struggling rural community. At first glance, it would seem contrary to rural interests to suggest people not embrace an industry interested in the region, whether as workers or landowners; in fact, many residents of these areas are highly interested in involvement with shale gas development.⁷⁷ Yet, the argument is not that individuals cannot benefit, sometimes profoundly, from natural resource extraction. Rather, the question lies in the ethics, the genuineness, and the coerciveness of promising extraction-based regional development from a collective standpoint, as well as the ethics of suggesting that individual rights should trump those of the community. While one neighbor may become rich, the next will not, but this second neighbor will also bear the costs of resource extraction. Despite the first neighbor's potential to become rich, evidence suggests that, in the future, the community as a whole will not have developed. In any event, issues such as these deserve more consideration in the fracking debate and illustrate the complexity of the issue beyond environment versus economy.

*C. Community Organization Efforts: Discourse,
Marginalization, and "Anti-Science" Rhetoric*

In addition to the historical marginalization of Appalachia, the need to consider environmental justice and discourse more deeply as they relate to fracking stems from the need to counteract the potential for campaigns to limit the discourse and shape public sentiment. Central Appalachia has been referred to as an "internal colony," where the balance of power between workers and industry is dramatically skewed towards the latter.⁷⁸ This decades-old domination has been achieved largely

manageable focus, the most salient comparison, and a study of the unique vulnerabilities of Appalachia, this Article focuses solely on the Marcellus and Utica Shale plays. Cf. Maya Rao, *Searching for the Good Life in the Bakken Oil Fields*, ATLANTIC (Sept. 29, 2014), <http://www.theatlantic.com/features/archive/2014/09/searching-for-the-good-life-in-the-bakken-oil-fields/380677/>.

⁷⁷ See, e.g., Marie Cusick, *After fracking ban, some New York towns want to secede*, STATEIMPACT (Feb. 20, 2015), <https://stateimpact.npr.org/pennsylvania/2015/02/20/after-fracking-ban-some-new-york-towns-want-to-secede/>.

⁷⁸ Bell & York, *supra* note 26, at 119. In states such as West Virginia and Kentucky, "[l]ike a colony, the peripher[al region] supplies raw materials cheaply so that the [powerful] core [region] can benefit from the production of goods and services for the national and global market." BURNS, *supra* note 27, at 4.

through corporate ownership of land,⁷⁹ but other subtler factors, including many social and rhetorical tools, have been said to help extractive industries maintain their dominance over Appalachian communities.

Foremost among these factors is the dependence communities can have on industrial employers, despite the costs they bear of proximity to extractive activities.⁸⁰ “Historically, those individuals who are the most affected by industrial pollution and environmental damage also typically have been dependent on the jobs within the pollution industries.”⁸¹ Because of their dependence on the extractive industry for jobs, many people affected by industrial activity are unlikely to challenge that industry.⁸² In fact:

[M]any will even fight for the companies polluting their communities or destroying their ecosystems because they fear further job losses This system works to discourage mobilization against these industries, while at the same time producing an arsenal of workers that can be mobilized to create a countermovement for the industry.⁸³

Thus, particularly with mono-economies, the industry-community relationship is set up to minimize opposition in the first place.

However, even subtler mechanisms to maintain domination include strategies sociologists Shannon Bell and Richard York call “ideology manipulation” and “framing.” Ideology manipulation entails “luring the public into identifying with industry.”⁸⁴ Bell and York define the related tactic, “framing,” as:

[A] process of “assign[ing] meaning to and interpret[ing]” certain “events and conditions in ways that are intended to mobilize potential adherents and constituents, to garner bystander support, and to demobilize antagonists.” In other words, framing is the way in which organizations package their message for their intended audience in an attempt to make the activities, goals, and

⁷⁹ Bell & York, *supra* note 26, at 118.

⁸⁰ *Id.*

⁸¹ *Id.* at 115.

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.* at 117.

ideology of the organization appear “congruent and complementary” with the values, beliefs, and interests of the public.⁸⁵

Ideology manipulation and framing appear to have been effective tools for extractive industries to protect their interests when organization efforts have emerged.⁸⁶ Counterintuitively, even as extractive industry jobs have decreased, community members still mobilize to support these industries despite not continuing to benefit from employment.⁸⁷ Bell and York posit that this stems from “owners and managers of extractive industries actively construct[ing], maintain[ing], and amplify[ing] community economic identity in order to ensure that certain ideologies dominate.”⁸⁸ As an example, Bell and York argue:

Coal towns in Central Appalachia were constructed to exploit and reinforce . . . gender ideology by placing men in the mines and women in the close-by homes. By intentionally “equating masculinity with a willingness to work in dangerous conditions,” and femininity with “domestic labor inside coal camps,” the coal industry was able to keep the costs of labor and worksite maintenance low.⁸⁹

As another example, the coal industry in West Virginia “constructed a countermovement to the environmental justice movement, calling the organization it created the ‘Friends of Coal,’ which has engaged in elaborate framing efforts to maintain and amplify coal’s status as the economic identity of West Virginia.”⁹⁰ Friends of Coal, which identified as a grassroots organization, was funded by the West Virginia Coal Association.⁹¹ Bell and York argue that its “underlying strategy . . . [wa]s to attempt to counter the coal industry’s loss of citizens’ employment

⁸⁵ *Id.* at 112 (citations omitted).

⁸⁶ Robert R.M. Verchick, *In a Greener Voice: Feminist Theory and Environmental Justice*, 19 HARV. WOMEN’S L.J. 23, 69–70 (1996) (explaining that experiences in environmental advocacy have shown that calls for protection can result in scapegoating, backlash, and marginalizing of the problem).

⁸⁷ Bell & York, *supra* note 26, at 117.

⁸⁸ *Id.*

⁸⁹ *Id.* at 120 (citation omitted).

⁹⁰ *Id.* at 126 (citation omitted).

⁹¹ *Id.*

loyalties by constructing an ideology of dependency and identity through a massive public relations campaign.”⁹²

In a similar vein, another tool to dominate discourse involves accusing opposition of not understanding the “objective facts” behind a situation. Throughout U.S. history, environmentalists have been marginalized using the “relatively common trope” that they are “anti-jobs,” “out of touch with reality,” and “prioritizing nature over people.”⁹³ This is a form of “muting,” which linguist Kathryn Stanchi defines as “the situation in which individuals without power in a given society are silenced by language.”⁹⁴ Similarly, framing opposition movements as contrary to science or based on unclear science has been an effective form of muting, marginalizing opposition, and forestalling oversight.⁹⁵ Stanchi notes that “[l]anguage has the power to regulate human social relations in subtle ways that are difficult to see.”⁹⁶ The portrayal of subdominant groups as inarticulate or unintelligent, such as arguing that they misapprehend the facts of a situation, can contribute to their concerns remaining invisible.⁹⁷

The climate change and tobacco industry controversies provide perfect examples of efforts to mute opposition by accusing them of failing to understand science.⁹⁸ In both contexts, industry proponents have not focused entirely on

⁹² *Id.* at 128.

⁹³ Michael H. Finewood & Laura J. Stroup, *Fracking and the Neoliberalization of the Hydro-Social Cycle in Pennsylvania's Marcellus Shale*, 147 J. CONTEMP. WATER RES. & EDUC. 72, 77 (2012).

⁹⁴ Kathryn M. Stanchi, *Resistance is Futile: How Legal Writing Pedagogy Contributes to the Law's Marginalization of Outsider Voices*, 103 DICK. L. REV. 7, 16–17 (1998).

⁹⁵ See, e.g., Jane Mayer, *Covert Operations*, NEW YORKER (Aug. 30, 2010), <http://www.newyorker.com/magazine/2010/08/30/covert-operations> (discussing organizations that have invested in climate science denial).

⁹⁶ Stanchi, *supra* note 94, at 8.

⁹⁷ *Id.* at 19.

⁹⁸ See Steven G. Gilbert, *Review of Doubt is Their Product: How Industry's Assault on Science Threatens Your Health*, 117 ENVTL. HEALTH PERSP. A218, A218 (2009) (discussing how business interests take advantage of scientific and regulatory processes to obscure the need to address many occupational and environmental problems, and how the tobacco industry attempted to obscure scientific evidence of the adverse health effects of their products); Stanchi, *supra* note 94, at 19; Suzanne Goldenberg, *Just 90 Companies Caused Two-Thirds of Man-Made Global Warming Emissions*, GUARDIAN (Nov. 20, 2013, 11:07 AM), <http://www.theguardian.com/environment/2013/nov/20/90-companies-man-made-global-warming-emissions-climate-change> (mentioning “the funding of disinformation campaigns” as a factor delaying action of imposing limitations on greenhouse gas emissions).

disproving the stance of their opposition—i.e., that tobacco use causes health problems and that global warming is real—but also on “keep[ing] the controversy alive” and “discredit[ing] science [they] didn’t like.”⁹⁹ Indeed, “[i]t is often to the benefit of interest groups to generate controversy about data because the controversy is likely to slow or prevent regulation of a given product.”¹⁰⁰ Since “[p]olicy making is facilitated by consensus,”¹⁰¹ perceptions based on this rhetorical manipulation inform decision-making and power dynamics, and they are thus a crucial component of policy developments.¹⁰²

In light of the powerful role of discourse, accusations that grassroots social movements are “hysterical,” “irrational,” or misapprehending science, although perhaps accurate in certain contexts,¹⁰³ should be viewed with some skepticism. Certainly, the anti-vaccination movement provides an example of how widespread misinformation on a scientific matter can jeopardize public health, but characterizing movements in this manner can also be an effective tool for marginalizing opposition in a way that is both unwarranted and harmful.¹⁰⁴ Opponents of shale gas development are frequently portrayed by supporters of fracking as overreacting in the face of scientific realities they do not understand—the same portrayals used to marginalize groups that sought to challenge the tobacco industry and climate change deniers—and with similar rhetoric to that used to

⁹⁹ NAOMI ORESKES & ERIK M. CONWAY, *MERCHANTS OF DOUBT: HOW A HANDFUL OF SCIENTISTS OBSCURED THE TRUTH ON ISSUES FROM TOBACCO SMOKE TO GLOBAL WARMING* 5, 232 (2010).

¹⁰⁰ Lisa A. Bero, *Tobacco Industry Manipulation of Research*, 120 *PUB. HEALTH REP.* 200, 200 (2005).

¹⁰¹ *Id.*

¹⁰² Finewood & Stroup, *supra* note 93, at 76–77.

¹⁰³ See Fred Pearce, *Why Are Environmentalists Taking Anti-Science Positions?*, *YALE ENV'T* 360 (Oct. 22, 2012), http://e360.yale.edu/feature/why_are_environmentalists_taking_anti-science_positions/2584/ (arguing that environmentalists’ stances on genetically modified crops, nuclear power, and shale gas development reflect a “casual contempt for science” that reflects a “myopic adherence to ideology over rational debate”); Robert Pearl, *A Doctor’s Take on the Anti-Vaccine Movement*, *FORBES* (Mar. 20, 2014, 1:00 PM), <http://www.forbes.com/sites/robertpearl/2014/03/20/a-doctors-take-on-the-anti-vaccine-movement/> (discussing how parents are putting their children’s lives at risk by voluntarily foregoing life-saving treatments because of false science, outdated anecdotes, and fear mongering).

¹⁰⁴ These attitudes also reflect sexist responses that women have heard throughout history to dismiss their concerns. Significantly, “[w]omen dominate the leadership and ranks of grassroots environmental organizations.” Verchick, *supra* note 86, at 27. “Officials and experts often dismiss the concerns of women activists, accusing them of getting ‘overemotional’ or labeling them ‘hysterical housewives.’” *Id.* at 41 (citation omitted). Like feminist activists, “environmental justice activists challenge the inevitability of distributional unfairness by unmasking biases in environmental protection.” *Id.* at 36.

marginalize groups that sought to challenge the coal industry.¹⁰⁵ As scientists Michael Finewood and Laura Stroup articulate, opponents of fracking are “discursively positioned as irrational and unwilling to absorb necessary costs that would benefit their neighbors and the nation as a whole.”¹⁰⁶ A common example of this in the HF debate is when claims of or worries about groundwater contamination are dismissed with arguments that groundwater contamination is impossible, highly unlikely, or the result of issues not directly linked to the HF process.¹⁰⁷ Since the start of the debate on fracking, opponents have been generally portrayed as making “demonstrably false” and “hysterical claims,”¹⁰⁸ “oppos[ing] the energy production most likely to make the world cleaner and safer” through “environmental hysteria,”¹⁰⁹ and engaging in “faux science.”¹¹⁰

An emerging body of social and legal scholarship has been assessing whether the natural gas industry is engaged in an elaborate campaign to frame discourse, mute dissent, and marginalize opposition.¹¹¹ Finewood and Stroup argue that gas companies use “pro-fracking narratives” to “aggressively try to control the discourse about the hydro-social cycle” in order to “obfuscate the drilling process

¹⁰⁵ A law student recently queried in her Note, “[H]ow many . . . regulations are based on valid scientific conclusions rather than attempts to accommodate public apprehensions that are sometimes founded on nothing more than a remote prospect of a burning kitchen faucet?” Valeria Hatami, Note, *The Solution to Unsound Science Behind Regulation of Hydraulic Fracturing is . . . Traceable*, 39 OKLA. CITY U. L. REV. 209, 210–11 (2014). Similarly, three attorneys who worked for energy companies argued that plaintiffs were unable to prove causation in HF-groundwater contamination lawsuits because of “the geologic and scientific unlikelihood that hydraulic fracturing contaminates groundwater.” Jeffrey C. King et al., *Factual Causation: The Missing Link in Hydraulic Fracture-Groundwater Contamination Litigation*, 22 DUKE ENVTL. L. & POL’Y F. 341, 341–42 (2012).

¹⁰⁶ Finewood & Stroup, *supra* note 93, at 74.

¹⁰⁷ See, e.g., Anastasia Hudgins & Amanda Poole, *Framing Fracking: Private Property, Common Resources, and Regimes of Governance*, 21 J. POL. ECOLOGY 303, 304 (2014) (discussing Pennsylvania Department of Environmental Protection officials dismissing one town’s concern about water contamination as “baseless”).

¹⁰⁸ Michael Morrongiello, *Anti-Frackers Taking a Beating*, NAT. GAS NOW (Oct. 5, 2014), <http://naturalgasnow.org/anti-frackers-taking-beating/>.

¹⁰⁹ John Stossel, *Earth Daze: Overcoming Environmental Hysteria*, REASON.COM (Apr. 16, 2014), <https://reason.com/archives/2014/04/16/earth-daze-and-environmental-hysteria>.

¹¹⁰ Michael Lynch, *Fracking Hysteria (Op-Ed)*, BREAKING ENERGY (Oct. 7, 2013), <http://breakingenergy.com/2013/10/07/fracking-hysteria-op-ed/>.

¹¹¹ Finewood & Stroup, *supra* note 93, at 77; see, e.g., Hudgins & Poole, *supra* note 107, at 304–06.

and normalize [and legitimize] impacts on the hydro-social cycle.”¹¹² Further, they argue that, through “discursive framing of natural gas as a green fossil fuel, a solution for national resource independence and domestic energy needs, and a generator of local economic growth,” the gas industry frames “[l]ocal social and ecological resources . . . as mere factors in a broader marketplace of costs and benefits.”¹¹³ In broader terms, environmental attorney Jared Fish posits that the natural gas industry and regulators have engaged in “an effective public relations campaign . . . that frames the [HF] process as a safe means of creating jobs, fostering economic growth in regions hard-hit by the recession, and achieving energy security” to show that “fracking is a clear win-win-win.”¹¹⁴

¹¹² Finewood & Stroup, *supra* note 93, at 76. The “hydro-social cycle” is defined as the “conceptualization of the inextricably linked relationship between water and society, and likewise, ‘how hydro-social transformations are imbedded in and infused by class, gender, ethnic, or other power struggles.’” *Id.* at 73 (citation omitted).

¹¹³ *Id.*

¹¹⁴ Jared B. Fish, Note, *The Rise of Hydraulic Fracturing: A Behavioral Analysis of Landowner Decision-Making*, 19 BUFF. ENVTL. L.J. 219, 238 (2012). A related issue to discourse-framing involves industry efforts to work with law enforcement to criminalize environmentalists and those opposed to fracking, despite the declining trend in violent acts of “eco-terrorism” and the small percentage of activists who resort to crime. Nafeez Ahmed, *Are You Opposed to Fracking? Then You Might Just be a Terrorist*, GUARDIAN (Jan. 21, 2014, 2:13 PM), <http://www.theguardian.com/environment/earth-insight/2014/jan/21/fracking-activism-protest-terrorist-oil-corporate-spies>; Marie Cusick, *In Fracking Hot Spots, Police and Gas Industry Share Intelligence on Activists*, STATEIMPACT (Feb. 2, 2015, 5:44 PM), <http://stateimpact.npr.org/pennsylvania/2015/02/02/in-fracking-hot-spots-police-and-gas-industry-share-intelligence-on-activists>; Juliet Eilperin, *As Eco-terrorism Wanes, Governments Still Target Activist Groups Seen as Threat*, WASH. POST, Mar. 10, 2012, http://www.washingtonpost.com/national/health-science/as-eco-terrorism-wanes-governments-still-target-activist-groups-seen-as-threat/2012/02/28/gIQA4A4Ay3R_story.html. These efforts have “had a tangible impact.” Ahmed, *supra*. For instance, in December of 2014, a group opposed to fracking settled a lawsuit against Pennsylvania after being “erroneously labeled a potential terrorist threat.” Cusick, *supra*. In December of 2013, Oklahoma activists faced terror charges for activities related to draping a banner in the lobby of an oil and gas company’s office. Ahmed, *supra*. One Pennsylvania woman who took pictures at a fracking site, and who left when asked, was surprised to have a state trooper arrive at her door to question her about the incident, “ask[ing] if she knew anything about pipe bombs.” Cusick, *supra*. The company TransCanada advocated to U.S. law enforcement agencies that criminal and anti-terror statutes were “so vague that [they] could also ensnare journalists, researchers[,] and academics,” in addition to non-violent protestors. Ahmed, *supra*. The Marcellus Shale Operators’ Crime Committee exists solely for “industry to swap information with local, state, and federal law enforcement about activists, protests, and potential threats.” Cusick, *supra*. The legal director for the American Civil Liberties Union of Pennsylvania opines that the coal and oil industry has “a history of suppressing dissent in this country,” and that now, the natural gas industry does as well. *Id.*; see also Marie Cusick, *Fracking Opponents Feel Police Pressure in Some Drilling Hotspots*, NPR (Mar. 1, 2015, 7:48 AM), <http://www.npr.org/2015/03/01/389598765/fracking-opponents-feel-police-pressure-in-some-drilling-hotspots>.

Many commentators acknowledge that the gas industry engages in lobbying, and that its assertions are self-interested and should be taken with a grain of salt.¹¹⁵ However, the discussion above suggests that powerful actors' use of "framing" and "muting" to suppress dissent can have long-lasting, harmful ramifications and may be difficult for those participating in the debate to perceive.¹¹⁶ Again, the potential that the discourse is being manipulated in this manner suggests that greater efforts to take into account relevant regional history, social dynamics, and the potential for environmental injustice in rural communities are warranted in the debate on fracking. In any event, there are sounder ways, discussed below, for private and public actors to address public concerns rather than dismissing them as "hysteria." The argument is also made below—that the portrayal of HF's opponents as "anti-science" or "irrational" is, as a whole, unwarranted.

II. HIGH-VOLUME HYDRAULIC FRACTURING: OVERVIEW OF THE PROCESS, RELEVANT GEOGRAPHY, AND CURRENT LAW

HF is a process used to extract oil and natural gas from bedrock formations.¹¹⁷ When commentators say that HF has been used in the United States for decades,¹¹⁸ they are referring to low-volume HF using vertical drilling; the recent, widespread use of HF is a different technique that combines high-volume HF with horizontal drilling, "providing lateral access to mile-deep shale in multiple directions from a single well pad."¹¹⁹ The technical aspects of the process have been discussed at

¹¹⁵ E.g., Ehrman, *supra* note 3, at 426–27; Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 FORDHAM ENVTL. L. REV. 115, 144 (2009).

¹¹⁶ For instance, smoking has killed almost 18 million people in the U.S. since 1964; many of these deaths occurred simultaneously with the tobacco industry's manipulation of tobacco research from the 1970s through the 1990s. Bero, *supra* note 100, at 201; *Making Tobacco History*, LUNG.ORG (Jan. 13, 2014), <http://www.lung.org/about-us/our-impact/top-stories/making-tobacco-history.html?referrer=https://www.google.com/>.

¹¹⁷ Tanya J. Gallegos & Brian A. Varela, *Data Regarding Hydraulic Fracturing Distributions and Treatment Fluids, Additives, Proppants, and Water Volumes Applied to Wells Drilled in the United States from 1947 through 2010*, 2015 USGS 1.

¹¹⁸ King et al., *supra* note 105, at 341 ("[O]ne might never guess that oil and gas developers have safely used [HF] since before The Beatles' first American tour in 1964."); Hatami, *supra* note 105, at 209 ("[C]ontrary to popular opinion, fracking is anything but new.").

¹¹⁹ Radow, *supra* note 48, at 12; *see also* Kovach, *supra* note 4, at 319–20 ("It was not until recently that advancements in drilling technology made it economically efficient to drill for shale gas. Among these advancements, two main innovations have led to the boom in natural gas extraction in Pennsylvania: horizontal drilling and hydraulic fracturing."); Blake A. Watson, *Ohio Oil and Gas Litigation in the New*

length elsewhere, but in sum, the process involves “high-pressure injection of water, sand, and chemicals deep underground, fracturing the rock to release trapped gas that then flows up to the surface.”¹²⁰ HF development requires thousands of water, sand, and gravel deliveries by truck, extensive use and processing of local water sources, and infrastructure updates, compressor stations, and expanded housing, business, and public services.¹²¹

The Marcellus Shale formation underlies parts of New York, Pennsylvania, Ohio, West Virginia, Maryland, and Virginia.¹²² Estimates of its cubic feet of recoverable gas have ranged from 84 to 500 trillion cubic feet, worth more than \$1 trillion.¹²³ The Utica Shale formation underlies much of eastern and southern Ohio, and parts of New York, Pennsylvania, West Virginia, and Tennessee.¹²⁴ It has been estimated to hold between 5.5 and 15.7 trillion cubic feet of recoverable natural gas, as well as more than 1 billion barrels of oil.¹²⁵ These formations were known prior to the past decade, but technological developments only recently made extraction economically desirable.¹²⁶

Although HF is governed by “a complex web of overlapping regulatory bodies” involving federal, state, interstate, and local jurisdictions,¹²⁷ as of mid-2015, most regulation remains at the state level.¹²⁸ Federal regulation is somewhat patchy: HF was exempted from the Safe Drinking Water Act’s requirements for

Fracking Era, 74 OHIO ST. L.J. 47, 47 n.1 (2013); Brett Chedzoy & Ken Smith, *Understanding and Managing Natural Gas Development on Your Property*, CORNELL COOPERATIVE EXTENSION 13 (2011), available at <http://sp.cce.cornell.edu/EnergyClimateChange/NaturalGasDev/Documents/PDFs/Kens%20CCE%20Natural%20Gas%20Roadshow%20II.pdf>.

¹²⁰ Mike Malfettone, Comment, *A Nation Fractured: Drilling into the Debate over Fracking*, 2 ARIZ. J. ENVTL. L. & POL’Y 1039, 1039 (2012).

¹²¹ Apple, *supra* note 49, at 218.

¹²² Howard, *supra* note 5, at 127; *Marcellus Shale: Results Continue to Amaze Geologists*, GEOLOGY.COM, <http://geology.com/articles/marcellus-shale.shtml> (last updated Apr. 3, 2015).

¹²³ Howard, *supra* note 5, at 128; Thomas Hooker, Note, *Zoning Out Fracking: Zoning Authority under New York State’s Oil, Gas and Solution Mining Law*, 40 FORDHAM URB. L.J. 869, 873 (2012).

¹²⁴ Gregory D. Russell & Robert J. Krummen, *Ohio’s Experience with Preempting Local Regulation of Oil and Gas Development*, 19 TEX. WESLEYAN L. REV. 37, 39 (2012).

¹²⁵ *Id.*

¹²⁶ Spence, *supra* note 1, at 141.

¹²⁷ Hooker, *supra* note 123, at 875.

¹²⁸ Fershee, *supra* note 4, at 824.

Underground Injection Control and from the Clean Water Act's provisions applicable to storm water runoff;¹²⁹ elements of fracking waste water were exempted from the Resources Conservation and Recovery Act;¹³⁰ and oil and gas companies do not need to report certain chemicals under the Toxic Release Inventory.¹³¹ HF wells are additionally exempted from aggregation under the Clean Air Act,¹³² and the Comprehensive Environmental Response, Compensation, and Liabilities Act exempts certain chemicals used in fracking from liability standards.¹³³ The Energy Policy Act of 2005 also limited the stringency of standards applicable under the National Environmental Policy Act.¹³⁴

As gas drilling has increased, so have calls for federal oversight.¹³⁵ In March of 2015, Obama's administration announced that new federal rules for federally-owned lands were under development and would cover approximately 100,000 oil and gas wells, while states would retain jurisdiction over private and state-owned land.¹³⁶ The rules went into effect in June of 2015,¹³⁷ and their impact remains to be seen.

To date, each state has approached natural gas development differently, although most regulate fracking "as part of the general permitting process for drilling."¹³⁸ A universal issue has been whether local municipalities have the power

¹²⁹ 33 U.S.C. § 1342(1)–(2) (2012); 43 C.F.R. §§ 33631–33632 (2014).

¹³⁰ U.S. ENVTL. PROT. AGENCY OFFICE OF SOLID WASTE, EXEMPTION OF OIL AND GAS EXPLORATION AND PRODUCTION WASTES FROM FEDERAL HAZARDOUS WASTE REGULATIONS 10–11 (2002), available at <http://www.epa.gov/osw/nonhaz/industrial/special/oil/oil-gas.pdf>.

¹³¹ 42 U.S.C. § 6921(b)(2)(A) (2012); see also *id.* § 11023(a); Howard, *supra* note 5, at 120; Wiseman, *supra* note 115, at 143.

¹³² *Id.* § 7412(n)(4).

¹³³ *Id.* § 9601(14); see also Susan Phillips, *Burning Question: What Would Life Be Like Without the Halliburton Loophole?*, STATEIMPACT (Dec. 5, 2011, 12:00 PM), <https://stateimpact.npr.org/pennsylvania/2011/12/05/burning-question-what-would-life-be-like-without-the-halliburton-loophole/>.

¹³⁴ Energy Policy Act of 2005, Pub. L. No. 109-58, § 390, 119 Stat. 594; see also National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321–4370 (2012).

¹³⁵ *E.g.*, Garmez, *supra* note 7, at 406; see also Energy Policy Act of 2005 § 390.

¹³⁶ Coral Davenport, *New Federal Rules Are Set for Fracking*, N.Y. TIMES, Mar. 21, 2015, http://www.nytimes.com/2015/03/21/us/politics/obama-administration-unveils-federal-fracking-regulations.html?_r=0.

¹³⁷ 43 C.F.R. § 3160.0–.5 (2015).

¹³⁸ Wiseman, *supra* note 115, at 157.

to ban hydraulic fracturing. Ohio's state legislature "established a uniform statewide legislative and administrative scheme that expressly preempts local regulation of oil and gas development,"¹³⁹ and in February of 2015, the Ohio Supreme Court invalidated local bans on fracking.¹⁴⁰ Pennsylvania's Supreme Court held local fracking bans lawful,¹⁴¹ but in the aftermath of the decision, the state's legal framework has been called "topsy-turvy" and confusing.¹⁴² West Virginia law appears to give sole regulatory power to the state.¹⁴³

At the end of 2014, New York State Governor Andrew Cuomo made a controversial decision following "one of the most heated debates the state had seen in years."¹⁴⁴ After a *de facto* moratorium of more than five years, Cuomo banned the use of HF, citing "inestimable public health risks."¹⁴⁵ New York's highest court had already held municipal bans lawful,¹⁴⁶ and dozens of municipalities had banned HF by 2014.¹⁴⁷ In June of 2015, the New York Department of Environmental Conservation issued a statement of findings for high-volume hydraulic fracturing,

¹³⁹ Russell & Krummen, *supra* note 124, at 39–40.

¹⁴⁰ *State ex rel. Morrison v. Beck Energy Corp.*, 143 Ohio St. 3d 271, 2015-Ohio-485, 37 N.E.3d 128.

¹⁴¹ *Robinson Twp. v. Commonwealth*, 83 A.3d 901, 985 (Pa. 2013).

¹⁴² Ellen M. Gilmer, 'Topsy-Turvy' Legal Landscape in Aftermath of Nixed Pa. Drilling Law, E&E PUBLISHING (Nov. 25, 2014), <http://www.eenews.net/stories/1060009504>.

¹⁴³ See Joshua P. Fershee, *The Oil and Gas Evolution: Learning from the Hydraulic Fracturing Experiences in North Dakota and West Virginia*, 19 TEX. WESLEYAN L. REV. 23, 29 (2012); Garmez, *supra* note 7, at 435 (explaining that lower courts in West Virginia tend to strike down municipal fracking bans).

¹⁴⁴ Annie Correal & Andy Newman, *New York Today: Goodbye to Fracking*, N.Y. TIMES (Dec. 18, 2014, 5:47 AM), http://cityroom.blogs.nytimes.com/2014/12/18/new-york-today-goodbye-to-fracking/?_r=0.

¹⁴⁵ Thomas Kaplan, *Citing Health Risks, Cuomo Bans Fracking in New York State*, N.Y. TIMES, Dec. 18, 2014, <http://www.nytimes.com/2014/12/18/nyregion/cuomo-to-ban-fracking-in-new-york-state-citing-health-risks.html>.

¹⁴⁶ *Wallach v. Town of Dryden*, 16 N.E.3d 1188, 1191 (N.Y. 2014).

¹⁴⁷ *Movements Against HVHF*, FRACTRACKER ALLIANCE, <http://www.fractracker.org/map/us/new-york/moratoria/> (last visited Oct. 5, 2015).

officially prohibiting the process.¹⁴⁸ This Article argues in Section IV that environmental justice concerns factored into the decision to impose the ban.¹⁴⁹

III. ENVIRONMENTAL JUSTICE ISSUES SURROUNDING SHALE GAS DEVELOPMENT

The following discussion synthesizes accounts found in litigation records, media articles, community organization reports, scientific studies, social science papers, and legal scholarship to provide a qualitative analysis of environmental justice issues that have arisen in Ohio, Pennsylvania, West Virginia, and New York as a result of shale gas development.¹⁵⁰ As discussed above, two central concerns of the environmental justice lens include limitations on decision-making power and vulnerability to experiencing hazards not borne by the rest of society. The issues discussed below are highlighted because of their relationship with these two central concerns, as well as related principles, such as limitations on communities' and individuals' abilities to protect their quality of life or pursue development sustainably.

Several important matters are outside the scope of this analysis. These issues include questions of whether natural gas could be a successful “bridge fuel,” lower electricity costs, or reduce carbon emissions, or questions of what opportunity costs may be borne by leaving natural gas in the ground.¹⁵¹ Also, this Article does not

¹⁴⁸ *High-Volume Hydraulic Fracturing in NYS*, N.Y. ST. DEP'T ENVTL. CONSERVATION, <http://www.dec.ny.gov/energy/75370.html> (last visited Sept. 19, 2015).

¹⁴⁹ See generally N.Y. ST. DEP'T ENVTL. CONSERVATION, FINAL SUPPLEMENTAL GENERIC ENVIRONMENTAL IMPACT STATEMENT ON OIL, GAS AND SOLUTION MINING REGULATORY PROGRAM (2015), available at http://www.dec.ny.gov/docs/materials_minerals_pdf/findingstatehvhf62015.pdf.

¹⁵⁰ Before the *de facto* moratorium was imposed, at least one county in New York experienced significant leasing activity and a minimal amount of drilling. Kathryn J. Brasier et al., *Residents' Perceptions of Community and Environmental Impacts from Development of Natural Gas in the Marcellus Shale: A Comparison of Pennsylvania and New York Cases*, 26 J. RURAL SOC. SCI. No. 1, 2011, at 32, 38.

¹⁵¹ Garmezy, *supra* note 7, at 420 (discussing whether natural gas is a desirable “bridge fuel” or whether natural gas actually has a smaller greenhouse footprint than conventional gas); cf. Pearce, *supra* note 103 (criticizing environmentalists for ignoring benefits of natural gas development); Spence, *supra* note 1, at 174 (arguing that “[a]ny clear-eyed assessment of the relative benefits and costs of shale gas production . . . ought to include consideration of [certain opportunity costs]”). One concern that might be raised about the tone of this Article is that to be “anti-fracking” is to be “pro-coal,” and that to be “pro-fracking” is to choose the “lesser of two evils”—one that is more responsible for reducing emissions contributing to climate change. See Justin Gillis, *Picking Lesser of Two Climate Evils*, N.Y. TIMES, July 8, 2014, <http://www.nytimes.com/2014/07/08/science/climate-methane-global-warming.html>. However, to the extent that this Article is sympathetic to opponents of shale gas development, it is

address whether HF *can* be used responsibly and safely; in fact, it is presumed that HF could be used responsibly and safely, but that it is still worthwhile to point out instances where it has not been, particularly given the dearth of comprehensive environmental and epidemiological research to date.¹⁵² Additionally, while plaintiffs' allegations may be cited (as opposed to judicial findings), it is not necessarily presumed that the allegations are true. However, such allegations can at least serve to illustrate the types of vulnerabilities landowners face. In that vein, this discussion is not intended to be comprehensive, as environmental justice issues can take on many forms and may be as yet undocumented. Finally, although a pattern of unethical conduct on the part of companies such as Range Resources, Chesapeake Energy, LLC, and others appears to have emerged, the objective of this discussion is not to vilify them, but to draw attention to and assess the environmental justice realities surrounding natural gas development¹⁵³ and to contribute to a dialogue on fracking that is broader than environment versus economy.

for social reasons. Indeed, natural gas could be the much-discussed "key to the energy future," but that does not mean it should be procured at the expense of rural well-being. The ideal energy mix for the United States and how much we should utilize natural gas is the subject of substantial controversy. *See, e.g.,* Karl Mathiesen, *Obama's Clean Power Plan Will Hit Shale Gas Share of Electricity*, GUARDIAN (Aug. 3, 2015), <http://www.theguardian.com/environment/2015/aug/03/obamas-clean-power-plan-will-hit-shale-gas-industrys-share-of-energy-generation> (remaining agnostic on the issue).

¹⁵² Inmaculada de Melo-Martin et al., *The Role of Ethics in Shale Gas Policies*, 470–71 SCI. TOTAL ENV'T 1114, 1115 (2014). As Robert Bullard asserts:

The question of environmental justice is not anchored in a debate about whether or not decision makers should tinker with risk assessment and risk management. The environmental justice framework rests on the ethical analysis of strategies to eliminate unfair, unjust, and inequitable condition and decisions. The framework attempts to uncover the underlying assumptions that may contribute to and produce differential exposure and unequal protection.

Robert D. Bullard, *Dismantling Environmental Racism in the USA*, 4 LOCAL ENV'T 5, 7 (1999). Among other principles, the environmental justice framework: (1) utilizes a public health model of prevention; (2) presumes that threats should be eliminated before harm occurs; and (3) shifts the burden of proof to polluters. *Id.* at 8.

¹⁵³ The different categories discussed in this section may overlap with one another. For instance, limitations on access to justice may result from limited resources. The analysis reflects an attempt to group these scenarios by themes for the sake of theoretical manageability and in the hope of assessing more actionable subparts of broad problems.

Much of this evidence is anecdotal. Scholars and policymakers have reasonable suspicions of anecdotal evidence.¹⁵⁴ This evidence is not used in the instant inquiry to prove that the harms discussed are an inevitable result of fracking, that fracking must be stopped everywhere due to these harms, or that all of these harms (e.g., nosebleeds and dizziness) are demonstrably a result of fracking. Rather, they are used as examples and accounts to illustrate the types of environmental justice risks fracking has posed or could pose to individuals and communities. They are valuable for painting an on-the-ground picture of existing and potential environmental justice issues, particularly given the lack of epidemiological and environmental study of fracking.¹⁵⁵ It is presumed that any of these problems matter, even if occurring on a small scale. Some of the anecdotes are more controversial than others, such as stories suggesting that people near drilling wells have developed diseases and died as a result of their proximity to wells. They are also difficult to prove, and that task is outside the scope of this Article. Nevertheless, the *belief* that environmental justice concerns are real is also significant—a matter which will be discussed in a subsequent section.

1. Information Asymmetries

Information asymmetries as an environmental justice issue in natural gas development have taken on at least two forms. The first is asymmetrical knowledge between landowners and companies as to what natural gas is worth, which manifests itself at both ends of the extraction process.¹⁵⁶ From the birth of the coal industry, stories emerged of landowners selling or leasing their land to coal companies for well under market value¹⁵⁷—a factor, argues Professor Wendy

¹⁵⁴ See, e.g., By Buttonwood, *The Dangers of Anecdotal Evidence*, ECONOMIST (Sept. 3, 2012), <http://www.economist.com/blogs/buttonwood/2012/09/economics-and-markets>.

¹⁵⁵ Jon Hamilton, *Town's Effort to Link Fracking and Illness Falls Short*, NPR (May 16, 2012), <http://www.npr.org/2012/05/16/152204584/towns-effort-to-link-fracking-and-illness-falls-short>.

¹⁵⁶ References to “landowners” in this section are mainly intended to refer to landowners who own their mineral rights. Where landowners do not own their mineral rights, they are even more vulnerable to the issues discussed here. Surface owners have less of a choice as to whether and how development goes forward; they reap fewer economic benefits, and they have fewer rights to remedies. See, e.g., *Whiteman v. Chesapeake Appalachia, LLC*, 729 F.3d 381, 386–94 (4th Cir. 2013) (ruling that a surface owner’s claim to common law trespass and request for injunctive relief failed where Chesapeake Appalachia, LLC (“Chesapeake”) disposed of drill cuttings in covered waste pits on plaintiffs’ land because Chesapeake owned mineral rights, and under West Virginia law, Chesapeake did not exceed its rights to use surface owners’ land as “reasonably necessary”).

¹⁵⁷ Bell & York, *supra* note 26, at 119.

Davis, that “contribut[ed] to the devastation of Appalachia.”¹⁵⁸ The “traditional practice” in forming leases for mineral extraction is that company “landmen,” or “land agents,” approach landowners “in a ‘seller beware’ transaction where the landowner is typically the less knowledgeable party.”¹⁵⁹ Accounts consistent with this tradition have arisen in the recent HF boom.¹⁶⁰ Landowners interviewed for a study in New York and Pennsylvania reported believing that gas companies “took advantage of their naïveté in the leasing process,” giving them lower bonuses and royalty amounts than their land was worth.¹⁶¹ In one Ohio lawsuit, plaintiffs alleged that companies failed to present “truthful and accurate information” about the leases, resulting in many landowners receiving less than 1% of the fair market value for signing bonus payments.¹⁶² A non-profit in Pennsylvania advises landowners approached to lease mineral rights that these leases, as presented, are “not likely in your best interest.”¹⁶³ Landowners who are inexperienced with natural resource extraction or otherwise unable to seek the advice of a lawyer may be particularly vulnerable to landmen taking advantage of their inferior knowledge.¹⁶⁴

¹⁵⁸ Wendy B. Davis, *Out of the Black Hole: Reclaiming the Crown of King Coal*, 51 AM. U. L. REV. 905, 913 (2002).

¹⁵⁹ Jeffrey Jacquet & Richard Stedman, *Natural Gas Landowner Coalitions in New York State: Emerging Benefits of Collective Natural Resource Management*, 26 J. RURAL SOC. SCI., no. 1, 2011, at 62, 62.

¹⁶⁰ Tom Wilber, *In the Fracking Zone*, SYRACUSE U. MAG., Spring 2013, at 3, 8.

¹⁶¹ Brasier et al., *supra* note 150, at 48.

¹⁶² See Dan O’Brien, *New Round of Landowners File Suit Against Chesapeake*, BUS. J., <http://archive.businessjournaldaily.com/drilling-down/new-round-landowners-file-suit-against-chesapeake-2012-2-28> (last visited Nov. 12, 2015).

¹⁶³ SMITH BUTZ, LLC, *Leasing Your Gas: What You Should Know*, COALFILED JUSTICE, <http://coalfiledjustice.org/files/landownership/Gas-Leasing-Info.pdf> (last visited Sept. 25, 2015); see also *Gas Leasing Scams and Rip-Offs: Ways to Separate You from Your Property Rights and Money*, Marcellus Education Fact Sheet, PENN ST. COOPERATIVE EXTENSION (2008) [hereinafter *Gas Leasing Scams and Rip-Offs*], available at <http://pubs.cas.psu.edu/FreePubs/pdfs/ua453.pdf> (“Standard lease agreements are written to favor the gas companies and are difficult to understand.”).

¹⁶⁴ See J. Zach Burt, Comment, *Playing the “Wild Card” in the High-Stakes Game of Urban Drilling: Unconscionability in the Early Barnett Shale Gas Leases*, 15 TEX. WESLEYAN L. REV. 1, 18 (2008) (arguing that early signers of Barnett Shale gas leases lacked considerable knowledge and meaningful choice and were vulnerable to exploitation by landmen); cf. N.Y. STATE ATT’Y GEN. ERIC T. SCHNEIDERMAN, OIL & GAS LEASES: LANDOWNERS’ RIGHTS (2011), available at http://www.ag.ny.gov/sites/default/files/pdfs/publications/gas_oil_brochure_2011.pdf (advising would-be leaseholders to consult an attorney and noting that the lease may affect the ability to sell, refinance, mortgage, or insure property; also recommending ensuring “that all promises made by a landman are in writing, in the

The other aspect of information disparities over gas worth arises at the other end of the extraction process, when leaseholders are entitled to royalty payments. One case pending settlement in the U.S. District Court for the Middle District of Pennsylvania illustrates issues with royalty payments that are widespread, according to an investigation by ProPublica.¹⁶⁵ The proposed settlement between a class of leaseholders and Chesapeake Appalachia, LLC, (“Chesapeake”) states that plaintiffs allege Chesapeake underpaid their royalties by making deductions for “post-production costs” in violation of the explicit terms of their leases.¹⁶⁶ The negotiated settlement is in excess of \$7.5 million.¹⁶⁷ ProPublica found that “manipulation of costs and other data by [gas or] oil companies is keeping billions of dollars in royalties out of the hands of private and government landholders,” and that “[t]housands of landowners . . . are receiving far less than they expected based on the sales value of gas or oil produced on their property. In some cases they are being paid virtually nothing at all.”¹⁶⁸ The situation is exacerbated by energy companies’ use of “complex accounting and business arrangements to skim profits . . . and increase expenses charged to landowners.”¹⁶⁹ While some companies violated the terms of leases, others have taken advantage of contracts that landowners did not fully understand when they entered them.¹⁷⁰ In sum, confusing accounting practices, a lack of legal disclosure requirements, and minimal protections for leaseholders heighten landowners’ vulnerability to financial exploitation.¹⁷¹

lease”). The New York State Attorney General also advises that the landman might say, “Don’t you want to receive \$\$\$\$ every month?” *Id.* While he “can use examples to show how the royalties will be calculated, it is impossible to give a reliable estimate of how much money you will actually receive.” *Id.*

¹⁶⁵ Abraham Lustgarten, *Unfair Share: How Oil and Gas Drillers Avoid Paying Royalties*, PROPUBLICA (Aug. 13, 2013), <http://www.propublica.org/article/unfair-share-how-oil-and-gas-drillers-avoid-paying-royalties>.

¹⁶⁶ Memorandum in Support of Preliminary Approval of Class Action Settlement at 2, *Demchak v. Chesapeake Appalachia, LLC*, 2015 US. Dist. LEXIS 139095 (M.D. Pa. Aug. 30, 2013) (No. 3:14-cv-02289).

¹⁶⁷ *Id.* at 8.

¹⁶⁸ Lustgarten, *supra* note 165.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

¹⁷¹ *Id.* The Department of the Interior’s auditing agency has “uncovered more than a dozen instances in which drillers were ‘willful’ in deceiving the government on royalty payments just since 2011,” recouping more than \$4 billion in unpaid fees from these cases. *Id.* In a 2007 case in West Virginia, a

Another form of information asymmetry is gas companies' greater access to knowledge regarding the actual risks of HF.¹⁷² As Jared Fish explains: "Landowners are at an informational disadvantage vis-à-vis industry experts to determine whether a highly technical operation . . . poses an environmental or health hazard. Gas companies know the technical details of fracking[, and] . . . [l]andowners, by and large, are not privy to this information."¹⁷³ Landowners may therefore agree to bear risks much milder than what actually occurs. Fraud is one of the most common causes of action brought by plaintiffs in natural gas lawsuits.¹⁷⁴ For instance, in the Ohio lawsuit mentioned above, the plaintiffs alleged that companies "misrepresented environmental disruptions caused by hydraulic fracturing."¹⁷⁵ One woman recounted a landman showing her a garbage can lid to demonstrate what a drill well looked like,¹⁷⁶ misrepresenting the "layers of steel casing and cement" actually involved.¹⁷⁷ The almost universal lack of regulation or oversight of landmen suggests that there is little protection against such misrepresentations¹⁷⁸ other than litigation. Local government officials also report "that localities do not feel well equipped to handle even routine incidental, let alone

Chesapeake subsidiary paid a judgment of \$404 million for cheating a class of leaseholders, including \$270 million in punitive damages. *Id.*

¹⁷² This issue of nondisclosure of chemicals has received specific attention in the fracking debate. For most of fracking's history, companies withheld information on the chemicals used in fracking fluid on the basis that it was "proprietary." Rosalie D. Morgan, *What the Frack?: An Empirical Analysis of the Effect of Regulation on Hydraulic Fracturing*, 16 QUINNIPIAC HEALTH L.J. 77, 82 (2013); see also Fish, *supra* note 114, at 241. More recently, the chemical disclosure registry "FracFocus" has been used to publish information, although Harvard researchers once called it "not an acceptable regulatory compliance method." Kate Konschnik et al., *Legal Fractures in Chemical Disclosure Laws: Why the Voluntary Disclosure Registry FracFocus Fails as a Regulatory Compliance Tool*, HARV. L. SCH. ENVTL. L. PROGRAM 1 (2013), available at <http://blogs.law.harvard.edu/environmentallawprogram/files/2013/04/4-23-2013-LEGAL-FRACTURES.pdf>.

¹⁷³ Fish, *supra* note 114, at 234.

¹⁷⁴ Keith B. Hall & Lauren E. Godshall, *Hydraulic Fracturing Litigation*, AVOC., Winter 2011, at 13; see Eliza Griswold, *The Fracturing of Pennsylvania*, N.Y. TIMES MAG., Nov. 11, 2011, www.nytimes.com/2011/11/20/magazine/fracking-amwell-township.html.

¹⁷⁵ BARCLAY R. NICHOLSON, ANALYSIS OF LITIGATION INVOLVING SHALE & HYDRAULIC FRACTURING, NORTON ROSE FULBRIGHT 76 (2014), available at <http://www.nortonrosefulbright.com/files/20140101-analysis-of-litigation-involving-shale-hydraulic-fracturing-104256.pdf>.

¹⁷⁶ Griswold, *supra* note 174.

¹⁷⁷ Chedzoy & Smith, *supra* note 119, at 12.

¹⁷⁸ *Gas Leasing Scams and Rip-Offs*, *supra* note 163.

catastrophic, impacts from fracking[,] and that they lack reliable information to help them bargain with energy companies optimally.”¹⁷⁹

2. Power and Resource Asymmetries

Power and resource asymmetries have factored into natural gas development in several ways. First, rural residents and municipalities are not relatively economically affluent, particularly in Appalachia.¹⁸⁰ This suggests that rural landowners and municipalities have unequal bargaining power when dealing with companies.¹⁸¹ Some could even be considered to be in a position of duress at the outset of negotiations with a gas company: the landowner may be struggling financially and simply not in a position to turn down an offer of a large payment, particularly when the offer is accompanied by an implied threat that the offer will disappear or be reduced if the landowner resists or tries to negotiate.¹⁸² Some rural Appalachian areas lack such basic necessities as internet access, meaning residents have a limited capacity to self-educate.¹⁸³ Municipalities face comparable issues in

¹⁷⁹ Powers, *supra* note 8, at 956. Fish states:

Perhaps the best-known example of a community embracing gas drilling without knowing the risks is Dimock, Pennsylvania. Cabot Oil & Gas purchased land leases at the start of the Pennsylvania fracking boom in 2008, and allegedly told residents that “the drilling would have no impact whatsoever on [residents’] land.” Within a month, residents’ water had turned brown and Cabot was fined \$360,000 by the [Pennsylvania Department of Environmental Protection] for water contamination. Cabot continues to claim the contamination was naturally occurring, but on December 15, 2010—after two years of legal wrangling—it agreed to pay \$4.1 million to provide the nineteen Dimock households with potable water. Each household will receive at least \$50,000, which may not satisfy the permanent damage to land values and future, unanticipated costs associated with water contamination. “Our land is worthless,” said one landowner. “Who is going to buy this house?” As part of the settlement, Cabot will be permitted to continue drilling in Dimock.

Fish, *supra* note 114, at 237.

¹⁸⁰ Apple, *supra* note 49, at 231.

¹⁸¹ Etukeren, *supra* note 30, at 62 (explaining that community protests are disregarded because of communities’ lack of political influence).

¹⁸² Fish, *supra* note 114, at 248; *see also* SCHNEIDERMAN, *supra* note 164.

¹⁸³ Tim Feran, *Groups Goal is Internet Access in Appalachian Ohio*, COLUMBUS DISPATCH (Dec. 10, 2011, 6:34 AM), <http://www.dispatch.com/content/stories/business/2011/12/10/groups-goal-is-internet-access-in-appalachian-ohio.html>.

addition to feeling pressure to compete with other communities.¹⁸⁴ They are then vulnerable to being coerced into “an uncontrolled development scenario” with lower than desirable compensation and on riskier than desirable terms.¹⁸⁵ Environmental attorney Benjamin Apple argues:

[This] creates the clear likelihood—perhaps inevitability—of increased environmental, social, and economic risk across low-income communities. However, more insidious than this likely environmental and economic injustice is the idea that the low-income municipalities have a real choice in the matter. Indeed, the legal-economic system and the reasoning behind it often disguise inevitable outcomes of unequal bargaining as free choices within a free market when, in reality, it has created a system in which it is impossible to resist the pressures of economic need.¹⁸⁶

Similarly, a significant asymmetry in political power exists between the industry and landowners.¹⁸⁷ Close connections between industry actors and political actors abound. For instance, an investigative journalist noted in 2014 that there was “a growing trend” of “[m]ajor players in the gas industry . . . hiring the relatives of powerful politicians.”¹⁸⁸ In Ohio, alone, the spread of shale gas development was “accompanied by a surge in political expenditures by the natural gas industry” amounting to more than \$1.8 million to Ohio officials and parties

¹⁸⁴ Apple, *supra* note 49, at 233–34.

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

¹⁸⁷ West Virginia senator-elect Shelley Moore Capito’s son was hired as an attorney for the Energy Corporation of America (“ECA”), a large gas exploration and distribution company, in 2011. Lee Fang, *Natural Gas Industry Hires Family Members of Leading Politicians*, SALON (June 29, 2014), http://www.salon.com/2014/06/29/natural_gas_industry_hires_family_members_of_leading_politicians_partner/. In 2013, EQY Corporation, “one of the largest natural gas producers in Appalachia,” hired the brother of Pennsylvania State Representative Bill Shuster as a lobbyist. *Id.* Meanwhile, Representative Shuster chairs the House Transportation Committee, which is a committee in charge of pipeline safety regulations—exactly the issue Shuster’s brother was retained to work on for EQT. *Id.* Capito, a member of the same committee, “read a statement of praise for ECA into the congressional record” in 2007, just before her son was hired. *Id.* Currently, Capito is able to “vot[e] on bills to benefit the company which enriches her close family members.” *Id.* In 2011, then-Pennsylvania Governor Tom Corbett took vacations with John Moran, Jr., the head of Moran Industries, which is involved in natural gas development. *Id.* On one vacation, Moran gave presentations to foreign government officials on the value of Marcellus Shale. *Id.*

¹⁸⁸ *Id.*

between 2011 and 2013.¹⁸⁹ The background on HF's exemption from the Safe Drinking Water Act is telling in this regard: when the Eleventh Circuit Court of Appeals held that hydraulic fracturing qualified as "underground injection" and was therefore subject to regulation, Congress responded by amending the Energy Policy Act of 2005 to exclude the HF process.¹⁹⁰ Professor Hannah Wiseman describes this phenomenon, characterized by public choice theory:

[G]overnment policy is disproportionately shaped by the preferences of concentrated interest groups that provide significant electoral support for representatives and thereby secure access and influence over those representatives' decisions. It thus highlights the importance of understanding the alignment and actions of relevant interest groups in describing the causes of past policy outcomes and predicting future outcomes. The classical objection is that interest groups that favor lax environmental regulation and have high individual stakes in regulatory outcomes—paradigmatically industry groups—tend to be small and cohesive, but groups favoring stricter environmental regulation tend to be more diffuse and less organized. This disparity in political power, from the perspective of economies of scale in political organization and advocacy of the two camps, is exacerbated at the state and local government levels. Diffuse environmental interests may muster the resources to organize and act within a single political forum, but organizing at multiple state or government locations would be too taxing upon their relatively undisciplined and typically underfunded infrastructures. Interests favoring laxer regulation, by contrast, are thought to possess relatively greater capacity to organize and advocate in multiple government forums and thus enjoy a comparative advantage.¹⁹¹

Gas companies have also been said to engage in what could be called outright "bullying"—threatening landowners and municipal officials, manipulating town politics to turn people against one another, and engaging in "predatory tactics" to acquire mineral rights or trespass on landowners' properties.¹⁹² As an example, a

¹⁸⁹ James Browning & Catherine Turcer, *Deep Drilling Deep Pockets*, COMMON CAUSE, Sept. 2013, at 1, 1, available at <http://www.commoncause.org/states/ohio/reports/deep-drilling-deep-pockets.PDF>.

¹⁹⁰ Cameron Jefferies, *Unconventional Bridges over Troubled Water—Lessons to be Learned from the Canadian Oil Sands as the United States Moves to Develop the Natural Gas of the Marcellus Shale Play*, 33 ENERGY L.J. 75, 98 (2012).

¹⁹¹ Garrick B. Pursley & Hannah J. Wiseman, *Local Energy*, 60 EMORY L.J. 877, 922–24 (2011) (citations omitted).

¹⁹² Wilber, *supra* note 160; see also Natasha Khan, *Marcellus Life: One Greene County Man's Encounter with a Landman*, PUB. SOURCE (Oct. 8, 2014), <http://publicsource.org/investigations/>

2011 story on the radio show “This American Life” documented how the town of Mount Pleasant, Pennsylvania, became embroiled in a controversy over natural gas, resulting from an increasingly complicated relationship with the energy company, Range Resources (“Range”).¹⁹³ After town residents began complaining about the hazards stemming from natural gas development and tried to organize in favor of conditional use zoning, Range began “organizing exclusive meetings for those who had leased out their land for fracking—the goal presumably being to intimidate town officials into capitulating to Range’s demands.”¹⁹⁴ Meanwhile, Range had invested millions of dollars in the community through various avenues and “threatened the end of this newfound flow of money and its perks,” all the while “vilif[y]ing the town officials as uncooperative.”¹⁹⁵ Ultimately, Range pulled out of Mount Pleasant,¹⁹⁶ but the story illustrates the use of similar tactics that have emerged elsewhere—company threats, suits, and intimidation.¹⁹⁷ The New York State Attorney General’s “Landowners’ Rights” document warns would-be leaseholders that landmen might use “high pressure sales tactics,” “pit neighbor against neighbor,” or “use arguments . . . that may not be accurate,” such as telling landowners that they are being presented with a “non-negotiable lease,” or that if they refuse to sign, that the gas will be taken anyway with no compensation.¹⁹⁸ One Pennsylvania landowner characterized gas companies as having “a culture of doing cutthroat business.”¹⁹⁹

marcellus-life-one-greene-county-man-s-encounter-with-landman#.VI8gsyccGHk (discussing company Geokinetics’ reputation for “trespassing and being disrespectful” in Greene County, Pennsylvania).

¹⁹³ Apple, *supra* note 49, at 219.

¹⁹⁴ *Id.* at 220.

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ E.g., Mark Drajem, *Range Resources Corp. Accused of Bullying Fracking Foes*, DAILY ITEM (Aug. 2014), http://www.dailyitem.com/news/range-resources-corp-accused-of-bullying-fracking-foes/article_2966f150-06d2-59f7-ae89-66b7946ceb76.html?mode=jqm; see also Jim Eftathiou, Jr., *Missouri Lawyer Brings Nuisance-Suit Strategy to Pennsylvania Fracking Case*, MORNING CALL (June 13, 2013), http://articles.mcall.com/2013-06-13/news/mc-pa-fracking-gas-marcellus-legal-20130613_1_fracking-kate-sinding-nuisance-laws.

¹⁹⁸ SCHNEIDERMAN, *supra* note 164; see also *Gas Leasing Scams and Rip-Offs*, *supra* note 163 (warning that “[t]hose interested in your oil and gas rights will try to get you to hurry and give you short time deadlines to make a decision”).

¹⁹⁹ Lustgarten, *supra* note 165.

Perhaps the most troubling example of ethically questionable tactics by a gas company is Range's use of military-style "psy ops" ("psychological operations") to manipulate communities. In a military context, a Lieutenant Colonel explained that his job in "psy-ops is to play with people's heads, to get the enemy to behave the way we want them to behave."²⁰⁰ The Army's counterinsurgency manual provides that operations have failed unless the psychological operatives "maintain order everywhere."²⁰¹ The Colonel noted that he was "prohibited from doing that to our own people."²⁰² Yet, Range's communications director acknowledged at a 2011 conference that his company had "several former psy ops folks that work for us at Range because they're very comfortable in dealing with localized issues and local governments."²⁰³ He continued, "[H]aving that understanding of psy ops in the Army and in the Middle East has applied very helpfully here for us in Pennsylvania"²⁰⁴ and has been helpful to "overcome stakeholder concerns."²⁰⁵

3. Environmental Issues & Health Hazards to Humans and Livestock

People living near gas drilling wells have reported the following environmental hazards: the loss of groundwater and groundwater contamination,²⁰⁶

²⁰⁰ Michael Hastings, *Another Runaway General: Army Deploys Psy-Ops on U.S. Senators*, ROLLING STONE (Feb. 23, 2011), <http://www.rollingstone.com/politics/news/another-runaway-general-army-deploys-psy-ops-on-u-s-senators-20110223>.

²⁰¹ Robert Johnson, *Fracking Insiders Admit to Employing Military 'Psychological Operations' on American Citizens*, BUS. INSIDER (Nov. 9, 2011), <http://www.businessinsider.com/the-fracking-industry-admits-to-employing-military-psychological-operations-on-american-citizens-2011-11>.

²⁰² Hastings, *supra* note 200.

²⁰³ Eamon Javers, *Oil Executive: Military-Style 'Psy Ops' Experience Applied*, CNBC (Nov. 8, 2011), <http://www.cnbc.com/id/45208498#>.

²⁰⁴ *Id.*

²⁰⁵ Johnson, *supra* note 201.

²⁰⁶ See Morgan, *supra* note 172, at 88–89 (discussing a Duke University study that compared methane concentrations in wells within one kilometer of drilling with wells farther away, also discovering that active sites had methane concentrations seventeen times higher than non-actives sites, a concentration that "fell within the defined action level . . . for hazard mitigation recommended by the U.S. Office of the Interior"); see also Hari M. Osofsky & Hannah J. Wiseman, *Hybrid Energy Governance*, 2014 U. ILL. L. REV. 1, 14 (2014) ("Chemical spills, stored wastes, and inadequately treated wastewaters can pollute surface or underground resources. Improperly-constructed wells can send methane into nearby water wells during the drilling process, and over-withdrawals of water for fracturing can negatively impact stream flow. As more wells are drilled, habitats are fragmented, air pollutants increase, soil erodes and pollutes surface waters, and trucks damage roads. Many of these risks are local. Air

air pollution and noxious odors,²⁰⁷ truck traffic that overwhelms local infrastructure,²⁰⁸ and dead or sick livestock and pets (including dogs, goats, cows, chickens, cats, fish, pigs, stillborn animals, and animals with birth defects).²⁰⁹ People living near gas drilling wells have additionally reported that fracking caused health issues, including headaches, dizziness, fatigue, blisters, nosebleeds, nausea, vomiting, lesions, trouble breathing, difficulty walking, hair loss, spitting up blood, burning eyes, sore throats, seizures, neurological symptoms, liver failure, leukemia, and death.²¹⁰ People have also reported that their blood tested positive for benzene, barium, arsenic, toluene, and volatile organic chemicals.²¹¹

The claims about pollution appear to be borne out by substantial evidence, and litigation seeking to hold alleged polluters accountable has been on the rise.²¹² The New York Times recently obtained thousands of internal documents from the EPA, revealing that HF's "dangers to the environment and health are greater than previously understood."²¹³ There have been more than 1,000 reported incidents of water contamination,²¹⁴ and gas has seeped into underground drinking water

pollutants from drilling and fracturing may not drift far, and neighbors typically experience the brunt of the noise and dust.”).

²⁰⁷ Apple, *supra* note 49, at 220; Etukeren, *supra* note 30, at 57; Ian Urbina, *Regulation Lax as Gas Wells' Tainted Water Hits Rivers*, N.Y. TIMES, Feb. 27, 2011, <http://www.nytimes.com/2011/02/27/us/27gas.html?pagewanted=all>; Marie Cusick, *In Sunbury, Drilling Waste, Politics, and a Pile of Dirt*, STATEIMPACT (Apr. 29, 2013), <http://stateimpact.npr.org/pennsylvania/2013/04/29/in-sunbury-drilling-waste-politics-and-a-pile-of-dirt/>.

²⁰⁸ Apple, *supra* note 49, at 220; Spence, *supra* note 1, at 154.

²⁰⁹ Morgan, *supra* note 172, at 89; Griswold, *supra* note 174; Mike Di Paola, *Fracking's Toll on Pets, Livestock Chills Farmers: Commentary*, BLOOMBERG (Feb. 8, 2012), <http://www.bloomberg.com/news/2012-02-08/fracking-s-toll-on-pets-livestock-chills-pennsylvania-farmers-commentary.html>; Krishna Ramanujan, *Study Suggests Hydrofracking is Killing Farm Animals, Pets*, CORNELL CHRON. (Mar. 7, 2012), <http://news.cornell.edu/stories/2012/03/reproductive-problems-death-animals-exposed-fracking>.

²¹⁰ Apple, *supra* note 49, at 220; Etukeren, *supra* note 30, at 57; Hamilton, *supra* note 155; *List of the Harmed*, PA. ALLIANCE FOR CLEAN WATER & AIR (Dec. 19, 2014), <http://pennsylvaniaallianceforcleanwaterandair.wordpress.com/the-list/>.

²¹¹ Griswold, *supra* note 174.

²¹² Lynn Kerr McKay et al., *Science and the Reasonable Development of Marcellus Shale Natural Gas Resources in Pennsylvania and New York*, 32 ENERGY L.J. 125, 137 (2011); Watson, *supra* note 119, at 51.

²¹³ Urbina, *supra* note 207.

²¹⁴ Fish, *supra* note 114, at 237.

supplies in Ohio, Pennsylvania, West Virginia, and other states.²¹⁵ HF wastewater with unsafe levels of radioactivity has been dumped into rivers that feed into drinking water supplies, where sewage treatment plants may be incapable of removing contaminants.²¹⁶ A 2008 incident involving waste water dumping near Pittsburgh was called, in an internal EPA document, “one of the largest failures in U.S. history to supply clean drinking water to the public.”²¹⁷ In 2015, the EPA issued a formal assessment of fracking’s impact on drinking water resources;²¹⁸ it acknowledged that HF-related activities “have the potential to impact drinking water resources” despite effects not appearing to be widespread, but it also noted the paucity of long-term studies.²¹⁹

HF’s novelty makes it difficult to substantiate claims of adverse health effects due to the complex and long-term nature of epidemiological research.²²⁰ However, some evidence being amassed has shown links between fracking and health problems. A recent study in an environmental health review concluded that “evidence suggests that people who live near fracking wells—over 15 million Americans reside within a mile from one—should be monitored for chemical exposure and any health problems.”²²¹ Researchers were concerned about reproductive health and emphasized that fetuses and small children could be particularly at risk.²²² Another recent study, “the largest . . . to look at the overall health of people living near the wells,” conducted by Yale University and focused on Washington County, Pennsylvania, showed a dramatically heightened likelihood that people living near natural gas wells would experience upper-respiratory and

²¹⁵ Urbina, *supra* note 207.

²¹⁶ *Id.*

²¹⁷ *Id.*

²¹⁸ EPA OFFICE OF RESEARCH & DEV., ASSESSMENT OF THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING FOR OIL AND GAS ON DRINKING WATER RESOURCES (External Review Draft) (2015), available at http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=523539.

²¹⁹ EPA OFFICE OF RESEARCH & DEV., EXECUTIVE SUMMARY OF THE DRAFT REPORT, ASSESSMENT OF THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING FOR OIL AND GAS ON DRINKING WATER RESOURCES (External Review Draft) (2015), available at http://www2.epa.gov/sites/production/files/2015-07/documents/hf_es_erd_jun2015.pdf.

²²⁰ Hamilton, *supra* note 155.

²²¹ Lindsay Abrams, *Fracking Chemicals’ Untold Threat to Reproductive Health*, SALON (Dec. 8, 2014 3:52 PM), http://www.salon.com/2014/12/08/fracking_chemicals_untold_threat_to_reproductive_health/.

²²² *Id.*

skin problems.²²³ Of those living less than a kilometer from a well, 39% had upper respiratory symptoms, compared to 18% of those living more than two kilometers away.²²⁴ Of those living within a kilometer of a well, 13% experienced rashes or other skin symptoms, compared to only 3% of those living two or more kilometers away.²²⁵ Although researchers noted that these correlations do not prove that living near a well is the cause of these symptoms, other studies have “linked fracking to possible birth defects, higher lung disease risks, methane contamination in drinking water, and elevated endocrine-disrupting chemical activity in groundwater.”²²⁶ Significantly, “[s]cientists are quick to caution that the problems with evidence . . . do not show that gas drilling is safe for people who live near it.”²²⁷ In light of the current lack of research, more investigation and monitoring will be necessary to determine the precise risks HF development poses.

4. Lack of Regulatory Compliance and Oversight

While the oil and gas industry already benefits from what has been called “a regulatory vacuum,”²²⁸ it is not clear that existing regulations are proving effective to minimize the risks fracking may pose to rural communities. Regulations and enforcement mechanisms differ from state to state, and West Virginia, Pennsylvania, and Colorado are the only three states among thirty-six with ongoing development that make the frequency and nature of oil and gas company violations publicly accessible.²²⁹ In Pennsylvania, companies were fined an average of \$2.6 million per year for environmental violations from 2010 to 2013.²³⁰ A 2011

²²³ Wendy Koch, *People Near ‘Fracking’ Wells Report Health Woes*, USA TODAY, Sept. 10, 2014, <http://www.usatoday.com/story/money/business/2014/09/10/people-near-fracking-wells-health-symptoms/15337797/>.

²²⁴ *Id.*

²²⁵ *Id.*

²²⁶ *Id.*

²²⁷ Hamilton, *supra* note 155.

²²⁸ Shalanda Helen Baker, *Is Fracking the Next Financial Crisis? A Development Lens for Understanding Systemic Risk and Governance*, 87 TEMP. L. REV. 229, 268 (2015).

²²⁹ Sarah Tincher, *WV oil and Gas Operators Land on ‘Fracking’s Most Wanted’ List*, ST. J., Apr. 2, 2015, <http://www.statejournal.com/story/28706853/wv-oil-and-gas-operators-land-on-frackings-most-wanted-list>.

²³⁰ Laura Legere, *DEP Fined Oil and Gas Companies \$2.5 Million Last Year*, STATEIMPACT (Feb. 27, 2014, 2:00 AM), <https://stateimpact.npr.org/pennsylvania/2014/02/27/dep-fined-oil-and-gas-companies-2-5-million-last-year/>.

investigation by the New York Times concluded that, when spills occur in Pennsylvania, “[g]as producers are generally left to police themselves.”²³¹ Several major settlements in West Virginia in 2013 and 2014 involved millions of dollars in civil penalties, as well as gas companies pleading guilty to criminal charges for environmental violations.²³² Although companies paying fines and having violations monitored indicates that some successful oversight is being exercised, this form of back-end, remedial strategy also indicates that front-end protections may be inadequate to address public health risks and environmental degradation.

5. Access to Justice

Two major obstacles impede the ability of rural residents to gain access to justice in the event that legal issues related to fracking arise. The first is the simple fact that access to justice is more limited in places where shale gas development is taking place. Attorneys are scarcer in rural areas, and residents of rural areas tend to have fewer financial resources upon which to draw.²³³ Someone harmed by an oil and gas company wishing to pursue a remedy would likely need to spend money—testing potentially contaminated water, seeking an audit for royalties suspected to be undercut, or even seeking medical care—all of which require drawing upon financial resources.²³⁴ Meanwhile, if problems arise during development, a leaseholder’s main point of contact has probably been a landman or company representative with whom they have a relationship—a self-interested party who may also be the first person a leaseholder contacts.²³⁵ As Fish states:

²³¹ Urbina, *supra* note 207.

²³² In West Virginia in 2014, Trans Energy pleaded guilty in federal court to three federal pollution charges based on dumping materials for drilling operations into West Virginia streams without obtaining required permits under the Clean Water Act. Don Hopey, *Range Resources to Pay \$4.15M Penalty*, PITTSBURGH POST-GAZETTE (Sept. 18, 2014, 11:30 PM), <http://www.post-gazette.com/local/2014/09/18/DEP-orders-Range-Resources-to-pay-4-million-fine/stories/201409180293>. The company had already agreed to pay a \$3 million civil penalty for a longer list of similar violations at fifteen sites around the state. *Id.* Chesapeake reached a settlement and pleaded guilty to similar charges in 2013, and in late 2014, Range paid a \$4.15 million penalty to settle violations resulting in “the closing of five-football-field-sized impoundments” due to soil and groundwater contamination. *Id.*

²³³ Lisa R. Pruitt & Bradley E. Showman, *Law Stretched Thin: Access to Justice in Rural America*, 59 SAN DIEGO L. REV. 466, 467 (2014).

²³⁴ Lustgarten, *supra* note 165.

²³⁵ See, e.g., Griswold, *supra* note 174 (reporting that a landowner’s first reaction to pollution in water was to ask Range to test it).

A person who lacks a basic necessity like clean water likely lacks the resources, willpower, or time to engage in drawn-out negotiations or litigation with [a] polluter, and may instead accept whatever offer the polluter puts forward—such as paid shipments of clean water. In return, the polluter escapes culpability, can continue asserting that there have been no cases of fracking-related pollution, and proceed with business-as-usual.²³⁶

In short, private landowners are currently “in a weak position to hold lessees accountable.”²³⁷ Fish gives the example of a case in Dimock, Pennsylvania, where residents agreed to a \$4.1 million settlement for clean water but expressed concern that the amount was not enough to compensate their financial, health, and environmental damages.²³⁸

The second major limitation on access to justice for environmental justice concerns related to fracking is the limited legal framework applicable to this issue. Since Professor J.B. Ruhl noted in a 1998 article that there was then “no independent body of environmental justice law,”²³⁹ state and federal policies on environmental justice have evolved.²⁴⁰ However, most are not conducive to utilization by individuals after suffering harms,²⁴¹ rather, environmental justice litigation tends to be pursued through use of other frameworks, such as civil rights and environmental laws.²⁴² These and other laws have limited applicability to environmental justice and fracking. First, no law was designed to address environmental justice specifically.²⁴³ Second, some of the frameworks used more commonly to advance environmental justice claims would not necessarily apply to

²³⁶ Fish, *supra* note 114, at 261–62.

²³⁷ Griswold, *supra* note 174.

²³⁸ Fish, *supra* note 114, at 262.

²³⁹ J.B. Ruhl, *The Seven Degrees of Relevance: Why Should Real-World Environmental Attorneys Care Now About Sustainable Development Policy?*, 8 DUKE ENVTL. L. & POL'Y F. 273, 289 (1998).

²⁴⁰ See generally HILL, *supra* note 21, at 157–59, 173–78 (discussing evolution of Pennsylvania environmental justice policy).

²⁴¹ For instance, Pennsylvania and West Virginia's policies emphasize increased public participation during permitting. *Id.* at 174–78.

²⁴² Uma Outka, *Environmental Injustice and the Problem of the Law*, 57 ME. L. REV. 209, 216 (2005).

²⁴³ *Id.*

the mostly white population of rural Appalachia, due to the statutes' requirement of government action or membership in a protected group.²⁴⁴

Other options for legal redress exist, and fracking-related litigation has proliferated.²⁴⁵ Yet, these avenues also have substantial limitations for the would-be complainant. One potential avenue to pursue environmental justice-related claims would be through common law torts, but hurdles at that stage, such as expenses and high evidentiary standards, may make plaintiffs' claims difficult to win. To date, plaintiffs have not fared well bringing trespass and nuisance claims.²⁴⁶ Generally, courts have played a limited role, and state cases have tended to give the benefit of the doubt to oil and gas producers rather than to landowners.²⁴⁷ Other diverse issues, such as the prevalence of settlements with gag orders²⁴⁸ and the Ohio Supreme Court's 2013 holding that decisions to issue drilling permits were not appealable,²⁴⁹ also suggest that fracking-related litigation may be difficult for injured landowners.

²⁴⁴ 42 U.S.C. § 1983 (2012) ("Every person who, under color of any statute . . . subjects . . . any citizen of the United States or other person within the jurisdiction . . . of any rights . . . secured by the Constitution and laws . . . shall be liable to the party injured."); Draft Title VI Guidance for EPA Assistance Recipients Administering Environmental Permitting Programs (Draft Recipient Guidance) and Draft Revised Guidance for Investigating Title VI Administrative Complaints Challenging Permits (Draft Revised Investigation Guidance), 65 Fed. Reg. 39650 (June 27, 2000) ("Title VI prohibits discrimination based on race, color, or national origin, and applies to entities that receive federal funding from EPA."). Etukeren, *supra* note 30, at 66–68, 71 ("Title VI contains two sections that are used by EJ [Environmental Justice] litigants and complainants to allege discrimination, § 601 and § 602 Showing disparate impact means the complaining party needs to show that the discriminatory actions of the recipient, disproportionately affected a protected Title VI class[, . . . and c]omplainants are unable to link the harm they experience to the violation of a federal statute because there are no federal statutes on par that regulate the kinds of activities that hydrofracking complainants tend to complain about. This is the most common method used in Title VI cases to show adverse impact, but it is a method that hydrofracking complainants are unable to utilize.") Accordingly, "[t]he next best way to succeed in a Title VI complaint is to prove intentional discrimination," which is difficult and does not apply to groups outside of Title VI protected classes. *Id.* at 71–72.

²⁴⁵ Sylvia Hsieh, *Lawsuits over 'Fracking' Spread across U.S.*, DAILY REC. (Oct. 5, 2011), <http://thedailyrecord.com/2011/10/05/lawsuits-over-'fracking'-spread-across-u-s/>.

²⁴⁶ *Id.* at 248; Jeanne Marie Zokovitch Paben, *Approaches to Environmental Justice: A Case Study of One Community's Victory*, 20 S. CAL. REV. L. & SOC. JUST. 235, 250 (2011).

²⁴⁷ Wiseman, *supra* note 115, at 153.

²⁴⁸ Fish, *supra* note 114, at 261–62; Loren Steffy, *Why No One Trusts Oil Companies on Fracking*, FORBES (Aug. 5, 2013), <http://www.forbes.com/sites/lorenstefly/2013/08/05/why-no-one-trusts-oil-companies-on-fracking/>.

²⁴⁹ Watson, *supra* note 119, at 49.

The above discussion suggests that shale gas development can give rise to diverse and profound environmental justice issues. First, it appears that fracking communities may bear an inordinate burden of industrial activity through immediate, physical effects, such as pollution and heightened health risks. Further, communities may also be deprived of the power to protect themselves adequately, make well-informed, autonomous decisions about their futures, and pursue remedies for harms.²⁵⁰ Inadequate access to information, economic tradeoffs that are not as high as they could be or as high as promised, and limited access to justice all feed into the cycle of disenfranchisement that the environmental justice movement was born to counteract.²⁵¹

The above discussion also highlights the reality that discourse-framing is an environmental justice issue. Invisibility feeds powerlessness, and denying that environmental injustice exists, or that communities' complaints are real, will inhibit the mitigation of these complaints, particularly in light of already limited access to justice in this context. Ideology manipulation and muting, such as portraying grassroots organizations as "irrational," can be used not only to shape discourse, but also to keep environmental injustice invisible. Environmental injustices such as those described above should be acknowledged, but so, too, must the falsely narrow conversation on shale gas development.²⁵²

IV. ENVIRONMENTAL JUSTICE, PUBLIC SENTIMENT, AND OPPOSITION TO HF IN NEW YORK

HF's proponents often point to the documentary *Gasland* as an example of misinformation that has contributed to borderline "apocalyptic" responses to natural gas development.²⁵³ However, the previous section casts doubt on the claim that opposition to shale gas development stems solely from widespread misinformation. Opponents have formed entire organizations to counteract or manage natural gas development.²⁵⁴ In New York, landowner coalitions emerged as

²⁵⁰ Verchick, *supra* note 86.

²⁵¹ Paben, *supra* note 17, at 1097.

²⁵² *Id.*

²⁵³ Hatami, *supra* note 105.

²⁵⁴ Jacquet, *supra* note 8.

an organized force with increasing resources upon which to draw.²⁵⁵ These organizations are comprised of diverse volunteers and full-time staff, including farmers, lawyers, and other local professionals, in addition to environmental activists.²⁵⁶ One organization, Catskill Mountainkeeper, explains that, “[b]ased on extensive study, scientific evidence, and the results of what has happened in other states and communities, Catskill Mountainkeeper has determined that there is no safe way to extract natural gas from underground using high volume hydraulic fracturing.”²⁵⁷ If true, Catskill Mountainkeeper’s approach suggests a more nuanced assessment of fracking than a mere overreaction to viewing *Gasland*.

A grassroots movement driven in part by principles of environmental justice appears to have played a role in the momentum resulting in the ban on HF in New York.²⁵⁸ Almost sixty local New York organizations have been formed to oppose HF or have factored opposition into their missions.²⁵⁹ Their concerns do not focus solely on pollution and physical risks of HF. For instance, Residents Against Fracking Tioga argues that “[t]he industry has little legal accountability and uses its power to undermine democratic processes, distort science, and confuse people.”²⁶⁰ Another local organization, Andes Works!, argues that, “[e]ven as the industry is talking about how [natural gas development] can save the US, they are gearing up to sell natural gas in China. This gas will not heat our homes or fuel our cars!”²⁶¹

²⁵⁵ *Id.*; *The Campaign*, CHEFS FOR MARCELLUS, <http://chefsformarcellus.org/the-campaign/> (last visited Dec. 20, 2014) (“Chefs for the Marcellus is a group of chefs, restaurateurs, farmers, brewers, vintners, and other food professionals.”).

²⁵⁶ *Food Not Fracking*, SANE ENERGY PROJECT, <http://saneenergyproject.org/food-not-fracking> (last visited Dec. 20, 2014); *Fracking*, CATSKILL MOUNTAINKEEPER, http://www.catskillmountainkeeper.org/our-programs_fracking (last visited Dec. 20, 2014).

²⁵⁷ *Fracking*, *supra* note 256.

²⁵⁸ Spence, *supra* note 1, at 142 (characterizing opponents of shale gas production as an “opposition movement”); Verchick, *supra* note 86, at 23–24 (“[T]he environmental movement’s next revolution is now being plotted around kitchen tables. In inner cities, in rural ‘poverty pockets,’ and on Indian reservations, poor people and people of color are meeting in kitchens and living rooms, organizing coalitions, and speaking out against environmental policies that threaten the health of their families and communities. These grassroots campaigns, collectively called the ‘environmental justice movement,’ are forcefully challenging traditional environmental policies that benefit society’s more advanced members and leave the poor and other marginalized groups to ‘bear the brunt of environmental dangers.’”).

²⁵⁹ *Coalition Members*, AMERICANS AGAINST FRACKING, <http://www.americansagainstfracking.org/about-the-coalition/members/#New%20York> (last visited Dec. 20, 2014).

²⁶⁰ IS FRACKING GOOD FOR OUR COMMUNITY?, RESIDENTS AGAINST FRACKING TIOGA (RAFT) (2012), available at <http://raftny.org/wp-content/uploads/2012/03/RAFT-Brochure.pdf>.

²⁶¹ *On Fracking*, ANDES WORKS!, <http://andesworks.com/on-fracking/> (last visited Dec. 20, 2014).

The Concerned Citizens of Rural Broome state, “We are not a sacrifice zone.”²⁶² These concerns do not reflect an embrace of pure “environmentalism,” nor do they appear to be “hysterical.” Instead, they illustrate an understanding of the issues discussed above, including environmental injustice, discourse-framing, the natural resource curse, and boom-bust cycles.

It would also be difficult to accurately characterize this movement as “irrational.” Governor Cuomo cited health risks as the reason for imposing the ban on HF.²⁶³ However, he also noted that he had “never had anyone say to [him], ‘I believe fracking is great Not a single person in those [New York] communities. What [he] get[s] is, ‘I have no alternative to fracking.’”²⁶⁴ New York State Health Commissioner Dr. Howard Zucker added that “his review boiled down to a simple question: Would he want his family to live in a community where fracking was taking place?”²⁶⁵ While “fracking supporters accused Mr. Cuomo of giving in to environmentalists’ efforts to stoke public fears,”²⁶⁶ it seems just as likely that the public’s fears were reasonable, and that many New Yorkers opposed fracking based on individual and collective self-interest. The New York Department of Environmental Conservation’s 2015 findings confirm that environmental injustice risks factored into the ban: in addition to environmental and health concerns, it cites “negative socioeconomic and community character impacts,” including “the so-called ‘boomtown’ phenomenon,” potential loss of agricultural land, and insufficient information to make well-informed decisions.²⁶⁷

V. GOING FORWARD: ASSUAGING ENVIRONMENTAL JUSTICE CONCERNS AND MORAL OUTRAGE

Opposition to using HF in New York State is colored by “moral outrage.” Moral outrage has been used to describe the tendency of environmental activists to “frame[] their arguments in moral or ethical terms” and to use dramatic language to do so.²⁶⁸ However, it is unclear where labeling opposition as “moral outrage” ends

²⁶² *Who We Are* . . . , CONCERNED CITIZENS RURAL BROOME, <http://concernedcitizensofruralbroome.org/about-2/> (last visited Dec. 20, 2014).

²⁶³ Kaplan & McKinley, *supra* note 9.

²⁶⁴ *Id.*

²⁶⁵ *Id.*

²⁶⁶ *Id.*

²⁶⁷ N.Y. STATE DEP’T OF ENVTL. CONSERV., *supra* note 149.

²⁶⁸ Spence, *supra* note 1, at 144–45.

and where undercutting legitimate concerns, or engaging in a narrative to marginalize dissent, begins. The claim that powerful industry actors will be drowned out by masses of misinformed rural residents to the detriment of society is a difficult pill to swallow, yet it often seems to be the implication of terms used to describe anti-frackers.²⁶⁹

Notably, the driving factors behind moral outrage may, indeed, be inconsistent with scientific consensus. For instance, the current prevalence of parents not vaccinating their children illustrates the high stakes and potentially tragic costs of widespread misinformation.²⁷⁰ Similarly, public institutions have a heightened duty to investigate scientific matters responsibly and to base decisions on specific scientific findings after adequate research has been undertaken.²⁷¹ To make policy based solely on moral outrage would neglect this duty and create additional risks.

It may be worth looking at the distributions of risks relating to an issue to determine how much weight to give to particular viewpoints. In that light, the anti-vaccine movement is distinguishable from the anti-fracking movement. When people refuse to vaccinate, society bears the cost through heightened risks of the spread of communicable diseases. By contrast, the individuals concerned about fracking are frequently the ones who will bear the costs of shale gas development.²⁷²

Some risk assessment analysts recommend taking moral outrage into account when doing cost-benefit analyses or risk assessments for proposed environmental actions. All stakeholders in the ongoing fracking conversation might benefit from

²⁶⁹ John Sexton, 'Fracknation' Review: Powerful Response to Anti-Fracking Hysteria, BREITBART (Jan. 11, 2013), <http://www.breitbart.com/big-hollywood/2013/01/11/fracknation-powerful-response-to-anti-fracking-hysteria/>.

²⁷⁰ Pearl, *supra* note 103.

²⁷¹ *Cf.* Fershee, *supra* note 4, at 849 (criticizing the *Robinson Township* decision for "[d]rawing conclusions based on the court's 'sense' or perception of the facts, rather than a review of relevant research . . ."); McKay et al., *supra* note 212, at 130 (2011) (criticizing New York Radioactive Waste Management Associates in New York for making unreasonable assumptions in scientific assessment of harms).

²⁷² A response to this might be that society bears the cost of regions' failure to utilize shale gas in the nation's evolving energy mix for various reasons. However, the argument that individual regions should bear the costs of energy production for the greater good would seem consistent with environmental justice principles.

drawing on lessons of an approach that could be called “outrage management.”
Namely:

Commentators who accept the legitimacy of outrage as an element of risk generally recommend two strategies for reconciling the discordances between “expert” and “public” definitions of risk: (1) better “risk communication,” the two-way process of information exchange between governmental risk managers and the general public; and (2) involvement of “stakeholders,” the parties who are affected by the risk management problem, during all stages of the risk definition and management process.²⁷³

Considering “both logic and local experience in addressing a problem,”²⁷⁴ each channels “outrage” into “socially productive pathways.”²⁷⁵

Interestingly, the steps recommended to address moral outrage parallel actions that are fundamental to addressing environmental justice issues. A core principle in each approach is meaningful public participation. Robert Verchick argues that “inequality in exposure to environmental harm flows directly from a failure to consider the experiences and values of [traditionally underrepresented] groups.”²⁷⁶ People react emotionally in ways that may seem “hysterical” when they are worried about being helpless or feel that they lack adequate information about risks they are facing.²⁷⁷ Simple steps to inform people and let them be heard will reduce outrage while reducing the actual risks.²⁷⁸ Expanded public participation also helps account for diverse responses to various risks, differing localized priorities, and the fact that scientific evaluation is not always value-neutral.²⁷⁹ This Article is not the first to call for a sincere commitment on the part of government and industry to promote transparency, broad access to information, and public participation in decision-

²⁷³ ZYGMUNT J.B. PLATER ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY 143 (4th ed. 2010).

²⁷⁴ Verchick, *supra* note 86, at 85.

²⁷⁵ PLATER ET AL., *supra* note 273.

²⁷⁶ Verchick, *supra* note 86, at 37.

²⁷⁷ *Id.* at 41.

²⁷⁸ *Id.* at 81.

²⁷⁹ *Id.* at 80–81.

making.²⁸⁰ These steps would improve the industry's reputation, reduce moral outrage, and help to mitigate environmental justice concerns.²⁸¹

In order to comport with environmental justice principles, communities are faced with a different tension between protecting residents' financial opportunities and protecting other residents' right to a safe environment. Manifestly, the political will to establish legal protections for rural communities has been lacking at the federal level and in many states. Localities would be well advised to take matters into their own hands, to the extent possible. At the very least, to mitigate any "drill first, ask questions later" mentality²⁸² and the poorly understood risks of fracking, communities engaging with fracking companies should consider negotiating establishment of trusts to address medical or environmental needs which arise in the future, or to otherwise funnel fracking profits into sustainable community betterment projects.²⁸³ Landowner coalitions have also been effective in negotiating with industry actors to protect local interests.²⁸⁴ Communities and individuals can benefit from informational resources aimed at protecting local, individual, and community interests.²⁸⁵ Where municipal bans are not allowed, zoning and planning can potentially minimize the risks of going forward.

From a regulatory perspective, New York's ban illustrates a positive step for environmental justice advocacy. The state's decision suggests that "a policy of environmental justice" can shape regulation of natural gas development,²⁸⁶ even if

²⁸⁰ *See id.* at 86.

²⁸¹ *Cf.* Spence, *supra* note 41, at 76–77 (arguing that, in order to protect their reputations, companies must understand perceptions and forces that determine reputation; all major investor-owned companies "now devote significant time and energy to stakeholder engagement as a key component of risk management"); Lawson, *supra* note 14, at 68 ("[P]ublic acceptance is essential to the success of any emerging technology.").

²⁸² Howard, *supra* note 5, at 122.

²⁸³ *See, e.g.*, TED BOETTNER ET AL., CREATING AN ECONOMIC DIVERSIFICATION TRUST FUND (2012) (discussing "Future Fund" proposed by West Virginia Senator Jeff Kessler, which "would be financed using 25 percent of future severance tax revenues from Marcellus Shale natural gas production"—as one option for financing local development projects and providing assistance to counties impacted by extractive industries); Ian Hicks, *Dilapidated Houses to be Torn Down—Natural Gas Royalty Money Helping to Fund Demolition*, INTELLIGENCER (Jan. 14, 2015), <http://www.theintelligencer.net/page/content.detail/id/622421.html>.

²⁸⁴ Jacquet, *supra* note 8, at 679.

²⁸⁵ *See, e.g.*, FRACKING RESOURCE GUIDE, <http://frack.mixplex.com> (last visited Oct. 5, 2015).

²⁸⁶ Howard, *supra* note 5, at 121.

it was not identified as such. This is not necessarily because fracking should never be done in New York; rather, the decision appears to espouse the ethical principle recently articulated by researchers at Cornell Weill Medical College:

[P]olicy makers have a prima facie duty to minimize false negatives based on three considerations: (1) protection from serious harm generally takes precedence over the enhancement of welfare; (2) minimizing false negatives . . . [is] more respectful to people's autonomy; and (3) [there is potential that] alternative solutions exist that may provide many of the same benefits while minimizing many of the harms.²⁸⁷

In essence, this approach espouses the age-old precautionary principle of environmental law.²⁸⁸ Given the novelty of fracking and the history of regional rural marginalization, exercising the precautionary principle is an appropriate approach to prevent or mitigate environmental injustice and ensure that the use of HF be incorporated into a model for sustainable development.

Where shale gas development is going forward, state and federal regulators should be informed by environmental justice issues and recognize the potential for those issues to be shut out of the dialogue. Implementing the following steps could help mitigate the issues discussed above: (1) stricter regulation of landmen;²⁸⁹ (2) application of consumer protection law to individuals contracting with energy companies;²⁹⁰ (3) establishment of localized or state trust or insurance mechanisms for gas companies to finance remediation of any unforeseen health or environmental effects from their activities, or to otherwise benefit the local community, alongside increased monitoring;²⁹¹ (4) stricter disclosure requirements and front-end oversight of the HF process;²⁹² (5) meaningful involvement of affected communities in decision-making processes;²⁹³ and (6) establishment of

²⁸⁷ de Melo-Martin et al., *supra* note 152, at 1411.

²⁸⁸ Phillip M. Kannan, *The Precautionary Principle: More Than a Cameo Appearance in United States Environmental Law?*, 31 WM. & MARY ENVTL. L. & POL'Y REV. 409 (2007).

²⁸⁹ See S. 766, 443d Gen. Assemb., Reg. Sess. (Md. 2013).

²⁹⁰ Radow, *supra* note 48, at 17.

²⁹¹ See BOETTNER ET AL., *supra* note 283.

²⁹² Elizabeth Bursleson, *Cooperative Federalism and Hydraulic Fracturing: A Human Right to a Clean Environment*, 22 CORNELL J.L. & PUB. POL'Y 289, 335 (2012).

²⁹³ See *id.* at 327 (discussing framework for inclusive decision-making).

state commissions or other procedural mechanisms with a specific focus on HF-related complaints in order to expand access to justice and develop governmental expertise on common issues.²⁹⁴

CONCLUSION

Shale gas development may have offered the perfect opportunity for the environmental justice movement to blossom, as its perceived (and/or actual) threats to health and home inspired widespread grassroots organization, at least in New York. It is possible that some critics of natural gas development suffer from anti-science hysteria, but no rational individual would want to see her community's economy start to resemble areas where the energy industry's reign has brought entrenched poverty and public health harms with activities similarly framed as the key to the nation's energy future. Historically, rural welfare and local autonomy have been sacrificed for profits and energy abundance. It would seem that suspicion of shale gas development—which this Article argues is, *en masse*, based on more than the already large concern of pollution—is logical suspicion, especially in light of the environmental justice-related issues that have accompanied development to date. If environmental justice were incorporated more centrally into the discourse on shale gas development, perhaps emotional reactions to fracking would seem less surprising.

Some commentators suggest that the objective, neutral solution to the fracking debate will naturally be a moderate compromise of the two polarized sides.²⁹⁵ There may be truth to this, and it seems likely that the future of HF use will involve a more robust regulatory regime that attempts to harmonize opposing interests. However, in treating the two “sides” as equals, this viewpoint could also be said to overlook the status quo. Perspectives on this issue could be enriched by giving greater weight to the historical and current marginalization and lack of access to justice of rural populations, and by not tacitly assuming that it is the duty

²⁹⁴ *Cf. id.* at 340 (discussing European initiatives to expand access to justice through the Aarhus Convention); Etukeren, *supra* note 30, at 55 (calling for more robust protections under Title VI of the Civil Rights Act of 1964 for environmental justice communities affected by hydraulic fracturing); Steve Krejci, *Is the Human Right to Water in Pennsylvania Fracked? An Analysis of the Pennsylvanian Right to Water in the Hydraulic Fracturing Context and a Proposal for Reform Based on French and Ontario Environmental Rights Statutes*, 8 APPALACHIAN NAT. RESOURCES L.J. 175, 202–04 (2014) (discussing how France and Ontario have both relaxed the requirement of standing as procedural component of protecting the human right to water and have allowed a form of citizen suit).

²⁹⁵ See, e.g., Ed Dolan, *An Economic Analysis of Fracking*, OILPRICE.COM (May 8, 2012, 4:36 AM), <http://oilprice.com/Energy/Natural-Gas/An-Economic-Analysis-of-Fracking.html>.

of those communities to bear the costs of natural resource extraction (offset by illusory benefits) for the greater good.