



SRA 2020: Risk Science for Sustainability

Plenary Session: “Sustainability, Risk and Environmental Justice”

The United Nations Sustainable Development goals recognize that we will not achieve a truly sustainable future without paying careful attention to the linked challenges of environmental and social justice. The reality is that often the greatest environmental health impacts are experienced by the most marginalized communities. The risk sciences are critical to understanding who disproportionately bears these risks, how to communicate these risks effectively, and ultimately how to build systems to reduce these inequities.

Dr. Danielle Purifoy, an assistant professor of geography at the University of North Carolina - Chapel Hill, presented on “Development of Risk: A View from the Local Level.” In her talk, Purifoy described a theoretical framework for understanding environmental racism, with the view of helping people understand the context underlying the disproportionate risks that communities of color in low wealth communities face. She argued that this relates to a larger framework around development — particularly how race-relational development operates at the local level. For the last several years she has studied the black-founded town of Tamina, Texas.

The black-founded town of Tamina

Purifoy studies towns and settlements in the South that were founded by black communities escaping slavery. They formed post emancipation, often on land where the community members were previously enslaved on plantations. “A lot of these places have endured for 200 plus years, despite having very little of what we think of as traditional growth and development, and also being saddled with a lot of environmental hazards and risks,” said Purifoy. “If we look at case studies of environmental racism for the past 30 to 40 years, a disproportionate number of these places are part of that case study body.”

Tamina, Texas, is one of these black-founded towns. Located in a heavily forested area about 30 minutes north of what is now Houston, it was established after the Civil War by a group of people who had escaped slavery. With her colleague Louise Seamster, an urban sociologist at the University of Iowa, Purifoy has been following the story of Tamina since 2016. “It’s a really classic kind of environmental justice case,” said Purifoy.

A history of environmental injustice

Tamina has endured decades of environmental injustice. It is home to a petroleum blending facility. The town’s Sweet Rest Cemetery, burial ground for community members for almost 200 years, is mostly underwater now because of the development of white towns that have been

established nearby. On the other side of the railroad tracks is a town called The Woodlands, Texas. The unincorporated white community was founded in the 1970s through the Housing and Urban Development's Model Communities Program.

“So you have this juxtaposition of this large, 117,000 person ‘white city’ adjacent to Tamina, which has existed for over 100 years longer but is saddled with a lot of the environmental burdens of the area,” said Purifoy. The waste dumping that caused the cemetery to go underwater was from an illegal construction landfill that was put in place by The Woodlands.

“Our current environmental justice framework, and the way that the research proceeds, does not really account for what’s happening in Tamina and The Woodlands in relation to each other,” said Purifoy. “[It doesn’t account for] the why and how of environmental risk development and how it ends up disproportionately burdening communities like Tamina.”

The town development model

At the core of the problem is what Purifoy calls the town development model. To form a town, there is a process of land acquisition and control, some form of resource pooling or financing that has to happen to build infrastructure and provide critical services that people need. Economic development and growth lead to more land acquisition and control. This town formation model connects back to core foundational principles of property, suggested Purifoy. “This is about who is able to own property and the social and racial dynamics around control,” she said. “What I’m saying is that the model of the town, in the United States, and under capitalist economies, is a white-centered model. We don’t see this model as much in black-founded towns and spaces.”

The biggest challenge to changing this white-centric model, added Purifoy, is that “there is a disconnect between our laws and policies, regulations, and how development actually works... There’s this attitude that it’s just going to continue being what it is. That, to me, makes no sense if we’re actually thinking about stopping these kinds of impacts.”

“There’s a standard development model in a lot of rural communities of color that is all about industrial development. And the environmental regulation and risk assessment comes in at the back end -- it’s not really integrated into the actual process,” said Purifoy. She works with an environmental justice network in North Carolina, and said that “every single case is really about fighting a basic presumption that this is development that can happen, unless there’s a deficiency in this permit. [As if] there is a right to pollute, a right to develop in a particular way.”

Unfair practice of creative extraction

In their research, Purifoy and Seamster have noticed a persistent pattern of developers extracting resources from Tamina in order to build up surrounding white communities. They invented the term “creative extraction” to describe how white towns catalyze their own development with

resources displaced from beyond their own borders. This theft of resources, particularly land and public finance, prevents towns like Tamina from being able to develop basic infrastructure—essential to economic growth. “Extraction doesn’t have to mean physical taking of resources but also environmental degradation,” said Purifoy.

Environmental justice and the “riskscape” that affects people of color

Purifoy argued that the environmental justice scholarship and organization that arose in the 1980s was based on three premises: 1. Communities of color are overburdened by hazardous industries, locally unwanted land uses (LULUs), and threats of destruction. 2. Mainstream (white) environmentalism fails to account for the role of racism and social power dynamics in the distribution of environmental harms and benefits. 3. Existing as people of color poses several overlapping and intersecting risks, all of which occur in the places where we live, work, play, etc.

“We frame that often in terms of cumulative risk, particularly in the environmental realm,” said Purifoy. “But there are also these other social risks happening simultaneously -- which contribute to an overall “riskscape” that disproportionately impacts communities of color.”

How can environmental risk assessment be improved?

A lot of environmental justice research started with identifying individual hazard disparities, particularly landfills and toxic waste sites. There was a theme of “toxic waste and race,” said Purifoy. “What we’ve gotten to and beyond a bit is thinking more cumulatively about hazard disparity. Understanding that various facilities and hazards actually have overlapping and intersecting impacts that are cumulative in some communities.”

Understanding environmental risk requires a larger context than distribution, measurement of disparities, and accumulation. “We need to recognize the cumulative hazard disparities, focusing more on exposure across space and time, when we think about the history of communities and their exposures—even shifting the analysis from the hazard to the place or the community so that we are thinking more broadly about all of these dynamics,” said Purifoy.

“There’s a kind of place-based focus to what’s happening in a local community,” she added. “It’s really about hazard siting and local politics.” Instead, what researchers need to ask is “Where is that disproportionate burden coming from?” said Purifoy. “How is it being reproduced in space?” Expanding the scope of inquiry/unit of analysis from the hazard to the place opens the possibility of answering how and why an environmental injustice occurs, not just what and where.

Structural racism and environmental justice

Purifoy suggested that much of environmental justice scholarship continues to ask the questions: Is there a racial disparity? If so, is it racism? “I argue that the question should really be how is

environmental racism accomplished, and for what purpose?” said Purifoy. “This framing shift in language really takes for granted structural racism in the United States.”

Purifoy suggests that structural racism is part of the foundation of the United States. “And it is reproduced generation after generation in various aspects,” she said. “So when we see it in the built environment, it should not be a surprise. What we need more of is an understanding of how it’s reproduced. Because if we can understand that, we can kind of understand how we can reduce these risks and how we can implement policies that can shift some of this risk or reduce it or eliminate it altogether in some cases.”

Risk scientists and reparations

Can risk researchers help document the need for reparations to redress harm from an environmental injustice? Purifoy suggests that a risk analysis framework needs to be developed to include the risks of chemical hazards that are patented yet largely untested. With people of color exposed to so many chemicals in their communities, “we don’t know [the risk] until some kind of harm occurs, and we don’t know what the long-term hazard will be,” said Purifoy. A risk analysis framework should include the risks of these “unknown” risks.

“It would be great for the purposes of reparations,” she said. “It’s not a prophylactic in the sense that the harm won’t occur, but it’s something that preempts this presumption that harm doesn’t occur unless we have long documented something we don’t even know about.”

Purifoy suggests that combining risk science with the social and political history of place demonstrates how places like Tamina and The Woodlands are race-relational. She argues that policies must target power, social power dynamics, as much, if not more than, actual risk reduction.

“Doing this work to understand the power dynamics, and working to shift them, is its own form of risk reduction,” said Purifoy.



Dr. Danielle Purifoy

Danielle Purifoy is assistant professor of geography at the University of North Carolina, Chapel Hill. She completed her Ph.D. in Environmental Politics and African American Studies at Duke University. Dr. Purifoy received her B.A. in English and Political Science from Vassar College,

and a J.D. from Harvard Law School. Her work traces the roots of contemporary environmental conditions in the southern United States, especially in black towns dating back to the post-antebellum era. She has also written about the legal dimensions of environmental justice and equity in food systems. She is the current Board Chair of the North Carolina Environmental Justice Network.