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Climate Change Litigation

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Keywords

climate litigation, Paris Agreement, courts, climate governance, impact, interdisciplinary research

Abstract

Climate change litigation has grown exponentially in the last decade, paralleled by the emergence of a rich legal and social sciences literature assessing these cases. Building on a recent review in *WIRES Climate Change*, this article evaluates the growth of this literature and the key themes it highlights. In 2019, climate litigation literature experienced substantial growth, with a focus on multiple novel dimensions: new high-profile judgments; emerging legal avenues, types of actors, litigation objectives, and jurisdictions, especially those in the Global South; and additional interdisciplinary analyses. Just as in the underlying case law, climate litigation scholarship shows evidence of distinct but overlapping waves that build together in a manner similar to a harmonic chord. Even so, this literature has not yet engaged deeply with questions about the effectiveness of climate litigation as a governance tool, particularly in the context of the decentralized system formalized with the 2015 Paris Agreement.

1. INTRODUCTION

More than a decade ago, when the present authors first began publishing on the topic of climate change litigation (Osofsky 2005, Peel 2007), there was considerable skepticism in the climate law and policy community regarding the role of courts in climate governance. At the time, the attention of most scholars was focused on domestic and international regulatory efforts to address climate change, including emissions trading systems (Bailey 2010, Bodansky 2005, Posner 2007). However, as these efforts faltered, a growing number of scholars across law and the social sciences became interested in how actors beyond national governments might help shape climate governance (Rayner 2010). A decade on, and with the 2015 Paris Agreement recognizing the importance of the engagement of "all levels of government and various actors" in addressing climate change (Paris Agreement, 2015, preamble), this trend is firmly established. It has given rise to a rich and extensive literature examining the part played by subnational and nonstate actors in climate governance (Jordan et al. 2015), including the role of courts seized with cases concerning climate change.

This article reviews the growth of literature in law and the social sciences on climate change litigation (or more commonly just climate litigation) and the key trends that emerge from these analyses. Our review of this literature, however, is not the first. Instead, we build on the foundations of the excellent review by Joana Setzer and Lisa Vanhala published in *WIRES Climate Change* in January 2019. Their review systematically analyzes key literature on climate litigation published between 2000 and September 2018 (Setzer & Vanhala 2019). Our article extends Setzer & Vanhala's review in three main ways, examined in each of the following sections of the article.

First, in Section 2, we update Setzer & Vanhala's literature review to include journal articles on climate litigation published or accepted for publication in 2019.[1] This survey indicates a significant increase in climate litigation literature over the course of 2019, continuing and amplifying the pattern of growth Setzer & Vanhala identified.

Second, in Section 3, the article critically assesses different trends and trajectories in the climate litigation literature Setzer & Vanhala identified and explores the extent to which they map to developments in the underlying case law. In this respect, we revisit ideas of whether there are discernible waves in both the climate litigation scholarship and the jurisprudence that can provide an explanation of their development and help to predict potential future pathways (Peel & Osofsky 2013).

Third, in Section 4, we discuss a key area of interdisciplinary intersection between law and social science studies that Setzer & Vanhala identify as a gap in the existing climate litigation literature, as well as a fruitful potential area for future research. This concerns questions of how to define and measure the impact of climate litigation—a topic critical to assessing its contribution to climate governance and the achievement of urgent climate change mitigation needs (IPCC 2018). Finally, Section 5 concludes with our reflections on the insights that climate litigation literature offers about the role of courts in climate governance, as well as how those insights might be further developed and deepened in future legal and social science research.

2. REVIEW OF LITERATURE ON CLIMATE LITIGATION

From modest beginnings in the early 2000s, literature on climate litigation in law and the social sciences has grown steadily, reflecting "a marked increase in scholarly interest" (Setzer & Vanhala

[1] As Setzer & Vanhala acknowledge, a focus on journal articles necessarily excludes other literature on the topic found in books, book chapters, and other publications. However, for consistency with their approach, and to facilitate systematic review, we have also surveyed only journal articles in our update of the literature.

2019, p. 2). The development of this body of scholarship has largely tracked the exponential growth in the number of climate-related cases. Starting from a handful of cases in the 1990s, concentrated in the United States and Australia, as of May 2019, there were more than 1,300 cases identified in global climate litigation databases, covering 28 countries and 4 supranational jurisdictions, with 1,023 cases identified in the United States alone (Setzer & Byrnes 2019). That number continues to grow at a rapid rate; as of March 2020, more than 1,400 cases have been filed globally, 1,161 of which are in the United States.[2] Below, we briefly review the notion of climate litigation, before presenting the results of our survey of the relevant 2019 literature.

2.1. Defining Climate Litigation

Exercises seeking to classify climate litigation and literature on the topic necessarily invite questions of how these categories are defined. This is a topic that, as Setzer & Vanhala point out, has itself generated extensive debate and analysis in the scholarship with "as many understandings of what counts as 'climate change litigation' as there are authors writing about the phenomenon" (Setzer & Vanhala 2019, p. 4).

The diversity within the climate litigation literature about the definition of the phenomenon under study is, in many ways, a reflection of the breadth of climate change itself. As Hilson (2010, p. 2) has noted, the global nature of the problem of excessive greenhouse gas emissions, coupled with the many localized decisions by multiple actors that go toward addressing the issue, mean "all manner of litigation could conceivably be characterised as related to climate change." Consequently, in seeking to give some shape to the notion of climate litigation in the literature, scholars have differed on questions such as

- whether to include only cases that expressly raise issues of climate change policy or science, or whether to extend study to cases motivated by concerns over climate change issues (e.g., a challenge to a coal plant proposal on the grounds of its broader environmental or amenity impacts), or with consequences for addressing climate change (e.g., cases concerned with the costs of and compensation for extreme weather events like hurricanes), even if the litigation itself is not explicitly framed in terms of climate change;
- whether to focus on judgments issued by courts or to include other types of quasi-judicial decision-making processes and actions that lead to outcomes other than judgments, such as a settlement decision; and
- whether to include only cases with a proregulatory focus or also those brought by industry challenging climate regulatory measures.

In our own writing seeking to define climate change litigation, we have sought to reflect this diversity through representing climate change litigation in terms of a series of concentric circles (see **Figure 1**). At the core are cases that centrally feature climate change issues or arguments. As we move outward in the circles, the link between climate change and the issues raised or argued in the case becomes less direct (Peel & Osofsky 2015a). This representation recognizes that notions of climate change litigation may extend beyond cases that are centrally "about" climate change to ones where climate change is one of many issues in the litigation, or where addressing climate change is a clear motivation for, or consequence of, bringing a case but is not part of the legal arguments put to the court.

[2]The principal global databases tracking climate change litigation are the climate change litigation case charts (US and non-US litigation) maintained by the Sabin Center on Climate Change Law at Columbia University Law School and the Climate Change Laws of the World database maintained by the Grantham Research Institute on Climate Change and the Environment at the London School of Economics and Political Science.

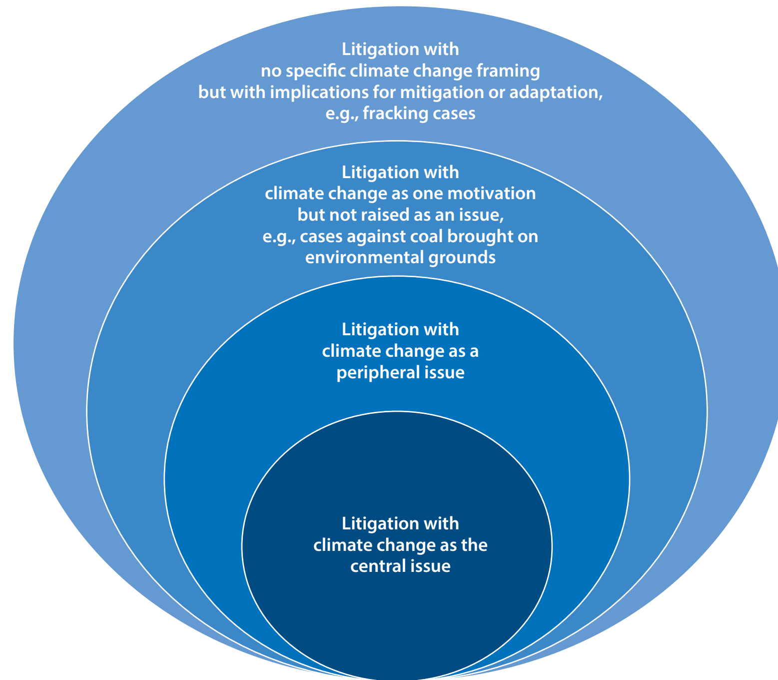

Figure 1

Different notions of climate litigation (adapted with permission from Peel & Osofsky 2015a).

In their review of the literature, Setzer & Vanhala—while calling for authors to be clear about their understanding of climate litigation to facilitate cross-jurisdictional research and future meta-analyses (Setzer & Vanhala 2019, pp. 3–4)—largely sidestep this definitional question. Instead, they focus their systematic search of the literature on English-language publications in academic journals recorded in Scopus and Web of Science databases, HeinOnline, and Google Scholar that contain the search terms "climate" and "litigation" in the title and/or abstract. For consistency, we have adopted the same methodology in our update of their review. However, we note that this limits the discussion of relevant literature to that self-identifying as being "about" climate litigation, published in outlets that tend to be dominated by English-speaking, Global North scholars. This may not fully capture all academic journal articles published on the phenomenon of climate-related or climate-relevant litigation, particularly cases with strong implications for mitigation or adaptation that do not directly mention climate change.[3]

2.2. Results of Literature Review

Setzer & Vanhala's review identified 130 academic articles on climate change litigation published in English in the law and social sciences between 2000 and the end of September 2018. Their quantitative analysis of this data set shows generally steady growth in the number of articles published each successive year, punctuated by spikes of activity correlated with the issue of high-profile judgments, such as the US Supreme Court judgment in *Massachusetts v. Environmental Protection*

[3] Setzer & Vanhala note this approach facilitates systematic review but acknowledge its limitations for capturing literature from the Global South and on topics of adaptation and loss and damage.

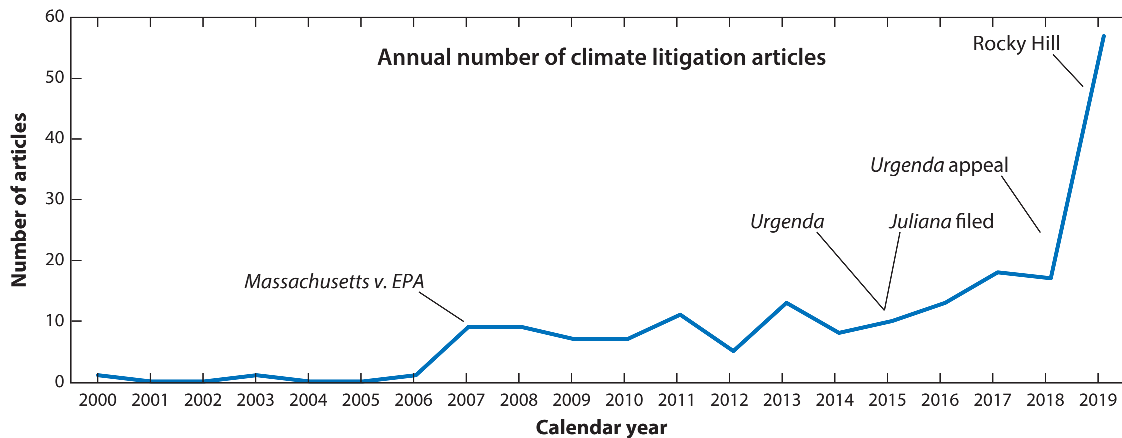

Figure 2

Timeline of the annual number of journal publications containing the search terms "climate" and "litigation" in the title and/or abstract, drawing on Setzer & Vanhala (2019, **figure 1**), and indicating correlations with the issue of high-profile judgments. The 2019 data set includes articles published or accepted for publication as of the end of October 2019.

Agency (EPA) (2007) and the Hague District Court's decision in *Urgenda Foundation v State of the Netherlands* (2015).

Both cases are generally regarded as important markers in the development and growing significance of climate change litigation (see, e.g., Fisher 2013, Osofsky 2010, van Zeben 2015). The *Massachusetts v. EPA* judgment paved the way for extensive federal regulation under the Obama administration of greenhouse gas emissions from industrial sources and motor vehicles (now in the process of being wound back by the Trump administration, with numerous pending cases challenging that regulatory change). The 2015 *Urgenda* decision found the Dutch government's emission reduction targets to be inadequate to safeguard Dutch citizens from the impacts of climate change, a ruling that has since been upheld by the Dutch Court of Appeal and then on December 20, 2019, by the Dutch Supreme Court [*State of the Netherlands v Urgenda* (2019)].

Our survey of climate litigation articles published or accepted for publication in 2019 identified a further 57 articles beyond those included in the Setzer & Vanhala review, more than triple the output of each of the previous two years (see **Figure 2**). Like Setzer & Vanhala, we see high-profile judgments as one likely driver of this increase.[4] For instance, much as the original *Urgenda* decision produced a substantial literature, so the issue of the Court of Appeal's decision in the case in October 2018 has generated a further flurry of articles (Leijten 2019, Mayer 2019, McGrath 2019, Minnerop 2019, Smith 2019, Spier 2019, Verschuuren 2019, Wegener 2019). The Dutch Supreme Court's *Urgenda* decision is producing a similar effect. Other high-profile cases that have drawn scholarly interest include the Australian judgment in the Rocky Hill case, rejecting a new coal mine proposal on grounds including its inconsistency with the provisions of the Paris Agreement [*Gloucester Resources Limited v Minister for Planning* (2019); Hughes 2019, Smith 2019], as well as the ongoing US lawsuit *Juliana v. USA* (2020), in which 21 youth plaintiffs are suing the

[4]Another key driver Setzer & Vanhala identified, notable "books and special issues in different journals that have raised scholarly awareness of the phenomenon across disciplines and sparked further publications," was not evident in the 2019 data set. However, the three articles on prospects for climate litigation in China all had their origins in presentations given at a workshop on Asia Pacific Climate Change Litigation convened by Jolene Lin and Doug Kysar held at National University Singapore in June 2018.

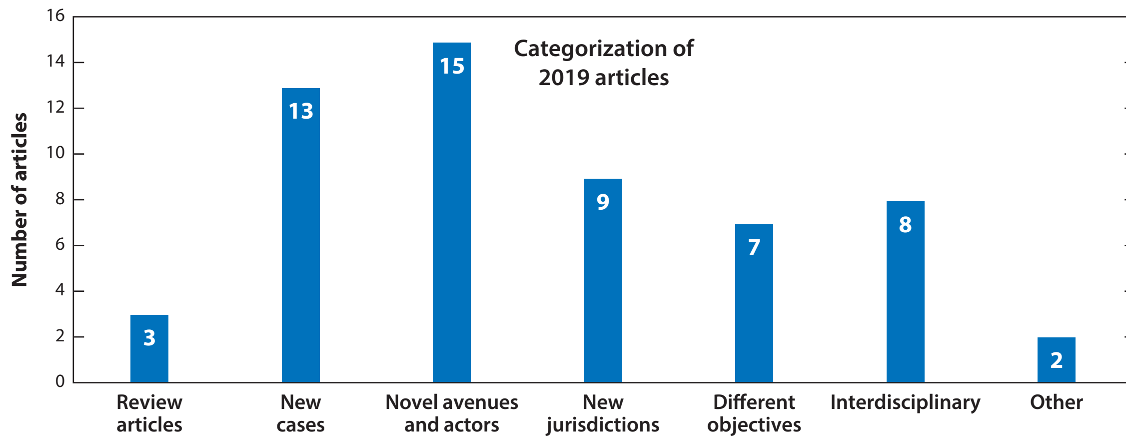

Figure 3

Categorization of 2019 climate litigation articles showing predominance of focus on new cases, novel avenues, new jurisdictions, cases with different objectives, and interdisciplinary studies. The "other" category included two articles, by Bodansky (2019) and Pain & Pepper (2019).

US government for inadequate climate policies that they allege violate their constitutional rights protections (Johnson 2019, Lazarus 2019, Levy 2019, Pace 2019).

A predilection for focusing on novel developments in academic literature is not a surprising finding in itself, given the operation of standard peer review and journal review processes (Horbach & Halffman 2018). However, in the 2019 data set, this novelty focus appears to be multidimensional in nature (see **Figure 3**). Beyond articles analyzing overall trends (Gonzalez-Ricoy & Rey 2019, Jacometti 2019) and new or novel cases, the 2019 literature also includes categories dealing with

1. new legal framings that include key actors in additional ways, such as claims in corporate and financial law that target companies and financial sector actors, human rights and constitutional rights claims often focused on the interests of children and future generations, actions defending climate protestors (e.g., Rausch 2019), and avenues concerned with the climate liability of the animal agriculture industry;
2. new or emerging jurisdictions for climate litigation (Kahl & Daebel 2019, Pernot 2019), especially in the Global South;
3. new objectives beyond the reduction of greenhouse gas emissions, for instance, those concerned with compensation, liability for climate change consequences, or other remedies for climate-related loss and damage; and
4. increased interdisciplinary engagement with the topic of climate litigation, featuring greater input from climate scientists and social scientists.

As explained further in the next section, these categories discernible in the 2019 literature data set provide evidence of augmentation of, or even early shifts in, the trends identified in Setzer & Vanhala's analysis.

3. TRENDS AND TRAJECTORIES IN THE CLIMATE LITIGATION LITERATURE AND CASE LAW

In their analysis, Setzer & Vanhala identify broad trends and overall trajectories in the climate litigation literature they review. In this section, we critically analyze these findings in light of

the 2019 data set, as well as the broader question of whether the trends in the literature match those in the underlying case law. As Setzer & Vanhala (2019, p. 13) note, this latter relationship has been unclear "[b]ecause of the various difficulties in identifying and tracking climate change cases and the lack of consistent cross-jurisdictional data on climate-relevant cases." Although these methodological issues undoubtedly create hurdles, we argue there is still value in evaluating the extent to which the literature trends mirror those in the case law, both as a way of identifying potential gaps and for predicting potential future pathways.

3.1. Analyzing Trends

Setzer & Vanhala discern several features of the climate litigation literature that demonstrate broad trends in the scholarly analysis of these lawsuits. First, they note the concentration of the literature on high-profile cases, at the expense of more routine, lower-profile cases (see also Bouwer 2018, Peel & Osofsky 2015b). They point out that this may create a selection bias in the literature's analysis of the phenomenon of climate litigation that obscures other case law developments, including cases that are settled or are decided in commercial dispute settlement forums that generally attract less scholarly attention (Setzer & Vanhala 2019, p. 11). Second, they identify the overwhelming focus of the literature on mitigation-related litigation, i.e., cases concerned with greenhouse gas–intensive projects like coal-fired power plants or emissions reduction measures or policies. By contrast, there are fewer studies of adaptation litigation (concerned with managing climate change impacts) or cases seeking remedies for climate-related loss and damage. Third, a similar point is made regarding the dominance of analyses dealing with climate litigation in the Global North, at the expense of a focus on climate litigation developments in the Global South.

As Setzer & Vanhala comment, both of these latter trends can be explained, in large part, by patterns in the underlying climate-related case law. In particular, the majority of climate cases—at least those recorded in global databases—are mitigation related and concentrated in a relatively small number of jurisdictions located in the Global North (Setzer & Byrnes 2019). Some jurisdictions are outliers in this regard. For instance, Australia has a well-developed adaptation jurisprudence, reflecting the country's greater early exposure to climate change impacts, such as coastal flooding and wildfires (Peel & Osofsky 2015b, Preston 2011).

In addition, the imbalance between mitigation-focused analyses and those dealing with litigation addressing climate change consequences, including loss and damage, may reflect the relative novelty of the latter category. The climate change regime centered in the UN Framework Convention on Climate Change has been criticized for its past concentration on mitigation, at the expense of adaptation and climate damage issues (Biesbroek & Lesnikowski 2018). It was only with the Paris Agreement in 2015 that adaptation was formally put on the same footing as mitigation through establishment of "the global goal on adaptation" (Paris Agreement, article 7). The Paris Agreement also marked the first inclusion of an article on "loss and damage" in an international climate treaty (Paris Agreement, article 8). Loss and damage in this context refers to climate change–related harms that cannot be avoided through efforts to reduce greenhouse gas emissions or ameliorated through adaptation measures addressing impacts (McNamara & Jackson 2019).

From the 2019 data set, these developments in the international climate regime appear to have given rise to a strengthening scholarly interest in legal remedies for climate-related impacts and loss and damage (Barnes 2019, Doelle & Seck 2019, Frohlich et al. 2019, Pekkarinen et al. 2019, Stocks 2019, Ternes 2019, Wewerinke-Singh 2019, Wewerinke-Singh & Salili 2019). In particular, the exclusion of "liability and compensation" from the ambit of the loss and damage provision in the Paris Agreement (Dec. 1/CP.21, para. 51) has encouraged scholars to consider the scope for climate litigation to fill this gap (Marjanac & Patton 2018). We might expect that this strand of

the literature will expand further in the future, particularly as climate-related losses continue to mount, as seems likely given current trends (Bouwer 2019, IPCC 2012).

Another overall trend Setzer & Vanhala identified that seems to be shifting in the 2019 literature is the dominance of analyses dealing with climate litigation in the Global North, at the expense of a focus on climate litigation developments in the Global South. The 2019 data set reflects growing attention to decisions of Global South courts, including analyses written by authors located in Global South countries (Ariani 2019, Chen 2019, Li 2019, Zhao et al. 2019). This could be seen as a response to calls for "increased attention to trends outside of the U.S. context. . .and. . .for more scholarship on litigation (or lack thereof) in civil law jurisdictions outside of Europe and in authoritarian regimes" (Setzer & Vanhala 2019, p. 5), as well as an enhanced appreciation of the practical and symbolic significance of Global South cases (see, e.g., Barritt & Sediti 2019). Notably, three of the 2019 articles on Global South litigation focused on prospects for climate litigation in China (Chen 2019, Li 2019, Zhao et al. 2019). If such litigation takes root in China, it stands to make an important contribution to global climate change mitigation efforts, given China's place as the world's top emitter (Carbon Action Tracker 2019).

Increasing engagement of climate litigation scholars with developments in the Global South may also go some way to redressing the perceived selection bias of the literature toward high-profile cases. As Peel & Lin (2019, p. 701) discussed in their article on Global South climate litigation, although there are some examples of high-profile Southern climate cases, much Global South climate litigation "has taken place largely below the radar" of scholarly attention. The lower profile of Global South climate litigation and its underrepresentation in scholarly analysis stem from the largely peripheral framing of climate change issues in these cases (which may also lead to decisions not being captured in global "climate litigation" databases), as well as language barriers where judgments are not issued in, or translated into, English (Peel & Lin 2019).

3.2. Continuing trajectories. Continuing development of the climate litigation literature along the two trajectories Setzer & Vanhala identified in their review also seems to be borne out by the 2019 data set. Setzer & Vanhala point, in this regard, to a growing diversity of disciplinary and interdisciplinary perspectives in climate litigation analyses over time—extending beyond legal scholarship to the broader social sciences—and to examination of the involvement of an expanding range of actors in litigation that shifts away from earlier models of actions exclusively by individuals or nongovernmental organizations (NGOs) against governments.

Eight articles in the 2019 data set included a non-law disciplinary analysis or interdisciplinary approach in the examination of climate litigation (Arnall et al. 2019, Flatt & Zerbe 2019, Harrington & Otto 2019, Hilson 2019, Kuh 2019, Ousley 2019, Pfrommer et al. 2019, Villavicencio Calzadilla 2019). Authors from the social sciences particularly focused on the framing of claims in climate litigation and the coherence of these frames with broader social-political narratives, such as popularism (Hilson 2019) and climate change displacement of vulnerable communities (Arnall et al. 2019). Social scientists have also been interested in the role climate litigation plays in communicating the urgency of climate change to a broader public and political audience (Villavicencio Calzadilla 2019). This coheres with ongoing research examining the scope for informal science education through climate litigation in the courts (e.g., McCormick et al. 2018).

More generally, there has been growing interdisciplinary interest in the role played by judges as actors in climate litigation, as well as the challenges they face as lay decision makers in engaging with complex climate science. Despite some instances of judicial creativity in climate cases (Ousley 2019), Kuh (2019) critiques the overall trend of "judicial restraint" based on concerns that courts are trespassing on the role of other government branches in deciding climate claims. She argues instead for "judicial engagement" with these cases as being consistent with democratic norms.

Beyond separation of powers issues, however, one concern often urged as a basis for judicial restraint in deciding climate cases is a lack of judicial expertise in resolving questions of climate science (Engel & Overpeck 2013). These concerns are most acute in cases raising causal questions, e.g., did the defendant's greenhouse gas emissions cause the damage suffered by the plaintiff through, for example, contributing to the likelihood of occurrence of a devastating hurricane (Ganguly et al. 2018)? Increasingly, climate scientists are being asked to translate scientific findings on the attribution of extreme weather events to climate change into useable knowledge for courts deciding causation issues. The studies by Harrington & Otto (2019) and Pfrommer et al. (2019) are examples of recent interdisciplinary literature seeking to navigate this science–policy interface in climate litigation.

Despite these encouraging signs of broader disciplinary engagement with climate litigation in the scholarship, Setzer & Vanhala's assessment that legal analyses predominate holds true for the 2019 data set. This is evident, for example, in the substantial number of 2019 articles exploring new or novel avenues for climate litigation, which focus overwhelmingly on the different kinds of legal arguments that might be made, for instance, under corporate or financial laws (L. Benjamin, manuscript forthcoming; Dellinger 2019, Foerster 2019, Iglesias Marquez 2019, Solana 2019, Vizcarra 2019, Wasim 2019) or human rights instruments (Krämer 2019, Savaresi & Auz 2019, Sharp 2019, Wewerinke-Singh 2019), or in international law suits (Boyle 2019) or tortious liability suits (Liran 2019, Walters 2019). These studies are consistent with the trajectory of a growing body of climate litigation literature examining an expanding range of actors in climate cases. They also address some of the gaps in previous literature that Setzer & Vanhala (2019, pp. 6–7) identified regarding climate litigation focused on the agricultural industry and financial sector actors. However, there is a notable absence of social scientific analysis of these developments that could aid better understanding of the necessary sociopolitical support structures for enabling novel legal arguments to be taken up by claimants before courts.

3.3. Mapping Literature Trends Against Case Law Development

One of the features that seems to have driven growing scholarly interest in climate litigation is the rapid expansion in the number and geographical coverage of these cases. Beyond a broad correlation between the volume of climate case law and scholarly analysis of this phenomenon, we might ask whether there are any other ways in which trends in the literature track those in the underlying jurisprudence.

Given the creative approach to the framing of legal arguments that has characterized climate litigation (Peel & Osofsky 2019), there is potentially also a role the literature might play in prompting certain kinds of claims or their framing. For example, the well-known *Urgenda* decision explicitly employed the litigation framework European attorney Roger Cox (2012) outlined in his book *Revolution Justified*. Equally, the *Juliana* case and related litigation brought by the US youth group Our Children's Trust has put into practice the theories on using the public trust doctrine to compel climate change action advanced by Oregon professor Mary Wood (Wood 2009, Wood & Woodward 2016). Better understanding of the relationship between the literature and climate case law may thus play a role in forecasting likely future trends.

In an early analysis of the climate change literature, we introduced the idea of distinct, albeit overlapping, waves in the scholarship (Peel & Osofsky 2013). First-wave literature in this analysis consisted of legal studies of arguments in climate claims, descriptive single-jurisdiction studies, or examinations of specific cases; second-wave literature advanced more analytical and systematic approaches based on the development of typologies; and third-wave literature focused on

the regulatory outcomes and governance implications of climate litigation, often employing an interdisciplinary analytical method.

The demarcation of these waves did not imply that they were necessarily sequential; indeed, the predominance of studies of new cases, like the *Urgenda* appeal, in the 2019 article's data set shows the continuing interest of scholars in conducting first-wave studies. However, with the conclusion of the Paris Agreement, the increased climate legislative activity that has followed it (Setzer & Byrnes 2019), and the continued rapid growth of litigation, there is the opportunity for further growth and refinement in second- and third-wave literature. As Setzer & Vanhala point out, the new international climate governance architecture introduced by the Paris Agreement and underpinning "nationally determined contributions" (NDCs) raises questions about whether climate litigation plays a supporting regulatory role and its particular contribution to the prevailing mode of decentralized, polycentric climate governance.

Some scholars have used a similar idea of waves in analyzing trends in climate case law development, particularly in well-established climate litigation jurisdictions such as the United States and Australia. In this context, first-wave (or first-generation) cases are often associated with discrete, project-based challenges seeking to integrate climate change considerations into standard environmental decision-making processes. Second-wave (or second-generation) litigation, in contrast, is usually framed as seeking more systemic social and policy change through seeking to hold governments or corporations accountable for the climate change implications of their actions (Benjamin 2019, Ganguly et al. 2018, Peel et al. 2017). In this sense, second-wave climate litigation might be seen to cohere with third-wave climate litigation scholarship, as the former has a more explicit focus on regulatory outcomes and stimulating behavioral change by key actors.

Much as waves in the climate litigation scholarship are overlapping and coexistent, tracking of case law data shows that second-wave climate litigation has certainly not displaced first-wave cases, which remain the predominant form of litigation in many countries (UNEP 2017). In part, this reflects greater scientific, political, and legal barriers associated with second-wave claims. For instance, in rights-based climate litigation seeking government accountability for climate policy failures that endanger people and communities, proving a causal link between government (in)action and particular climate-related harms can pose a major hurdle (Peel & Osofsky 2018, Savaresi & Auz 2019). As we have discussed in other forums, there is growing evidence of what we have labelled a "rights turn" in climate litigation (Peel & Osofsky 2018), which appears to be gaining momentum following the Dutch Supreme Court's *Urgenda* decision. This has generated an increasing interest in rights-based avenues in the climate litigation literature (Krämer 2019, Savaresi & Auz 2019, Sharp 2019, Wewerinke-Singh 2019). Although this body of work may continue to build toward a scholarly "rights turn," we would not expect this to become a dominant theme of the climate litigation literature given the many other legal arguments pursued in climate cases. In particular, cases based on interpretation or enforcement of environmental statutes remain dominant in the United States and globally.

A better metaphor for describing both the patterns in the case law and the climate litigation literature may thus be that of a harmonic made up of multiple standing waves (see **Figure 4**).[5] A critical question that arises in this analysis is whether different waves are able to combine in harmonious ways to promote understanding of climate litigation's role in climate governance and to maximize its impact.

[5] We would like to thank Environmental Defenders Office Queensland Principal Solicitor Sean Ryan for suggesting this metaphor as a potential way of discussing different waves of climate litigation at a workshop on Trends in Climate Litigation convened at Melbourne Law School in July 2019.

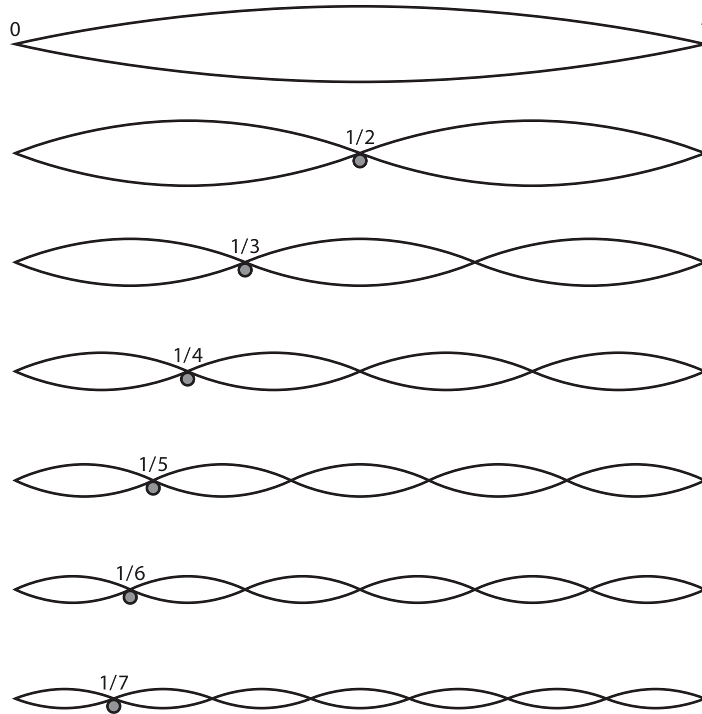

Figure 4

A metaphor for climate litigation? Adapted from Wikicommons, CC-BY-SA 3.0.

The scholarly emphasis in current waves of scholarship may evolve and additional waves may emerge over time as the litigation, and its regulatory role, continues to evolve. For example, both litigation and scholarship have focused largely on mitigation, although there have been some cases and discussion of adaptation and loss and damage. As impacts continue to worsen and greater attention is given to these issues owing to implementation of the Paris Agreement, the scholarship may have more focus on those issues in each wave.

4. EXPLORING LITIGATION'S IMPACT AND GOVERNANCE ROLE

Whereas the climate litigation literature shows legal and social science scholars' increasing interest in climate action before the courts, surprisingly little of the literature deals with the broader impacts of this litigation and its role as part of decentralized climate governance structures (Setzer & Vanhala 2019). As highlighted above, however, these are questions of growing importance given the fundamental shift in climate governance architecture brought about by the Paris Agreement and the urgency of mounting an effective global response to climate change. The growth of climate litigation has also led to increasing interest from NGOs and funders to seed cases in new jurisdictions, particularly in the Global South, with a consequent need to understand and learn from past experiences of what works in bringing lawsuits with real-world impacts. There is thus an opportunity for scholars engaged in this area of research to offer perspectives on "the extent to which litigation is an effective tool to strengthen climate governance" (Setzer & Vanhala 2019, p. 9), thereby developing third-wave scholarship.

In the following sections, we explore some of the methodological issues that arise in studies seeking to evaluate the impact of climate litigation, drawing on relevant social scientific literature, as well as our own experience in conducting evaluations of this kind in research consultancies.[6] Assessing litigation's impact, relative to other avenues for social and policy change, is a key ingredient in understanding the part that it might play in helping (or hindering) the achievement of international goals to address the threat of climate change.

4.1. Understanding and Assessing the Impact of Climate Litigation

High-profile judgments on climate change questions have attracted a lot of excitement in the media and scholarship (Fisher 2013), but far less attention has been directed to the question of whether the outcomes of these cases actually help to address the problem of climate change in a meaningful way. As Setzer & Vanhala rightly note, this is not a question legal analysis of the case law can answer on its own, leaving substantial scope for other disciplinary studies and interdisciplinary literature to fill this gap.

In this respect, the broader social sciences literature offers a wealth of material to draw on in studies examining the impact of strategic litigation in other areas like civil rights, tobacco control, and labor rights. In this literature, two broad approaches have emerged to the assessment of case law's impact: (*a*) a linear, causal analysis that seeks evidence of the mechanisms or links of influence between a decision and behavioral change on the part of key actors (Rosenberg 2013) and (*b*) a constitutive analysis that aims for a more complex relational understanding of legal claim-making within socially structured contexts (Epp 2008, McCann 1996). These approaches offer different perspectives on what litigation's impact is and where to look for it and may therefore come to different conclusions about litigation's effectiveness and importance as a tool for achieving social and policy change.

Our own experience in research consultancies assessing the impact of interventions undertaken as part of a strategic climate litigation program in Europe funded by the CIFF[7] reinforces the complexity of the judgments that must be made around methodological questions in such exercises (Vanhala & Kinghan 2018). Alongside issues of how to define impact and the evidence sources to consider is the question of the relevant timeframe for assessment, given that a piece of climate litigation may take several years to wend its way through the court system and even longer for its full effects to manifest. Another relevant question is how to account for adverse impacts associated with litigation, particularly where a case or series of cases that achieve formal legal success generate social or political backlash that undermines the gains achieved in courts (Vanhala 2011).

In our consultancy work assessing strategic climate litigation efforts in Europe, we have employed evaluation models based on qualitative process tracing techniques, which assess whether litigation makes a plausible contribution to desired outcomes articulated in an overall theory

[6]This has primarily been through evaluation consultancies undertaken for the Children's Investment Fund Foundation (CIFF) in respect of their funding support to the NGO ClientEarth to undertake a program of strategic climate litigation in the United Kingdom and Europe. We have also advised ClientEarth's Beijing office on strategies for building the environmental rule of law in China as a basis for future climate litigation and offered insights from our evaluation experience to other groups seeking to fund litigation in new jurisdictions in the Global South. We offer these insights here in the spirit of helping to build knowledge in the field—a goal that CIFF supports—given the lack of published information on evaluating the impact of climate litigation.

[7]We share these experiences here in recognition of the fact that the results of research consultancies of this kind often do not reach the published literature because of commercial-in-confidence requirements. In addition, in our experience, the lawyers involved in these programs are sensitive to the possibility of litigation strategy being disclosed if such consultancy reports were made publicly available.

of change. Given the broad political or social change goals being sought by climate litigation programs—for instance, increasing the share of renewables in an energy market or aligning national laws with Paris Agreement targets—we have found that assessing different lines of evidence showing whether litigation produces credible steps in the direction of a given end is more feasible than a strict causal analysis. This broader approach to the understanding of climate litigation's impact coheres with prior scholarly analysis (Peel & Osofsky 2015a) that embraces ideas of both the direct legal and regulatory effects of cases (for example, where they lead to observable changes in law or policy) and indirect effects that manifest in an enhanced public profile of the climate change issue, or shifts in corporate or government attitudes and behavior regarding the need to respond to climate risk.

Adopting this approach, sources of evidence relied upon in assessing impact are generally diverse and qualitative in nature, derived from focus groups and interviews with stakeholders such as litigants, judges, regulators, companies, or sectors targeted in litigation and other NGOs working in the climate litigation field. They may include evidence of a policy shift that references a particular climate case, an increasing perception of litigation risk linked to inaction or insufficient action on climate change, or the growing public profile of a climate issue in the media or public discourse. Other shifts can be tracked quantitatively, for instance, decreasing coal use in power production; however, a key challenge when doing so is discerning the independent contribution of litigation in producing these changes as compared with other political, economic, and market factors.

The dynamic sociopolitical and scientific context in which climate litigation takes place also makes for challenges in assessing impact. Constant recalibration of strategy by litigants is necessary to take account of changes in the political environment; new scientific developments, such as the Intergovernmental Panel on Climate Change's report on pathways to achieve the Paris Agreement's 1.5°C goal (IPCC 2018); and unanticipated outcomes, including backlash against litigation in some jurisdictions. In turn, this requires an assessment process that is also flexible and dynamic. In this regard, we have found methods like strategy testing—a monitoring approach that uses periodic, collective reflections on lessons and a reassessment of underpinning assumptions as a basis for ongoing adjustment of programs (Ladner 2015)—to be a useful complement to more traditional, end-line forms of evaluation.

4.2. The Role of Climate Litigation in Climate Governance

Assessments in the literature of the role of climate litigation in shaping pertinent governance structures have often tended to be rose hued. Perhaps borne out of frustration with the inaction of governments or the private sector on climate change, there is often an implicit assumption that courts will instead deliver the right (meaning the most environmentally beneficial) decision (Bodansky 2019). These findings may also reflect the dangers of too great a focus on high-profile cases like the *Urgenda* decision, which tend to be one-off showpony cases rather than the more common workhorse cases that dominate the landscape of climate litigation.

A more rigorous assessment of the impact of litigation can help to illuminate the relative advantages or disadvantages of courts as a forum for seeking to advance climate governance relative to other avenues. This assessment becomes all the more important as climate litigation efforts transition from one-off cases to more strategic programs of interventions targeted to the achievement of particular objectives. Action through the courts confronts many well-known hurdles, including access to justice barriers, difficulties in dealing with scientific evidence, and the conservatism of many courts when confronted with contentious policy issues. At the same time, the institutional legitimacy enjoyed by courts in many (though by no means all) legal systems may confer on their

rulings a broader systemic effect than their limited enforcement powers might otherwise suggest is likely (Epp 2008).

A consistent message that emerges from scholarly assessments of the impact of public interest litigation programs is that "litigation is an imperfect but indispensable strategy of social change" (Cummings & Rhode 2009, p. 604). This is borne out by our own experiences of assessing strategic climate litigation programs, which have emphasized that litigation is *a* tool but not *the* tool to achieve needed climate policy and behavioral responses. Litigation has its limits and cannot work effectively in isolation from other political and social mobilization efforts, including policy advocacy work and social campaigns (see also Cummings & Rhode 2009).

5. CONCLUSION

As our review of the 2019 literature demonstrates, climate change litigation scholarship in law and the social sciences is thriving. What was once a niche area of the climate literature has become more mainstream, particularly with the issue of high-profile judgments and ongoing litigation that have captured public and scholarly attention. Growing interest in courts as an avenue for pushing for positive action on climate change is also a consequence of frustration with the inadequacy of government action. Multiple studies confirm, for instance, that countries' present NDCs submitted under the Paris Agreement do not add up to what is needed to contain global average temperature rises to safe limits (Robiou du Pont & Meinshausen 2018, Rogelj et al. 2016). This frustration was evident following the latest lackluster UN Climate Summit, with a coalition of youth activists announcing they have filed a complaint against five high-emitting countries under the UN Convention on the Rights of the Child (McIntyre 2019).

The decentralized framework of the Paris Agreement, with its bottom-up system of NDCs supplemented by international transparency and review mechanisms, invites—and perhaps even requires—activism by domestic political constituencies to hold governments to account for achieving the objectives set out in national commitments and ratcheting these up over time (Falkner 2016, Hale 2016). Climate change litigation brought before courts is thus likely to play an important role, alongside other civil society protest activities, in pressuring governments and private sector actors to take action that is consistent with long-term temperature goals (Carnwath 2016). Indeed, the need for climate change action to navigate the Paris Agreement's multilevel governance framework—simultaneously speaking to domestic and international audiences—may ultimately favor the emergence of particular types of litigation well-suited to this fluid role and lead to more focus on these avenues in the literature. Rights-based climate claims may be one such candidate. However, we anticipate that the litigation based on environmental statutes will also continue to play an important role in shaping the implementation of those laws that are needed to meet countries' obligations under the Paris Agreement.

With such an investment of time, energy, and money in climate litigation to date, and likely in the future, scholarship on the phenomenon plays an important role in aiding understanding of its achievements, limits, and broader impact. There are promising signs in the extant literature that scholars have the necessary creativity to develop this analysis further in ways that can benefit the underlying case law and enhance understanding of its role in decentralized climate governance structures.

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