



Our Toxic Gumbo: Recipe for a Politics of Environmental Knowledge

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Contemplating the radioactive cloud drifting across West Germany from Chernobyl nearly twenty years ago, the German sociologist Ulrich Beck famously observed that “poverty is hierarchic, smog is democratic.” This was another way of saying that the wealthy among us could no longer buy their safety from invisible new dangers. Others taking issue with Beck’s catholic fatalism countered that persistent inequalities in many parts of the world have concentrated pollution and its attendant health threats disproportionately in poor nations and in poor regions of wealthier nations.

Both points in the debate were driven home last month by Hurricane Katrina. Even as the storm exposed in Orleans parish the deep racial and economic divisions that structured evacuation and rescue efforts, levee breeches on two sides of the city destroyed neighborhoods rich and poor. And just down river in Chalmette, the fencelines once physically demarcating political conflicts between industrial polluters and their working class neighbors were blown apart and replaced by a sea of “toxic gumbo” whose flow and ebb will in all likelihood raise health risks for everybody choosing—or compelled through economic circumstance—to return. The storm has transformed the nature of environmental risk in ways that are unlikely to conform to pre-Katrina cultural, political, or socioeconomic realities.

This is a moment of great uncertainty, and knowledge is at a premium. We hunger to know. What has happened? How bad is it? Will it hurt me? Will it hurt my grandchildren? Government officials, industry spokespersons, and experts of various stripes are scrambling to ascertain and make sense of the damage. And every day news reports and press releases tell us what more they know.

Especially now, sociology can and should provide a critical distance from the machineries of knowledge production presently churning away in southern Louisiana. Even as many find comfort in the technical language of risk analysts and health experts, we must remember that knowledge about contamination and risk is itself a social process. It is produced, certified, communicated, and applied (or not) in policy. We need to pay attention to how this new knowledge is being gathered, interpreted, and organized. In particular, we need to pay attention to the

problem of “undone science”—explaining why some knowledge never gets made. What we don’t know, or won’t know, or can’t know about the new New Orleans will matter a great deal. We need to understand the causes and consequences of our present and future ignorance.

What’s in the Water?

The focus now is on what we can know, but even the most basic information is murky. A full accounting of contaminants in the flood waters that drowned New Orleans and Chalmette and now pollute Lake Ponchartrain is probably beyond the reach of environmental scientists and engineers. Still, we should keep in mind the enormous complexity of our toxic gumbo, known or probable ingredients of which may include:

- Biological contaminants from raw sewage, rotting meat and seafood, municipal garbage, hospital waste, the new dead (humans and animals domestic and wild), and the cemetery dead.
- Heavy metals, mostly lead from three hundred years of paint that laces the soil surrounding most homes built before 1970, but also arsenic, copper, mercury, and zinc.
- Oil and petroleum fuels. These include oil, gas, and diesel from motor vehicles (including boats) submerged by flood waters or leaking tanks buried beneath gas stations, as well as those from industrial-scale sources. The main oil spill reported to date, at the Murphy Oil refinery, leaked at least 19,000 barrels into the streets of neighboring Chalmette. Below New Orleans a dense latticework of pipelines connect more than a thousand oil and gas wells to storage terminals. We can only guess how many additional gallons are leaking into the coastal marshes.
- Chemical contaminants include those contained in common household products that we would expect to find in virtually any American home, from paints and solvents to cleaners and detergents to garden fertilizers, pesticides, and herbicides. But there is also an industrial scale to the chemical contamination here that is rather more unique. Many chemicals found in consumer products originate in the Mississippi River Industrial Corridor that includes Orleans and St. Bernard parishes. On any given day before the hurricane, I could read the names of these substances stenciled onto the train cars that rolled along the levee near my house: benzene, toluene, liquid nitrogen, ammonia, hydrochloric acid. These and other compounds are used and produced in massive industrial facilities, stored in tank farms and warehouses, and shipped on rail lines and tankers. The muck left over stays here, and so does the muck of other states, as Louisiana is a net importer of hazardous waste. Most industrial waste is disposed of legally in landfills, open pits, leach ponds, and injection wells (although what counts as “legal” in Louisiana is far below the standards of most other states). Other waste is dumped illegally in bayous and marshes or simply left on-site in unreclaimed industrial areas—the so-called urban “brownfields.”

No one really knows how-much-of-what was in the water, but it is prudent to expect that the potential for direct and indirect human exposure to many of these contaminants will be present for years if not decades to come.

Organizations and Risk Communication

Environmental Protection Agency's Region 6 office, headquartered in Dallas, and the Louisiana Department of Environmental Quality (DEQ) are the main institutions of government charged with environmental protection in Louisiana. Compared to their counterparts in other regions and states, both are administratively weak organizations, with reputations for lax permitting and enforcement. These organizations are leading the quest for knowledge about Katrina's environmental impacts. Newspaper reports and statements by officials from both agencies give a preliminary indication of how the EPA and DEQ are doing their jobs.

Immediately after the flooding, official statements expressed serious concern for public health. The first official test results were released a week later showing elevated levels of e. coli and fecal coliform bacteria. In response, DEQ press secretary Darin Mann commented that "We haven't seen any high amounts of chemicals in the water we have tested, but either way it's bad for you." What he didn't mention was that chemical analysis of the water samples had not returned from the lab. So while his statement was technically accurate, it was also highly misleading. Results released a few days later did indicate the presence of various chemicals, with the notable exception of those, such as benzene, that are found in oil and gasoline. Even insiders at EPA smelled something funny. "Benzene and compounds like benzene are in the oil products in the water that everyone can see," commented EPA senior policy analyst Hugh Kaufman. "If they come up zero on readings of benzene, the sampling is bogus. Whether it's incompetence or malice, I don't know, but there's no way to have all that oil in the water and have zero benzene." As these few examples suggest, and as I suspect more systematic analysis may confirm, as organizations the EPA and DEQ are invested in controlling public perception (and business confidence) as much as in gaining a comprehensive understanding of environmental hazards.

In the coming months, clean up and reconstruction will advance on a massive scale. Can we expect a similar pattern of risk communication as environmental testing shifts from the contaminants swirling in flood and lake waters to contaminants in soil, air, and ground water? There seems to be ample cause for concern. The DEQ recently announced plans to burn storm debris, including some 300,000 homes and businesses completely or partially ruined by the flooding. The lead-based paint on many buildings, asbestos shingles and insulation, and who-knows-what other household and industrial chemical products will soon become new additions to the city's air pollution burden. Without careful planning and execution, efforts to remove newly deposited toxins from soil and ground water are likely to further disrupt toxic waste previously sequestered in the city's three declared Superfund landfill sites and numerous industrial brownfields. Although we are not likely to hear this from agency officials, the environmental destruction of New Orleans will continue to unfold even as the city is reborn.

The Poverty of Environmental Testing

Much of our thirst for knowledge about Katrina's lingering impacts hangs on test results, but environmental testing is limited in what it can tell us about the state of nature. Testing proceeds on the assumption that we can understand what's happening in nature by putting some of it—an air, water, or soil sample—inside a controlled laboratory-like environment, subjecting it to distinctly unnatural conditions, and observing it.

Reductionism of this sort allows researchers to make certain-sounding statements such as “benzene is present in the water column at a concentration of 5 parts per billion.” The ability to provide technically accurate information is vitally important. Ideally, for example, it allows citizens and regulatory agencies to know whether and when industry violates state or federal emissions standards. But it doesn’t tell us much about the water’s condition in an open and dynamic ecosystem. Environmental testing does not come close to mimicking natural conditions, although historically environmental scientists and engineers have sought to do just that. So there is a fundamental leap of faith that the logic of testing requires us to make. Usually we are wise to take that leap, but we should remain conscious that that is what we’re doing when agency officials ask that we substitute test results for “what is going on” in nature. This is not merely a philosophical issue, but one with numerous practical and political implications.

The fundamental disjuncture that the logic of testing creates between knowledge about nature and nature itself is reproduced in institutions that organize and legitimate that knowledge. The tests EPA and DEQ officials, private testing companies, and a handful of environmental groups are currently conducting in southern Louisiana are based on the compartmentalization of nature in air, soil, and water media. These testing regimes, in turn, correspond to media-specific disciplines (e.g. aquatic toxicology), regulatory bureaucracies (e.g. DEQ’s Water Quality Assessment Division), and federal regulatory frameworks (e.g. Clean Water Act), each of which carves its understanding of nature, and with it the nature of pollution, into discreet components that stand at some odds to ecological reality. In short, we have organized knowledge in ways that insures that we won’t really know what is going on in nature. This is a form of institutionalized ignorance.

We can see this most clearly in how environmental tests are designed and put into practice. These are not neutral technologies. Politics are built-in to testing regimes, often in ways that disfavor environmental precaution and comprehensive remediation. In 1971, cancer biologist Samuel Epstein summarized the poverty of testing practices as involving “narrow questions, narrowly defined, narrowly posed, and often narrowly answered.” Although the target of his criticism was the pharmaceutical industry’s approach to drug toxicity testing, it is not irrelevant to environmental testing at EPA and DEQ today.

The simultaneous strength and weakness of these technologies is their precision. They will do only what they are designed to do, and nothing more. They will not find chemicals they are not programmed to find; they will not detect parts per billion if they are calibrated to detect parts per million; if sampling occurs near shore, tests will not detect contaminants that have moved into deeper water; if air monitors run during a rain shower, they are not likely to indicate the presence of particulate matter; and so on. When the organizations in charge of environmental testing are working to minimize public concern, the precision and accuracy of testing can be used to thwart public understanding, even as it lends an aura of legitimacy to the bureaucracy standing behind the numbers.

Conclusion

Environmentalists complain that federal and state agencies’ sampling efforts to date have been slow to develop and lack the comprehensiveness the situation in Louisiana requires. I suspect these charges are on target, and NGOs are right to pressure government to do

more, but we should be clear about what swifter and more comprehensive testing will and won't get us.

Critical social analysis of what can and cannot be known about our toxic gumbo suggests that demands for increased funding for environmental assessments and increased enforcement of existing regulations, while important, are ultimately short-sighted. We need more than more testing and more policing. We need to democratize the institutions of government charged with environmental protection. Our environmental research and regulatory agencies should strive for greater independence from corporate actors, greater transparency and accountability in its dealings with the general public, and greater involvement in environmental policy-making from informed citizens in affected communities. We also need to develop and adequately fund new knowledge institutions—a National Institute of Environment—whose primary mission at both the basic and applied ends of the research stream is to tackle real-world environmental and public health problems, doing so in ways that seek to embrace, rather than deny, the complexity of biological and social systems in interaction.

Endnotes

- ¹ Ulrich Beck. 1992 [1986]. *Risk Society: Toward a New Modernity*. London: Sage, p. 36.
- ² Ivor Van Heerden, associate professor of civil and environmental engineering, Louisiana State University, quoted on *Anderson Cooper 360 Degrees: Special Edition: Katrina's Aftermath*, CNN (August 30).
- ³ See pp. 304-307 in Edward Woodhouse, David Hess, Steve Breyman and Brian Martin. 2002. "Science Studies and Activism: Possibilities and Problems for Reconstructivist Agendas." *Social Studies of Science* 32:297-319.
- ⁴ Mark Schleifstein. 2005a. "Sediment left by water may be health hazard; Drying sludge may contain petroleum, fecal matter." *Times-Picayune* online (September 17).
- ⁵ Timmons J. Roberts and Melissa M. Toffolon-Weiss. 2001. *Chronicles from the Environmental Justice Frontline*. New York: Cambridge University Press.
- ⁶ Jeff Jeffry. 2005. "N.O. Water Hazardous: EPA Report Says Bacteria Could Cause Serious Health Problems." *The Daily Reveille* (Baton Rouge, September 8), p. 1.
- ⁷ Mark Schleifstein. 2005b. "Flood waters still propose Health threat, EPA says; Sampling methods criticized for putting workers at risk." *Times-Picayune* online (September 15).
- ⁸ Mary Tutwiler. 2005. "What Lies Beneath." (<http://www.theind.com/news2.asp?CID=1032994681>; accessed October 4, 2005).
- ⁹ See for example Stephen Bocking. 1997. *Ecologists and Environmental Politics: A History of Contemporary Ecology*. New Haven: Yale

University Press.

¹⁰ Quoted in Scott Frickel. 2004. "Building an interdisciplinary: Collective action framing and the rise of genetic toxicology." *Social Problems* 51(2):269-287.

¹¹ Schleifstein, 2005b.

¹² See Abby Kinchy and Daniel Lee Kleinman. 2005. "Democratizing Science, Debating Values: New Approaches to 'Politicized' Science in the Bush Administration." *Dissent* (Summer): 54-62.