

With the generous support of the Scott Kloeck-Jenson International Pre-dissertation Travel Grant, I was able to conduct preliminary ethnographic research on air pollution management in Ulaanbaatar, Mongolia. Ranked the second most air-polluted city in the world, the largest single source of air pollution in Ulaanbaatar is the widespread use of coal-burning domestic stoves among residents of the urban slums, or *ger* districts. My original goal was to carry out a commodity chain analysis of the stove-replacement program, a market-based global health initiative aimed to mitigate air pollution through the mass production of energy-efficient stoves. As my research progressed, I worked to frame this initiative within a broader discourse on risk in the urban environment and the privatization of global health.

I began my project with conceptual mapping to identify and correlate relevant actors and networks involved in the stove-replacement program. Through conducting semi-structured interviews with project managers and researchers, I was surprised to discover the increasingly influential role of the private sector in carrying out this air pollution mitigation initiative. Most notably, local banks and microfinance institutions are valuable stakeholders in assisting with project implementation. These institutions are responsible for the sales and distribution of energy-efficient stoves and facilitation of eco-consumer loan programs in the *ger* districts. As I augmented my interviews with review of published project proposals and monitoring and evaluation reports, I also found that local and international companies are the main actors in the design and modeling of energy-efficient stove technologies. These findings led me to anthropologically analyze the newly forged producer-consumer relationship between the private sector and local citizens, wherein marketing and consumption of commodities has become a valuable feature of contemporary global environmental health.

I also collaborated with atmospheric scientists and public health experts involved with air pollution monitoring and risk analysis. Through conversation with these experts, I became interested in the production of scientific evidence correlating long-term stove use to reduction in air pollution. PM2.5 (particulate matter with a diameter less than 2.5 micrometers) has appeared at the forefront of exposure science, identified by scientists as the most hazardous pollutant to human health. Due to the lack of air quality monitoring stations that measure PM2.5 throughout the city, it has become difficult to measure the effectiveness of energy-efficient stove technologies in reducing air pollution exposure. Scientists are using readings from monitoring devices to track daily trends, calculate risk, and to spatially map the topography of risky places. I also visited the Stove Emissions and Efficiency Testing laboratory to learn about the energy-efficient stove testing protocol required prior to mass marketing. In my analysis, I learned about various criteria required for a newly design stove to pass as energy-efficient. These decisions required collaboration not only between the government and the private sector, but also with local scientists. Learning about these protocols and related preliminary insight into exposure science in Ulaanbaatar has inspired me to look into social scientific literature on risk as well as the quantification and molecularization of urban health.

I was also surprised to learn about the role of social media to publically disseminate real-time data of pollutant levels to city residents. An air quality monitoring device is hooked up to an automated Facebook and Twitter feed with the purpose of providing the public with exposure data on an hourly basis. The principle behind this initiative is based on the Beijing model, wherein the informed citizen plays an integral role in air pollution mitigation efforts. By engaging Ulaanbaatar citizens in a conversation about this urgent urban environmental issue, scientists hope to promote activism and push for stricter national level policy. The notion behind the informed citizen raises interesting theoretical questions about citizenship in the contemporary urban landscape, where the

entire population is not only affected by but also forming new identities around atmospheric degradation.

Further, I used my Mongolian language skills to conduct informal interviews with local residents, primarily new stove users living in the *ger* districts. For more than 180,000 households living along the city's periphery without electricity, sanitation, or running water, the uncertainties of air pollution controls permeate the minutiae of everyday life. *Ger* district residents alter their daily activities by adopting new and unfamiliar stove technologies to heat their homes in a city where temperatures can plummet below -40 degrees Fahrenheit. As the recipient of these new energy-efficient technologies, I wanted to learn whether or not they perceived these new devices as beneficial to their health and wellbeing. Many residents admitted to economic advantages, as the new stoves allowed them to save money on fuel costs (coal). However, many alluded to uncertainties about whether these stoves directly benefited their health. Conversations also revealed that issues with maintenance and unanticipated accidents with these new devices catalyzed further ambiguities about the initiative. I paired these responses with respective project objectives to learn about how the stove-replacement program is addressing these concerns. According to many interviews, despite residents' concerns, because the air pollution in Ulaanbaatar is so severe, tangible, visibly noticeable changes will take a much longer time period. And even though the stove-replacement program is only a short-term solution, stakeholders emphasized the importance of *ger* district residents using these energy-efficient stoves as responsible citizens. This links to scholarship on the biopolitics of global health, and forced me think critically about who is casted as accountable and who is left out from this initiative.

Preliminary research supported by the Scott Kloeck-Jenson fellowship provided breadth and depth to my project's focus, refining my dissertation research focus to investigate the role of surveillance technologies and conceptions of risk related to the stove-replacement program. Speaking directly with residents and various stakeholders involved in the air pollution mitigation initiative has reconfirmed the urgency of air pollution in Ulaanbaatar, further enhancing my commitment to conducting my dissertation research on this topic. Additionally, this preliminary research has enabled me to reflect and incorporate new theoretical approaches from science and technology studies and urban ecology. Lastly, this opportunity has supplied the necessary local affiliations and contacts for my dissertation research. I established affiliations with a public health expert at the Department of Environmental Health in the School of Public Health at the Health Sciences University of Mongolia and an air pollution expert at the National University of Mongolia.