Duke University graduate students Emily Meza (M.E.M.), Katy Hansen (Ph.D., Environmental Policy), and Ryan Juskus (Ph.D., Religion) sought to contribute to a community-based research partnership between the Duke Human Rights Center and the Alabama Center for Rural Enterprise to improve wastewater treatment in Lowndes County, Alabama.

Guided by their faculty sponsors Erika Weinthal and Elizabeth Albright, they received a Duke Support for Interdisciplinary Graduate Networks (D-SIGN) grant for 2017-2018. Here are excerpts from their year-end report.

The latest American Community Survey found that 630,000 U.S. households do not have a toilet or running water. Addressing the complex challenges undergirding lack of access—from limited technology to lack of funding and institutional shortcomings—require interdisciplinary efforts.
In close collaboration with the Alabama Center for Rural Enterprise (ACRE), our D-SIGN team, comprised of doctoral and professional students from the Duke Divinity School, Law School, Nicholas School of the Environment, and Sanford School of Public Policy, focused on improving access to wastewater treatment in Lowndes County, Alabama, where up to 90% of households have either no or inadequate access to sanitation.

The project started with a site visit in July 2017. We hosted community meetings in Lowndes County to discuss the initial research and diagnosis the problem, and visited several homes without adequate access to sanitation. We decided to focus on the interlaced physical and financial barriers to sanitation access.

Household Sanitation Conditions

Emily Meza spent the year assessing likely predictors of seeing raw sewage on the ground, as well as broadly defining the scale and scope of the struggles with wastewater treatment faced by Lowndes County. Her analysis relies on an EPA-funded community survey conducted by ACRE and community volunteers in 2011-2012.

Approximately 2,450 households (~56% of households county-wide) were interviewed in person about sanitation conditions in their home and on their property. Four main types of wastewater disposal methods were identified—full sewer connection, settling tank connected to sewer, septic systems, and straight pipes (lack of any treatment). While 92% of the county reported being served by a municipal drinking water utility, only 21.8% were served by a sewer system. As expected, residents that used straight pipes to dispose of their wastewater were ~36 times more likely than residents connected to a full sewer to report raw sewage on the ground. Additionally, those whose septic or settling tanks were not operating properly were ~35 times more likely to see raw sewage. Improving sanitation and reducing exposure to raw sewage in Lowndes County requires addressing both private household needs as well as the municipal utilities with failing infrastructure.

Emily presented her results with the ACRE team to congressional staffers and industry representatives in Washington, D.C. in March 2018.
It was very encouraging to be in a room with thirty-plus people all working on similar issues. We heard from scholars at Baylor, Columbia, and Michigan State, as well as the nonprofit and private sector stakeholders. While my research focused on Lowndes County, hearing from so many viewpoints impressed how widespread sanitation issues are in both the US and worldwide. Multiple congressional staffers also attended the full day workshop, and a month later Senator Cory Booker introduced a bipartisan bill to the Senate to address these issues. While Catherine had been working with Senator Booker for a while, our stakeholder meeting helped get a critical mass of interest around the problems. Having played an active role in that was significant and encouraging experience, even if there remains much work ahead.

—Emily Meza, second-year Master of Environmental Management student

Funding for Wastewater Treatment Infrastructure

Katy Hansen worked closely with Bryce Cracknell (Trinity ’18) and five other undergraduates to track the sources and distribution of federal and state funding for wastewater treatment infrastructure. This team collected information on funding from agencies’ websites, compiled and cleaned the data, and creating output, and are in the process of writing an article and policy brief about the distribution of federal funding for wastewater infrastructure in Alabama.

This work will help determine whether the percentage of nonwhite or low-income residents influences the likelihood of applying for and receiving financial assistance. Eligibility criteria, application and recipient requirements, and insufficient funding act as barriers to low-resource communities seeking funding. Katy presented this work with Danielle Purifoy at the American Associations of Geographers meeting in New Orleans in April 2018.

Individuals’ Relationship to Nature

Ryan Juskus researches how people conceptualize and act on their relation to nature in contexts where social marginalization, religion, and fossil fuels are key factors. Participating in the project helped Ryan with his dissertation research on north Birmingham by improving his understanding of how race and history intersect with environmental concerns in Alabama.

His trips to Lowndes County helped him make connections between the Lowndes work and Equal Justice Initiative’s (EJI) effort to re-narrate the racial history of the region from slavery to mass incarceration. ACRE’s work dovetails well with and fleshes out EJI’s work by adding the environmental side of the story. Ryan has tried to highlight the humanities aspects of the Duke-ACRE partnership by pointing to the ways that the wastewater issue is more than technical and political in nature.
It is also a deeply human story. Ryan hopes to add ethics and religion analyses to interdisciplinary research projects in environmental justice.

As a humanities scholar on a project driven by social sciences and focused primarily on technical and political solutions to the wastewater challenges in Lowndes County, I joined the team without a clear sense of what I would be able to contribute. During a visit to Lowndes County with the D-SIGN team last summer, however, I learned that the water problem is also a soil problem; the septic technology approved by the health department doesn’t work largely because of the soil structure of the “Black Belt” region of Alabama. Even more, it was the black, fertile soil of the Black Belt that proved so attractive to the cotton planters who drove demand for the domestic slave trade from the Upper South to the Black Belt.

I also learned that the famous Selma to Montgomery marchers crossed through and slept in Lowndes County, and that Stokely Carmichael first articulated the turn to black power on Lowndes soil. I then visited the Equal Justice Initiative in Montgomery and learned about their project to collect soil from historic lynching sites as part of their community memory initiative to renarrate the history of racial hierarchy in the U.S. from slavery to mass incarceration. EJI invokes hundreds of jars of soil as a witness to the era of racial terrorism and to our current responsibility to understand and combat this legacy of violence-enforced hierarchy.

As a student of Christian political theology, I immediately thought of Yahweh’s words to Cain after he killed his brother Abel, “The voice of your brother’s blood is crying to me from the ground.” When words fail, the soil can speak. But who is listening?

In short, I discovered that my role on the team was to tell these more than technical and political aspects of the project. This is a story of soil, souls, and society. Since last summer, I deepened these initial connections between the wastewater issue, EJI, and theology. I also mentored a graduate student in theology and environmental management on these themes. Together, we are proposing a panel on Lowndes County at Baylor University’s Symposium on Faith & Culture this fall.

—Ryan Juskus, third-year Ph.D. student in Religion

Peace and Justice Summit

Lastly, the team attended the opening of EJI’s lynching memorial and the Peace and Justice Summit in Montgomery, Alabama in April 2018. Both the memorial and summit were profoundly moving experiences, sober, informative, and motivating all at once.
Our work would not have been possible without the generous support of The Graduate School and the four-year partnership between the Duke Human Rights Center at the Franklin Humanities Institute (FHI) and the Alabama Center for Rural Enterprise. We thank Ms. Catherine Coleman Flowers (ACRE), Dr. Erika Weinthal (NSOE & FHI), Dr. Elizabeth Albright (NSOE), Dr. Megan Mullin (NSOE), and Emily Stewart (FHI) for their commitment, effort, and expertise.

About D-SIGN

This internal funding mechanism from the Office of the Vice Provost for Interdisciplinary Studies encourages graduate students to explore beyond disciplinary lines, both in research and coursework. The goal is to enable graduate students to build or extend their networks and to integrate collaborative, cross-school experiences into their programs, thereby increasing the number of individuals whose graduate training reflects Duke's commitment to interdisciplinarity and knowledge in the service of society.

- See who else received D-SIGN grants in 2017-2018.
- Look ahead to the 2018-19 D-SIGN projects.
- Browse D-SIGN posts.

*Photos: The D-SIGN team with faculty and community partners in Alabama; Emily Meza, Katy Hansen, and Ryan Juskus; the team looking at the lagoon near Hayneville; Kelsey Rowland, Carly Osborne, and Emily Meza at the stakeholder meeting in Washington, D.C.; Katy Hansen and Danielle Purifoy at the AAG; National Memorial for Peace and Justice*