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Situating Data in a Trumpian Era: The Environmental Data and Governance Initiative

Lindsey Dillon^{*}, Rebecca Lave[†], Becky Mansfield[‡], Sara Wylie[§], Nicholas Shapiro[¶], Anita Say Chan[#], and Michelle Murphy[¢]

^{*}Department of Sociology, University of California, Santa Cruz

[†]Department of Geography, Indiana University

[‡]Department of Geography, Ohio State University

[§]Sociology and Health Sciences, Northeastern University

[¶]Science History Institute

[#]Institute of Communications Research, University of Illinois

[¢]History and Women and Gender Studies, University of Toronto

The Trump administration's antienvironmental policies and its proclivity to dismiss evidence-based claims creates challenges for environmental politics in a warming world. This article offers the Environmental Data and Governance Initiative (EDGI) as a case study of one way to respond to this political moment. EDGI was started by a small group of Science and Technology Studies and environmental justice researchers and activists in the United States and Canada immediately after the November 2016 elections. Since then, EDGI has engaged in four primary activities: archiving Web pages and online scientific data from federal environmental agencies; monitoring changes to these agencies' Web sites; interviewing career staff at the Environmental Protection Agency and the Occupational Safety and Health Administration as a means of tracking changes within those agencies; and analyzing shifts in environmental policy. Through these projects and practices, EDGI members developed the concept of environmental data justice. Environmental data justice is deeply informed by feminist approaches to the politics of knowledge, especially in relation to critical data and archival studies. In this article we establish the theoretical basis for environmental data justice and demonstrate how EDGI enacts this framework in practice. *Key Words:* critical data studies, environmental data justice, feminist science studies, the politics of knowledge, social practice.

特朗普政府的反环境保护政策，及其轻视根据证据的主张之倾向，为世界暖化中的环境政治带来了挑战。本文提供环境数据与治理行动 (EDGI) 之案例研究，作为回应此般政治时刻的方式。2016年十一月大选过后，美国与加拿大的一小群科学与科技研究和环境正义的研究者与社会运动者，随即发起EDGI。EDGI涉入四大主要活动：对联邦环境局的网页和网路科学数据进行建档；监测这些单位的网站改变；访问环境保护局和职业安全与健康管理局的从业工作者，作为追踪这些局处内部变迁的方式；以及分析环境政策的改变。EDGI的成员透过这些计画与实践，发展出环境数据正义的概念。环境数据正义深受女权主义之于知识政治的方法所影响，特别是有关批判数据与档案研究方面。我们于本文中建立环境数据正义的理论基础，并展现EDGI如何将此一架构付诸实践。 *关键词:* 批判数据研究, 环境数据正义, 女权主义科学研究, 知识的政治, 社会实践。

Las políticas anti-ambientalistas de la administración Trump y su proclividad para descartar reclamos respaldados con evidencia da lugar a desafíos a la política ambiental en un mundo en proceso de calentamiento. Este artículo presenta la Iniciativa de Gobernanza y Datos Ambientales (EDGI) como estudio de caso sobre una manera de responder al momento político actual. EDGI empezó como iniciativa de un pequeño grupo de los Estudios de Ciencia y Tecnología, investigadores de justicia ambiental y activistas de Estados Unidos y Canadá, inmediatamente después de las elecciones de noviembre de 2016. Desde entonces, EDGI se ha involucrado en cuatro actividades primarias: el archivo de páginas Web y datos científicos online de las agencias ambientales federales; monitoreo de los cambios en los sitios Web de estas agencias; entrevistas a los funcionarios de carrera de la Agencia de Protección Ambiental y de la Administración de la Salud y Seguridad Ocupacional, como medio de seguimiento a los cambios que ocurran en esas agencias; y analizar cambios en la política ambiental. A través de estos proyectos y prácticas, los miembros de EDGI desarrollaron el concepto de justicia de los datos ambientales. La justicia de los datos ambientales está profundamente imbuida de enfoques feministas hacia la política del conocimiento, especialmente en relación con los estudios de datos críticos y archivos. En este artículo ponemos las bases teóricas de la justicia de los

datos ambientales y demostramos cómo EDGI promueve este marco en la práctica. *Palabras clave: estudios de datos críticos, justicia de datos ambientales, estudios de ciencia feminista, política del conocimiento, práctica social.*

The point is to make a difference in the world, to cast our lot for some ways and not others. To do that, one must be in the action, be finite and dirty, not transcendent and clean.

—Haraway (1997, 36)

The Environmental Data and Governance Initiative (EDGI 2018) was started by a small group of Science and Technology Studies (STS) and environmental justice researchers and activists in the United States and Canada immediately after the November 2016 U.S. elections.¹ Like many people at the time, EDGI's founders were concerned about the potential impact of the Trump administration on the environment and human health. Given EDGI's collective expertise on this topic and the all too recent memory of Prime Minister Stephen Harper's attack on public science in Canada (Turner 2013), our concern had a particular focus: the future of environmental science, data, and policy in the face of a virulently anti-science and anti-environment administration. In its first year, EDGI concentrated on four primary activities: archiving Web pages and online scientific data from federal environmental agencies²; monitoring changes to these agencies' Web sites; interviewing career staff at the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration as a means of tracking changes within those agencies; and analyzing shifts in environmental policy (Sellers et al. 2017, Underhill et al. 2017; Rinberg et al. 2018).

Given that many members of EDGI, including the authors of this article, are long-standing critics of state knowledge production and regulatory practice, it is ironic that EDGI's initial activities centered on "rescuing" what we saw as vulnerable federal data and protecting state regulations.³ EDGI's governmental accountability and oversight work could be seen as advocating a return to Obama-era liberalism, based on the idea that state environmental science and data represent an unambiguous form of "truth" in contrast to the Trump administration's "fictions." The stakes in this political moment are indeed high, particularly as many of the EPA's political appointees are on

the record denying both anthropogenic climate change and the harmful effects of pollution (Lipton 2017). Still, as scholars theoretically grounded in feminist STS and environmental justice research, we find a political strategy of uncritically defending facts and data untenable.

EDGI's work attempts to reconcile the need to preserve publicly accessible environmental data and protect state environmental agencies with our shared conviction that it would be a mistake to simply reinstate normal science and state regulation. We argue for the importance of continuing to critique state science, even under an administration that seeks to dismantle state agencies and undermine their scientific work. Critiquing the regulatory state is not enough, though; we also must work to change it. What follows is a reflection on the transformative potential of EDGI, with a focus on the emergent framework and set of practices around *environmental data justice*, a term coined by EDGI member and University of Toronto professor Michelle Murphy to encourage the work of building alternative social and technical data infrastructures and more just socio-environmental futures.

The framework of environmental data justice is deeply informed by feminist approaches to the politics of knowledge, especially in relation to critical data and archival studies. Environmental data justice is also informed by decolonial approaches to knowledge practices, particularly Tuck's (2009, 416) call for "desire-based" rather than "damage-centered" research. Desire-based research does not pathologize communities by merely documenting harm; rather, it emphasizes capacities, multiplicities, and hope and actively works toward building a better world.

In this article we establish a provisional theoretical basis for environmental data justice and demonstrate how EDGI enacts this framework in practice, through specific projects and working groups. We argue that environmental data justice can be of use for all of us in geography and beyond who face the seemingly contradictory imperatives to both defend and critique environmental data and its role in the liberal state. EDGI offers one way of imagining and building alternative, justice-oriented knowledge

practices and forms of environmental governance, while creating new modes of counting and accountability.

Environmental Governance and “Alternative Facts”

A consistent characteristic of the Trump administration has been the blurring of any distinction between fact and falsehood. Trump advisor Kellyanne Conway famously used the term “alternative facts” in January 2017 to justify purposeful lies about the size of Trump’s inaugural crowd (Sinterbrand 2017). Meanwhile, Trump consistently targets news outlets like CNN and *The New York Times* as “fake” news (Schwartz 2018). This disregard for any kind of adherence to factual statements or evidence-based claims, combined with the administration’s white supremacist and xenophobic policies and rhetoric, led public commentators in 2017 to return to Arendt’s (1951) book, *The Origins of Totalitarianism* (Berkowitz 2017; Harnett 2017).⁴ For Arendt (1973), a defining component of totalitarian movements is their “contempt for facts”:

The ideal subject of totalitarian rule is not the convinced Nazi or the convinced Communist, but people for whom the distinction between fact and fiction (i.e., the reality of experience) and the distinction between true and false (i.e., the standards of thought) no longer exist. (474)

The proclivity of Trump and many of his supporters to undermine these sorts of distinctions has generated widespread dismay across the United States, leading to social protests in defense of truth and facts, and especially environmental facts. For example, signs displayed at the Women’s March, March for Science, and related events in the months after Trump took office included “Pro-facts” and “Climate Change Is Real.”

Nevertheless, the narrative of Trump as a populist or authoritarian leader leaves out the pervasive corporate influence on his administration—particularly from the petrochemical industry—which deeply shapes its approach to environmental policies (Roberts 2017; Tabuchi and Lipton 2017; Dillon et al. 2018). Former EPA administrator Scott Pruitt⁵ and current Interior Secretary Ryan Zinke are openly sympathetic to fossil fuel interests.⁶ As Zinke told the National Petroleum Council in September 2017,

“We’re now in the business of being partners, rather than adversaries” (Venook 2017). Pruitt actively sought to unravel the EPA through steep budget and staff cuts, deregulation, and a reluctance to enforce environmental laws (Sellers et al. 2017; Irfan 2018). He also restructured the EPA’s Science Advisory Board and its Board of Scientific Counselors, prevented EPA scientists from serving on those boards, and (for the first time in the agency’s history) allowed lobbyists on EPA science advisory boards (Kimm and Rafferty 2017; Millman 2018). This is in keeping with many of Trump’s early Executive Orders as U.S. president, which took aim at environmental agencies and policies. For example, Executive Order 13783 withdrew from former President Barack Obama’s Clean Power Plan and reversed other climate change policies. Significantly, Trump signed this Executive Order at EPA Headquarters as part of a highly publicized event, during which coal miners were brought on stage to demonstrate the agency’s new political commitments (Sellers et al. 2017).

Grassroots projects such as EDGI represent a form of political resistance and academic research in a moment when a pervasive corporate influence over environmental policy and federal agencies has called the integrity of state environmental data and the cultures of state scientific research into question. The problem of environmental governance under the new administration is not only Trump’s cavalier, authoritarian-like relationship with facts (e.g., his well-known comment that climate change is a “hoax”) but also the corporate capture of regulatory agencies by companies with a long history of actively “manufacturing doubt” about climate change (Oreskes and Conway 2011). From this latter perspective, the politics of what counts as an environmental fact is not new, nor is corporate influence over environmental agencies like the EPA (Wylie 2018). EDGI’s projects have sought to challenge the immediate threat to environmental agencies and policies—Pruitt’s dismantling of the EPA, for example—while maintaining a longer, historical view and critique that goes beyond the Trump administration.

One of the ways in which we have sought to challenge the Trump administration and advance a broader critique of the liberal state and its forms of knowledge production is through the concept and practices of environmental data justice. Environmental data justice builds from several

analytical frameworks, including feminist STS and critical data studies. In what follows, we put these two scholarly literatures in conversation through the notion of “situating data.”

Situating Data and the Politics of Knowledge

A tension that EDGI confronts, and the underlying question of this article, is how to account for the social construction of knowledge when environmental facts and data are also vital to any hope of state and corporate accountability for environmental harms. Does arguing for the social construction of knowledge inadvertently align with a political agenda supporting “alternative facts”? Does it enable the fossil fuel industry’s co-optation of environmental agencies by encouraging further doubt about climate change? Although such questions are particularly salient today, similar questions have been of long-standing interest in academic fields such as science studies and political ecology (see Neimark et al. this issue). Here, we turn to foundational feminist STS scholarship that we find especially useful for engaging environmental data in the current political moment. We focus on Haraway’s (1988) concept of *situated knowledge* and on Harding’s (1992) framework for *strong objectivity*.

Haraway (1988) argued that all knowledge claims are partial, produced in and through practices that are corporeally, socially, geographically, and technically situated. Thus, conventional understandings of universalist knowledge and objectivity, which she described as the “god trick of seeing everything from nowhere,” are fundamentally inaccurate descriptions of scientific research. Haraway (1988) wrote, “I am arguing for politics and epistemologies of location, positioning, and situating, where partiality and not universality is the condition of being heard to make rational knowledge claims. ... I am arguing for a view from a body” (589). A politics of location involves acknowledging and theorizing the conditions of knowledge production, rather than claiming a transcendent universality or the “view from nowhere.” Acknowledging these conditions also entails taking greater responsibility and accountability for knowledge claims.

Haraway (1988) developed the concept of situated knowledges as a way out of the “two poles” of absolutist objectivity on the one hand and the strong

social constructivist argument (in which all knowledge claims could be reduced to a play of power) on the other. In this sense, the concept of situated knowledges is particularly relevant to EDGI’s work because Haraway, writing in the 1980s, was also responding to the political stakes of the time: She worried that strong social constructivism encouraged an ethical relativism, leaving any claim to the “real world” to political blocs, such as the Christian fundamentalists who supported then-President Reagan’s militaristic policies. Haraway found both absolutist objectivity and strong social constructivism untenable in a world demanding social change. Her description of the needle that must be threaded is prescient of our current dilemma:

I think my problem, and “our” problem, is how to have *simultaneously* an account of radical historical contingency for all knowledge claims and knowing subjects, a critical practice for recognizing our own “semiotic technologies” for making meanings, *and* a no-nonsense commitment to faithful accounts of a “real” world. (579)

Feminist philosopher of science Harding’s (1992) theory of “strong objectivity” offers one response to Haraway’s dilemma. Harding argued that “[o]bjectivity has not been ‘operationalized’” (440) in scientific practice, because common scientific methods do not identify the collective biases of scientists. In conversation with Haraway, she wrote, “It is a delusion—and a historically identifiable one—to think that human thought could completely erase the fingerprints that reveal its production process.” Therefore, “culturewide assumptions [drawn from ‘racist, sexist, heteronormative beliefs’] *that have not been criticized within the scientific research process* are transported into the results of research” (Harding 1992, 446).

To counter the unacknowledged politics of scientific research, Harding (1992) argued that we must recognize how knowledge practices—including scientific practices such as developing a hypothesis, developing research tools, selecting methods of data collection and analysis, and reporting results—are inescapably shaped by their social and (we would add) geographical conditions. To develop *strong objectivity*, we must practice *strong reflexivity* by foregrounding the sociospatial positionalities and the historical specificities of knowledge claims and knowledge-producing social systems. Although Harding and Haraway disagree about whether or not there are better, or more adequate, standpoints from

which to produce knowledge, they share a commitment to reflexive, inclusive, and participatory knowledge making. Perfect reflexivity might be impossible, because it requires being able to perform the god-trick on ourselves (Rose 1997). We can still strengthen the rigor and reflexivity of our work, though—and our evaluations of others’ work—by engaging more with the context of knowledge production, not less.

One point we draw from Haraway and Harding—as we develop EDGI’s approach to theory and practice—is that critique of state science is fundamental to justice-centered approaches to environmental data and policy. Foregrounding the socially situated character of knowledge—for us, environmental data—does not automatically lead to more accountable and responsible knowledge or data, but it is a necessary beginning of this process. Situating data requires us to ask questions such as these: Where does the research funding come from? What sorts of information and ideas are included and excluded? What assumptions are embedded in knowledge claims? Who does and does not get to make valid knowledge claims and through what processes and institutions?

Critical data scholars have taken up similar questions in highlighting the nontransparency of data and digital archival practices. Much of this work addresses commercial and state surveillance practices, as well as corporate structures of data collection—one of EDGI’s primary concerns. For example, digital media companies extract large amounts of data on individual users, at the same time keeping those data sets, and the larger data ecologies in which they lie, inaccessible to users, as exemplified by Cambridge Analytica’s use of Facebook data to develop voter profiles and personalize political ads for the 2016 Trump campaign. Along the lines of Haraway’s call for responsible knowledge claims, critical data scholars have called for greater “algorithmic transparency” and “audits” as new strategies to demand greater user access to the underlying code of commercial software systems (Graham 2005; Sandvig et al. 2014). Other scholars call attention to the cultural and political struggles underlying the production of algorithms and the expansion of large data archives on and around individuals, whose online activities and digital traces are continuously tracked and analyzed for commercial and state profiling projects (and hybrid versions of the two; Dourish 2016; Noble 2018).

Against the dominant idea within mainstream archival studies that practitioners should remain neutral, critical archival scholars have drawn from feminist, critical race, decolonial, and Indigenous studies scholarship to argue for deepened forms of accountability to and collaboration with marginalized communities that are the subjects of data collection (Christen 2011; Punzalan and Caswell 2016). As one example, Kukutai and Taylor (2016) advanced the notion of “Indigenous data sovereignty,” which addresses the extractive relationship between Indigenous people and the state, such as the history of biopiracy and misuse of Indigenous knowledge, and the simultaneous absence of reliable data collection on Indigenous people, making it difficult for Indigenous communities to make justice claims through the state. Kukutai and Taylor (2016) argued that there should be “effective participation in data gathering and research” and that “Indigenous people should control these data” (xxii). Projects like the Inuvialuit Living History (2018), the Plateau Peoples’ Web Portal (2018), and Mukurtu (2018) have likewise sought to support Indigenous knowledge systems and values through digital access to the archival holdings of various institutions (also see Duarte 2017).⁷ Indigenous data sovereignty also includes the refusal to be researched and objectified through scholarship and other data collection projects (Tuck and Yang 2014).

Similar to Haraway’s and Harding’s calls for situated and contextualized knowledge practices, critical data and archival scholars can be understood to call for “situating data.” Strategies of situating data—from opening up the practices of data collection to rethinking infrastructures of data stewardship—are pivotal to developing more responsible, accountable relationships with data. They also move us in the direction of a desire-based approach to data, oriented toward building more habitable relations that acknowledge and nurture the “complexity, contradiction, and the self-determination of lived lives” (Tuck 2009, 416). Situating data undermines any claim to absolute objectivity—for example, the notion that state data simply reflect “what is”—while also acknowledging the power and potential of grassroots data collection projects (“The Counted” 2016; Maharawal and McElroy 2017).⁸

Feminist STS and critical data science aspire to build more responsible and accountable forms of knowledge. These scholarly and activist traditions

offer a theoretical approach to environmental data that is not merely deconstructive but seek to build more just sociotechnical data infrastructures and new relationships with data. We turn now to the ways in which EDGI has worked in conversation with these scholarly and activist insights.

Toward Environmental Data Justice

The concept of environmental data justice developed (and continues to develop) through EDGI's projects and practices. Here we explain its initial contours and key concerns and show how it offers an analytical framework and set of practices oriented toward transforming environmental data and governance. EDGI theorizes environmental data justice as a "desire-based framework" (Tuck 2009) that seeks to foster justice, inclusion, and accountability in environmental knowledge practices (Paris et al. 2017; Walker 2017). By this, we mean that environmental data justice is explicitly proactive about creating practices, technologies, governance, forms of community, and infrastructures aimed at bringing about a more just world.

EDGI's mission is to "document current changes to environmental data and governance practices and to foster stewardship, participatory civic technologies, and new communities of practice to make data more accessible and governments and industry more accountable." Our work also aims to make justice and equity central to environmental, climate, and data governance, reflecting Harding's (1986) claim that "commitments to anti-authoritarian, anti-elitist, participatory, and emancipatory values and projects ... increase the objectivity of science" (27). We developed this mission statement through working group exercises and a collaborative writing process.

EDGI's political and theoretical commitments inform its internal organizational practices. EDGI structured itself as a consensus-based, horizontal organization. Its Member Protocol is inspired by feminist values, drawing from do-it-yourself science organization Public Lab (in which some EDGI members are also involved), Civic Tech Toronto's Code of Conduct, and the Geek Feminism Wiki.⁹ EDGI is also interdisciplinary: Its members include social scientists, physical and life scientists, lawyers, librarians, archivists, artists, and open-access technology communities dedicated to public access to scientific data and analysis. Through its interdisciplinary and

horizontal organization, EDGI brings together different perspectives and forms of expertise. Valuing different forms of knowledge and expertise is another way EDGI puts feminist principles into practice.

In its first few months of existence, the most visible aspect of EDGI was the DataRescue project, coordinated with a partner organization, DataRefuge (2018), and through a collaboration with the Wayback Machine at the Internet Archive. DataRescue crowdsourced the archiving of Web sites and data sets from federal environmental agencies, to maintain the public accessibility of those data sets in the context of a profound uncertainty about the future of online data and other environmental resources. DataRescue unfolded through a series of grassroots events (many at university libraries), with the first event at the University of Toronto in December 2016. The location is significant: Canada had only recently emerged from the administration of Prime Minister Stephen Harper (2006–2015). Harper undermined many of Canada's environmental science programs, policies, and agencies; censored federal scientists from speaking publicly; deleted content from federal environmental Web sites; and closed and destroyed materials from environmental libraries (Sellers et al. 2017). Under Harper's administration, concerned Canadians mobilized around evidence-based environmental policies through "Death of Evidence" rallies and the Right2Know network, affirming the value of science in the public interest (Bell 2012). After the first DataRescue event in Toronto, EDGI worked with DataRefuge to coordinate almost fifty DataRescue events in cities across the United States and Canada. The project received extensive coverage in news outlets including *The Washington Post* and the BBC (BBC 2016; A. Brown 2017).¹⁰

In some ways, DataRescue appeared as an uncritical form of activism. In part, it reacted to the immediate political moment through rhetoric of "saving" government data from the new administration. The notion of saving environmental data was understood by many, including the news media and some of the event participants, as an effort to rescue or save the liberal state. Arguably, the popularity of DataRescue stemmed from the notion that the Trump administration's environmental policies represent a political anomaly, rather than the extension of a well-funded and long-standing effort to undermine environmental regulation. Here, we explain

how DataRescue, from its inception, also involved feminist practices and a critique of the liberal state—therefore enacting a form of environmental data justice. Moreover, projects that have emerged from DataRescue reflect EDGI's commitment to building new social and technical infrastructures and capacities.

The first DataRescue event in Toronto (which did not yet bear the name “DataRescue”) was not simply about archiving as many EPA Web sites as possible; it was also about empowering a broad community to work together to copy and preserve data that they cared about. To this end, a key part of the event was producing a toolkit to enable communities in other cities or institutions to replicate and build on the process developed in Toronto.¹¹ The toolkit included technical information about how to archive Web pages and data sets, as well as documents such as a code of conduct, with an antiharassment policy, aimed at fostering an inclusive and enabling work environment.¹² The toolkit also included a “Code for Crediting, Licensing, and Acknowledgement,” which shared EDGI-developed documentation under a “Creative Commons Attribution-Sharealike” license (with coding tools shared GLP 3 and MIT 2017).¹³ The code also asked subsequent data archiving events to “generously credit local and nonlocal collaborators on the development of your tools, events, and social media.” In extending credit and acknowledging many forms of labor, the environmental data archiving project aimed to create inclusive communities of concern around environmental data. That is, DataRescue was never merely a technical project of saving data. Rather, through this toolkit and other practices, EDGI also sought to create communities to care for data and for each other.

Through the popularity of DataRescue, EDGI was able to raise questions about the stewardship and potential vulnerabilities of state-produced data. DataRescue also literally resituated public environmental data by moving copies of it into alternative archives like DataRefuge (2018). In building the tools of a distributed, community-based archiving, DataRescue created alternative infrastructures to care for public data, guided by feminist practices in the minutia of the project's details. In this way, we understand DataRescue to have both encouraged a tendency to fetishize facts and reify the state and to

have mobilized a critical and expansive politics of data care and justice.

DataRescue ended in June 2017, but it led to a new project, Data Together. Data Together emerged in part through conversations on the potentials and limitations of DataRescue. The project is a collaboration between EDGI and two companies, Protocol Labs (which builds open-source protocols, systems, and technologies of data stewardship) and qri.io (which develops research tools for the distributed Web). Data Together aims to develop community-based and decentralized models of data management and stewardship. Notably, it relies on a system of peer-to-peer data storage and retrieval (which Protocol Labs has been instrumental in developing) that allows communities to hold copies of data. This is in line with the community-centered digital capacities that Kukutai and Taylor (2016) advocated for in their notion of Indigenous data sovereignty. Decentralized models of data stewardship limit the state's power to control and disappear data sets (as Canadian scientists had experienced under the Harper administration). Data Together thus represents a shift within EDGI from a politics of preserving existing data sets toward building new open-source social and technical infrastructures to enable alternative relationships to data (Walker forthcoming).

Along with DataRescue, in January 2017, EDGI began to monitor changes to tens of thousands of federal environmental Web sites. In the process it has developed new tools and methods to hold the federal government accountable for censorship and reduced access to environmental data and information. As of December 2017, EDGI has issued twenty reports on significant changes in wording and public access to environmental information and resources, resulting in more than 100 media reports in venues including *ProPublica*, the *Washington Post*, and the *New York Times*.¹⁴ By documenting Web page changes over time—such as the EPA's removal of resources on climate change—EDGI revealed particular vulnerabilities of online environmental information to shifts in political power (see Friedman 2017). Nevertheless, EDGI's Web site monitoring project is not merely a government oversight project; we have also developed an open-source Web site monitoring platform to make this process more financially accessible (both for EDGI and for other community groups). This open-source platform

represents another effort to build new sociotechnical infrastructures.

The concept of environmental data justice emerged through these projects and practices, and also through theoretical reflection. EDGI formed in large part through the merging of data justice and environmental justice communities, and over the past year we have begun to systematically examine the tensions and overlaps between the ways these communities relate to environmental knowledge and data (see Walker 2017). As discussed earlier, critical data studies and data activism have tended to focus on issues of state and corporate data collection practices and demanded less surveillance by the state and corporations. In contrast, environmental justice scholars and activists generally demand more surveillance from the state, especially better monitoring and data collection of industrial emissions and toxic exposure. Environmental justice activists have mobilized to collect their own data on industrial pollution, in the absence of reliable monitoring and data collection by the state. As one example, the Louisiana Bucket Brigades constructed inexpensive air pollution monitors to register peak emissions from a Shell chemical factory, because the state's data collection practices failed to do so (Ottinger 2010). We argue that bringing critical data studies into conversation with environmental justice expands the latter's traditional focus on toxic exposure to include questions of data stewardship, the politics of technical infrastructures, and coding tools. Likewise, data justice activism can engage with desires for more information and greater access to large-scale environmental data sets, particularly having to do with climate change.

In an EDGI working group on environmental data justice, at conferences, and in our collective writing, we continue to explore what environmental data justice means, where it exists in practice already, and how we can foster it more widely in EDGI projects. Some initial ideas, published in our report *Pursuing a Toxic Agenda: Environmental Injustice in the Early Trump Administration* (Paris et al. 2017), include the following:

- Holding the state, corporations, and other polluters responsible for environmental harms. This includes drawing attention to the state's pervasive use of industry-produced data.
- Fostering social, political, and technical infrastructures in which communities can determine what

kinds of data are collected about their own conditions, including offering forms of consent to participate in data collection frameworks, building from the United Nations Declaration on the Rights of Indigenous Peoples. Within this framework consent includes the possibility of refusal.

- Opposing surveillance practices that oppress, dispossess, and marginalize.
- Supporting practices that avoid damage-based research—frameworks that represent communities as damaged and that do not alleviate environmental harms.
- Rethinking the ways we organize, steward, and distribute data.

In reflecting on EDGI's environmental data activism to date, we are drawn to a quote by Haraway (1997), which is the epigraph for this article: "The point is to make a difference in the world, to cast our lot for some ways and not others. To do that, one must be in the action, be finite and dirty, not transcendent and clean" (36). DataRescue, Data Together, EDGI's Web monitoring project, and our work of theory building around environmental data justice represent some of our efforts to engage with the environmental politics of the moment—to be in the mix. None of these projects are free from critique. We emphasize, however, that they have all included utopian, desire-based elements, and have sought to create inclusive communities of concern and envision alternative environmental knowledge and data practices. From its inception, EDGI's conversations included what we called "positive visioning," naming this desire to build something new—and signaling that our scholarship and activism is not simply a reaction to the Trump administration. In developing these projects and reflecting on them, we strive to enact a form of environmental data justice.

Conclusion

In this article we have explored some of the ways in which EDGI combines critique with political engagement, toward the goal of building alternative social and technical infrastructures and pursuing what we call environmental data justice. It does so in a moment when petrochemical interests dominate federal environmental agencies and therefore also the regulatory and data infrastructures that many vulnerable communities rely on to mitigate industrial-environmental harms. In developing

environmental data justice as a desire-based framework, we respond to this situation by asking this: What forms of environmental governance, data, and justice could be built to meet the needs of the world we would like to see come into being? Feminist science studies and critical data studies offer important conceptual tools in answering these questions.

We have not resolved tensions between the critical theories that inspire our work and the practical ways we have sought to address the environmental and health threats of the Trump administration; indeed, these might not be fully resolvable. We are committed, however, to the ongoing practice of reflection and change, rather than an easy resolution. In these and other ways, we think that EDGI's work offers intellectual resources and social practices for geographers and other social scientists conducting research on environmental knowledge, justice, and politics in the years to come.

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Notes

1. EDGI is now a network of more than 150 people, including all of the authors of this article.
2. Including the EPA, Department of Energy, Department of the Interior, NASA, National Oceanic and Atmospheric Administration, Occupational Safety and Health Administration, the U.S. Department of Agriculture, and U.S. Geological Survey.
3. For example, see Murphy (2006), P. Brown (2007), Mansfield (2012), Dillon (2014), Shapiro (2014), and Harrison (2015).
4. The online bookseller Amazon briefly ran out of stock of Arendt's book after Trump's election (Harnett 2017).
5. This article was accepted prior to Pruitt's resignation in June 2018.
6. Most of Trump's political appointees to the EPA have previously worked for climate change-doubling think tanks or petrochemical industries, including Senior Deputy General Counsel Edward Baptist (formerly with the influential American Petroleum Institute) and Deputy Assistant Administrator for

the Office of Chemical Safety and Pollution Prevention Nancy Beck (formerly with the American Chemistry Council; Center for Public Integrity 2018).

7. See Inunialuit Living History (<http://www.inunialuitlivinghistory.ca/>), Plateau People's Web Portal (<https://plateauportal.libraries.wsu.edu/>), and Murkurtu (<http://mukurtu.org/about/>).
8. See also the Data for Black Lives Conference, 2017 (<http://d4bl.org/conference.html>).
9. All can be viewed at <https://envirodatagov.org/about/mission-vision-values/> and <https://github.com/edgigovdata-archiving/overview/blob/master/CONDUCT.md>. EDGI's Member Protocol (similar to a code of conduct) is important for an organization like EDGI, in which member's primary interactions are through online platforms.
10. DataRescue was also mentioned by Klein as an example of resistance in her 2017 book, *No Is Not Enough: Resisting the New Shock Politics and Winning the World We Need*. Full coverage of EDGI's work can be viewed at <https://envirodatagov.org/press/#coverage>.
11. The Data Rescue Code of Conduct can be viewed at <https://docs.google.com/document/d/1bmMTOCgzZslkQwy03NqX4pEFFDFyMoEQDro7h35E7c/edit#>.
12. Materials from DataRescue Toolkit, included the Code for Crediting, Licensing, and Acknowledgment document, can be viewed at <https://envirodatagov.org/datarescue/>.
13. EDGI also uses MIT license.
14. See <https://envirodatagov.org/website-monitoring/> for the full list of reports and media coverage.

References

- Arendt, H. 1973. *The origins of totalitarianism*. Boston: Houghton Mifflin Harcourt.
- Bell, A. 2012. Why Canada's scientists need our support. *The Guardian*, July 11. Accessed May 5, 2017. <https://www.theguardian.com/commentisfree/2012/jul/11/canada-scientists-strike-protests>.
- Berkowitz, R. 2017. What Arendt matters: Revisiting "The origins of totalitarianism." *Los Angeles Review of Books*, March 18. Accessed May 5, 2018. <https://lareviewofbooks.org/article/arendt-matters-revisiting-origins-totalitarianism/#!>.
- Brown, A. 2017. A coalition of scientists keeps watch on the U.S. government's climate data. *The Intercept*, January 26. Accessed May 5, 2018. <https://theintercept.com/2017/01/27/a-coalition-of-scientists-keeps-watch-on-the-u-s-governments-climate-data/>.
- Brown, P. 2007. *Toxic exposures: Contested illnesses and the environmental health movement*. New York: Columbia University Press.
- Christen, K. 2011. Opening archives: Respectful repatriation. *American Archivist* 74 (1):185–210.
- The counted: People killed by police in the U.S. 2016. *The Guardian*. Accessed May 5, 2018. <https://www.theguardian.com/us-news/ng-interactive/2015/jun/01/the-counted-map-us-police-killings>.

- DataRefuge. 2018. Accessed May 5, 2018. <https://www.datarefuge.org>.
- Dillon, L., C. Sellers, V. Underhill, N. Shapiro, J. L. Ohayon, M. Sullivan, P. Brown, J. L. Harrison, S. Wylie, and EPA Under Siege Writing Group. 2018. The Environmental Protection Agency in the early Trump administration: Prelude to regulatory capture. *American Journal of Public Health* 108 (S2):S89–S94.
- Dourish, P. 2016. Algorithms and their others: Algorithmic culture in context. *Big Data and Society* 3 (2):1–11.
- Duarte, M. E. 2017. *Network sovereignty: Building the Internet across Indian country*. Seattle: University of Washington Press.
- Environmental Data and Governance Initiative. 2018. Mission, vision, and values. About. Accessed May 5, 2018. <https://envirodatagov.org/about/mission-vision-values>.
- Friedman, L. 2017. E.P.A. scrubs a climate change website of “climate change.” *New York Times*, October 20. Accessed May 5, 2018. https://www.nytimes.com/2017/10/20/climate/epa-climate-change.html?_r=1.
- Graham, S. 2005. Software-sorted geographies. *Progress in Human Geography* 29 (5):562–80.
- Haraway, D. 1988. Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist Studies* 14 (3):575–99.
- . 1997. *Modest – witness@second – millennium. FemaleMan – meets – OncoMouse: Feminism and technoscience*. London: Psychology Press.
- Harding, S. G. 1986. *The science question in feminism*. New York: Cornell University Press.
- . 1992. Rethinking standpoint epistemology: What is “strong objectivity?” *The Centennial Review* 36 (3):437–70.
- Harnett, S. 2017. Trump election spurs sales of books about white working class and totalitarianism. KQED News, January 19. Accessed May 5, 2018. <https://www.kqed.org/news/11275396/trump-election-spurs-sales-of-books-about-white-working-class-and-totalitarianism>.
- Harrison, J. L. 2015. Coopted environmental justice? Activists’ roles in shaping EJ policy implementation. *Environmental Sociology* 1 (4):241–55.
- Inuvialuit Living History. 2018. Accessed May 5, 2018. <http://www.inuvialuitlivinghistory.ca>
- Irfan, U. 2018. Scott Pruitt is slowly strangling the EPA. *Vox*, March 8. Accessed May 5, 2018. <https://www.vox.com/energy-and-environment/2018/1/29/16684952/epa-scott-pruitt-director-regulations>.
- Kimm, S., and A. Rafferty. 2017. Pruitt makes EPA science board more industry friendly. *NBC News*, November 3. Accessed March 21, 2018. <https://www.nbcnews.com/politics/white-house/pruitt-makes-epa-science-board-more-industry-friendly-n817276>.
- Kukutai, T., and J. Taylor. 2016. *Indigenous data sovereignty: Toward an agenda*. Canberra, Australia: Australian National University Press.
- Lipton, E. 2017. Why has the E.P.A. shifted on toxic chemicals? An industry insider helps call the shots. *New York Times*, October 21. Accessed May 5, 2018. <https://www.nytimes.com/2017/10/21/us/trump-epa-chemicals-regulations.html>.
- Maharawal, M. M., and E. McElroy. 2017. The anti- eviction mapping project: Counter mapping and oral history toward bay area housing justice. *Annals of the American Association of Geographers* 108 (2):380–89.
- Mansfield, B. 2012. Race and the new epigenetic biopolitics of environmental health. *BioSocieties* 7 (4):352–72.
- Millman, O. 2018. EPA head Scott Pruitt says global warming may help “humans flourish.” *The Guardian*, February 7. Accessed May 5, 2018. <https://www.theguardian.com/environment/2018/feb/07/epa-head-scott-pruitt-says-global-warming-may-help-humans-flourish>.
- Massachusetts Institute of Technology. 2017. Data for Black Lives Conference, MIT. Accessed December 15, 2017. <http://d4bl.org/conference.html>
- Mukurtu. 2018. Accessed May 5, 2018. <http://mukurtu.org/>.
- Murphy, M. 2006. *Sick building syndrome and the problem of uncertainty: Environmental politics, technoscience, and women workers*. Durham, NC: Duke University Press.
- Oreskes, N., and E. Conway. 2011. *Merchants of doubt: How a handful of scientists obscured the truth on issues from tobacco smoke to global warming*. New York: Bloomsbury.
- Ottinger, G. 2010. Buckets of resistance: Standards and the effectiveness of citizen science. *Science, Technology & Human Values* 35 (2):244–70.
- Paris, B. S., L. Dillon, J. Pierre, I. R. Pasquetto, E. Marquez, S. Wylie, M. Murphy, et al. 2017. Pursuing a toxic agenda: Environmental injustice in the early trump administration. Accessed May 5, 2018. <https://envirodatagov.org/publication/pursuing-toxic-agenda>.
- Peoples’ Web Portal. 2018. Accessed May 5, 2018. <http://plateauportal.wsulibs.wsu.edu>.
- Punzalan, R. L., and M. Caswell. 2016. Critical directions for archival approaches to social justice. *The Library Quarterly* 86 (1):25–42.
- Rinberg, T., M. Anjur-Dietrich, M. Beck, A. Bergman, J. Derry, L. Dillon, G. Gehrke, et al. 2018. Changing the digital climate: How climate change web content is being censored under the Trump administration. Accessed May 5, 2018. <https://envirodatagov.org/publication/changing-digital-climate>.
- Roberts, D. 2017. Donald Trump is handing the federal government over to fossil fuel interests. *Vox*, June 14. Accessed May 5, 2018. <https://www.vox.com/energy-and-environment/2017/6/13/15681498/trump-government-fossil-fuels>.
- Rose, G. 1997. Situating knowledges: Positionality, reflexivities and other tactics. *Progress in Human Geography* 21 (3):305–20.
- Sandvig, C., K. Hamilton, K. Karahalios, and C. Langbort. 2014. An algorithm audit. In *Data and discrimination: Collected essays*, ed. S. P. Gangadharan, V. Eubanks, and S. Barocas, Part I. Washington, DC: New America Foundation.
- Schwartz, J. 2018. Trump gives out “Fake News Awards” to CNN, N.Y. Times, Wash Post. *Politico*, January 17. Accessed May 5, 2018. <https://www.politico.com/story/2018/01/17/trump-fake-news-awards-345482>.
- Sellers, C., L. Dillon, J. L. Ohayon, N. Shapiro, M. Sullivan, C. Amoss, S. Bocking, et al. 2017. The

- EPA under siege. Accessed May 5, 2018. <https://envirodatagov.org/publication/the-epa-under-siege>.
- Shapiro, N. 2014. Un-knowing exposure: Toxic emergency housing, strategic inconclusivity and governance in the U.S. Gulf South. In *Knowledge, technology and law*, ed. E. Cloatre and M. Pickersgill. Los Angeles: The UCLA Institute for Society and Genetics.
- Sinterbrand, R. 2017. How Kellyanne Conway ushered in an era of “alternative facts.” *The Washington Post*, January 22. Accessed May 5, 2018. https://www.washingtonpost.com/news/the-fix/wp/2017/01/22/how-kellyanne-conway-ushered-in-the-era-of-alternative-facts/?utm_term=.76f8386a613b.
- Tabuchi, H., and E. Lipton. 2017. How rollbacks at Scott Pruitt’s EPA are a boon to oil and gas. *The New York Times*, May 20. Accessed May 5, 2018. <https://www.nytimes.com/2017/05/20/business/energy-environment/devon-energy.html>.
- Tuck, E. 2009. Suspending damage: A letter to communities. *Harvard Educational Review* 79 (3):409–28.
- Tuck, E., and K. W. Yang. 2014. Unbecoming claims: Pedagogies of refusal in qualitative research. *Qualitative Inquiry* 20 (6):811–18.
- Turner, C. 2013. *The war on science: Muzzled scientists and willful blindness in Stephen Harper’s Canada*. Vancouver: Greystone Books.
- Underhill, V., M. Martenyi, S. Lamdam, and A. Bergman. 2017. Public protections under threat at the EPA: Examining safeguards and programs that would have been blocked by H.R. 1430. Accessed May 5, 2018. <https://envirodatagov.org/publication/public-protections-under-threat/>.
- Venook, J. 2017. The Trump administration’s conflict of interest: A crib sheet. *The Atlantic*, January 18. Accessed May 5, 2018. <https://www.theatlantic.com/business/archive/2017/01/trumps-appointees-conflicts-of-interest-a-crib-sheet/512711/>.
- Walker, D. 2017. Towards environmental data justice: Initial thoughts. Environmental Data and Governance Initiative. Accessed May 5, 2018. <https://envirodatagov.org/towards-edj-statement/>.
- Walker, D., E. Nost, A. Lemlin, R. Lave, and L. Dillon. Forthcoming. Practicing environmental data justice: From DataRescue to Data Together. *Geo: Geography and Environment*.
- Wylie, S. A. 2018. *Fractivism: Corporate bodies and chemical bonds*. Durham, NC: Duke University Press.

LINDSEY DILLON is an Assistant Professor in the Department of Sociology at the University of California, Santa Cruz, Santa Cruz, CA 95062. E-mail: lidillon@ucsc.edu. Her current research looks at the political ecologies of urban redevelopment, focusing on the entanglements of race and toxic waste.

REBECCA LAVE is an Associate Professor in the Department of Geography at Indiana University,

Bloomington, IN 47405. E-mail: rlave@indiana.edu. Her critical physical geography research combines political economy, STS, and fluvial geomorphology to analyze water regulation, the construction of scientific expertise, and the ecosocial consequences of market-based environmental management.

BECKY MANSFIELD is a Professor in the Department of Geography at the Ohio State University, Columbus, OH 43210. E-mail: mansfield.32@osu.edu. Her current research centers on political ecology of environmental health, with a focus on the politics of science of hazardous exposures.

SARA WYLIE is an Assistant Professor of Sociology/Anthropology and Health Sciences in the Northeastern University Social Science Environmental Health Research Institute (SSEHRI), Boston, MA 02115. E-mail: s.wylie@northeastern.edu. She studies the environmental and human health impacts of oil and gas extraction through community-based participatory research and citizen science.

NICHOLAS SHAPIRO is the Open Air Fellow at Public Lab (<https://publiclab.org/>) and incoming Assistant Professor of Biology and Society at UCLA Institute for Society and Genetics, Los Angeles, CA 90095. E-mail: nick@publiclab.org. His work revolves around the multiple ways we attempt to detoxify our collective atmospheres.

ANITA SAY CHAN is an Associate Professor in the Department of Media and Cinema Studies and a Faculty Fellow at the National Center for Supercomputing Applications at the University of Illinois at Urbana–Champaign, Urbana, IL 61801. E-mail: achan@illinois.edu. Her research interests include innovation networks and the “periphery,” science and technology studies in Latin America, and collaborative data cultures and practice.

MICHELLE MURPHY is Professor of History and Women and Gender Studies and Director of the Technoscience Research Unit at the University of Toronto, Toronto, ON M6H3H9, Canada. E-mail: michelle.murphy@utoronto.ca. Her research concerns decolonial approaches to environmental violence, chemicals, environmental data, and colonialism in the Great Lakes area.