Almost three years after Katrina and the flooding of New Orleans, we are still struggling to assess the damage. There are so many ways to conceptualize the disaster; but all fall short. In terms of demand on the U.S. treasury, recovery from the storm and flood may cost an eye-popping $200 billion, making Katrina far-and-away the most expensive disaster in the history of the United States. Others measure urban disasters as a function of lives lost and percentage of urban area destroyed. The storm and flood killed more than eight hundred people in the New Orleans city limits and destroyed about eighty percent of the city - an area more than seven times the size of Manhattan. In terms of fatalities and percentage of damaged area, the New Orleans flood ranks at least second among all American disasters, just behind the 1906 San Francisco earthquake. Internationally, one could conclude by this measure that the New Orleans flood was "worse" than the 1666 London Fire (which did not see many fatalities), but "not as bad as" the 1976 earthquake in Tangshan, China, or the intentional destruction of Warsaw, Poland, during World War II.

But in this essay I want to steer away from such numbers in order to focus on another dimension of the Katrina disaster.
disaster: distributional fairness. Many Americans seemed shocked that African Americans and the poor would be hit so hard by events as they unfolded. It should not have been surprising. The less powerful almost always bear the brunt of social disruption, whether by flood, plague, or war. Still, it is important to study the phenomenon in hopes that it will not repeat as [*792] badly in the future. In this brief space, I would like to study the distributional effects of the New Orleans flood with reference to three insights that derive from both feminism and the environmental justice movement. This examination, I hope, will lead to some important conclusions about protection and recovery from urban disaster.

A. Three Insights

The first insight is an equation:

\[ H = A + E + V \]

where \( H \) is "environmental harm," \( A \) is "agent," \( E \) is "exposure," and \( V \) is "vulnerability." Neither feminists nor environmental justice advocates put the idea in such formulaic terms, but both pay close attention to harmful agents, exposure, and vulnerability. Both kinds of activists are concerned with identifying agents of harm and demanding accountability from actors that create them. Some feminists, for instance, have identified agents of sexism in pornography and prostitution, and have sought legal rules that would hold accountable organizations that profited from harming women through such enterprises. \(^n5\) Environmental justice advocates identify environmental agents like invisible toxins in the air or soil, as well as the hidden, perhaps, unconscious forces of racism and classism. Through civil rights laws, environmental regulations, and private tort actions, they attempt to use the legal structure to impose accountability on bad actors. This emphasis on compensatory liability echoes the sentiment of the early feminist Mary Wollstonecraft that "it is justice, not charity, that is wanting in the world!" \(^n6\)

Environmental justice advocates also emphasize exposure and vulnerability. When advocates submit evidence suggesting that African Americans are more likely to live near a hazardous waste landfill or that some Indian tribes consume disproportionately more mercury-laden fish, they are illustrating a link between race and increased exposure to a toxic agent. \(^n7\) Not surprisingly, the definition of exposure has become one of the most controversial issues concerning EPA's regulations implementing Title VI proscriptions against discriminatory treatment. \(^n8\)

Environmental justice advocates also emphasize the connections among race, class, and vulnerability. Thus, environmental justice advocates also play close attention to the physical and social characteristics of those who are exposed. \(^*793\) People likely to have other toxins in their bodies through multiple exposures, for instance, are likely to be more vulnerable. The same is true for people who lack access to good preventative health care or for children and the elderly, whose respiratory or immune systems may not be as robust.

Feminists are also concerned with exposure and vulnerability. Feminists emphasize exposure when they champion laws that protect women from sexually hostile work environments or sexually motivated violence. Vulnerability is a tricky concept for feminists because, in the past, women were denied many opportunities in the public sphere because of false notions of female delicacy. But feminists correctly argue that some vulnerabilities are real and necessary to take into account. Women, for instance, may be more physically vulnerable to certain workplace chemicals or to the physical attacks of a larger spouse; similarly, because of differences in economic power, women may be more vulnerable to divorce laws that undervalue women by failing to recognize their non-monetary contributions to the household.

The second insight, which is most famously associated with the women's movement, is that the private is the political. Many relationships, which in more traditional times, were seen as private transactions, are, in the age of feminism, seen as more public. Thus, sexual harassment in the workplace is no longer a problem of "personal relations," to be negotiated individually by the parties. It is today seen as an impermissible workplace condition. The same goes for domestic violence, which was also seen more as private dispute than a social problem. A workplace free of harassment or a household free of violence are not things one "bargains" for anymore. They are entitlements
guaranteed to all Americans and protected by the state. To put it in the language of property theory, such protection is a "public good" (or service) to be enjoyed by all, not a "private good" to be purchased in economic or social markets.

**Environmental justice** advocates argue that protection from environmental harm should be seen the same way. Freedom from a leaching landfill or poisonous smokestack is not something you should have to bargain for through a private real estate or employment market. It is an entitlement you should have as a member of the public. Safe neighborhoods, parks, clean drinking water - these are public goods to which everyone should have access.

The third insight is that patterns and connections are important. One barrier women faced in characterizing sexual harassment or domestic violence as "institutional" issues was that they lacked information about the prevalence and similarity of such occurrences. It was not until the "consciousness-raising" era of the 1970s that researchers began gathering significant volumes of information about sexual harassment, domestic abuse, divorce settlements, child custody disputes, and the like. Until then, it was possible for critics to dismiss calls for protection as based on unique or unusual cases that did not represent society as a whole. Connecting the dots was important. **Environmental justice** advocates experienced a similar awakening in the 1990s, when for the first time, national and regional studies from many sources began confirming a pattern of disproportionate environmental harm based on race and class. Such studies eventually led to many state laws and a federal executive order recognizing the institutional nature of environmental injustice.

This insight is important in the context of Katrina because for many it is so easy to dismiss New Orleans as an anomaly, as a disaster site that, no matter how tragic, has little to do with the rest of the country or the world. The view is understandable. New Orleanians have spent almost 300 years trying to convince outsiders that they live in one of the most unusual and elaborately non-conforming places on earth. There are unique problems in New Orleans and we do have our own peculiar dysfunctions. But, many of our problems exist in many urban areas, including New York City. It is vital to see this connection. Because the misfortunes of New Orleans are part of a national, institutional pattern involving race, gender, and environmental protection. If we dismiss these warning signs as exotic novelties, we will have wasted a chance to improve disaster policy in the United States. Let us now examine the New Orleans flood in terms of agents, exposure, and vulnerability. After that, we will see what lessons we can draw about protection and recovery from disaster.

**B. Agents**

Two agents sank New Orleans: a hurricane and a faulty levee system. Although, politicians and the press emphasize the "natural," storm-related cause of the damage, it is essential to understand that New Orleans would have remained safe and dry but for a devastating, human-caused engineering disaster. Scientists and journalists had for years warned that the levee system meant to protect New Orleans could not defend against a storm of Category 4 or 5 strength. But when Katrina slammed into New Orleans, the storm, in fact, was not of that magnitude; best estimates put Katrina's force upon its arrival in New Orleans at around Category 2. As even the U.S. government now admits, the levee system appears to have ruptured because of poor design and construction, not because its design specifications were exceeded. The Army Corps, itself, opines that at least one-half of the property damage caused by the flood is attributable to breaches in its flawed levee system. Because of evidence like this, the U.S. Army Corps of Engineers is now swamped with potential legal claims that could total more than $3 quadrillion. Yet it is unclear whether any recovery will result, as the Corps may be immune from all or most claims under the 1928 Mississippi River Flood Control Act and the Federal Tort Claims Act.

**C. Exposure**

In New Orleans, many of Katrina's effects - the demolished homes, shattered communities, and lost jobs - were borne disproportionately by people of color, the poor, and women. (Reported deaths were nearly proportional to the city's racial demographics, but were distinguished by age: more than sixty percent of those who died were elderly.) Disasters like earthquakes or floods are sometimes viewed as social equalizers. They strike unpredictably and at random, the
conventional wisdom goes, affecting men and women of all races and classes. But Katrina showed that environmental disasters follow both demographic and geographic patterns.

The reason has to do with what disaster researches refer to as "exposure" and "vulnerability." Exposure refers to the mostly physical aspects of a disaster that put people in harm's way. New Orleans, a sub-tropical city at the mouth of a deltaic river, is hurricane bait, as are Houston, Miami, and even Washington, D.C. The course of the Atlantic hurricane belt, although driven mainly by non-human forces, nonetheless has a racial character: for historical and geographic reasons that involve the antebellum slave economy and racist policies thereafter, a large majority of American counties or parishes that are disproportionately black lie near the Gulf or the south Atlantic seaboard - within striking distance of an angry hurricane. This exposure means that national hurricane policy is not only a Gulf Coast issue, or an Atlantic Coast issue, but a specifically African-American issue - that is, an issue in which African-Americans should be particularly interested and involved.

Within the city of New Orleans, geography also plays a role in disparate exposure. Although New Orleans was (and is) more racially and economically integrated than many American cities, African Americans (regardless of class) and the poor are more likely to live in parts of the city that, because of elevation, levee configuration, or pumping networks, are more prone to flooding. Damaged areas in the metropolitan area were 45.8 percent African-American, while undamaged areas were only 26.4 percent African-American. In New Orleans proper, the damaged areas were 75 percent African-American, while undamaged areas were 46.2 percent African-American. Thus two of the most devastated areas - New Orleans East and the Lower Ninth Ward - were almost all of color (mostly African-American) and were notoriously prone to floods and storms. Such housing patterns, of course, occurred not by chance, but rather followed formal and informal segregation efforts, as well as traditional market forces. As any native Orleanian will tell you, "Water flows away from money." Even so, thousands of families living in mostly affluent or mostly white communities also suffered extreme damage, including residents of the more upscale Lakeview suburb and the nearly all-white St. Bernard Parish, whose structures were obliterated by storm waters barreling through the Mississippi Gulf Outlet.

There was also a gendered dimension to exposure. Before the storm, New Orleans had a very high proportion of single mothers, many living in poverty. Their lack of resources and dependence on family and neighbors for childcare conspired to keep them in neighborhoods more prone to flooding in the years before the storm. More immediately, these same factors made them less mobile as Hurricane Katrina approached and evacuation warnings went out. The large majority of people left stranded in the Superdome and New Orleans Convention Center - with insufficient food, water, and medical attention - were African-American women and children, many of whom had no means to flee the city and no other place to go. This point brings us to the topic of vulnerability.

D. Vulnerability

Exposure cannot not completely explain the storm's uneven effects. Recall that after the levees broke, a full 80 percent of the city lay underwater, including some prominent, mostly white neighborhoods. The storm and the levee failures lumped greater harms on the poor, people of color, and many women, because as a group they were more vulnerable. Such vulnerability was determined by lack of money, lack of transportation, and in some cases less physical robustness.

At the height of government rescue efforts after the flood, President George W. Bush seemed not to have contemplated such vulnerability. When a reporter referred to a charge by many critics that the government's slow response was having a particular effect on African-Americans, the President quickly switched the focus from the effect of the response to the intent of the responders. "When those Coast Guard choppers ... were pulling people off roofs," he shot back, "they didn't check the color of a person's skin. They wanted to save lives." But no one was arguing that the Coast Guard was an agent of racial discrimination. Rather the President's critics were calling attention to a race-based exposure and vulnerability that had contributed to a foreseeable, but unintentional, race-based harm. Days later, speaking at a prayer and remembrance service at Washington National Cathedral, President Bush appeared to have finally grasped this point. "The greatest hardship," he said mournfully, "fell upon citizens already facing lives of
struggle: the elderly, the vulnerable and the poor. And this poverty has roots in generations of segregation and discrimination that closed many doors of opportunity." n20

For generations, New Orleans has been the poster-child for the socially vulnerable. Before the 2005 flood, 28 percent of people in New Orleans lived in poverty. n21 Of those, 84 percent were African-American. n22 Twenty-three percent of people five years and older living in New Orleans were disabled. n23 An estimated 15,000 to 17,000 of area residents were already homeless. n24 Of the households living in poverty, many had no access to a car: 21,787 of these households without a car were black; 2,606 were white. n25 This lack of access, of course, became crucial, given an evacuation plan premised on the ability of people to get in their cars and drive out of New Orleans.

Women were, and continue to be, an especially vulnerable group. Women, as is true in most cities, made up the majority of the working poor in New Orleans. n26 Compared to other American cities, the city had an especially high index of gender-based economic segregation. In New Orleans, lower-income women care for children, bathe the hospital patients, and clean the hotel rooms; lower-income men drive the trucks, patch the roofs, and fill the potholes. n27 Single mothers were also much more likely to be the primary custodians of their children and to live in public [*798] housing. Indeed, 88 percent of all households in the city's public housing units were headed by single mothers. n28

Given these factors, women were hit particularly hard by Hurricane Katrina. Of the 180,000 Louisianans who lost their jobs after the storm, 103,000, or 57 percent, were women. n29 Of the thousands of households that lost public housing services in New Orleans when they were summarily closed after the storm, 88 percent were headed by women. n30 Men's median annual income rose after the storm, in part due to the rise in heavy-labor jobs like demolition and construction. n31 Women, who were more likely to work in the health-care, education, and hospitality sectors, saw their median income decline. n32 Such widespread destruction, of course, dramatically increased stress within families, predictably leading to soaring reports of domestic violence. n33 In the weeks after the storm, reports of rape and other crimes against women also increased. n34

My own conversations with a diverse array of city residents since the flood suggests another, perhaps, more subtle burden now borne by women. Nearly two years after the storm, tens of thousands of families in and outside of New Orleans are still picking up the pieces. They are navigating insurance and public grant programs, supervising their contractors, ordering new appliances, organizing community recovery efforts, enrolling their children in new schools, finding new doctors, caring for traumatized grandparents, and negotiating living space with an assortment of well-meaning, but still-homeless relatives. From my admittedly non-scientific observation, the family members most involved in these duties tend to be women. Many women that I know or have talked to have quit paid jobs or reduced their work hours to take on these frustrating and time-consuming responsibilities.

The uneven burdens experienced by African Americans and women contribute to a shift we have seen in the city's demographics before and after the flood. Soon after the flood, Mayor Ray Nagin famously called for a return to New Orleans as a "chocolate city," by which he meant a city that was predominantly black. n35 Population estimates more than a year after the flood suggest New Orleans is, instead, a "mocha city" with a black plurality (about 46 percent), but no racial majority. The city has also changed in terms of gender. Before Katrina, New [*799] Orleans had a narrow majority of women n36 - it was a "Venus city," if you will. It is now a city of "Mars," with men making up about 54 percent of residents. n37 One reason is that the job sectors in which women worked - education, hospital care, and tourism - collapsed immediately after the storm, while the demand for traditionally male jobs in construction and debris removal surged. In addition, the lack of child care and an increase in environmental health threats immediately after the storm made the city less hospitable to children. Two-thirds of single mothers who left New Orleans near the time of the hurricane have not returned. n38

E. The Aftermath

Let us return to the three insights I discussed earlier. What do these insights - inspired by feminist theory and
environmental justice - teach us about Gulf Coast recovery and the broader nature of environmental catastrophe? First, it is justice, not charity, that matters most. It was a series of the federal government’s admitted engineering mistakes that sank New Orleans after the hurricane; and it was a long history of slavery, disenfranchisement of women, racism, and sexism that helped shape the circumstances in which a storm and a flood could fracture the lives of such a disproportionate number of women and people of color. Justice demands that the same government that contributed to these mistakes now work to compensate for and correct them.

The government should propose a "victim's compensation fund," modeled after the program established by Congress after the 9/11 terrorist attacks. Such a fund would compensate flood victims and their families for personal injuries, wrongful death, and (in contrast to the 9/11 fund) lost property. The federal grants so far made available to Louisiana for redevelopment, while important, only compensate home owners for lost residences. As a result, these funds do little to compensate lower-income renters, many of whom lost everything. The moral justification for such a fund in New Orleans is even stronger than it was in New York City, since the agent of destruction on 9/11 was a foreign terrorist group, whereas a prominent agent of destruction in New Orleans was the negligence of the federal government.

Second, the lessons of feminism and environmental justice teach us that protection and recovery from environmental disaster should not be left entirely to the market. Protection and recovery should appropriately be seen as public goods not private ones. The rebuilding of New Orleans must take into account the needs of the poor, of single mothers, and of African-American tradition and culture. Streetcars, trains, and buses should be organized to serve all communities, with special attention to emergency evacuation. Affordable housing should be [800] developed throughout the city's new footprint and should be avoided in the areas that are hardest to protect from floods, even if that raises the cost of development. Contaminated areas of the city should be cleaned up or appropriately contained.

Third, despite many unique and sometimes dysfunctional aspects of New Orleans, it is important for outsiders to see that New Orleans is more similar to many American cities than it is different. It does not take much imagination to see that what happened in New Orleans on August 29, 2005, could happen in another city too. Atlantic hurricanes, perhaps intensified by global warming, threaten many coastal cities, including Miami, Washington, D.C., and New York. Major cities from Seattle to Los Angeles are prone to earthquakes and, in the case of Seattle and Portland, Oregon, cyclical tsunamis. According to the Army Corps of Engineers, there are 122 levees in 30 states now at an "unacceptable" risk of failing - 38 of them in California's populous Sacramento District. In addition, many American cities are also at risk for terrorist attacks. The same unevenness in exposure and vulnerability could similarly insure that the poor, people of color, and women would bear the brunt of such disasters if they occurred. Many cities are more segregated than New Orleans, including Detroit and Washington, D.C. And in such cities, minorities often live in areas more vulnerable to flood, earthquake, or crime. In some cities, like Atlanta or San Antonio, the poverty rates among female-headed households are higher than in New Orleans. Should a disaster befall such a city, we could expect disproportionate outcomes similar to what we saw in New Orleans.

If you have begun to see an intermingling among the issues of agency, exposure, and vulnerability, perhaps, I have done my job. Studying the environmental harm of Hurricane Katrina means looking at the whole - the physical, the political, and the social. The storm forces us to reassess a model that treats things like medical care and transportation from danger as private benefits, rather than public entitlements. Understanding Katrina and the New Orleans Flood means understanding that in some way, all of our cities are vulnerable to disaster and injustice. We are all New Orleanians, wherever we are.

Legal Topics:

For related research and practice materials, see the following legal topics:
Environmental LawEnvironmental JusticeGovernmentsAgriculture & Food Processing, Storage & DistributionPublic Health & Welfare LawHousing & Public BuildingsLow Income Housing

FOOTNOTES:
n1. See Donna Cassata, *Katrina* May Cost U.S. as Much as Two Wars, Seattle Times, Sept. 11, 2005, at A20. Despite the report’s title, the United States has already spent more than twice as much on the Iraq War. See Ron Hutcheson, McLatchy Newspapers, Price Tag for War in Iraq on Track to Top $ 500 Billion (Apr. 30, 2007), available at http://www.realcities.com/mld/?krwashington/17158295.htm (citing figures suggesting the federal government has so far spent about $ 450 billion on the war in Iraq).


n3. Id.

n4. Id.


n7. See A New Progressive Agenda for Public Health and the Environment 102-06 (Rena Steinzor & Christopher Schroeder eds., 2004)

n8. Id.

n9. Even the storm, itself, may have had an “unnatural,” anthropogenic influence: the most recent report from the United Nations Intergovernmental Panel on Climate Change finds it likely that that human-induced global warming is increasing the force of hurricanes on the Atlantic Coast and in the Gulf of Mexico.


n12. Id. at I-3.

n13. Id. at I-4.

n14. Sheila Grissett, Katrina Claims Add up to Quadrillions, Times Picayune (New Orleans), Jan. 8, 2008, at 1 (reporting on "Form 95" submissions, which are necessary to preserve a plaintiff's right to recover damages from the federal government).

n15. See Sheila Grissett, Forms Filed with Corps so far Seek $ 400 Billion, Times Picayune (New Orleans), Mar. 23, 2007, at A1. Recently, a federal trial court dismissed a set of consolidated claims arising from the failure of levees on three outfall canals. In re: Katrina Canal Breaches Consol. Litigation, ---F.Supp. ----, 2008 WL 314396 (E.D. La. 2008). Despite the ruling, which was based on statutory immunity, the Court suggested in its concluding remarks that the government's role in the levee failures amounted to "gross incompetence." Id. at 25.


n17. Id.
n18. See An Unnatural Disaster, supra note 10, at 36 (showing map of flooded areas in greater New Orleans.)


n22. Id.

n23. Id.

n24. Id.

n25. Id.


n27. See id. at 14.

n29. Id.

n30. Id.

n31. Id.

n32. Id.

n33. Id.

n34. Id.


n36. Vaill, supra note 28, at 3.
n37. Id.

n38. Id.


n41. Williams, et al., supra note 26, at 9.