STRATEGIC ALLOCATION AND SPATIAL INEQUALITY IN ENVIRONMENTAL LEGAL ADVOCACY: MANAGEMENT AND PLANNING IMPLICATIONS FROM FEDERAL ENVIRONMENTAL LITIGATION IN THE UNITED STATES, 1988–2022

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Environmental litigation is not only a legal phenomenon; it is also an organizational mechanism through which enforcement effort and policy attention are distributed across regions and issue areas. This article presents a management- and planning-oriented secondary analysis of the federal environmental litigation. Using their published empirical foundation of 25,775 environmental civil suits and 4,142 judicial decisions from federal district courts between 1988 and 2022, the paper interprets the reported litigation patterns as a portfolio of strategic action distributed across plaintiff types, regions, and substantive priorities. The published evidence reveals pronounced asymmetries in both efficacy and attention. Federal government plaintiffs account for 26.3% of all cases and achieve the strongest average success, whereas environmental non-governmental organizations (ENGOs) account for 26.2% and serve as the principal non-state pro-regulatory actors, but remain concentrated in western and conservation-oriented venues. Firms and trade associations account for 21.4% of suits yet perform worst in non-intra-type litigation. Spatially, 37% of cases are concentrated in only ten districts, and ENGO litigation displays the highest geographic inequality. For management and planning research, the central implication is not that litigation alone determines environmental outcomes, but that governance capacity is shaped not only by statutory design, but also by how legal actors allocate organizational attention, forum selection, and enforcement effort. The paper therefore supports a more explicit planning agenda around legal capacity, regional equity, and strategic regulatory implementation.

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INTRODUCTION

Environmental litigation is a consequential instrument of governance in the United States. It affects how environmental statutes are interpreted, enforced, contested, and operationalized across agencies, industries, and regions [1, 3–5]. In practical terms, litigation is one of the institutional channels through which policy survives legislative gridlock, administrative drift, or active deregulatory pressure [6, 10]. For management and planning research, this makes litigation analytically important not merely as legal conflict, but as a structured mechanism of implementation, priority setting, and organizational resource deployment.

The recent large-scale study by Rea, Merten, and Rife provides the most comprehensive empirical account to date of federal environmental litigation in the United States [15]. Drawing on 25,775 environmental civil suits and 4,142 judicial decisions filed in federal district courts between 1988 and 2022, that study demonstrates three core facts. First, pro-regulatory plaintiffs generally outperform anti-regulatory plaintiffs. Second, environmental legal advocacy is highly unequal across plaintiff types and regions. Third, plaintiff groups pursue sharply different substantive portfolios: federal government plaintiffs concentrate on waste and pollution, while ENGOs focus heavily on conservation, and climate and environmental justice remain marginal themes [1, 2].

This article reinterprets those empirical findings through a management and planning lens. Its purpose is not to introduce new unsupported statistical estimates, but to deliver a more analytically focused manuscript grounded in the published evidence and organized around questions central to management and planning research: How are legal resources allocated across policy domains? How does institutional strategy shape geographic coverage? What does the unequal distribution of litigation imply for environmental governance capacity?

The paper advances three bounded contributions. First, environmental litigation can be read as a form of strategic portfolio management, in which plaintiff organizations allocate finite legal resources across issue areas and forums. Second, the observed geography of litigation should be treated as a planning problem of uneven institutional attention rather than assumed to be a neutral mapping of environmental need. Third, environmental governance quality is likely to depend on the interaction between legal capacity, organizational specialization, and regional policy context. In this sense, the article positions environmental litigation as part of the broader infrastructure of public management and planning.

ENVIRONMENTAL LITIGATION AS A MANAGEMENT AND PLANNING PROBLEM

Public management scholarship has long emphasized that policy outcomes depend not only on statutory design, but also on the organizational routines, strategic choices, and implementation capacities of the institutions charged with executing policy [3, 5, 11]. Environmental law is especially dependent on such implementation dynamics because the policy field is fragmented across agencies, statutes, courts, and affected constituencies.

From this perspective, litigation can be understood as a strategic management tool with at least three planning-relevant dimensions.

First, **portfolio specialization** matters. Different plaintiffs pursue different issue areas because they have different missions, expertise, legal opportunities, and organizational incentives. This means that the overall legal system may generate strong protection in some domains while leaving others relatively underdeveloped [1, 9].

Second, **spatial concentration** matters. If litigation clusters in a small number of favorable or historically salient districts, legal oversight becomes territorially uneven. For planning scholars, this is functionally a problem of geographic capacity allocation: institutional attention is being distributed selectively across space.

Third, **implementation equity** matters. When some regions experience less legal pressure or weaker advocacy, statutory protections may be enforced less consistently. This has direct implications for environmental justice, regional planning, and distributive governance [12–14].

The empirical record assembled by Rea et al. is well suited to these questions because it reveals not only who sues and who wins, but also how legal action is distributed by plaintiff type, geography, and substantive focus [1]. The present paper therefore treats the published quantitative results as the empirical basis for a management-oriented synthesis.

DATA AND ANALYTICAL APPROACH

Empirical foundation

The analysis is anchored in the published federal environmental litigation dataset assembled by Rea, Merten, and Rife [1]. The underlying case universe begins with 33,408 federal district-court civil suits coded as "environmental matters" (Nature of Suit 893) between 1988 and 2022. After excluding cases without recorded ending disposition, most Deepwater Horizon-related filings, and a highly anomalous group of South Carolina filings related to IMC Global, the final district-court sample contains 25,775 cases.

For most comparative analyses, intra-type suits (for example, firms suing firms) are excluded, yielding a smaller analytic subset of 21,984 cases. The published study also uses a linked corpus of 4,142 federal judicial decisions to code substantive focus, litigant type, and the presence of climate- or environmental justice-related language.

Interpretive strategy

This manuscript is a structured secondary analysis of published findings. All numerical results reported below are drawn directly from the source article's stated sample, descriptive statistics, and reported model outputs. No new inferential estimates are introduced. Interpretive claims are advanced only where descriptive counts, reported model results, and geographic concentration measures point in the same direction. The value added here lies in reframing the published evidence for management and planning research by emphasizing strategic allocation, organizational specialization, and regional governance implications without extending the evidence beyond its reported scope.

Core dimensions examined

The analysis is organized around four empirical dimensions already reported in the source study:

1. **Plaintiff composition and case structure**: who brings environmental litigation and against whom.
2. **Plaintiff success**: comparative win rates and reported model-based odds of success.
3. **Spatial concentration**: geographic clustering and Gini-based inequality in case distribution.

Table 1: Composition and plaintiff–defendant structure of federal environmental litigation

Indicator	Reported value
Total environmental civil suits, 1988–2022	25,775
Annual share of all federal civil litigation	0.18%–0.67%
Federal government plaintiffs	6,789 (26.3%)
ENGO plaintiffs	6,744 (26.2%)
Firm and trade association plaintiffs	5,523 (21.4%)
Individuals	14.1%
Local and state governments combined	9.5%
Three principal plaintiff types combined	73.9%
Federal government suing firms/trade associations	70.7% of federal suits
ENGOs suing the federal government	53.1% of ENGO suits
ENGOs suing firms/trade associations	32.4% of ENGO suits
Firms/trade associations suing other firms	55.1% of firm suits
Firms/trade associations suing the federal government	25.3% of firm suits

Notes: Values are taken from the published case universe reported by Rea et al. Percentages refer to shares of all suits unless otherwise stated.

4. **Substantive focus**: differences in attention to conservation, waste/pollution, energy/mineral resources, climate, and environmental justice.

These dimensions permit a management-oriented reading of the environmental litigation field as an unevenly distributed system of organizational effort while keeping the interpretation anchored in already reported empirical regularities.

RESULTS

The structure of environmental legal activity

Environmental lawsuits represent only a very small share of total federal civil litigation, ranging from 0.18% to 0.67% of all federal civil cases filed annually during the study period. Yet within that relatively small domain, legal activity is concentrated among a limited number of organizational actors.

As shown in Table 1, 73.9% of all environmental civil suits are driven by three plaintiff types: the federal government, ENGOs, and firms/trade associations. The federal government accounts for 6,789 cases (26.3%), ENGOs for 6,744 (26.2%), and firms/trade associations for 5,523 (21.4%). Individuals contribute another 14.1% of cases, while local and state governments together account for 9.5%.

The structure of plaintiff–defendant combinations is also highly patterned. Federal government suits overwhelmingly target firms and trade associations, underscoring the state's role as a formal enforcer. ENGOs concentrate primarily on the federal government and, secondarily, on firms. Firms themselves are most likely to sue other firms, reflecting a substantial inter-firm liability and compliance component within the litigation field.

For management and planning research, the importance of this structure is straightforward: the observed distribution of environmental governance effort depends on a relatively small set of repeat players whose litigation portfolios differ substantially in mission, targets, and operational logic.

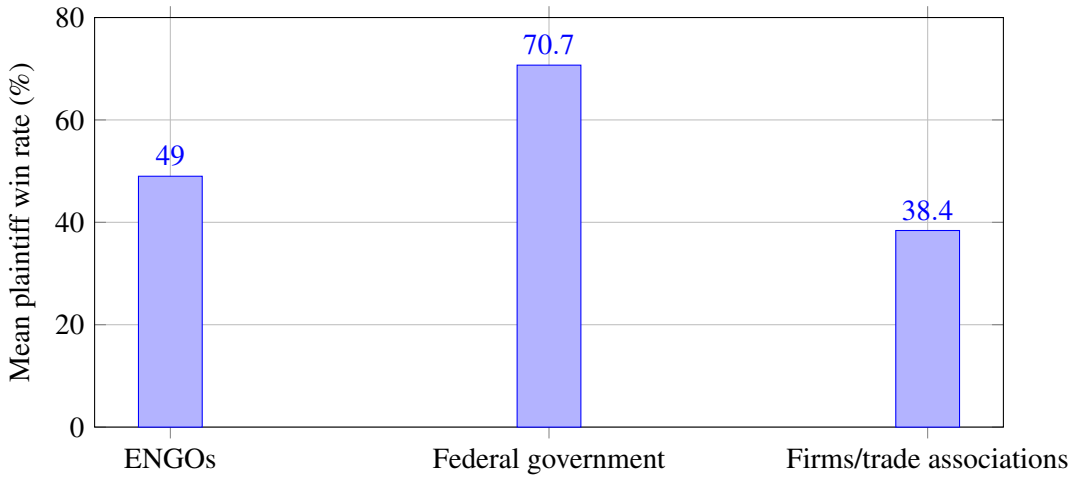

Figure 1: Average plaintiff win rates reported in non-intra-type federal environmental litigation. Federal government plaintiffs substantially outperform other major litigant groups.

Institutional asymmetry in litigation success

The litigation field is not only unequal in participation; it is also unequal in efficacy. Figure 1 summarizes the article's reported average plaintiff win rates in non-intra-type litigation. Federal government plaintiffs achieve the highest mean success rate (70.7%), ENGOs occupy a middle position (49.0%), and firms/trade associations perform worst (38.4%).

The source study's logistic regression results reinforce this hierarchy. Relative to ENGOs, federal government plaintiffs increase the odds of plaintiff victory by more than threefold (odds ratio = 3.03, $P < 0.001$), whereas firms and trade associations are only about 60% as likely to win as ENGOs when intra-firm suits are excluded (odds ratio = 0.61, $P < 0.001$).

These results point to a clear institutional asymmetry. The federal government is not merely another litigant; within the reported comparisons, it is the most effective plaintiff in the field. In management terms, this suggests that state capacity remains central to the practical enforcement of environmental law, even in a litigation system that is open to non-state actors. ENGOs are consequential, but the published evidence does not indicate that they are equivalent substitutes for the enforcement power of federal agencies.

Geographic concentration and uneven regional coverage

The source study documents pronounced spatial concentration. Thirty-seven percent of all environmental cases are located in only ten of the ninety federal court districts covering the fifty states plus the District of Columbia. This alone indicates that environmental legal capacity is far from evenly distributed.

More importantly, the degree of concentration differs by plaintiff type. Federal government litigation is unevenly distributed but comparatively less concentrated (Gini index = 0.39). Firm and trade association litigation is more concentrated (Gini = 0.61). ENGO litigation is the most spatially unequal of all (Gini = 0.68), reflecting especially strong clustering in the Pacific region and the Western interior.

Regional performance patterns also differ. Federal government plaintiffs win most consistently across the national landscape, but their average district-level win rates still range from 76.7% in the Midwest to 65.2% in the South. ENGO plaintiffs are strongest in the Pacific region (52.9%) and weakest in the South (37.7%),

while their average win rate in the Western interior is lower, at approximately 43.5%. These differences matter because they imply that legal strategy is being shaped both by forum selection and by regionally variable litigation environments.

For planning scholars, this is a governance distribution issue. Regions are not only differently burdened by environmental problems; they are also differently served by organized legal attention. The spatial inequality of litigation should therefore be treated as part of the broader institutional geography of environmental protection.

Substantive specialization and portfolio imbalance

One of the most important management implications of the source study is its evidence of portfolio specialization. Plaintiff types do not merely vary in success; they deploy legal resources toward sharply different substantive priorities.

The federal government's litigation portfolio is overwhelmingly associated with waste and pollution. The number of federally brought environmental suits tracks closely with district population ($r^2 = 0.43$) and the number of manufacturing establishments ($r^2 = 0.47$), but is nearly independent of protected land ($r^2 = 0.03$) and National Forest System area ($r^2 = 0.01$). In judicial decisions with federal government plaintiffs, 51.9% focus on waste and pollution, 20.7% on conservation, and 13.1% on energy and mineral resources.

ENGO litigation shows the opposite pattern. ENGO case counts have only modest association with population ($r^2 = 0.19$) and manufacturing ($r^2 = 0.22$), but are more strongly associated with protected area ($r^2 = 0.33$) and National Forest System land ($r^2 = 0.27$). In the judicial decision subset, 52.7% of ENGO decisions focus on conservation-related conflict, compared with 21.8% on waste and pollution and 10.4% on energy and mineral resources. This is a clear signature of strategic specialization.

Firm and trade association litigation also clusters around industrial and urban contexts. Their lawsuits are strongly associated with population ($r^2 = 0.61$) and manufacturing ($r^2 = 0.68$), but only weakly associated with protected land ($r^2 = 0.13$) or National Forest System area ($r^2 = 0.03$). In the decision subset, 69.2% of such decisions focus on waste and pollution, while only 14.0% focus on conservation.

Figure 2 visualizes these plaintiff-specific district associations. As a planning matter, the figure indicates that the litigation system does not distribute legal effort according to a unified environmental strategy. Instead, distinct organizations manage distinct portfolios, producing uneven coverage across issue areas and territories.

Climate and environmental justice remain marginal

A particularly important finding for management and planning research is the limited integration of climate and environmental justice into the environmental litigation portfolio.

As Table 2 shows, climate and environmental justice are not dominant themes for any major plaintiff type. In the judicial decision subset, federal government plaintiffs explicitly mention climate in only 0.1% of decisions and environmental justice in 1.2%. ENGOs are more active on both themes, but the levels remain modest: 1.8% for climate and 3.1% for environmental justice. Firm and trade association decisions virtually never mention either theme.

This result is especially significant because it shows that the contemporary environmental litigation field remains heavily oriented toward traditional pollution and conservation disputes, even while broader policy discourse increasingly centers climate transition and environmental inequality. For planners and public managers, this suggests a gap between emerging governance priorities and the existing allocation of legal

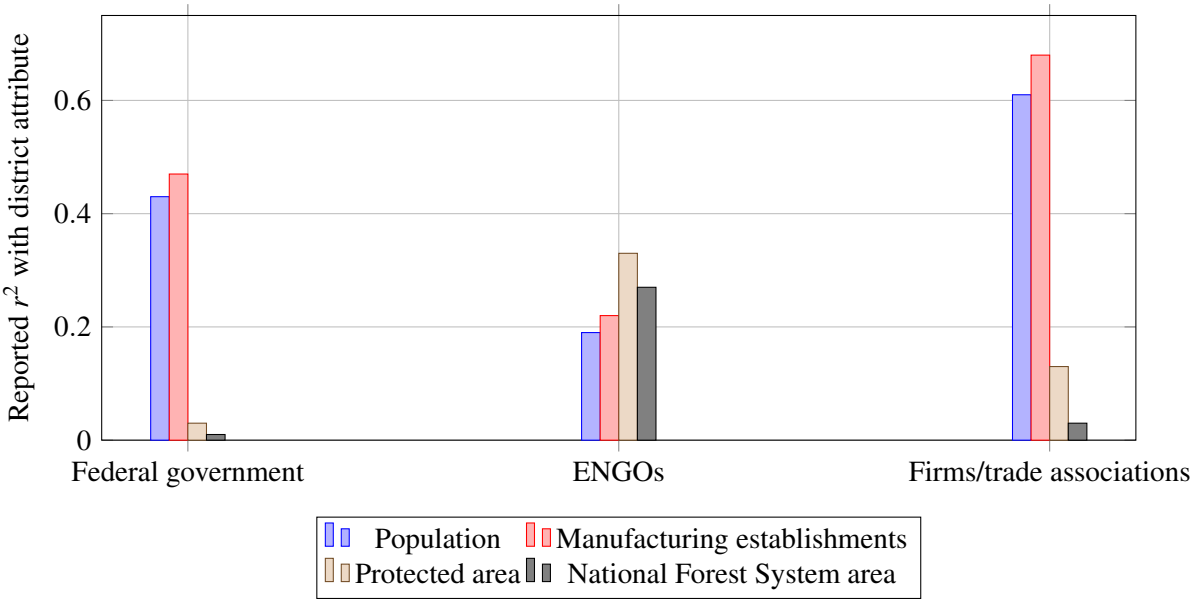

Figure 2: Reported associations between plaintiff-specific case volume and district attributes. Federal and firm litigation track industrial and population indicators, whereas ENGO litigation is more strongly aligned with conservation geographies.

Table 2: Plaintiff profiles: efficacy, spatial concentration, and substantive focus

Plaintiff type	Decision subset n	Mean win rate (%)	Win–loss ratio	Gini	Judicial decisions by policy focus (%)			Explicit textual mentions (%)	
					Conservation	Waste/pollution	Energy/minerals	Climate	EJ
ENGOs	1,301	49.0	1.15:1	0.68	52.7	21.8	10.4	1.8	3.1
Federal government	593	70.7	3.45:1	0.39	20.7	51.9	13.1	0.1	1.2
Firms/trade associations	1,306	38.4	0.69:1	0.61	14.0	69.2	—	0.0	0.0

Notes: Mean win rates refer to the published non-intra-type litigation comparisons. “EJ” denotes environmental justice. The source article does not report a separate energy/mineral percentage for firm and trade association decisions in the summarized text; that cell is therefore left unreported here rather than inferred.

capacity.

IMPLICATIONS FOR MANAGEMENT AND PLANNING RESEARCH

Read conservatively, the evidence carries four implications for management and planning scholarship.

Legal capacity should be treated as governance capacity

Environmental management is often discussed in terms of agency budgets, staffing, monitoring, and intergovernmental coordination. The present evidence indicates that legal action should be added to that list. Litigation is not peripheral to environmental governance; it is one of the mechanisms through which rules are made effective in practice. Where legal pressure is weak, uneven, or highly specialized, implementation quality is likely to vary accordingly.

Portfolio specialization creates blind spots

The litigation system benefits from specialization, but specialization also generates omissions. Federal government plaintiffs are comparatively effective, yet their portfolio remains heavily oriented toward waste

and pollution. ENGOs provide durable counter-pressure and expand legal enforcement, yet their portfolio is concentrated in conservation and western-state disputes. This combination may leave some socially significant problems underrepresented, especially where environmental harms are diffuse, urban, cumulative, or politically difficult to litigate [12, 13].

Spatial concentration raises planning equity concerns

When 37% of all cases are concentrated in ten districts and ENGO litigation is especially clustered in the West, the litigation system is operating through a spatially selective architecture of oversight. This is not only a legal pattern; it is a regional planning issue. Unequal legal attention can reinforce unequal policy implementation across metropolitan, industrial, and environmentally burdened regions.

Strategic coordination is a managerial challenge

The published findings imply that more coherent environmental governance would likely require stronger coordination between agencies, ENGOs, and other institutional actors. In management terms, the issue is not simply whether organizations litigate, but whether their litigation portfolios collectively align with contemporary governance needs. Planning institutions, environmental agencies, and advocacy organizations would benefit from more explicit cross-domain strategy that integrates pollution enforcement, conservation protection, climate governance, and environmental justice.

CONCLUSION

This article has repositioned federal environmental litigation as a management and planning problem rather than solely a legal one. Using the published empirical record reported by Rea, Merten, and Rife, it has shown that the environmental litigation field is shaped by marked asymmetries in institutional efficacy, spatial concentration, and substantive attention.

Three conclusions follow. First, the federal government remains the most effective plaintiff in the reported environmental litigation system, making state legal capacity central to implementation. Second, ENGOs are indispensable but highly specialized actors whose geographic and substantive concentration contributes to uneven coverage across policy domains. Third, climate and environmental justice remain weakly represented in the litigation portfolios of all major plaintiff types, despite their growing centrality in public policy discourse.

For management and planning research, the broader lesson is that environmental governance is influenced by how organizational actors allocate legal attention across issue areas and places. Litigation should therefore be studied as part of the strategic infrastructure of implementation: a domain in which portfolio choices, regional inequalities, and institutional coordination shape the distribution and effectiveness of environmental protection. Future work using the underlying public data can test these interpretive claims more directly through new model specifications and comparative designs.

DATA AVAILABILITY

The empirical foundation used here is the published federal environmental litigation dataset reported by Rea, Merten, and Rife, including the Federal Judicial Center Integrated Database extract and the linked Rea

Environment and Society Lab Environmental Law Database. The source article reports that these materials are publicly available through Harvard Dataverse repositories.

CODE AVAILABILITY

This manuscript does not introduce new computational estimates beyond the published empirical results. The source article reports that full replication code for its original analyses is publicly available in an accompanying public repository, which also provides the appropriate basis for future extensions and robustness checks.

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