

Data Analytics for Environmental Justice and Indigenous Rights: Early Warning Systems or Blind Spots?

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Abstract

In the United States, federal policies exist to ensure environmental justice and to protect Indigenous rights. However, the effectiveness of these policies can be influenced by analytical tools chosen by decision-makers to study disproportionate impacts of federal actions, including environmental permitting, on Indigenous peoples in particular and marginalized communities in general. Strong analytics can help identify, early on, communities likely to be impacted by federal permitting and decision-making, providing opportunities to consult meaningfully with communities and address potential injustices or inequities prior to key planning and permitting decisions. In contrast, weak analytics can create blind spots to potential inequities and injustices that may not be revealed until late in planning and permitting processes if at all. Here we evaluate environmental justice analytics used in federal decision-making with particular attention to recent fossil fuel pipeline permitting. Using the Atlantic Coast Pipeline - a proposed shale gas project in West Virginia, Virginia, and North Carolina - as a case study, we identify methodological weaknesses that contribute to decision-making blind spots surrounding environmental justice, focusing especially on implications for American Indian tribes. We discuss findings in the broader contexts of public policies surrounding environmental justice and Indigenous rights. We offer recommendations for policy-makers, regulators, pipeline developers, and members of affected communities.

Data Analytics for Environmental Justice and Indigenous Rights

Early Warning Systems or Blind Spots?

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Overview

In the United States, federal policies exist to ensure fair treatment and meaningful involvement of all people in environmental decision-making processes. Other policies exist to ensure that Indigenous groups are engaged meaningfully and respectfully in decisions that affect their traditional and present-day territories. Strong data analyses can support these policies, but weak analyses can work against policy goals and reinforce marginalization of Indigenous peoples and marginalized groups in general.

We studied a data analysis used by federal energy regulators to identify the presence of vulnerable populations along proposed fossil fuel pipeline routes. We found that the tool lacked the ability to detect disproportionately large minority populations, and we use a mathematical model to explain in detail how it fails. We discuss implications for American Indian tribes in the United States and offer recommendations for everyone involved in planning and permitting processes for fossil fuel pipelines.

Why It Matters

The US Federal Energy Regulatory Commission approved 16 natural gas pipelines between 2015 and 2017. In 15 cases, regulators concluded that no minority populations would be disproportionately impacted by projects based on negative findings from environmental justice analyses. In one case, regulators found the environmental justice analysis inconclusive. Lack of positive findings raises questions about the sensitivity of demographic tests used for environmental justice analyses.

Sensitivity defines the ability of regulators to identify unexpectedly large poor or minority populations – two protected classes under federal environmental justice policy. Indigenous peoples often fall into both of these classes. They may also hold close connections to, and sophisticated knowledge about, environments affected by regulatory actions. Meaningful consultation with Indigenous peoples is therefore important for thorough and ethical environmental permitting. Guidelines for consultation appear in various federal policies and in the UN Declaration on the Rights of Indigenous Peoples.

Although the US government is obligated to consult with 570+ federally recognized tribes on regulatory actions that affect their territories, there are more than 60 non-federally recognized tribes with whom the government has no statutory obligation to consult. In yet another category is the Lumbee Tribe, which is partially recognized under a 1956 federal law and disputes federal regulators' assertion that the tribe is ineligible for consultation on projects affecting their territory. The case study involves permitting of a natural gas pipeline affecting the Lumbee and other tribes whose territories include present day eastern North Carolina.

Meherrin



Haliwa-Saponi

Coharie

Lumbee

Waccamaw
Siouan

Eastern North Carolina Tribal Nations

Nation	Learn More
Lumbee "People of the Dark Water" Pop. 55,000	 http://www.lumbee.com
Haliwa-Saponi Pop. 4,300	 http://www.haliwasaponi.com
Coharie "People of the Coharie River" Pop. 3,000	 http://www.coharie.com
Meherrin "People of the Water" Pop. 900	 http://www.meherrin.com
Waccamaw Siouan "People of the Falling Star" Pop. 2,000	 http://www.waccamaw.com

Related Publications

Emanuel RE (2017) **Flawed Environmental Justice Analysis** Science DOI:10.1126/science.aao2684

Emanuel RE (2018) **Climate Change in the Lumbee River Watershed and Potential Impacts on the Lumbee Tribe of North Carolina** *Journal of Contemporary Water Research and Education* DOI:10.1111/j.1936-704X.2018.03271.x

Emanuel RE (2019) **Water in the Lumbee World: A River and its People in a Time of Change** *Environmental History* DOI: 10.1093/envhis/emy129

Acknowledgments

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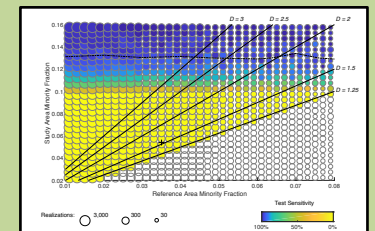
Case Study

The Atlantic Coast Pipeline is a proposed shale gas project extending from the Appalachian Mountains to the coastal Plain of Virginia and North Carolina. The route crosses territories of four tribal nations recognized by the state of North Carolina. Approximately 30,000 tribal citizens live along the route at a concentration 1.6 times higher than in the surrounding area. Most belong to non-federally recognized tribes, who lack statutory protections regarding tribal consultation. A federal environmental impact statement (EIS) concluded that minority populations would not be disproportionately impacted by the project.



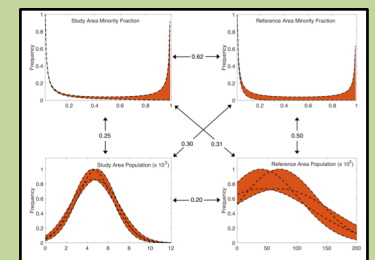
Tribal Nations affected by proposed Atlantic Coast pipeline (black line).

We developed a Monte-Carlo method to test the sensitivity of the demographic analysis used in the EIS. We found the test unable to identify disproportionately large American Indian populations below a threshold of approximately 76,000 individuals, or 13% of the 560,000-person study population. The 1.7 million person reference population for the pipeline has an American Indian population of approximately 3.5%. Thus, the federal demographic analysis is insensitive until American Indians make up a 4x greater fraction of the study population than the reference population.



Sensitivity of Atlantic Coast Pipeline demographic analysis (test applied to 5,000,000 Monte-Carlo realizations of EIS study and reference populations).

A contributor to insensitivity in the demographic analysis was its failure to account for variable census tract populations and correlations between population size and fractional American Indian populations. Here, as tract population increases, so does the fraction of American Indians living in the tract.



Correlations (ρ) between tract & county population & minority fraction.

The analysis studied here was unable to detect disproportionately large American Indian populations as part of an environmental justice assessment. As a result, it should be replaced with more rigorous analytics to quantify disproportionality. Doing so can help avoid drawing false conclusions from insensitive methods. More rigorous analytics can increase the visibility of marginalized communities, including non-federally recognized tribes.