

Disparate Impact And Ecosystem Services As Tools For Community Activism

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ABSTRACT

Environmental movements have been hindered in utilizing disparate impact as an effective legal mechanism for change. Since the 2001 Sandoval ruling limited the private right of action for Title VI disparate impact claims, environmental justice advocates have adopted the disparate impact framework as a persuasive tool to analyze, investigate, and challenge inequitable development. Concurrently, ecosystem services have blossomed as a growing field. The ecosystem services framework asserts that ecosystems provide economic and health benefits for communities. However, this framework faces challenges with value recognition and visibility, lack of implementation within existing institutional frameworks, and inequitable access. This article explicitly combines the disparate impact and ecosystem services frameworks together to strengthen each other. Specifically, this article argues that incorporating ecosystem services within disparate impact analyses can provide new persuasive data and evidence for environmental justice movements. Additionally, environmental justice advocates utilizing ecosystem services frameworks can increase the field's visibility, data, and provide more information regarding inequitable ecosystem access.

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INTRODUCTION

In 1930, the Olmsted-Bartholomew Plan laid out an ambitious environmental vision for Los Angeles.¹ The drafters envisioned a region with over 71,000 acres of parkland, joint use of school grounds and forests, and a near doubling of public beach frontage.² Noting the region's lack of open space, the report outlined a "remarkably detailed plan for creating new parks, parkways and untouchable 'reservations.'"³ However, Los Angeles has developed into a city with unequal access to natural ecosystems.⁴

This pattern of unequal access to natural ecosystems has become a focal point in the environmental justice movement, specifically as it pertains to disparate impact. Part I will briefly discuss the disparate impact framework. Despite starting as a civil rights doctrine, this framework has a long history within larger environmental justice movements. However, judicial decisions and bureaucratic inefficiencies have weakened the disparate impact framework. Yet the disparate impact framework has found new life within community advocacy, specifically as an argumentative framework to highlight inequitable environmental treatment.

Part II will introduce the ecosystems services framework. The ecosystem services framework asserts that ecosystems provide economic and health benefits for communities. However, this framework faces challenges with value recognition and visibility, lack of implementation within existing institutional frameworks, and inequitable access. To address these challenges, scholars have noted the need for more substantive studies, data, and application.

This Article explicitly combines the disparate impact and ecosystem services frameworks to strengthen each other. Part III will introduce how using these two frameworks in unison can help communities facing inequitable natural resource and ecosystem access. The concept of ecosystem services could be utilized within a disparate impact analysis to help communities better protect and access ecosystem services. Specifically, including ecosystem services evidence could strengthen disparate impact claims, especially element one, establishing disparity, and element three, alternative practices. Communities employing these analyses will strengthen the ecosystem services framework by providing data and application.

1. ROBERT GARCÍA ET AL., *FREE THE BEACH! PUBLIC ACCESS, EQUAL JUSTICE, AND THE CALIFORNIA COAST* 6 (2005), <https://web.archive.org/web/20160626233400/http://www.cityprojectca.org/blog/wp-content/uploads/2009/09/Free-the-Beach.pdf> [<https://perma.cc/GPF6-QE2Y>]; Christopher Hawthorne, *Reading L.A.: The Olmsted Brothers Plan and What Might Have Been*, L.A. TIMES (Nov. 11, 2011), <https://latimesblogs.latimes.com/culturemonster/2011/11/reading-la-the-olmsted-bartholomew-plan-and-what-might-have-been.html> [<https://perma.cc/9KZY-9Q7C>].

2. GARCÍA ET AL., *supra* note 1, at 6.

3. Hawthorne, *supra* note 1.

4. *See* GARCÍA ET AL., *supra* note 1, at 9 (finding that "Los Angeles is park poor," given it has fewer acres of parks per 1,000 residents compared "to any major city in the country," and has "vast disparities in access to parks and recreation").

Part IV of this Article concludes with a hypothetical involving the development of a car factory that impacts various communities and ecosystems. This hypothetical demonstrates how this combined framework could be used in practice. In addition, it exemplifies the strengths and weaknesses of this combined framework.

I. DISPARATE IMPACT AND ENVIRONMENTAL JUSTICE: A BRIEF OVERVIEW

Beginning as a civil rights doctrine, the disparate impact framework has intersected with environmental justice movements. Despite early victories, the disparate impact framework has been increasingly weakened in the environmental justice space. However, the doctrine has found new life as a framework for raising and analyzing concerns about inequitable environmental treatment.

A. *Disparate Impact—Historical Context and Environmental Justice Intersections*

The key legislative background for disparate impact is Title VI of the Civil Rights Act of 1964.⁵ Title VI was enacted “pursuant to the Fourteenth Amendment and the Spending Clause” to state that “no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”⁶ Title VI also directed federal agencies to “implement this prohibition by regulations that do not conflict with the statute.”⁷

Although intentional discrimination was banned, the disparate impact doctrine developed as a method of attacking facially neutral practices.⁸ Over several years, the applicability of Title VI to assert disparate impact claims was debated.⁹ Ultimately, in *Alexander v. Choate*, the Supreme Court affirmed and upheld that disparate impact claims exist under Title VI.¹⁰ Specifically, federal agencies can “prohibit unintentional discriminatory effects by adopting a disparate impact standard” in their Title VI regulations.¹¹

Generally, there are three elements to state a disparate impact claim.¹² First, the plaintiff must “demonstrate by a preponderance of the evidence that

5. Michael D. Mattheisen, *Applying the Disparate Impact Rule of Law to Environmental Permitting Under Title VI of the Civil Rights Act of 1964*, 24 WM. & MARY ENV'T L. & POL'Y REV. 1, 7–9 (2000).

6. *Id.* at 7–8; Civil Rights Act of 1964 § 601, 42 U.S.C. § 2000d.

7. Mattheisen, *supra* note 5, at 8.

8. *Id.* at 9–10.

9. *Id.*

10. *Id.* at 11. See *Alexander v. Choate*, 469 U.S. 287, 309 (1985) (the plaintiffs sued Tennessee for reducing potential Medicaid benefits, but the Court held that though disparate impact is a viable claim, it did not reach these reductions).

11. Mattheisen, *supra* note 5, at 11–12.

12. Tex. Dep't of Hous. & Cmty. Affs. v. Inclusive Cmty. Project, 576 U.S. 519, 527 (2015);

a facially neutral practice has a disproportionate adverse effect on a group protected by Title VI.”¹³ Second, if the plaintiff can make that showing, the burden shifts to the defendant, who “must prove that there exists a substantial legitimate justification for the challenged practice, in order to avoid liability.”¹⁴ If the defendant meets this burden, then “the plaintiff will still prevail if they are able to show that there exists a comparably effective alternative practice which would result in less disproportionality, or that the defendant’s proffered justification is a pretext for discrimination.”¹⁵ As discussed in Part III, each of these elements has their own requirements that have been established through case-law and application.¹⁶

Over the past thirty years, environmental justice advocates have used the doctrine of disparate impact. Environmental justice may be defined as “the pursuit of fairness in environmental and land-use policies, especially fair treatment of all races, ethnic groups, and socioeconomic classes.”¹⁷ Rather than being a movement with “precise boundaries” or even having “a precise definition,” environmental justice intersects with political activism, civil rights, constitutional law, and environmental law.¹⁸ As a result, environmental justice often has a broad scope. Environmental justice generally encompasses key principles of protection, inclusion, and education about natural resources, the environment, and oppressed communities.¹⁹

Leveraging the doctrine of disparate impact has long been recognized as a way to achieve environmental justice’s mission. Perhaps the most explicit recognition was Executive Order 12898 on Environmental Justice, issued in 1994.²⁰ The executive order required each federal agency to “make achieving environmental justice part of its mission by identifying and addressing . . . disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”²¹ In the order’s accompanying memorandum, Title VI was iden-

U.S. DEP’T OF JUST., *Title VI Legal Manual § VII: Proving Discrimination — Disparate Impact* (last updated Feb. 3, 2021), <https://www.justice.gov/crt/fcs/T6Manual7#D> [<https://perma.cc/YX4Y-9XKG>]; Mattheisen, *supra* note 5, at 12.

13. Mattheisen, *supra* note 5, at 12.

14. *Id.*

15. *Id.*

16. *See id.* at 15–33 (describing the multiple sub-elements of disparate impact analysis).

17. CRAIG ANTHONY ARNOLD, *FAIR AND HEALTHY LAND USE: ENVIRONMENTAL JUSTICE AND PLANNING* i, v (2007), https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/PAS-Report-549-550.pdf [<https://perma.cc/HB2P-ERYG>].

18. *Id.* at vi.

19. *See id.* at 13–15.

20. James Salzman et al., *The Most Important Current Research Questions in Urban Ecosystem Services*, 25 DUKE ENV’T. L. & POL’Y 1, 20 (2014) (describing Executive Order 12898 and its implementation, specifically with regards to NEPA permitting procedures).

21. Michael Rodriguez et al., *Using Civil Rights Tools to Address Health Disparities*, CITY PROJECT 13 (2014), https://web.archive.org/web/20160627000002/http://www.cityprojectca.org/publications/documents/Using_Civil_Rights_Tools_to_Address_Health_Disparities_2015.pdf

tified as a law that can “be applied to prevent these communities from being subject to discriminatory effects.”²² More explicitly, because Executive Order 12898 “applies to Federal agency actions,” “Title VI is one of the tools used by Federal agencies to implement this directive.”²³ Although the executive order did not “create[] any new law or change[] existing law,” federal agencies have implemented its policy.²⁴ Many agencies now have their own disparate impact procedures, offices, and processes to address environmental disparate impact.²⁵

In turn, the disparate impact doctrine was used to address inequitable environmental impacts. One case was *Chester Residents*, which was brought in 1996.²⁶ A group of residents filed suit over Pennsylvania’s permitting of a processing facility in a predominantly Black community.²⁷ Although the permits were ultimately withdrawn, the Third Circuit found that the plaintiffs had a private right of action to sue under the Environmental Protection Agency’s (EPA) disparate impact regulations.²⁸

Another victory was *South Camden Citizens in Action v. New Jersey Department of Environmental Protection (South Camden I)*.²⁹ The complaint arose when the New Jersey Department of Environmental Protection granted a Clean Air Act permit to a cement company in an overwhelmingly minority community.³⁰ Ninety-one percent of the community’s residents were minorities, predominantly African American, and over half lived at or below the

[<https://perma.cc/SKX8-W598>].

22. *Id.*

23. *Circular FTA C 4703.1 Environmental Justice Policy Guidance for Federal Transit Administration Recipients*, U.S. DEP’T OF TRANSP. (Aug. 15, 2012), https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_EJ_Circular_7.14-12_FINAL.pdf [<https://perma.cc/LB4L-3CLM>].

24. Mattheisen, *supra* note 5, at 6–7.

25. *See, e.g., Executive Order 12898 Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, U.S. DEP’T OF ENERGY (Nov. 2012), <https://www.energy.gov/sites/prod/files/2016/05/f31/Env%20Justice-Minority-Lowincome-Pop-508.pdf> [<https://perma.cc/QR5F-MJSQ>] (describing the Department of Energy’s efforts to implement the executive order, including environmental justice analyses and annual reports on their progress); *Environmental Justice Strategy*, U.S. DEP’T OF TRANSP. (July 25, 2019), <https://www.transportation.gov/civil-rights/civil-rights-awareness-enforcement/environmental-justice-strategy> [<https://perma.cc/7MC4-7SHE>] (describing the Department of Transportation’s efforts to implement the directive, specifically with better public outreach to low-income and minority communities).

26. *Chester Residents Concerned for Quality Living v. Seif*, 132 F.3d 925 (3d Cir. 1997); David J. Galalis, *Environmental Justice and Title VI in the Wake of Alexander v. Sandoval: Disparate-Impact Regulations Still Valid Under Chevron*, 31 B.C. ENV’T AFFS. L. REV. 61, 69 (2004), <https://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1131&context=ealr> [<https://perma.cc/PBN7-J32V>].

27. Galalis, *supra* note 26, at 69.

28. *Id.* at 69–70.

29. *S. Camden Citizens in Action v. N. J. Dep’t of Env’t Protection*, 145 F.Supp.2d 446 (D.N.J. 2001); Galalis, *supra* note 26, at 70.

30. Galalis, *supra* note 26, at 70.

federal poverty line.³¹ When the permit was granted, there were several existing industrial sites in the neighborhood that were already causing negative health impacts.³² The plaintiff presented evidence that including the new site would “increase the overall death rate, among other deleterious health effects, by at least 1.2 percent, and among individuals already suffering from cardiovascular and respiratory disease, by at least 1.6 percent.”³³

Ultimately, the District Court issued a preliminary injunction, which prevented construction of the cement plant and vacated the permit issuance.³⁴ In doing so, the court found that New Jersey’s Department of Environmental Protection failed to consider the “totality of the circumstances,” such as the neighborhood’s racial composition and environmental burden, which constituted “a violation of EPA’s Title VI regulations.”³⁵ In addition, the case affirmed the private right of action to sue for disparate impact under agency regulations.³⁶

Notably, disparate impact caselaw still affected environmental justice reforms even when not raised under environmental regulations directly. In *Coalition of Concerned Citizens Against I-670 v. Damian*, citizens sued over the construction of a new highway.³⁷ The citizens argued the construction had a disparate impact on a predominantly minority neighborhood.³⁸ Despite the plaintiffs making a *prima facie* showing of disparate impact, the court ultimately justified the defendant’s use under the second and third elements—that there were legitimate nondiscriminatory reasons for the location, the disparate impacts were mitigated, and the plaintiffs failed to show appropriate alternatives.³⁹

However, the case still had powerful ramifications. In July 1998, thirty-seven members of Congress wrote to the EPA citing *Damian* as a reason for the EPA to block an air permit for a Shintech plastics facility.⁴⁰ Specifically, the congressional members cited that the *prima facie* case established by the *Damian* plaintiffs demonstrated that a *prima facie* disparate impact case existed with Shintech’s permit.⁴¹ The facility would be located in a community that was over 80 percent African American. African Americans comprised 95 percent of the residents in a one-mile radius of the proposed facility and would bear the burden of pollution and toxic exposure.⁴² Ultimately, this led Shintech

31. *Id.* at 71.

32. *Id.*

33. *Id.*

34. *Id.*

35. *Id.*

36. *Id.* at 72.

37. Mattheisen, *supra* note 5, at 13.

38. *Id.*

39. *Id.*

40. *Id.*

41. *Id.* at 14–15.

42. *Id.*

to relocate the proposed site.⁴³ As a result, a disparate impact analysis was a powerful tool—yet this would change in 2001.

B. *Disparate Impact Weakened, But Advocates Find New Life for the Framework*

The ability to use the disparate impact doctrine was neutered in 2001 by *Alexander v. Sandoval*.⁴⁴ In 2001, just five days after *South Camden I*, the Supreme Court held that “private individuals may not sue to enforce disparate impact regulations.”⁴⁵ Instead, the Court stated that Title VI § 601 “prohibits only intentional discrimination” and explicitly allows a private right of action.⁴⁶ However, § 602—the provision outlining disparate impact—had “[r]evealed no congressional intent to create a private right of action.”⁴⁷ Thus, one of the most powerful environmental justice tools had lost its efficacy.

These effects were quickly felt by advocates. Immediately following *Sandoval*, the Court’s decision “implicitly overruled the decision” in *South Camden I*.⁴⁸ The same day that *Sandoval* was issued, the *Camden* court asked the parties to brief if private disparate impact suits were allowable under alternative theories, specifically § 1983.⁴⁹ Although the court allowed the suit to proceed, the Third Circuit reversed the District Court’s decision, stating that *Sandoval* foreclosed this right implicitly under § 1983.⁵⁰ Indeed, multiple scholars have proposed alternative avenues to create a private right of disparate impact,⁵¹ but Congress has yet to create an explicit right of action for these claims.

However, federal agencies are still under their directives to follow Title VI and Executive Order 12898.⁵² For example, in 1993, the EPA created the Office

43. *Environmental Justice Case Study: Shintech PVC Plant in Convent, Louisiana*, <http://www.umich.edu/~snre492/shin.html#Strategies%20Used> [https://perma.cc/L9XM-R4Q8] (last visited May 17, 2021).

44. *Alexander v. Sandoval*, 532 U.S. 275 (2001).

45. Galalis, *supra* note 26, at 72.

46. *Id.*

47. *Id.* at 73 (quoting *Sandoval*, 532 U.S. at 289).

48. *Id.* at 74.

49. *Id.*

50. *Id.* at 75–76.

51. See *e.g., id.* at 87–101 (discussing that because “Congress did not precisely address whether ‘discrimination’ embodied an intent or effects standard,” *Chevron* dictates the judiciary must “defer to EPA’s permissibly constructed disparate-impact regulations” and allow for a private right of action); Nicole Zub, *The Nature of Equality: Promoting Environmental Justice in Kentucky Via the Fair Housing Act*, 8 KY. J. EQUINE, AGRIC. & NAT. RES. L. 591 (2016) (describing how environmental claims may be brought under disparate claims due to the Supreme Court’s ruling in *Inclusive Communities*).

52. See U.S. DEP’T OF JUST., *supra* note 12 (“Twenty-six federal funding agencies have Title VI regulations that include provisions addressing the disparate impact or discriminatory effects standards . . . [A]lthough *Sandoval* foreclosed private judicial enforcement of Title VI the regulations remained valid and funding agencies retained their authority and responsibility to enforce them.”)

of Civil Rights (OCR).⁵³ This office allows individuals to file a complaint with the EPA, which is then investigated and can lead to a non-adversarial procedure.⁵⁴ Consequences include a finding of noncompliance and, if the recipient of federal funds does not follow the recommendations, funding termination.⁵⁵

Those procedures are largely ineffective at addressing many claims. Although the OCR may have the authority to investigate and terminate funding, there have been many procedural and systematic issues with access. From September 1993 to 1998, when private suits were still actionable, the OCR received fifty-eight complaints but responded to only four.⁵⁶ A 2011 internal evaluation of the OCR office found that the “[o]ffice has not adequately adjudicated Title VI complaints.”⁵⁷ The study criticized the backlogged management of cases, which showed a “‘seesaw’ emphasis” and “fire drill mentality.”⁵⁸ Additionally, there was excessive confusion, staff incompetency, and highly technical legal questions that the OCR was unable to handle.⁵⁹

Despite these challenges, the disparate impact framework has survived within community organization and environmental justice movements. More specifically, the doctrine has developed into a persuasive and flexible community advocacy tool.

Advocates have used disparate impact analysis to investigate unequal resource access. For example, advocates have researched how low income and minority communities have disproportionately low access to national parks and monuments.⁶⁰ This research demonstrated that in Los Angeles, non-Hispanic whites have “disproportionately greater access to parks, with 12 to 15 times more park acreage per capita than Latinos and African-Americans.”⁶¹ In turn, studies have shown that being near these green environments can lower the rates of mental health disorders, aggression, and crime in neighborhoods.⁶² President Obama acknowledged these disparate impacts when he dedicated the San Gabriel Mountains National Monument in 2014, stating, “[t]oo many . . . children of color, don’t have access to parks where they can run free, breathe, and learn about their environment . . . [t]his is an issue of social justice.”⁶³

53. Galalis, *supra* note 26, at 67.

54. *Id.*

55. *Id.*

56. *Id.* at 68.

57. DELOITTE CONSULTING, EVALUATION OF THE EPA OFFICE OF CIVIL RIGHTS 1 (2011), https://archive.epa.gov/epahome/ocr-statement/web/pdf/epa-ocr_20110321_finalreport.pdf [<https://perma.cc/7ZV7-ZQ5U>].

58. *Id.* at 17.

59. *Id.* at 33–34.

60. Rodriguez, *supra* note 21, at 7–8.

61. *Id.*

62. *Id.* at 9.

63. *Id.* at 7.

In turn, advocates have used the disparate impact framework to challenge inequitable developments and to create resource access. One major success was City Project LA's creation of a community park. In the late 1990s and early 2000s, a prominent set of real estate developers sought to convert thirty-two acres of land into industrial warehouses in East Los Angeles.⁶⁴ The developers secured \$12 million from the United States Department of Housing and Urban Development (HUD) to create about \$80 million worth of warehouses, with the support of city officials.⁶⁵

Opposing the construction of warehouses, city activists and environmental justice advocates argued that the land should be a new park.⁶⁶ The activists challenged the developer's Environmental Impact Report (EIR) and filed a Title VI complaint with HUD, arguing that the creation of the warehouses would harm low-income people of color.⁶⁷ Ultimately, then-HUD Secretary Andrew Cuomo withheld all federal funds until there was a "full-blown environmental review," including analysis of Title VI under Executive Order 12898.⁶⁸ The area is now Los Angeles Historic Park. The park offers 13 acres of recreation and greenspace, and is accessible to the nearby Asian and Hispanic populations.⁶⁹

64. Carren Jao, *Field of Dreams: The Cornfield Throughout Los Angeles History*, KCET (Apr. 14, 2017), <https://www.kcet.org/shows/earth-focus/field-of-dreams-the-cornfield-throughout-los-angeles-history> [<https://perma.cc/YK9H-94M3>].

65. *Id.*

66. TR. FOR PUB. LAND, *In Los Angeles, a New Park by the People, for the People* (Aug. 25, 2017), <https://www.tpl.org/blog/los-angeles-state-historic-park> [<https://perma.cc/P7RG-2BE2>].

67. Robert Garcia, *L.A. State Historic Park: A Deserted Railroad Yard Is Transformed Yet Unfinished*, KCET (Feb. 23, 2012), <https://www.kcet.org/history-society/l-a-state-historic-park-a-deserted-railroad-yard-is-transformed-yet-unfinished> [<https://perma.cc/2WXR-MS4B>]. See also Nancy F. Lesser, *Letter to Deputy Mayor Rocky Delgadillo Re: City of Los Angeles — Section 108 Application — Cornfields B-99-MC-06-0523*, U.S. DEP'T OF HOUS. AND URB. DEV. (Sept. 25, 2000), <https://web.archive.org/web/20160326235610/http://www.cityprojectca.org/ourwork/documents/hud-letter.pdf> [<https://perma.cc/YZ8Q-UWEU>] (HUD's response letter, stating that activists alleged the project violates Title VI and Executive Order 12898 because "it would have disproportionately negative impacts on members of minority groups, particularly the residents of Chinatown").

68. Garcia, *supra* note 67; Robert Garcia, *Los Angeles State Historic Park: Historic Groundbreaking for Parks, Planning, and People*, KCET (Mar. 21, 2014), <https://www.kcet.org/history-society/los-angeles-state-historic-park-historic-groundbreaking-for-parks-planning-and-people> [<https://perma.cc/KF3S-8R6E>] (stating Cuomo "withheld federal funding for a proposed warehouse project . . . unless there was full environmental review that considered the park alternative and the impact on people who are of color or low income . . . [citing] Title VI . . . [and Executive Order] 12898").

69. CAL. STATE PARK & RECREATION COMM'N, *LOS ANGELES STATE HISTORIC PARK GENERAL PLAN AND FINAL ENVIRONMENTAL IMPACT REPORT* 59 (2005), <https://www.parks.ca.gov/pages/21299/files/lashp%20general%20plan-eir.pdf> [<https://perma.cc/ZG6Z-WZ6Q>]; Richard Bence, *Return to Eden: How L.A. State Historic Park Came to Be*, LAIST (Apr. 21, 2007), <https://laist.com/news/entertainment/la-state-historic-park-2> [<https://perma.cc/J5CV-BT9P>] (describing the park's planning, which includes a habitat zone connected to the L.A.

These challenges seem especially important as environmental reports and reviews consider disparate impact-type arguments. For example, the National Environmental Policy Act (NEPA) requires federal agencies to assess the environmental effects of their proposed actions by creating environmental impact statements (EIS).⁷⁰ Although the efficacy of NEPA has been questioned,⁷¹ government agencies strongly suggest communities become involved in the NEPA process to address environmental impacts. A March 2019 report provided various ways for communities to investigate and mitigate issues of developments creating adverse health impacts and environmental loss.⁷² These adverse impacts are similar to the disparate impact analysis, including identifying negative effects specifically on “minority populations and low-income populations” and allowing for mitigation analyses.⁷³ Many states have similar mechanisms that require similar analyses.⁷⁴ For advocates, these requirements provide further opportunities to utilize disparate impact arguments.

II. ECOSYSTEM SERVICES: BENEFITS, CHALLENGES, AND THE NEED FOR MORE INFORMATION

More recently, ecosystem services have become an area of interest within environmental and natural resource law. Ecosystem services scholars assert that natural ecosystems can provide many benefits to communities. However, there is a gap with data and application.

A. *What Are Ecosystem Services?*

“Ecosystem services” is an umbrella term that encompasses “the wide range of values and benefits nature provides.”⁷⁵ One scholar more thor-

River, a great lawn, and cultural markers).

70. *What Is the National Environmental and Policy Act?*, U.S. ENV’T PROT. AGENCY, <https://www.epa.gov/nepa/what-national-environmental-policy-act> [https://perma.cc/J5EN-YMHG] (last visited May 17, 2021).

71. See JAMES RASBAND, ET. AL., *NATURAL RESOURCES LAW AND POLICY* 329–30 (3d ed. 2016) (assessing the NEPA process and stating that creating environmental impact statements [EISs] is an “extremely expensive and time consuming process,” but recognizing that “NEPA has achieved a great deal”).

72. ENV’T JUST. INTERAGENCY WORKING GRP., *COMMUNITY GUIDE TO ENVIRONMENTAL JUSTICE AND NEPA METHODS* (2019), <https://www.energy.gov/sites/default/files/2019/05/f63/NEPA%20Community%20Guide%202019.pdf> [https://perma.cc/QVZ2-EXD5].

73. *Id.* at 40–48.

74. See, e.g., GOVERNOR’S OFF. OF PLAN. AND RSCH., *NEPA AND CEQA: INTEGRATING FEDERAL AND STATE ENVIRONMENTAL REVIEWS* (2014), http://opr.ca.gov/docs/NEPA_CEQA_Handbook_Feb2014.pdf [https://perma.cc/B57T-A9K2] (describing the intersection of California and the Federal Government’s various permitting requirements; *CEQR FAQs – General*, NYC MAYOR’S OFF. OF ENV’T COORDINATION, <https://www1.nyc.gov/site/oec/environmental-quality-review/ceqr-faqs-general.page> [https://perma.cc/GS7N-LBKK] (last visited May 17, 2021) (describing the different state, and federal environmental permitting requirements in New York City).

75. Salzman, *supra* note 20, at 3.

oughly defines ecosystem services as “the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfill human life.”⁷⁶ Ecosystems are “the array of organisms—plants, animals, and microbes—found in a defined area and the physico-chemical environment with which that living community interacts.”⁷⁷ These services are “generated by . . . natural cycles” that “are ancient,” “the product of billions of years of evolution,” and “absolutely pervasive,” but often “unnoticed by human beings going about their daily lives.”⁷⁸

An illustration of ecosystem services fleshes out this definition. One example is isolated wetlands.⁷⁹ This ecosystem provides services by naturally protecting water quality via “filtering sediments and pollutants out of water and by preventing nutrient overloading.”⁸⁰ Another example is plants. Many plants are used to create medicines, provide durable materials like timber, or naturally purify air.⁸¹

As these examples demonstrate, ecosystem services provide “free” benefits that are often provided at higher market prices by manmade interventions.⁸² Thus, investing in natural ecosystem services, such as by using “green infrastructure to control and manage stormwater runoff,” may be more beneficial than using “‘gray infrastructure’ such as pipes, channels, and treatment facilities.”⁸³ In short, “investing in the provision of ecosystem services will often be more cost-effective than response actions”⁸⁴

B. *Challenges to Ecosystem Services*

However, the implementation of an ecosystem services framework faces a multitude of intertwined challenges. Despite the aforementioned powerful benefits, ecosystem services do not play the “prominent role” we might expect in formulating urban policies, plans, and laws.⁸⁵ Although some cities are engaging in conservational actions, many cities are “experiencing declines” in their ecosystems, with “degraded and destroyed natural features” and “inefficient land use allocation and development.”⁸⁶

76. Geoffrey Heal et al., *Protecting Natural Capital Through Ecosystem Service Districts*, 20 STAN. ENV'T. L.J. 333, 336 (2001).

77. *Id.*

78. *Id.* at 337–38.

79. Salzman, *supra* note 20, at 2 n. 2 (internal citations omitted).

80. *Id.*

81. Heal, *supra* note 76, at 337 (describing the wide array of services and natural capital ecosystems provide).

82. *Id.* at 341 (Ecosystems’ “natural capital is unrecognized . . . by most people. Even when recognized, it tends to be ignored . . . because it is ‘free’).

83. Salzman, *supra* note 20, at 4.

84. *Id.* at 3–4.

85. *Id.* at 4.

86. *Id.*

One challenge is the lack of visibility and value recognition. Policymakers rarely recognize the “natural capital” of ecosystem services.⁸⁷ This is because ecosystem services are considered “free”—many of the services provided by ecosystems “have no market value” because there “is no market to capture and express their value directly.”⁸⁸ As a result, many individuals take these services for granted, often until it is too late. Given the lack of value recognition and visibility, many ecosystem services “have been easy to forget.”⁸⁹ Multiple ecosystem services have been catastrophically damaged.⁹⁰ For example, deforestation has led to increased flooding in Central America, Venezuela, and China.⁹¹ Another prominent example is the destruction of the ozone layer’s effect on screening out harmful ultraviolet radiation.⁹² In both cases, finding suitable market alternatives can cost millions, if not billions, and potentially still be ineffective in reaching pre-ecosystem destruction levels.⁹³

A second challenge is the difficulty of fitting ecosystem services into current institutional frameworks. Some scholars have noted that there are “few explicit protections for ecosystem services,” with more focus on ensuring “human health-based” or “species-specific” standards.⁹⁴ Although these protective measures may be important, they often do not preserve ecosystem services.⁹⁵ Other scholars have noted that the valuation of ecosystem services struggles within “existing legal frameworks” that often lead to a “preference for the built rather than the natural environment,” thus overlooking more cost-efficient and effective systems.⁹⁶ As a result, there is a larger gap within the field of “urban ecosystem services.”⁹⁷

A third challenge relates to the issues of environmental justice, disparate impact, and unequal access—ecosystem services may be inaccessible to many marginalized communities. When communities are unable to access resources like parks, forests, rivers, and natural areas, they are also unable to access the benefits of these services. Additionally, there are research gaps in how ecosystem services may benefit or affect marginalized communities. Specifically,

87. Heal, *supra* note 76, at 341.

88. *Id.* at 341.

89. *Id.*

90. *Id.*

91. *Id.*

92. *Id.*

93. See e.g., *Coastal Erosion*, U.S. CLIMATE RESILIENCE TOOLKIT (Apr. 1, 2021), <https://toolkit.climate.gov/topics/coastal-flood-risk/coastal-erosion> [<https://perma.cc/T9EE-QKP4>] (Coastal erosion has caused roughly \$500 million per year in coastal property loss in the United States, including damage to structures and loss of land. The federal government spends an average of \$150 million per year to artificially buffer beaches and on other shoreline reduction measures.).

94. Heal, *supra* note 76, at 342.

95. *Id.*

96. Salzman, *supra* note 20, at 4–5.

97. *Id.* at 12–14.

there are few studies addressing ecosystem services distribution by “race, ethnicity, socioeconomic class, and other demographic characteristics,” creating a gap in a “systematic and complete set of policy principles to guide decision makers to equitable urban ecosystem services” treatment.⁹⁸ Additionally, although there has been “robust literature” examining the “distributional and social impacts of environmental hazards and burdens,” research on “considering equitable environment benefit provision[s], like ecosystem services, is far less common.”⁹⁹

All three challenges are intertwined. Marginalized communities’ unequal access to ecosystem services relates to issues of valuation and institutional failure. Restricting access to ecosystem services for specific communities shows an implicit assumption that these resources hold no value for, or that their value is not targeted toward, these communities. The inability of many groups to access ecosystem services means that these services cannot provide benefits to these groups. As a result, these groups cannot utilize or measure the value these services may bring. Additionally, there are failures to encompass these voices within institutional frameworks. These voices may be excluded from community decisions regarding development, despite the negative impact these decisions can have on marginalized communities.

C. *Answering the Challenge: A Need for Data, Studies, and Application*

In response to these challenges, scholars have identified the need for further data, studies, and application of ecosystem services. Providing more information about, experimentation with, and application of ecosystem services could provide better valuations, shed light on how these systems could be better implemented within legal frameworks, and highlight inequitable ecosystem access. Generally, these studies should be conducted with three goals: first, clearly identifying ecosystem services; second, keeping records of their ecological benefits and how they interact; third, tracking the economic benefits of these areas.¹⁰⁰

The first step, identifying ecosystem services, involves “quantitative cataloging of the sources and consumers of ecosystem services.”¹⁰¹ This includes understanding how different ecosystem services are used locally, regionally, and globally.¹⁰²

98. *Id.* at 14–15.

99. *Id.* at 16.

100. *See* Heal, *supra* note 76, at 357–60. Heal and his co-authors suggest an additional step of “mapping ecosystem services” in order to create “ecosystem service districts.” The Author omits this final step, as it seems specific to Heal’s own proposal. However, mapping may still occur under by the Author’s guidelines, as it should lead to information about “alternative land management . . . [.]the degree of spatial congruence in the supply of different services” and aid in “forecasting changes in services and their need. *Id.* at 359.

101. *Id.* at 357.

102. *Id.* (stating “decision-makers need to know which services are produced and consumed locally . . . regionally . . . [and] globally”).

For example, imagine a municipality has a thriving forest ecosystem. Stakeholders would identify the forest as an ecosystem service. Then, stakeholders would outline how this service is being used. On a local level, a forest ecosystem may provide valuable flood protection and soil erosion protection. Regionally, the forest ecosystem may provide valuable timber for building and income. Globally, the ecosystem contributes to air purification, climate stabilization, and the protection of species and biodiversity.

The second step is keeping records of ecosystem services and how they are characterized ecologically.¹⁰³ This would be especially helpful for local ecosystems, where there is “a paucity of information.”¹⁰⁴ Ecological characterizations would “illuminate the relation between the level of services (quantity and quality) supplied by an ecosystem, its geographic extent, and the type and degree of human modification of the ecosystem.”¹⁰⁵

Using the example of the forest ecosystem, an ecological characterization might focus on the hydrological services supplied by the forest, such as the water flow and quality, and the level of human activities around the ecosystem.¹⁰⁶ These ecological characterizations should study how using, exploiting, or impairing one ecosystem service may influence others.¹⁰⁷ This would consider questions of sustainability and, if ecosystems are harmed, the extent to which they may be repaired.¹⁰⁸

Third, ecosystems should have categorized economic value, despite the potential obstacles in creating this valuation. Economic characterization and analysis “would identify the social benefits and costs associated with alternative ways of managing ecosystem assets.”¹⁰⁹ This determines “how individual preferences for alternative options can be fairly aggregated, and how the costs or benefits of alternative schemes can be fairly distributed.”¹¹⁰ Doing so often requires using economic tools to value these services. One tool may be finding the “socially optimal product mix” of ecosystem services.¹¹¹ This may be done using “shadow prices,” or “prices that accurately reflect the marginal contribution of each service to society’s welfare.”¹¹² Although valuation methods may vary, proposing more widespread use of ecosystem services frameworks could increase the accuracy and adoption of these valuations.

Suppose the wooded forest ecosystem provides water purification.¹¹³ If the shadow price of water purification is high (i.e., it is likely difficult to find an

103. *Id.*

104. *Id.*

105. *Id.*

106. *Id.* at 358.

107. *Id.*

108. *Id.*

109. *Id.*

110. *Id.*

111. *Id.* at 352.

112. *Id.*

113. *Id.*

alternative), then the “optimal product mix will probably contain water purification services.”¹¹⁴ In contrast, “if the price of water purification is low, the optimal product mix will probably contain something of even higher value, and water purification will be met by an alternative method that is less costly than the corresponding ecosystem service.”¹¹⁵ Given the myriad of services that ecosystems provide, calculating the correct allocation and value of ecosystem services becomes much more complex and location-specific.¹¹⁶

III. INCORPORATING THE ECOSYSTEM SERVICES FRAMEWORK WITHIN THE DISPARATE IMPACT FRAMEWORK

This Part puts forth a new proposal to incorporate ecosystem services within disparate impact arguments to strengthen both frameworks. Ecosystem services frameworks should be used by community advocates to show disparate impact. Specifically, advocates should build analyses that explicitly track, monitor, and provide metrics for local ecosystem services. Within a disparate impact framework, these analyses can be especially useful for proving element one—that there is a disproportionate adverse impact—and element three—that there may be more feasible alternatives. Ultimately, this type of study would strengthen both ecosystem and disparate impact frameworks through further study and application.

A. *Ecosystem Services Analyses Within a Disparate Impact Framework*

1. How Should Ecosystem Services Analyses Be Conducted?

In using ecosystem services analyses, one basic question is how these analyses should be conducted. Given the large and varied definition of ecosystem services, this Article sets out a general framework for advocates.¹¹⁷

First, advocates should distinctly identify the issue they are trying to solve.¹¹⁸ This is “the most critical step,” as it will define the ecosystems and

114. *Id.*

115. *Id.*

116. *See id.* at 346–53 (modeling a complex system of tradeoffs and how management strategies may vary depending on the resource and local needs).

117. The Author recognizes that there are multiple ways to carry out ecosystem services analyses. Many are excellently documented in the *Tools for Measuring, Modelling, and Valuing Ecosystem Services* document. *See generally* RACHEL A. NEUGARTEN ET AL., TOOLS FOR MEASURING, MODELLING, AND VALUING ECOSYSTEM SERVICES (2018), <https://portals.iucn.org/library/sites/library/files/documents/PAG-028-En.pdf> [<https://perma.cc/RX9F-BPMY>]. However, the Author ultimately utilized the framework, suggested in the IUCN’s document, set forth in the Canadian *Ecosystem Services Toolkit*, given its generalized form that did not rely on software or quantitative analysis. *See generally* SUSAN M. PRESTON & CIARA RAUDSEPP-HEARNE, COMPLETING AND USING ECOSYSTEM SERVICE ASSESSMENT FOR DECISION-MAKING (2017), https://biodivcanada.chm-cbd.net/sites/ca/files/inline-files/2017_Ecosystem_Services_Toolkit.pdf [<https://perma.cc/N94K-B9YN>].

118. PRESTON & RAUDSEPP-HEARNE, *supra* note 117, at 25.

problems that the assessment should be solving.¹¹⁹ Advocates and researchers should focus on what is driving the problem, the geographic context and scale of the ecosystem, the collection of information about the general environment, the identification of stakeholders, general economic activity in the area, and timeframe.¹²⁰ Ultimately, this step contextualizes ecosystem services within a larger issue or paradigm that will vary depending on the scope of the problem.

Second, advocates should identify the core ecosystems that should be studied.¹²¹ This level of discernment is important, as money, time, and other limitations may make it impossible to complete analyses for every ecosystem.¹²² This selection should not be arbitrary. Advocates should create a general cost-benefit analysis of the ecosystems they are attempting to preserve or create.¹²³ This cost-benefit analysis should be conducted along multiple lines, such as general economic benefits, cultural analysis, if there are general substitutes for these services, and perspectives from community stakeholders.¹²⁴ After weighing these general findings, advocates can then decide on which ecosystems to focus.

Third, advocates should create questions that are the most relevant given the proposed threat.¹²⁵ This step connects the problem identified in step one explicitly with the ecosystem services identified in step two. These questions could focus on the views of local and minority communities, the key dynamics that underlie these interactions, and how various ecosystems may interact with each other.¹²⁶ Additionally, these questions could focus on the economic or health impacts of proposed ecosystem changes.

Fourth, advocates should strive to answer these questions in detail, collaborating with experts as necessary.¹²⁷ In answering these questions, advocates should decide what metrics and indicators are both feasible and relevant.¹²⁸ Specifically, with proposed development or projects that may affect ecosystem services, this data is likely both qualitative and quantitative.¹²⁹ As a result, this would likely result in engaging in community outreach, conducting studies, and working with various experts to provide accurate analysis. After gathering this information, advocates should be able to synthesize the results to answer the questions they initially posed.¹³⁰

119. *Id.*

120. *Id.* at 105–07.

121. *Id.* at 26.

122. *Id.*

123. *Id.* at 108–12.

124. *Id.*

125. *Id.* at 29.

126. *Id.* at 115–16.

127. *Id.* at 34.

128. *Id.*

129. *Id.* at 118–24.

130. *Id.* at 44.

Fifth, advocates should use this collected information to do what they do best—advocate. This may take many forms, such as developing technical reports, summaries, executive overviews, or presentations.¹³¹ Importantly, advocates can use this information when making disparate impact arguments to various stakeholders. Depending on the relevant stakeholder, advocates should tailor the information accordingly. For example, appeals to real estate developers may vary from addressing local zoning board concerns. Crafting the information to appeal to the relevant stakeholder will create more persuasive arguments.

2. How to Use Ecosystem Services Analyses Within Disparate Impact Frameworks

The information collected in subsection (i) above should be used within disparate impact frameworks and arguments. Ecosystem services analyses would be best utilized within disparate impact elements one and three.

a. Disparate Impact Element One

Disparate impact element one asks: “does the adverse effect of the policy or practice fall disproportionately” on a protected group?¹³² In considering this element, advocates generally need to establish four sub-elements: a specific policy or practice; adversity/harm; disparity; and causation. Generally, disparity and causation are more contested, with policy and adverse harm established presumptively.¹³³

First, establishing sub-element three, disparity, means proving that a “disproportionate share of the adversity/harm borne” is by the affected group.¹³⁴ A “typical disparity measure involves a comparison between the proportion of persons in the protected class who are adversely affected . . . and the proportion of persons not in the protected class who are adversely affected

131. *Id.* at 46–49.

132. *Section VII: Proving Discrimination – Disparate Impact, Title VI Legal, supra* note 12.

133. *Id.* (“Most cases applying the Title VI disparate impact standard do not explicitly address adversity as a separate element . . . [C]ourts frequently assume that the impacts alleged were sufficiently adverse, impliedly recognizing a wide range of harms, including physical, economic, social, cultural, and psychological. In many administrative investigations . . . [those agencies will easily conclude] the harm alleged is legally sufficient.”) Generally, it seems that in federal permitting cases, the “policy or practice” questioned is the permitting or approval of federal funding. *See, e.g.,* EPA EXTERNAL CIVIL RIGHTS COMPLIANCE OFFICE TOOLKIT 11–15 (2017) (providing several examples of disparate impact analysis under EPA investigation guidelines, where the permits seem to satisfy the policy or practice category). *But see* N.Y.C. Env’t. Just. All. v. Giuliani, 214 F.3d 65, 71 (2d Cir. 2000) (finding that the plaintiffs incorrectly stated the policy when arguing that New York City’s decision to scale back community garden program benefitting minority neighborhoods was improper, as the Second Circuit found the policy was the city’s much broader policy about green spaces).

134. *Section VII: Proving Discrimination – Disparate Impact, supra* note 12.

A disparity is established if the challenged practice adversely affects a significantly higher proportion of protected class members than non-protected class members.”¹³⁵

Generally, determining the relevant population base is a fact-intensive inquiry that requires deciding how to frame the relevant population comparison.¹³⁶ This may mean looking at generalized data on entire populations, such as at the county, city, or state level, or the analysis may be much more specific.¹³⁷ These determinations seem to turn on how the specific policy or practice is framed.¹³⁸

Ecosystem services analyses can provide in-depth information on which population base should be used. For example, a thorough ecosystem services analysis could provide information on how far a proposed development’s effects will reach. This can include information about the specific ecosystem services affected, the specific population centers affected, the specific minority groups affected, and ultimately all “persons subject to the challenged . . . practice.”¹³⁹

Additionally, ecosystem services analyses can provide valuable information for establishing the significance of the disparity. Generally, disparities are a fact-specific inquiry that “can be drawn both from judicial consideration . . . and from federal agency guidelines.”¹⁴⁰ Some disparities, such as a finding that a policy negatively affects over 50 percent of a protected group, are self-evident.¹⁴¹ However, disparities often rely on mathematical evidence.¹⁴² Generally, these rules are flexible depending on the agency or court hearing, with some applying a “four-fifths rule” and others, like the EPA, having more flexible standards.¹⁴³ Ecosystem services analyses can provide data to show that a specific community is suffering greater harm. This harm could be demonstrated quantitatively by measuring the economic loss of services.

Element one also includes the sub-element of establishing causation.¹⁴⁴ Establishing causation means that an entity’s policy or practice specifically caused the adverse effect.¹⁴⁵ This element was recently tightened with the requirement of “robust causality” by the Supreme Court in *Inclusive*

135. *Id.*

136. *Id.*

137. *Id.*

138. *Id.*

139. *Id.* See also EPA EXTERNAL CIVIL RIGHTS COMPLIANCE OFFICE COMPLIANCE TOOLKIT, *supra* note 133, at 15 (in describing a hypothetical disparate impact claim, the EPA states “the exact areas [the] EPA will evaluate, including distance from the site and specific population centers will necessarily vary based on the facts and circumstances”).

140. Section VII: Proving Discrimination — Disparate Impact, *supra* note 12.

141. *Id.*

142. *Id.*

143. *Id.*

144. *Id.*

145. *Id.*

Communities.¹⁴⁶ Generally, causation is demonstrated by statistics to show that the “disparity is not caused by chance.”¹⁴⁷ A party cannot provide causation if the disparate impact would have existed without the entity’s conduct.¹⁴⁸

Ecosystem services analyses provide valuable insight into proving causation. An ecosystem services analysis could demonstrate that but for an entity’s proposal or development, a specific harm to an ecosystem would not be caused. Ecosystem services analyses provide multiple ways of calculating this harm quantitatively. For example, an ecosystem services analysis could demonstrate that affecting or changing an ecosystem service creates immense amounts of economic harm that would not have existed without the development.

b. Disparate Impact Element Three

Disparate impact element three considers if there “are alternative practices that may be comparably effective with less disparate impact.”¹⁴⁹ At this stage, an entity has already stated a legitimate justification for their policy or practice, despite the adverse impact.¹⁵⁰ However, if there are feasible alternatives, the recipient may still fail a disparate impact test.¹⁵¹

In finding alternatives, the evidence must be “sufficiently specific.”¹⁵² This may require finding that acquisition or use of another site is feasible, that it would not create its own host of environmental and economic impacts, and that such evidence is “concrete . . . not speculative.”¹⁵³ Additionally, these alternatives must also consider and meet the entity’s needs.¹⁵⁴ This may include meeting the appropriate sizing for its business demands and land needs or not creating additional disparities.¹⁵⁵ However, alternatives do not need to be substitutes, but can be “practices or policies . . . that ameliorate the disparate impact.”¹⁵⁶ Especially in environmental cases, this could include “modifying permit conditions to lessen or eliminate the demonstrated adverse impact.”¹⁵⁷

Ecosystem services analyses play a large role within element three. First, ecosystem services analyses could help frame, measure, and create alternatives by using specific economic measurements of various services. For example,

146. *Id.* Tex. Dep’t of Hous. & Cmty Affs v. Inclusive Cmty. Project, 576 U.S. 519, 542 (2015) (stating that “robust causality” is required to protect defendants and prevent disparate impact from being used in “a pervasive way” that might lead government and private entities to use numeral racial quotas).

147. *Section VII: Proving Discrimination — Disparate Impact, supra* note 12.

148. *Id.*

149. *Id.*

150. *Id.*

151. *Id.*

152. *Id.*

153. *Id.*

154. *Id.*

155. *Id.*

156. *Id.*

157. *Id.*

advocates could demonstrate that a specific ecosystem is extremely valuable to a community, but a relocated site could fit the entity's need without that ecosystem being affected. Additionally, advocates may demonstrate that another site would not provide additional concerns, or much fewer harmful effects, given its lack of ecosystem benefits.

However, ecosystem services analyses would be especially beneficial in providing mitigation and amelioration alternatives. This analysis is useful because ecosystem services provide metrics for weighing the economic costs and benefits of each service. For example, if development is inevitable, advocates will have the ability to specifically argue which ecosystem services should be preserved or accounted for. This may lead to redesigned developments or possible alternative mechanisms that can account for ecosystem services for affected communities.

B. *The Benefits of Combining Disparate Impact and Ecosystem Services*

Combining these two frameworks creates valuable benefits for the disparate impact framework, the ecosystem services framework, and community advocates. For disparate impact, this combination keeps the framework relevant and finds new uses for community advocacy groups. Although disparate impact has weakened legally, finding new uses strengthens the framework. As advocates are successful using the framework, it inspires others to use it as well. Additionally, this provides further information and data that will continue to refine the doctrine, especially as more agencies and parties are given the ability to respond to and address these claims.

For the ecosystem services framework, this combination addresses the goals and challenges identified in Part II. Advocates utilizing ecosystem services analyses would identify ecosystem services and their users and create ecological and economic characterizations. As more advocates continue to use ecosystem services frameworks, more data regarding local ecosystem services will be collected. Combining ecosystem services within disparate impact frameworks provides further guidance on how ecosystem services frameworks may fit within institutional frameworks. This combination provides more information on how ecosystem services and marginalized communities intersect. This type of advocacy provides data about access of ecosystem services to marginalized communities, which ecosystem services are deemed valuable, and how economic values of these services may vary among communities.

Perhaps most importantly, this combination provides strong benefits to community advocates. Advocates are given new methodologies to challenge inequitable treatment, development, and proposals. Creating these analyses also provides flexible applications for using disparate impact arguments. These arguments could be used with relevant agencies, in advocacy with the public, and to support other advocacy groups.

Ultimately, this type of advocacy invites and incorporates new stakeholders, who are crucial for moving environmental justice forward. Using ecosystem services analyses within disparate impact frameworks helps people of color in urban areas engage with economic, environmental activities.¹⁵⁸ First, these analyses include the voices of marginalized community members who have historically been excluded from these processes. Second, these analyses build a more robust literature establishing and creating value for ecosystem services that benefit marginalized communities. This literature includes marginalized voices and rigorous studies. This interdisciplinary and intersectional approach casts a “wide net for stakeholders” and helps develop “new legal tools that consider social justice alongside ecosystem protection.”¹⁵⁹ In turn, this helps local advocates reshape their community identities to recognize the importance of ecosystems.¹⁶⁰ This reshaping can ensure that communities guarantee ecosystem access and equitable treatment for all members.

IV. HYPOTHETICAL: USING THE COMBINED FRAMEWORK WITH A PROPOSED DEVELOPMENT

This Part provides a hypothetical to practically demonstrate how advocates can incorporate ecosystem services analyses into disparate impact frameworks for positive change.

A. *Los Diablos County, Griffin Park, and a New Development Plan*

The County of Los Diablos¹⁶¹ is park poor for many of its residents. Despite being a large metropolitan area home to over 10,000,000 people, there are only 901,647 acres available to the population, across a mix of 3023 local parks, regional parks, natural open spaces, and natural areas.¹⁶² Studies have found that the county has only 3.3 acres per 1000 residents.¹⁶³ Additionally, 40 percent of the county is below the 200 percent poverty level, with a mostly minority population. Specifically, 48 percent of the population identify

158. See Inara Sott et. al., *Environmental Law Disrupted*, 49 ENV'T L. REP. & ANALYSIS 10038, 10039 (2019) (describing how the conception that environmental law is solely for “liberal white activists” is one of the “most dangerous aspect[s] of environmental law itself” for disengaging needed perspectives and parties).

159. *Id.* at 10040.

160. Keith Hirokawa, *Environmental Law from the Inside: Local Perspective, Local Potential* 47 ENV'T L. REP. NEWS & ANALYSIS 11048, 11061 (2017) (“[T]he ecosystem services approach suggests that functioning ecosystems are always relevant to local identity” given they help shape people’s knowledge of “how the community is ecologically situated,” and are inherently “focus[ed] on very local issues.”).

161. The County of Los Diablos is based on Los Angeles County.

162. See L.A. CNTY. DEPT OF PARKS & RECREATION, LOS ANGELES COUNTYWIDE COMPREHENSIVE PARKS & RECREATION NEEDS ASSESSMENT, L.A. CNTY. PARK NEEDS (2016), https://lacountyparkneeds.org/wp-content/uploads/2016/06/ParksNeedsAssessmentSummary_English.pdf [<https://perma.cc/Y2RX-7RWC>].

163. *Id.*

as Latino, 14 percent as Asian, 9 percent as Black, 28 percent as White, 0.2 percent as Pacific Islander, and 0.2 percent as Native American.¹⁶⁴ Unsurprisingly, minorities have unequal access to park resources. Fifty-six percent of Black residents and 50 percent of Latinos reside in communities with less park space compared to 27 percent of Whites and 30 percent of Asians.¹⁶⁵ These areas with less park space have less than 1 acre per 1,000 residents.

Within Los Diablos County is Griffin Park, which encompasses 4,210 acres or about 6.5 square miles.¹⁶⁶ On its easternmost corner twenty-eight acres of land have been sectioned off as a service yard by the city.¹⁶⁷ This area is called the East Service Yard. East Service Yard is largely undeveloped forestry, with specific areas sectioned off for storing city metal and materials. There are some mismanaged trails that have largely become service roads between the various storage areas. Two major roads run through the East Service Yard to other areas of the park, which is how many residents on its border reach Griffin Park. The East Service Yard borders the Los Diablos River, which has been part of its own restoration initiatives. Los Diablos River features unique flora and wildlife, which have started recovering after years of industrialization and pollution.

Three neighborhoods also border East Service Yard. Neighborhood 1¹⁶⁸ has a population of about 31,000. This population is overwhelmingly Hispanic (70 percent) and Asian (22.4 percent). The median income is about \$34,000, with Whites having a disproportionate amount of above-median wealth. Neighborhood 2¹⁶⁹ has a population of about 9,000. Once again, this population is overwhelmingly Hispanic (83.7 percent) and Asian (9.4 percent). The median income is \$43,500, with Whites again having a disproportionate

164. *Id.* at 2–54.

165. CTY. OF L.A. PUB. HEALTH, PARKS AND PUBLIC HEALTH IN LOS ANGELES COUNTY: A CITIES AND COMMUNITIES REPORT 7 (2016), http://publichealth.lacounty.gov/chronic/docs/Parks%20Report%202016-rev_051816.pdf [<https://perma.cc/3GZK-6XT8>].

166. Griffin Park is based on Griffith Park.

167. This is based off a real proposal to renovate 28 acres of Griffith Park that border the East Bank of the L.A. River. See *Northeast Los Angeles Placemaking Competition: Griffith Park Eastside Park*, KCET (Feb. 10, 2014), <https://www.kcet.org/northeast-l-a-riverfront/northeast-los-angeles-placemaking-competition-griffith-park-eastside-park> [<https://perma.cc/CZD4-ZSHN>]; Robert Garcia, *Restoring Griffith Park on the East Bank of the Los Angeles River*, KCET (July 12, 2012), <https://www.kcet.org/history-society/restoring-griffith-park-on-the-east-bank-of-the-los-angeles-river> [<https://perma.cc/TE4Z-JGD5>].

168. Neighborhood 1 is based off Lincoln Heights. See *Overview of Lincoln Heights, Los Angeles, California*, STATISTICAL ATLAS, <https://statisticalatlas.com/neighborhood/California/Los-Angeles/Lincoln-Heights/Overview> [<https://perma.cc/SG6N-H4QZ>] (providing information on Lincoln Heights).

169. Neighborhood 2 is based on Cypress Park. See *Overview of Cypress Park, Los Angeles, California*, STATISTICAL ATLAS, <https://statisticalatlas.com/neighborhood/California/Los-Angeles/Cypress-Park/Overview> [<https://perma.cc/2Z8J-VUCS>] (providing information on Cypress Park).

amount of above-median wealth. Neighborhood 3¹⁷⁰ is 68.9 percent Hispanic, 10 percent White, 18.8 percent Asian, and 1.3 percent Black. The median income is \$47,800, with Whites having a disproportionate amount of above-median income.

Recently, an electric car company, Bestla,¹⁷¹ has approached the city about purchasing a large portion of East Service Yard to build a spacious office and secondary development space for their electric cars. Bestla currently has a 370-acre factory three hours away, but due to demand, it wants to open a secondary location. Bestla's Los Diablos office would focus on creating custom electronics and completing repairs. As part of its development plan, Bestla hopes to make the work area highly exclusive. This includes creating extensive gated areas around the twenty-eight acres, limiting access to the area to those with employee verification, and fundamentally reshaping the land to satisfy its manufacturing and processing needs. Part of this reshaping means blocking off public access to portions of the Los Diablos River. Bestla will create a twenty-five acre compound but will redevelop the remaining three acres for the city to maintain as a service yard. None of the original twenty-eight acres of trails and forest land will be retained.

Many parties are excited about Bestla's interest. The County strongly believes that having Bestla in the area would increase tax revenues and make the area more appealing to high-income residents. Federally, the government has been promoting renewable energy development, and Bestla has been on the cutting-edge of private sector electric car development. Bestla has preemptively acquired funding from several federal and state agencies. Bestla must still finish its EIS for both federal and state agencies to secure this funding.

However, environmental groups are concerned about the development. First, Bestla's development would disrupt their restoration efforts on the Los Diablos River. Second, there have been reports of the dangerous effects of Bestla's factories in other cities. Bestla uses extremely rare, dangerous metals to create its ultra-fast electronics. Other communities have reported increasing pollution due to mishandling of these materials, possible toxic contamination of nearby environments, and disruption of natural wildlife. Third, neighborhood and environmental groups had petitioned the county to make the East Service Yard a park. Several county officials expressed interest at the idea, but the initiative largely stalled due to lack of funding. Activists see Bestla's development approvals as a sign of hypocrisy. Ultimately, they hope to raise these issues in Bestla's development and permitting process.

170. Neighborhood 3 is based on Elysian Valley. See *Overview of Elysian Valley, Los Angeles, California*, STATISTICAL ATLAS, <https://statisticalatlas.com/neighborhood/California/Los-Angeles/Elysian-Valley/Overview> [<https://perma.cc/UV3X-YHJJ>] (providing information on Elysian Valley).

171. Bestla is based on the popular electric car company, Tesla, that has multiple locations in California.

B. *Methodology: Collecting Ecosystem Services Analyses*

Using the methodology discussed in Part III, advocates should follow the four steps to conduct various ecosystem services analyses. First, advocates need to identify the core issues. Here, the advocates' issue may be defined as "how to protect, conserve, and prevent the development of the East Service Yard from Bestla's new facility." The advocates should then identify the core stakeholders, economic activity, and geographical landscape they are studying. Core stakeholders would include city and county officials responsible for the development, neighborhood development and advocacy groups, environmental groups, residents, and Bestla. In terms of economic activity, the advocates should try and find projected economic effects of Bestla's development locally, any current information about the East Service Yard, and possible economic effects of Bestla's development. For geographical landscape, the most obvious description would be of the East Service Yard. However, this should extend to the affected areas of the Los Diablos River.

Second, advocates should identify the relevant ecosystems. There may be several, interrelated ecosystems at play. East Service Yard may encompass several ecosystems. For example, despite the East Service Yard being used as storage for the city, there are multiple wooded areas, service trails, and animals in the area. Advocates should study the costs and benefits of the area. For example, does the area provide any additional flood control, given the general hilly terrain of Griffin Park? Does the East Service Yard provide any benefits for pollution and air filtration? Are there any viable substitutes for these services? How much would they cost? How do residents view the East Service Yard? What is the value of the access to other areas of Griffin Park that East Service Yard provides to residents? Is there any potential cultural importance? Given Los Diablos is a relatively diverse and historic city, the area also may have cultural or historic significance that advocates should consider.

Another set of ecosystems to study would be the Los Diablos River ecosystems. What economic benefits does the river have? Do local organizations, communities, and residents use the river in unique ways? Does the river provide any additional filtration or flood control? It may be useful to consult the original restoration documents to see what the plans for the river were.

Third, advocates should connect these issues with the identified ecosystems. Specifically, advocates should identify their priority needs. It seems the most pressing need would be to determine how Bestla's development of the facility would impact residents and ecosystems. Thus, advocates should form targeted questions about the impacts of Bestla's development on ecosystems and possible conservation methods.

Step four requires advocates to work and develop ways to answer these questions in sufficient detail with experts. For example, advocates may want to find exact measurements of how Bestla's development would affect the value

of the East Service Yard's air and pollution filtration.¹⁷² This requires working with economists and air pollution analysts and conducting experiments near the area. These advocates may also want to measure the impact of Bestla removing all access to Griffin Park by eliminating the two major access roads. This may require consulting traffic experts, public planning officials, and residents about the additional costs for residents to access the parks. Additional aspects could include possible environmental mitigation costs given the threat of Bestla's pollution.¹⁷³

These same studies should be done with the Los Diablos River.¹⁷⁴ Advocates should consult with experts to discuss the effects of Bestla's plans on the river ecosystem. This may include the economic and ecological effects of blocking parts of the river or redirecting parts of the river. Additionally, advocates should conduct outreach to see how this would affect the cultural value of the river and residents' access to nature more generally.

Advocates should study which populations are affected. It is likely that Neighborhoods 1, 2, and 3 would bear most of the environmental impacts. To that end, advocates should work with experts to learn more about these neighborhoods. This includes detailed socioeconomic data, how the residents compare to Los Diablos residents generally, and how the ecosystem service disruptions will affect these residents. For example, advocates may find that the East Service Yard provides several million dollars-worth of flood and erosion control yearly to these residents. They may also find that removing the natural forestry and adding extensive new facilities would both remove millions of dollars of natural filtration services and increase pollution risk. Research should also collect qualitative data by talking to the residents about their views of the East Service Yard, the development, and possible effects.

172. See generally Keith H. Hirokawa, *Sustainability and the Urban Forest: An Ecosystem Services Perspective*, 51 NAT. RES. J. 233 (2011) (providing an excellent overview of the various benefits that forest ecosystems provide, including ecological services, like preventing water deterioration, social services, like fulfilling personal experiences, or even millions of dollars of air pollutant removal).

173. It is important to recognize the interdisciplinary research that is required and should be fostered. This level of collaboration is needed to truly "understand the relationships between human activities . . . ecosystem functions, services and benefits." See Nicola J. Beaumont et al., *Practical Application of the Ecosystem Service Approach (ESA): Lessons Learned and Recommendations for the Future*, 13 INT'L J. OF BIODIVERSITY SCI. ECOSYSTEM SERVS. & MGMT. 68, 75 (2017).

174. See generally *Los Angeles River Ecosystem Restoration Integrated Feasibility Report (Excerpts)*, U.S. ARMY CORPS ENG'RS 5-124 (2013), <https://web.archive.org/web/20160627031035/http://www.cityprojectca.org/blog/wp-content/uploads/2014/09/LAR-Feasibility-Study-201309-Relevant-Excerpts-HiLites-20141119-web.pdf> [<https://perma.cc/NB89-Y27Q>] (describing the effects of a restored Los Angeles River, specifically a "net positive affect on minority and low-income populations").

C. *Using Ecosystem Services Analyses in a Disparate Impact Argument*

Advocates should incorporate this data into disparate impact arguments. First, advocates can use the ecosystem services analyses to establish element one of disparate impact. The data becomes important in establishing disparity and determining if the disparity is significantly large. By mapping and studying which ecosystem services are disrupted, advocates will have powerful information about which communities are affected.

The advocates would likely be able to show that the relevant communities for the disparate impact analysis are Neighborhoods 1, 2, and 3, which immediately border the East Service Yard. This type of information could alleviate the data-collection burden on investigating authorities and provide more specific information than whole-population calculations. These studies can also provide significant information to show that the disparity of treatment is large. For example, ecosystem services analyses could show that given the largely minority composition of these neighborhoods, most of the impact is burdened by non-white, protected groups.

Ecosystem analyses would be invaluable in demonstrating the sub-element of causation. Powerful arguments could be crafted showing that but for Bestla's development, these adverse impacts would not occur. Although Bestla has no duty to prevent existing disparate impact, ecosystem services analyses could demonstrate that Bestla's development would impact park access by removing major access to Griffin Park. This would affect the economic and health benefits of park access. Additionally, the development would directly cause the destruction of ecosystem services, like filtration and erosion prevention.

Ecosystem services analyses could also be used in disparate impact element three. Depending on the resources of advocates, they may be able to identify other viable locations for Bestla's facility. This type of identification may require additional ecosystem services analyses to demonstrate that those sites would not cause extensive disruptions. This may require support from county and city officials to identify potential areas.

Ecosystem services analyses would be especially helpful in finding mitigation solutions. Ecosystem services analyses could provide metrics to determine which services are the most beneficial, both financially and culturally.¹⁷⁵ As a result, compromises that preserve specific ecosystem services may be possible. For example, suppose that ecosystem services analyses find that portions of the East Service Yard provide immense erosion prevention and air

175. See, e.g., U.S. ENV'T PROT. AGENCY, AN OPTIMIZATION APPROACH TO EVALUATE THE ROLE OF ECOSYSTEM SERVICES IN CHESAPEAKE BAY RESTORATION STRATEGIES (2011), <https://www.epa.gov/sites/production/files/2014-03/documents/chesapeake-bay-pilot-report.pdf> [<https://perma.cc/92J8-TSUY>] (an extremely in-depth report that describes and considers various alternatives to remove pollutants in Chesapeake Bay, using an ecosystems systems framework).

filtration services. Replacing these services would cost Bestla and the county millions and would be much less effective than natural solutions. This may lead to a compromise solution, where Bestla reduces the size of their facility and maintains these portions.

Or suppose that the analyses find that reducing access to Griffin Park reduces economic and health benefits to the three Neighborhoods immensely. This may lead Bestla to create a specific access road for residents to ensure access to Griffin Park. Depending on the pressure on Bestla and the success of local advocates, other solutions may even include the creation of a new park using a portion of the acreage or removing the manufacturing portion of the facility from the site. This may be more likely to occur if advocates bring national attention to the development, much like the advocates behind Los Angeles Historical Park did.

Ultimately, this type of combined analysis has immense benefits for both disparate impact and ecosystem services frameworks. As this example shows, advocates using ecosystem services can provide extensive information about new ecosystems that may not be monitored by ecosystem services scholars currently. Continuing to track this information can create more ecosystem mapping and information generally. In turn, disparate impact frameworks continue to be used by advocates, adding further persuasive strength to their arguments. Advocates can now utilize two powerful frameworks that can lead to new insights and methods of attacking inequity.

D. *Weaknesses Of This Combined Framework*

This case study illustrates several weaknesses of this combined framework. There are two clear weaknesses: advocates' limitations and ecosystem services' persuasiveness.

First, the advocates' lack of resources is a limitation of conducting extensive ecosystem services analyses. Ecosystem services analyses, especially for parties who are unfamiliar with the methodologies and how to conduct these types of analyses, can be expensive and burdensome. For example, it would be difficult for advocates to pay multiple experts to research and analyze air quality, filtration, pollution, and more.

This Article recognizes the resource limitations of many advocates. To that end, this Article has several suggestions. First, advocates should become familiar with the plethora of tools that ecosystem services advocates have made available. For example, the International Union for Conservation of Nature outlined multiple tools for advocates to identify and categorize ecosystems.¹⁷⁶

176. NEUGARTEN ET AL., *supra* note 117. One other useful tool may be the EPA's EcoService Models Library, which provides a database of categorized ecosystems across the nation. *EcoService Models Library (ESML)*, U.S. ENV'T PROT. AGENCY, <https://esml.epa.gov/search/ems> [<https://perma.cc/GT4H-TUYY>]. See also *Ecosystem Services*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/eco-research/ecosystem-services> [<https://perma.cc/8QGA-3ML9>] (providing various tools and databases for ecosystem services analyses).

These tools vary in multiple ways—in user interface, scope of study, expertise required, and advocate capacity for collecting information.¹⁷⁷ However, they can provide further access for advocates despite resource limitations.

Additionally, ecosystem services scholars should proactively collaborate and work with advocates within larger environmental justice movements. Environmental justice advocates can provide topical scenarios to apply ecosystem services analyses. There are benefits to both groups working in unison and finding solutions that implement both frameworks.

Second, advocates may encounter issues with the lack of persuasiveness of some ecosystem services arguments. Although ecosystem services have become a more prominent field of study, advocates may face pushback from officials and authorities. For example, Los Diablos officials may find valuations of the services by ecosystem experts unconvincing. Stating that cutting down a section of forestry could cause millions of damages in flood erosion may seem attenuated and far-fetched. Given these are not as well established as more “concrete harms” in other circumstances, officials and authorities may be skeptical of these findings.

However, advocates should not be deterred. Instead, these challenges should empower groups to continue using ecosystem services analyses in unique and powerful ways to demonstrate their value. Specifically, advocates can increase the persuasiveness of ecosystem services evidence by using these tools proactively with local planning, rather than just as a responsive tool. Keith Hirokawa, a prominent environmental justice and ecosystem services scholar, posits that local government and community planning is an especially fruitful area to implement ecosystem services analyses, as “local governments are familiar with the process of memorializing long-term community visions in a comprehensive plan.”¹⁷⁸ To that end, advocates can work with local governments to implement local ecosystem services using the frameworks and steps identified in this Article before issues arise. Thus, advocates can embody a new type of environmental law advocacy—one that “recognizes natural . . . and human environments as highly dynamic, shaped by complex . . . interconnections,” and one that uses a “multimodal—or toolbox—approach” to reach its aims.¹⁷⁹

CONCLUSION

The environmental justice movement has long relied on the disparate impact doctrine as a tool to combat inequitable environmental treatment. Despite the doctrine being limited, advocates have repurposed disparate

177. See source notes.

178. Keith Hirokawa, *Sustaining Ecosystem Services Through Local Environmental Law*, 28 PACE ENV'T L. REV. 760, 787 (2011).

179. Craig Anthony Arnold, *Environmental Law, Episode IV: A New Hope? Can Environmental Law Adapt for Resilient Communities and Ecosystems?*, 21 J. ENV'T & SUSTAINABILITY L. 1, 6–7 (2015).

impact as an argumentative framework to challenge inequitable access to resources. Ecosystem services creates a new paradigm to understand how resources provide both cultural and economic benefits to communities. Yet, the field needs further data and application. Combining these frameworks strengthens the disparate impact framework and provides data for ecosystem services. Obstacles to implementation include prohibitive costs and establishing the persuasiveness of this combined analysis. Ultimately, utilizing both disparate impact and ecosystem services frameworks gives advocates a powerful new tool to ensure equitable access to natural resources.