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# **Differential Vulnerabilities: Environmental and Economic Inequality and Government Response to Unnatural Disasters**

ON AUGUST 29, 2005, HURRICANE KATRINA MADE LANDFALL NEAR New Orleans, leaving death and destruction across the Louisiana, Mississippi, and Alabama Gulf coast counties.\* Katrina was the most destructive hurricane in US history, costing over \$70 billion in insured damage. Katrina was also one of the deadliest storms in decades, with a death toll of 1,836, and still counting. Katrina's death toll is surpassed only by the 1928 hurricane in Florida (estimates vary from 2,500 to 3,000 deaths) and the 8,000 who perished in the 1900 Galveston hurricane (Kleinberg, 2003; Pastor et al., 2006).

After some two and a half years, reconstruction continues to move at a slow pace in New Orleans and the Louisiana, Mississippi, and Alabama Gulf coast region. The lethargic recovery is now beginning to overshadow the deadly storm itself (Kromm and Sturgis, 2007). Questions linger: What went wrong? Can it happen again? Is government equipped to plan for, mitigate, respond to, and recover from natural and man-made disasters? Can the public trust government response to be fair? Does race matter when it comes to disaster relief?

## WHY FOCUS ON THE SOUTH?

This paper uses the events that unfolded in New Orleans, the Gulf coast region, and the southern United States as the sociohistorical backdrop for examining social vulnerability and government response to unnatural disasters. The case studies of disparate treatment date back more than eight decades. The South is unique because of the legacy of slavery, Jim Crow segregation, and entrenched white supremacy. The region has a history of black business ownership, black home ownership, and black land ownership. Most black farmers are located in the South. It is no accident that the South gave birth to the modern civil rights movement and the environmental justice movement. And the vast majority (over 95 percent) of the 105 historically black colleges and universities are located in the South.

The 2000 census showed that African Americans ended the century by returning “home” to the South—the same region they spent most of the century escaping. Since the mid-seventies, reverse migration patterns indicate that more blacks are entering the South than leaving for other regions. Today, over 54 percent of the nation’s blacks live in the South (McKinnon, 2000). In the 620 counties that make up the southern “blackbelt,” stretching from Delaware to Texas, African Americans comprise a larger percentage of the total population than they do in the country as a whole—about 12 percent. In the 15 southern states (excluding Texas and Florida), blacks make up 22.8 percent of the population, compared with 3.5 percent for Hispanics.

Transportation serves as a key component in addressing poverty, unemployment, and equal opportunity goals, ensuring access to education, health care, and other public services. American society is largely divided between individuals with cars and those without cars (Bullard and Johnson, 1997). The private automobile is still the dominant travel mode of every segment of the American population, including the poor and people of color.

Nationally, only 7 percent of white households do not own a car, compared with 24 percent of African-American households, 17 percent

of Latino households, and 13 percent of Asian-American households. Cars are an essential part of emergency evacuation plans. Disaster evacuation plans across the nation assume that people own a car. Nearly 11 million households in the United States lack vehicles, or more than 28 million Americans who would have difficulty evacuating their area in an emergency.

In 1997, to encourage better disaster planning, the Federal Emergency Management Agency (FEMA) launched Project Impact, a pilot program that provided funding for communities to assess their vulnerable populations and make arrangements to get people without transportation to safety (Elliston, 2004). The program reached 250 communities and proved quite effective. However, the Bush administration ended the program in 2001, and funds once earmarked for disaster preparation were shifted away.

For many individuals who do not own a car or drive, public transit is the primary mode of travel. However, transit does not always get you where you need to go. More important, many of the nation's regional transportation systems are "regional" in name only—with a good number of "separate and unequal" urban and suburban transit systems built along race and class lines. Too often race has literally stopped regional transit in its tracks.

New Orleans and Jefferson Parish, Louisiana, for example, run separate bus systems. Passengers on the New Orleans Rapid Transit Authority (NORTA) and Jefferson Transit are forced to switch buses at the parish line. Even Hurricane Katrina floodwaters did not wash away the stubborn cultural divide that separates New Orleans from its suburbs. In November 2006, New Orleans and Jefferson Parish councils met to try to end the longtime regional transportation roadblock and bring the fractured city and suburban bus system in sync (Moran, 2006). The two jurisdictions had a chance to combine forces a year after Katrina, when Jefferson Parish awarded a three-year contract for management of its bus system. NORTA made a bid for the job, but Jefferson Parish chose a private Illinois company that offered a better deal.

On August 28, 2005, Mayor Ray Nagin ordered New Orleans first ever mandatory evacuation since the city was founded in 1718. Hurricane Katrina demonstrated to the world the race and class disparities that mark who can escape a disaster by car. Emergency plans were particularly insufficient with regard to evacuation for the car-less and “special needs” populations—individuals who cannot simply jump into their cars and drive away (Department of Homeland Security, 2006). At least 100,000 New Orleans residents—and more than one-third of New Orleans’ African-American residents—did not have cars to evacuate in case of a major storm (City of New Orleans, 2005). Over 15 percent of the city’s residents relied on public transportation as their primary mode of travel (State of Louisiana, 2000; Bourne, 2004; City of New Orleans, 2005).

New Orleans had only one-quarter the number of buses that would have been needed to evacuate all car-less residents. Katrina’s evacuation plan worked relatively well for people with cars, but failed to serve people who depend on public transit (Litman, 2005).

After more than 80 percent of New Orleans flooded after the levee breach, most of the city’s 500 transit and school buses were without drivers. About 190 NORTA buses were lost to flooding. Most of the NORTA employees were dispersed across the country and many were made homeless (Eggler, 2005). Disaster planners failed the weakest and most vulnerable in New Orleans—individuals without cars, nondrivers, children, the disabled, the homeless, the sick, and the elderly (Riccardi, 2005). Katrina exposed a major weakness in mass evacuation plans and for a moment focused the national spotlight on the heightened vulnerability of people without cars—a population that faces transportation challenges in everyday life (Dyson, 2006).

## **GOVERNMENT RESPONSE TO WEATHER-RELATED DISASTERS**

In the real world, all communities are not created equal. Some are more equal than others. If a community happens to be poor, black, or

located on the “wrong side of the tracks,” it receives less protection than communities inhabited largely by affluent whites in the suburbs. Generally, rich people tend to take the higher ground, leaving the poor and working class more vulnerable to flooding and environmental pestilence. Race maps closely with social vulnerability and the geography of environmental risks (Pastor et al., 2006).

Much of the death and destruction attributed to “natural” disasters is in fact unnatural and man-made. Humans prefer to make Mother Nature or God the villain in catastrophic losses from tsunamis, earthquakes, droughts, floods, and hurricanes, rather than placing responsibility squarely on social and political forces (Steinberg, 2003). What many people often call “natural” disasters are in fact acts of social injustice perpetuated by government and business on the poor, people of color, the disabled, the elderly, the homeless, those who are transit dependent and non-drivers—groups least able to withstand such disasters.

Quite often the scale of a disaster’s impact has more to do with the political economy of the country, region, and state than with the hurricane’s category strength (Jackson, 2005). Similarly, measures to prevent or contain the effects of disaster vulnerability are not equally provided to all. Typically, flood-control investments provide location-specific benefits—with the greatest benefits going to populations who live or own assets in the protected area.

Weather-related disasters, including hurricanes, floods, droughts, and windstorms, are growing in frequency and intensity. Since 1980, 10,867 weather-related disasters have caused more than 575,000 deaths and have forced millions to flee their homes. Since 1980, the cost of weather-related disasters amount to more than \$1 trillion (Worldwatch Institute, 2003). In 2004 alone, weather-related disasters caused \$104 billion in economic losses, almost twice the total in 2003.

Each year communities along the Atlantic and Gulf coast are hit with tropical storms and hurricanes, forcing millions to flee to higher ground. Hurricanes Dennis, Katrina, and Rita displaced hundreds

of thousands of people, destroyed tens of thousands of homes, and disrupted oil rigs and refineries. Historically, the Atlantic hurricane season produces on average ten storms, of which about six become hurricanes and two to three become major hurricanes.

The 2005 hurricane season produced a record of 27 named storms, topping the previous record of 21 storms set in 1933. It also saw 13 hurricanes—besting the old record of 12 hurricanes set in 1969 (Tanneer, 2005). Twelve was the most hurricanes in one season since record keeping began in 1851. Three of the hurricanes in the 2005 season reached Category 5 status, meaning they had wind speeds greater than 155 mph at some point during the storm. Katrina's death toll (1,836) made it the third most deadly hurricane in the U.S.—surpassed, as was noted earlier, only by the 1928 hurricane in Florida (2,500 to 3,000) and the 1900 Galveston hurricane (8,000). The past events will show how marginalized populations are at risk to the built and natural environment. It will also show how various levels of government have responded differently to black and white disaster victims.

### **Mississippi River Flood (1927)**

In his 1997 book, *Rising Tides: The Great Mississippi Flood of 1927 and How It Changed America*, John M. Barry details one of the most destructive natural disasters in American history (Barry, 1998). The 1927 flood was the worst flood to strike the country until the flooding caused by Hurricane Katrina in 2005. In the spring of 1927, incessant rains pushed the Mississippi River to over 30 feet in height and began eroding the levees from Cairo, Illinois to Greenville, Mississippi. More than 27,000 square miles were inundated, and thousands of farms and hundreds of towns were wiped away by floodwater. Estimates of the damage ranged from \$246 million to \$1 billion (roughly \$2 billion to \$7.8 billion in modern dollars). The official death toll reached 246 with perhaps thousands more African-American deaths uncounted.

Nearly a million people in the Mississippi Delta were made homeless. White racism and Jim Crow added to the disaster. Government

response to the flood is a classic case of environmental racism. Whites were evacuated, while 330,000 African Americans were interned in 154 relief “concentration camps.” Over 13,000 flood victims near Greenville, Mississippi were taken from area farms and evacuated to the crest of an unbroken levee, and stranded there for days without food or clean water, while boats arrived to evacuate white women and children. Many blacks were detained and forced to work on the levee at gunpoint during flood relief efforts.

Black work gangs and their families were held as virtual prisoners in dreadfully squalid concentration camps set up along miles of the Greenville levee (Barry, 1998). Thousands of displaced residents, black and white, left the land and never returned—accelerating black migration to the North and thus changing the political landscape of the country.

#### **Florida Okeechobee Hurricane (1928)**

In September 1928, the Okeechobee hurricane struck Florida with devastating force. It was the first Category 5 hurricane ever officially recorded in the Atlantic. The eye of the storm passed ashore in Palm Beach County with 140 mph winds, then struck a populated area on the southern edge of Lake Okeechobee (Brochu, 2003). The only bulwark between the low-lying communities and the massive lake was a 5-foot mud dike constructed to hold back the Lake Okeechobee during summer rains.

In his book, *Black Cloud: The Deadly Hurricane of 1928*, Eliot Kleinberg provides a graphic account of Florida’s deadliest storm (Kleinberg, 2003). When the hurricane had passed, the dike broke and 2,500 to 3,000 people drowned, making it the second-deadliest hurricane in US history, behind the Galveston, Texas hurricane of 1900 that killed 8,000 people.

Nobody really knows how many people died in the storm. For years, the Red Cross set the death toll at 1,836. In the summer of 2003, the National Hurricane Center increased the death toll from 1,836 to 2,500, with an asterisk suggesting the total could be as high as 3,000. Some accounts put the deaths closer to 3,500 (Barnes, 1998). Half of the

6,000 people living in the farming communities between Clewiston and Canal Point perished. More than 75 percent of the recorded deaths were black migrant workers, segregated in life and abandoned in death.

Palm Beach County in the 1920s was, as today, home to one of the world's great wealth enclaves with its glittering ocean drawing tourists from around the world. But just a 30-minute drive to the west takes you into a world of dirt roads, farmfields, poverty, and shantytowns inhabited largely by blacks migrant workers from the Deep South and the impoverished islands of the Caribbean. The 1928 Okeechobee hurricane "killed more people than the 1906 San Francisco earthquake (about 700), more than sinking of the *Titanic* (1,505), and probably more than the estimated 3,000 who died on September 11, 2001" (Kleinberg, 1998: xiv).

Devastation was complete. Although the storm destroyed everything in its path with impartiality, it hit the poor low-lying black areas around the lake the hardest. Belle Glade, Pahokee, and South Bay were virtually wiped off the map (Klinkenberg, 1992). Bodies, livestock, and lumber floated everywhere. Some survivors used bloated cows as rafts and splintered lumber as paddles. The bodies of the dead overwhelmed officials. The few caskets available were used to bury the bodies of whites. Other bodies were either burned or buried in mass graves. Burials were segregated and the only mass gravesite to receive a memorial contained only white bodies.

The savage storm was even immortalized in African-American writer Zora Neal Hurston's classic novel, *Their Eyes Were Watching God* (Hurston, 1998). However, no amount of public relations and government cover-up could hide the horror left by the floodwaters—especially damage the storm inflicted on the black population and the racism by whites that followed.

### **Hurricane Betsy, New Orleans (1965)**

Hurricane Betsy struck the state of Louisiana and the city of New Orleans in 1965. Before Hurricane Katrina, Betsy was the most destruc-

tive hurricane on record to strike the Louisiana coast. The damage and flooding throughout the state covered 4,800 square miles, killed 81 people, caused about 250,000 to be evacuated, and disrupted transportation, communication, and utilities service throughout the eastern coastal area of Louisiana for weeks.

Betsy hit the mostly black and poor New Orleans Lower Ninth Ward especially hard. Betsy accelerated the decline of the neighborhood and out-migration of many of its longtime residents. This is the same neighborhood that was inundated by floodwaters from Katrina. Over 98 percent of the Lower Ninth Ward residents are black and a third live below the poverty level.

Many black New Orleans residents still believe that white officials intentionally broke the levee and flooded the Lower Ninth Ward to save mostly white neighborhoods and white business district. Many older blacks are still bitter about being trapped in attics after rising floodwaters from Hurricane Betsy in 1965. Blacks from diverse socioeconomic backgrounds believe the flooding of the Lower Ninth Ward and other black areas after Betsy was a deliberate act stemming from New Orleans Mayor Victor Schiro, who was not known for his progressive views on race, ordering the levees breached and floodwaters pumped out of his well-to-do white subdivision, Lake Vista, and into the Lower Ninth Ward (Remnick, 2005). Whether a conspiracy rumor or fact, the “Betsy experience” is the primary reason many Lower Ninth Ward residents keep hatchets in their attics. This mistrust of government probably saved thousands of lives after the levee breach four decades later when Katrina struck in 2005.

Debris from Betsy was dumped at the Agricultural Street landfill. Two mostly black New Orleans subdivisions, Gordon Plaza and Press Park, were later built on a portion of land that was used as a municipal landfill. The landfill was classified as a solid waste site but hazardous waste ended up at the site (Lyttle, 2004).

In 1969, the federal government created a home ownership program to encourage lower income families to purchase their first

home. Press Park was the first subsidized housing project on this program in New Orleans. The federal program allowed tenants to apply 30 percent of their monthly rental payments toward the purchase of a family home. In 1987, 17 years later, the first sale was completed. In 1977, construction began on a second subdivision, Gordon Plaza. This development was planned, controlled, and constructed by the US Department of Housing and Urban Development (HUD) and the Housing Authority of New Orleans (HANO). Gordon Plaza consists of approximately 67 single-family homes.

In 1983, the Orleans Parish School Board purchased a portion of the Agriculture Street landfill site for a school. That this site had previously been used as a municipal dump prompted concerns about the suitability of the site for a school. The board contracted engineering firms to survey the site and assess it for contamination of hazardous materials. Heavy metals and organics were detected at the site.

Despite the warnings, Moton Elementary School, an \$8 million “state of the art” public school opened with 421 students in 1989. In May 1986, the Environmental Protection Agency (EPA) performed a site inspection at the Agriculture Street landfill community. Although lead, zinc, mercury, cadmium, and arsenic were found at the site, based on the Hazard Ranking System (HRS) model used at that time, the score of 3 was not high enough to place them on the National Priorities List (the National Priorities List, or NPL, is the list of hazardous waste sites eligible for long-term remedial action financed under the EPA’s federal Superfund program. The EPA regulations outline a formal process for assessing hazardous waste sites and placing them on the NPL).

On December 14, 1990, the EPA published a revised HRS model in response to the Superfund Amendment and Reauthorization Act (SARA) of 1986. On the request of community leaders, in September 1993, an Expanded Site Inspection (ESI) was conducted. On December 16, 1994, the Agriculture Street landfill community was placed on the National Priorities List (NPL) with a new score of 50.

The Agriculture Street landfill community is home to approximately 900 African-American residents. The average family income is \$25,000 and the educational level is high school graduate and above. The community pushed for a buyout of their property and to be relocated. However, this was not the EPA's resolution of choice. A cleanup was ordered at a cost of \$20 million; the community buyout would have cost only \$14 million. The actual cleanup began in 1998 and was completed in 2001 (Lyttle, 2004).

The Concerned Citizens of Agriculture Street landfill filed a class-action suit against the city of New Orleans for damages and cost of relocation (Bullard, 2005). The residents filed the suit in order to force a relocation from the contaminated neighborhood. They were in the end forcibly relocated by Katrina. In January 2006, after 13 years of litigation, Seventh District Court Judge Nadine Ramsey ruled in favor of the residents—describing them as poor minority citizens who were “promised the American dream of first-time homeownership,” though the dream “turned out to be a nightmare” (Finch, 2006). Her ruling could end up costing the city, the Housing Authority of New Orleans, and Orleans Parish School Board tens of millions of dollars.

### **Hurricane Hugo, South Carolina (1989)**

In September 1989, Hurricane Hugo made its way to shore in South Carolina. Hugo caused 49 deaths, widespread damages and losses estimated to exceed \$9 billion, temporary displacement of hundreds of thousands of people, and disruption of the lives of about 2 million people. Twenty-six of South Carolina's 46 counties, covering two-thirds of the state, were declared federal disaster areas. Following Hugo, African-Americans and less-educated victims received less help than similarly affected victims who were white or more educated (Kaniasty and Norris, 1995).

Bureaucratic blindness and biased relief assistance in South Carolina following Hugo further marginalized an already economically marginalized African American population, leaving behind many

blacks who lacked insurance and other support systems. These practices deepened existing economic divide between blacks and whites (Cannon et al., 2004).

### **Hurricane Andrew, Miami-Dade and South Florida (1992)**

Hurricane Andrew struck southern Florida in 1992 and forced an estimated 700,000 residents from their homes (Pittman, 2002). Over 250,000 people were left homeless, 15 were killed, and 1.5 million were left without water, electricity, and telephones. At least 75,000 homes were destroyed and 108 schools were damaged (3 were destroyed).

An estimated 100,000 South Dade residents moved away from the area and this migration changed the area's racial makeup. In studying race and social vulnerability in Hurricane Andrew, disaster researchers at Florida International University found that:

some neighborhoods are located on the wrong side of the tracks, the bad side of town, or in slums and urban war zones. Others are on the right side of the tracks, uptown, upscale, or on the good side of down. Minorities, particularly black households, are disproportionately located in poor quality housing segregated into low-valued neighborhoods. This segregation creates communities of fate that can take on added salience in a disaster context. Race and ethnicity linked to housing quality—not because of ethnically based cultural variations in housing preferences as is true in some societies—but because race and ethnicity are still important determinants of the economic resources, such as income and credit, critical for obtaining housing (Peacock et al., 1992: 173).

Blacks were more vulnerable to hurricane damage due to residential segregation, location of their neighborhoods, and the conditions of their housing. Andrew marginalized the already marginalized.

Recovery was also problematic for black Miami neighborhoods, where poorer quality building construction and insufficient insurance made these neighborhoods more vulnerable. Post-hurricane relocation was impeded for blacks. For example, “blacks were less likely than Anglos to relocate after the hurricane not only because of possible economic constraints, but because of barriers created by residential segregation” (Peacock et al., 1992: 201).

#### **Tropical Storm Alberto (1994)**

In July 1994, Tropical Storm Alberto dumped at least 17 inches of rain on parts of Georgia, flooding the basins of the Flint and Ocmulgee Rivers. The floods were responsible for 30 deaths. Albany got the worst of Alberto. The flood displaced more than 22,000 residents in Albany and damaged 6,500 buildings, having an estimated \$1 billion impact in the state overall, including \$500 million in damage to uninsured property and \$200 million in agricultural losses (Harrison, 1994).

Albany’s nearly 80,000 residents make up most of the population of Dougherty County. African Americans compose 65 percent of Albany’s population. On average, Albany education level is lower than the state, and poverty is greater than at the national level. Over 27 percent of the city’s population is below the poverty level. Medical facilities and transportation are also lacking.

The flood devastation in south-central Albany was so widespread that local leaders feared many residents would not resettle there, thereby weakening black voting strength in a city where blacks make up a majority of the population but only in 1994 had won a majority of the seats on the city commission. Floodwaters from the Flint River consumed nearly two-thirds of the 204-acre campus of historically black Albany State University, founded in 1903. Located on the banks of the Flint River, the 204-acre campus required a \$112 million extensive construction and renovation as the result of a devastating flood in 1994. The construction created a new campus for Albany State students and the Albany community.

Seven weeks after floods ravaged southwest Georgia, the hardest hit sections of mostly black Albany had hardly begun (Harrison, 1994). The legacy of racial separation and distrust tore people apart and delayed help from getting to the most needy storm victims. Racial tension, which is generally high, was heightened by the way disaster relief, rebuilding, and recovery were handled.

### **Black Farmers and USDA Disaster Relief (1997)**

Black farmers have suffered severe damage from natural disasters such as floods, droughts, tornados, and hurricanes. They, like other farmers, suffer in the aftermath of the natural disasters with losses of crops, livestock, supplies, equipment, barns, and storage areas. These losses result in reduced family income, delayed production, stunted business growth, and for some, a total loss of their livelihood.

Unlike black farmers, white farmers get results from the United States Department of Agriculture (USDA) when they apply for disaster relief, emergency loans, and operating loans. Black farmers get the runaround. Melvin Bishop, a black farmer testifying at the Eatonton, Georgia stop of the Economic Human Rights Bus Tour along with several other black farmers, summarized the problem: “Even more devastating than the tornado was being denied USDA funds appropriated for emergency disaster and relief purposes. The process involved in waiting and standing in long lines to shuffle paper, completing forms and applications, was physically, mentally, and emotionally draining” (Mittal and Powell, 2000).

Melvin Bishop is among hundreds of black farmers who filed administrative complaints or lawsuits charging that for decades USDA loan officials have discouraged, delayed, or rejected loan applications because of their race. Federal officials have upheld these charges. The farmers say that such discrimination is a major reason that the nation’s already tiny corps of black farmers is dwindling at three times the rate of farmers nationwide.

In 1997, African-American farmers brought a lawsuit against the USDA, charging it with discrimination in denying them access to loans

and subsidies mandated by law. The lawsuit was filed in August 1997 on behalf of 4,000 of the nation's 17,000 black farmers and former farmers. A consent decree was signed in January 1999. The estimated cost of the settlement ranges from \$400 million to more than \$2 billion (Estes, 2001).

### **Hurricane Floyd, Eastern North Carolina (1999)**

Hurricane Floyd pounded more than 30 North Carolina counties on September 1999 and dropped an estimated 15 to 20 inches of rain. Floyd left 17,000 homes uninhabitable, 56,000 damaged, and 47,000 people in temporary shelters in eastern North Carolina (Wing et al., 2002). Eastern North Carolina is a poor rural area with large concentration of African Americans.

Hurricane Floyd flooded the banks of the Tar River, drowning Princeville, the nation's first town chartered by blacks in the United States. Princeville is located in Edgecombe County, which was 57.5 percent black according to the 2000 census. Much of the town was lost when flooding from back-to-back hurricanes hit the all-black town. Before the flood struck, Princeville was a town of 2,100 residents, 850 homes, 30 businesses, and 3 churches. The town covers 40 streets spread over 1.3 square miles.

Hurricane Floyd's floodwater exposed the people to contaminants from a variety of sources, including municipal solid waste facilities, sewage treatment facilities, hazardous waste facilities, underground storage tanks containing petroleum products, and thousands of dead hogs. More than six years after Hurricane Floyd, many black families were still suffering from respiratory infections, skin irritations, moldy homes, and unmet home repair needs that leave them vulnerable to future storms (Solow, 2004).

### **Hurricane Katrina, New Orleans (2005)**

On August 29, 2005, Hurricane Katrina laid waste New Orleans, an American city built below sea level in 1718 on the banks of the Mississippi River. New Orleans, like most major urban centers, was in

peril long before Katrina floodwaters devastated the city (Pastor et al., 2006). Katrina was complete in its devastation of homes, neighborhoods, institutions, and community. Flooding in the New Orleans metropolitan area largely resulted from breached levees and flood walls (Gabe et al., 2005). The city's coastal wetlands, which normally serve as a natural buffer against storm surges, had been destroyed by offshore drilling, Mississippi River levees, canals for navigation, pipelines, highway projects, agricultural and urban development.

Over the past century more than 2,000 of the original 7,000 square miles of coastal marsh and swamp forests that formed the coastal delta of the Mississippi River have vanished. An average of 34 square miles of south Louisiana land, mostly marsh, has disappeared each year for the past five decades. More than 80 percent of the nation's coastal wetland loss in this time occurred in Louisiana. From 1932 to 2000, the state lost 1,900 square miles of land to the Gulf of Mexico (Tibbetts, 2006). Hurricane Katrina pushed New Orleans closer to the coast because of extensive erosion at the coastal edge. This is a national problem. A range of groups, including researchers, policymakers, and environmentalists, are calling for restoration of wetlands and barrier islands to help protect New Orleans the next time a hurricane strikes.

Emergency planners at FEMA have known for decades which populations are most vulnerable and what types of people are most likely to be left behind in disasters—individuals who are poor, sick, elderly, young, or of color. In 2001, FEMA experts ranked a hurricane striking New Orleans, a terrorist attack on New York City, and a strong earthquake in San Francisco as the top three catastrophic disasters most likely to occur in the country (Berger, 2001).

A 2004 FEMA Hurricane Pam simulation foretold the Katrina disaster (Federal Emergency Management Agency, 2004). The exercise was held at the State Emergency Operations Center in Baton Rouge using realistic weather and damage information developed by the National Weather Service, the US Army Corps of Engineers, the Louisiana State University Hurricane Center, and other state and federal agencies to help develop joint response plans for a catastrophic hurricane in Louisiana.

The disaster response team developed action plans in critical areas such as search and rescue, medical care, sheltering, temporary housing, school restoration, and debris management. Few of Hurricane Pam's simulation action plan preparedness tasks had been implemented prior to Hurricane Katrina. Writer Joel K. Bourne, Jr. (2004) also predicted with eerie accuracy the disaster that would follow if a powerful hurricane would strike New Orleans.

## **CLEANING UP AFTER KATRINA**

Katrina has been described as one of the worst environmental disasters in American history. Some commentators predicted that it would take the "mother of all toxic cleanups" to handle the untold tons of "lethal goop" left by the storm and flooding ("The Mother," 2005). However, the billion-dollar question facing New Orleans is which neighborhoods will get cleaned up, which ones will be left contaminated, and which ones will be targeted as new sites to dump storm debris and waste from flooded homes.

Hurricane Katrina left debris across a 90,000-square-mile disaster area in Louisiana, Mississippi, and Alabama, compared with a 16-acre tract in New York on September 11, 2001 (Luther, 2006). Louisiana parishes had 25 times more debris than was collected after the 9/11 terrorist attack in 2001. More than 110,000 of New Orleans' 180,000 homes were flooded, and half sat for days or weeks in more than six feet of water (Nossiter, 2005). An additional 350,000 automobiles had to be drained of oil and gasoline and then recycled; 60,000 boats were destroyed; and 300,000 underground fuel tanks and 42,000 tons of hazardous waste must be cleaned up and properly disposed at licensed facilities. Government officials peg the numbers of cars lost in New Orleans alone at 145,000 (Dart, 2006).

### **The Politics of Waste Disposal**

What has been cleaned up, what gets left behind, and where the waste is disposed of appears to be linked more to political science and sociology than to toxicology, epidemiology, and hydrology. Weeks after Katrina

struck, the Louisiana Department of Environmental Quality (LDEQ) allowed New Orleans to open the 200-acre Old Gentilly landfill to dump construction and demolition waste from the storm (Burdeau, 2005). Federal regulators ordered the unlined landfill closed in the 1980s. In December 2005, more than 2,000 truckloads of debris were entering the landfill in east New Orleans every day (O'Driscoll, 2006).

Just four months after the storm, the Old Gentilly landfill grew about 100 feet high. LDEQ officials insist that the old landfill, which is still operating, meets all standards. But residents and environmentalists disagree. Even some high-ranking elected officials expressed fear that reopening of the Old Gentilly landfill could create an ecological nightmare (Russell, 2005). In November 2005, four days after environmentalists filed a lawsuit to block the dumping, the landfill caught fire.

In April 2006, the Army Corps of Engineers and the Louisiana Department of Environmental Quality issued permits that allowed Waste Management Inc. to open and operate a construction and demolition-related material landfill in New Orleans East. The new landfill is located on Chef Menteur Highway, which runs through much of New Orleans East, where the majority of the population is African American. Waste Management pledged to give the city 22 percent of all revenue derived from the site.

Every week, Waste Management picks up an average of 45 pounds of trash from each home, 20 more pounds per home than pre-Katrina. The new landfill could accept as much as 6.5 million cubic yards of vegetation and other debris generated by Katrina, including roofing materials, wallboard, and demolition debris, which are considered less harmful than other types of waste.

But after Katrina, the state LDEQ expanded its definition of what is considered construction debris to include potentially contaminated material (Luther, 2005). Yet, regulators acknowledge the potential toxic contamination threat from storm-related wastes. Much of the disaster debris from flooded neighborhoods in New Orleans has been

mixed to the point that separation is either very difficult or essentially impossible.

Government officials assert that the risk of hazardous materials being dumped at the new Chef Menteur landfill is insignificant and that current sorting practices are adequate to keep hazardous waste out of the landfill. They also insist protective liners are not needed for construction and demolition landfills because demolition debris is cleaner than other rubbish (Eaton, 2006). Construction and demolition landfills are not required under federal law to have the protective liners required for municipal landfills, which are expected to receive a certain amount of hazardous household waste. LDEQ provided a permit for the landfill.

Landfill opponents think otherwise. Many fear the government's willingness to waive regulations will mean motor oil, batteries, electronics, ink toner, chlorine bleach, drain cleaners, and other noxious material will almost certainly wind up at the unlined landfills (Russell, 2006). The Chef Highway landfill is about four miles west of the Old Gentilly landfill and just 0.8 miles from the nearest apartments in a mostly Vietnamese-American community. More than a thousand Vietnamese-American families live less than two miles from the edge of the new landfill. Residents view the landfill as a roadblock to community recovery and rebuilding. After mounting public pressure, the Chef Menteur landfill was shut down by Mayor Nagin in August 2006.

### **A "Safe" Road Home**

Two years after Katrina, one-third of New Orleans' residents had not made it back home (Liu and Plyer, 2007). New Orleans' population stood at 223,388 in July 2007—or about 68 percent of its pre-Katrina July 2005 population. The road home for many Katrina survivors has been a bumpy one, largely due to slow government actions to distribute the \$116 billion in federal aid to help residents rebuild. Only about \$35 billion has been appropriated for long-term rebuilding. Most of the

Katrina money coming from Washington has not gone to those most in need—and the funding squeeze is stopping much of the Gulf coast from coming back (Kromm and Sturgis, 2007).

As of August 6, 2007, only 22 percent of the applicants to Louisiana's Road Home program had gone to closing. More than 180,424 Road Home applications had been received—far higher than the 123,000 the program was originally designed to handle (the Road Home program was designed to provide compensation to Louisiana homeowners affected by Hurricanes Katrina or Rita for the damage to their homes. The program afforded eligible homeowners up to \$150,000 in compensation for their losses to get back into their homes) (LOCD). From January 2007 to August 2007, the average benefit per applicant had fallen by more than \$12,000—from a high of \$81,000 to \$68,734.

In March 2006, seven months after the storm slammed ashore, organizers of "A Safe Way Back Home" initiative, the Deep South Center for Environmental Justice at Dillard University (DSCEJ), and the United Steel Workers (USW), undertook a proactive pilot neighborhood cleanup project—the first of its kind in New Orleans (Wright, 2006). The cleanup project, located in the 8100 block of Aberdeen Road in New Orleans East, removed several inches of tainted soil from front-and backyards, replacing the soil with new sod, and disposing of the contaminated dirt in a safe manner.

Residents who choose to remove the top soil from their yards—which contains sediments left by flooding—find themselves in a Catch-22 situation, with the LDEQ and EPA insisting the soil in their yards is not contaminated and the local landfill operators refusing to dispose of the soil because they suspect it is contaminated. This bottleneck of what to do with the topsoil was unresolved a year and a half after the devastating flood.

Although government officials insist the dirt in residents' yards is safe, Church Hill Downs, Inc., the owners of New Orleans' fairgrounds, felt it was not safe for its million-dollar thoroughbred horses to race on. (The fairgrounds is the nation's third-oldest track; only

Saratoga and Pimlico have been racing longer.) The owners hauled off soil tainted by Hurricane Katrina's floodwaters and rebuilt a grandstand roof ripped off by the storm's wind (Martell, 2006). The fairgrounds opened on Thanksgiving Day, 2006. Surely, if tainted soil is not safe for horses, it is not safe for people—especially children who play and dig in the dirt.

The Safe Way Back Home demonstration project serves as a catalyst for a series of activities that will attempt to reclaim the New Orleans East community following the devastation caused by Hurricane Katrina. It is the government's responsibility to provide the resources required to address areas of environmental concern and to assure that the workforce is protected. However, residents are not waiting for the government to ride in on a white horse to rescue them and clean up their neighborhoods.

The DSCEJ/USW coalition received dozens of requests and inquiries from New Orleans East homeowners associations to help clean up their neighborhoods block-by-block. State and federal officials labeled the voluntary "A Safe Way Back Home" neighborhood cleanup efforts as "scaremongering" (Simmons, 2006). Despite barriers and red tape, thousands of Katrina evacuees are slowly moving back into New Orleans' damaged homes or setting up travel trailers in their yards. Homeowners are gutting their houses, treating the mold, fixing roofs and siding, and slowly getting their lives back in order. One of the main questions returning residents have: "Is this place safe?"

Residents are getting mixed signals from government agencies. The Louisiana Department of Environmental Quality announced that there is no unacceptable long-term health risk directly attributable to environmental contamination resulting from the storm. Yet, these same officials warn residents to keep children from playing in bare dirt, and advise them to cover bare dirt with grass, bushes, or 4 to 6 inches of lead-free wood chips, mulch, soil, or sand. EPA and LDEQ officials tested soil samples from the neighborhood in December 2005 and claim there was no immediate cause for concern. Although lead, arsenic, and other

toxic chemicals turned up in samples, state toxicologists describe the soil in New Orleans as consistent with what they saw before Katrina (Williams, 2006).

In sharp contrast, Natural Resources Defense Council (NRDC) scientists arrived at different conclusions (Solomon and Rotkin-Ellman, 2005). NRDC's analyses of soil and air quality after Hurricane Katrina revealed dangerously high levels of diesel fuel, lead, and other contaminants in Gentilly, Bywater, Orleans Parish, and other New Orleans neighborhoods.

In August 2006, nearly a year after Katrina struck, the federal EPA gave New Orleans and surrounding communities a clean bill of health, while pledging to monitor a handful of toxic hot spots (Brown, 2006). EPA and LDEQ officials concluded that Katrina did not cause any appreciable contamination that was not already there. Although EPA tests confirmed widespread lead in the soil—a prestorm problem in 40 percent of New Orleans—the EPA dismissed residents' calls to address this problem as outside the agency's mission.

In June 2007, the US General Accounting Office (GAO) issued a report criticizing EPA's handling of contamination in post-Katrina New Orleans and the Gulf Coast (GAO, 2007). The GAO found inadequate monitoring for asbestos around demolition and renovation sites. Additionally, the GAO investigation uncovered that "key" information released to the public about environmental contamination was neither timely nor adequate, and in some cases, easily misinterpreted to the public's detriment.

The GAO (2007) also found that the EPA did not state until August 2006 that its 2005 report, which said that the great majority of the data showed that adverse health effects would not be expected from exposure to sediments from previously flooded areas—applied to short-term visits, such as to view damage to homes.

In March 2007, a coalition of community and environmental groups collected over 130 soil samples in Orleans Parish. Testing was conducted by Natural Resources Defense Council (Fields et al., 2007).

Sampling was done at 65 sites in residential neighborhoods where post-Katrina EPA testing had previously shown elevated concentrations of arsenic in soils. Sampling was also done at 15 playgrounds and 19 schools. Six school sites had levels of arsenic in excess of the LDEQ's soil screening value for arsenic. The LDEQ soil screening value of 12 milligrams per kilogram (mg/kg) normally requires additional sampling, further investigation, and a site-specific risk assessment. It is clear that the levels of arsenic in the sediment are unacceptably high for residential neighborhoods.

### **Toxic FEMA Trailers**

Shortly after Katrina, FEMA purchased about 102,000 travel trailers for \$2.6 billion or roughly \$15,000 each (Spake, 2007). Surprisingly, there were reports of residents becoming ill in these trailers due to the release of potentially dangerous levels of formaldehyde. In fact, formaldehyde is the industrial chemical (found in glues, plastics, building materials, composite wood, plywood panels, and particle board) that was used to manufacture the travel trailers.

In Mississippi, FEMA received 46 complaints of individuals who indicated that they had symptoms of formaldehyde exposure, which include eye, nose, and throat irritation, nausea, skin rashes, sinus infections, depression, mucus membranes, asthma attacks, headaches, insomnia, intestinal problems, memory-impairment, and breathing difficulties. The Sierra Club conducted tests of 31 trailers and found that 29 of them had unsafe levels of formaldehyde. According to the Sierra Club, 83 percent of the trailers tested in Alabama, Louisiana, and Mississippi had formaldehyde levels above the EPA limit of 0.10 parts per million.

Even though FEMA received numerous complaints about toxic trailers, the agency only tested one occupied trailer to determine the levels of formaldehyde in it (Committee on Oversight and Government Reform, 2007). The test confirmed that the levels of formaldehyde were extraordinarily high and presented an immediate health risk to the displaced occu-

pants. The monitored levels were 75 times higher than what the National Institute of Occupational Safety and Health recommend for adult exposure in industrial workplaces. Unfortunately, FEMA did not test any more occupied trailers and released a public statement discounting any risk associated with formaldehyde exposure (Babington, 2007).

FEMA deliberately neglected to investigate any reports of high levels of formaldehyde in trailers so as to bolster FEMA's litigation position just in case individuals affected by their negligence decided to sue them. More than 500 hurricane survivors and evacuees in Louisiana are pursuing legal action against the trailer manufacturers for being exposed to the toxic chemical formaldehyde. Two years after Katrina hit, 46,700 families who lost their homes to Hurricane Katrina lived in government-issued trailers—roughly 33,000 of those families were in Louisiana and about 13,000 were in Mississippi.

In July 2007, FEMA stopped buying and selling disaster relief trailers because of the formaldehyde contamination. FEMA administrator R. David Paulison admitted that the trailers used by displaced Katrina residents were toxic and concluded that the agency should have moved faster in addressing the health concerns of residents (Cruz, 2007). In August 2007, FEMA began moving families out of the toxic trailers and finding them new rental housing. On November 2007, a federal judge in New Orleans ordered FEMA and Paulison, its top administrator, to submit a "detailed plan" for testing the trailers for formaldehyde levels. The Centers for Disease Control and Prevention, the lead agency in developing parameters for testing the travel trailers, was scheduled to test 500 randomly selected travel trailers and mobile homes for the toxin, starting December 21, 2007 (Kim, 2007).

### **Post-Katrina Levee Protection**

An Army Corps of Engineers flood risk report published in 2007 shows a disproportionately large swath of Black New Orleans once again is left vulnerable to future flooding (Army Corps of Engineers Interagency Performance Evaluations Task Force, 2007). After three years and \$7

billion of levee repairs, the Army Corps of Engineers has estimated that there is a 1 in 100 annual chance that about one-third of the city will be flooded with as much as six feet of water (Schwartz, 2007).

The mainly African-American parts of New Orleans are still likely to be flooded in a major storm. Increased levee protection correlates closely with race of neighborhoods; black neighborhoods such as the Ninth Ward, Gentilly, and New Orleans East receive little if any increased flood protection. These disparities could lead insurers and investors to think twice about supporting the rebuilding efforts in vulnerable black areas.

The Lakeview area resident can expect 5.5 feet of increased levee protection. This translates into 5.5 feet less water than they received from Katrina. Lakeview is mostly white and affluent; New Orleans East is mostly black and middle class. This same scenario holds true for the mostly black Lower Ninth Ward, Upper Ninth Ward, and Gentilly neighborhoods. There is a racial component to the post-Katrina levee protection. Whether you are rich, poor, or middle class, if you are a black resident of New Orleans, you are less protected and you have received less increased flood protection from the federal government than the more white and affluent community of Lakeview.

## **THE RACIAL DIVIDE IN DISASTER RELIEF**

Using case studies dating back some 70 years, this paper uses New Orleans, the Gulf coast region, and the southern United States as a historical backdrop to answer the research questions of emergency response and race. Clearly, there is a racial divide in the way the US government responds to various types of emergencies in black and white communities. Government response to weather-related (natural disasters), epidemics, industrial accidents, toxic contamination, and bioterrorism threats points to clear preferences given to whites over blacks.

Differential response is linked to “white privilege” that provides preferences for whites while at the same time disadvantaging blacks, and making them more vulnerable to disasters and public health threats. Hurricane Katrina exposed the systematic weakness of the

nation's emergency preparedness and homeland security. There can be no homeland security if people do not have homes to go to and if they lose trust in government to respond to an emergency in an effective, fair, and just manner.

What gets cleaned up and where the waste is disposed are key environmental justice and equity issues. Pollution from chemical plants located in populated areas poses a health threat to nearby residents. The plants themselves also pose a threat as possible targets for terrorism.

Although both black and white hurricane survivors find themselves in similar circumstances (displacement from their homes), blacks, because of institutional discrimination, may face different experiences and challenges than whites in rebuilding their lives, homes, businesses, institutions, and communities. Thousands of Gulf coast Louisiana, Mississippi, and Alabama residents also lost their homes in the hurricane. The relief and recovery efforts are not adequately meeting the needs of many African-American survivors in the disaster zone. Many of these same individuals and communities were "invisible" before Katrina struck. At every class level, racial discrimination artificially limits opportunities and choices for African Americans. Unfortunately, this sad fact of American life was not washed away by the floodwaters of Katrina.

Clearly, race skews government response to emergencies, whether natural or man-made, such as weather-related disasters, toxic contamination, public health threats, industrial accidents, and terrorism threats, with whites seeing faster action and better results than blacks and other people of color. No Americans, black or white, rich or poor, young or old, sick or healthy, should have to endure needless suffering from unnatural disasters.

## NOTES

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## REFERENCES

- Army Corps of Engineers Interagency Performance Evaluations Task Force (IPET). *Risk and Reliability Report* (June 20, 2007) <nolarisk.usace.army.mil>.
- Babington, Charles. "FEMA Slow to Test Toxicity of Trailers." *USA Today*, July 19, 2007.
- Baker, Earl J. *Hurricane Hugo, Puerto Rico, the Virgin Islands, and Charleston, South Carolina, September 17-22, 1989*. Washington, D.C.: National Academies Press, 1994 <www.nap.edu/books/0309044758/html/166.html>.
- Barnes, Jay. *Florida's Hurricane History*. Chapel Hill: University of North Carolina Press, 1998.
- Barry, John M. *Rising Tide: The Great Mississippi Flood of 1927 and How It Changed America*. New York: Simon and Schuster, 1998.
- Berger, Eric. "Keeping Its Head Above Water." *Houston Chronicle*, December 1, 2001: A29.
- Bourne, Joel K. Jr. "Gone with the Water." *National Geographic* (October 2004): 92.
- Brochu, Nicole Sterghos. "Florida's Forgotten Storm: The Hurricane of 1928." *The Sun-Sentinel*, September 14, 2003.
- Brown, Matthew. "Final EPA Report Deems N.O. Safe." *The Times Picayune*, August 19, 2006.
- Bullard, Robert D. *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*. San Francisco: Sierra Club Books, 2005.
- Bullard, Robert D., and Glenn S. Johnson. *Just Transportation: Dismantling Race and Class Barriers to Mobility*. Gabriola Island, B.C.: New Society Publishers, 1997.
- Burdeau, Cain. "New Orleans Area Becoming a Dumping Ground," *Associated Press*, October 31, 2005. Cannon, Terry, Ian Davis, Piers Blaikie, Ben Wisner, eds. *At Risk: Natural Hazards, People's Vulnerability, and Disasters*. New York: Routledge, 2004.
- City of New Orleans. *City of New Orleans Comprehensive Emergency Management Plan*. City of New Orleans, 2005. Available at <www.cityofno.com>.

- Cruz, Gilbert. 2007. "Grilling FEMA Over Its Toxic Trailers." *Time.com*. July 19, 2007 <<http://www.time.com/time/nation/article/0,8599,1645312,00.html>>.
- Dart, Bob. "Junk Cars, Boats Slow Recovery in Big Easy." *The Atlanta Journal-Constitution*, July 5, 2006:A1.
- Department of Homeland Security (DHS). *National Plan Review, Phase 2 Report*. Washington, D.C.: DHS, 16 June 2006 <[www.emforum.org/news/06061601.htm](http://www.emforum.org/news/06061601.htm)>.
- Dyson, Michael Eric. *Come Hell or High Water: Hurricane Katrina and the Color of Disaster*. New York: Basic Books, 2006.
- Eaton, Leslie. "A New Landfill in New Orleans Sets Off a Battle." *The New York Times*, May 8, 2006:A1.
- Eggler, Bruce. "RTA Back on Track Slowly, Surely." *The Times Picayune*, October 14, 2005: B1.
- Elliston, Jon. "Disaster in the Making." *The Orlando Weekly*, October 21, 2004.
- Estes, Carol. "Second Chance for Black Farmers." *Yes! Magazine* (Summer 2001).
- Fields, Leslie, Albert Huang, Gina Solomon, Miriam Rotkin-Ellman, and Patirce Simms, *Katrina's Wake: Arsenic-Laced Schools and Playgrounds Put New Orleans Children at Risk*. New York: NRDC, August 2007.
- Federal Emergency Management Agency (FEMA). "Hurricane Pam Exercise Concludes." Press Release. July 23, 2004 <[www.fema.gov/news/newsrelease.fema?id=13051](http://www.fema.gov/news/newsrelease.fema?id=13051)>.
- Finch, Susan. "Ag Street Landfill Case Gets Ruling: City Ordered to Pay Residents of Toxic Site." *The Times-Picayune*, January 27, 2006: A1.
- Gabe, Thomas, Gene Falk, Maggie McCarthy, and Virginia W. Mason. *Hurricane Katrina: Social-Demographic Characteristics of Impacted Areas*. Congressional Research Service. Report no. RL33141. Washington, D.C.: Congressional Research Service, November 2005.
- General Accounting Office. *Hurricane Katrina: EPA's Current and Future Environmental Protection Efforts Could Be Enhanced by Addressing Issues*

- and Challenges Faced on the Gulf Coast*. Washington, D.C.: GAO Report to Congressional Committees, June 2007.
- Harrison, Eric. "Legacy of Racism Dams Up Post-Flood Effort in Georgia." *The Los Angeles Times*, August 26, 1994.
- Hurston, Zora Neal. *Their Eyes Were Watching God*. New York: Harper Perennial Classics, 1998.
- Jackson, Stephen. "Un/natural Disasters, Here and There." *Understanding Katrina: Perspectives from the Social Sciences*. Social Science Research Council <<http://understandingkatrina.ssrc.org/Jackson/>>.
- Kaniasty, K., and F. H. Norris. "In Search of Altruistic Community: Patterns of Social Support Mobilization Following Hurricane Hugo." *American Journal of Community Psychology* 4 (August 23, 1995): 447-477.
- Kim, Eun Kyung. "Air Testing in FEMA Trailers Begins Next Week." *USA Today*, December 13, 2007.
- Kleinberg, Eliot. *Black Cloud: The Deadly Hurricane of 1928*. New York: Carroll and Graf Publishers, 2003.
- Klinkenberg, Jeff. "A Storm of Memories." *The St. Petersburg Times*, July 12, 1992: 1F.
- Kromm, Chris, and Sue Sturgis. *Blueprint for Gulf Renewal: The Katrina Crisis and a Community Agenda for Action*. Durham, N.C.: Institute for Southern Studies, August/September 2007.
- Liu, Amy, and Allison Plyer. *The New Orleans Index: A Review of Key Indicators of Recovery Two Years after Katrina*. Washington, D.C.: Brookings Institution and Greater New Orleans Community Data Center, August 2007.
- Litman, Todd. *Lesson from Katrina and Rita: What Major Disasters Can Teach Transportation Planners*. Victoria, B.C.: Victoria Transport Policy Institute, September 30, 2005.
- LOCD. Disaster Recover Unit <<http://www.doa.louisiana.gov/cdbg/DRhousing.htm>>.
- Lyttle, Alicia. "Agricultural Street Landfill Environmental Justice Case Study." University of Michigan School of Natural Resource and

- Environment <[www.umich.edu/~, Desnre492/Jones/agstreet.htm](http://www.umich.edu/~Desnre492/Jones/agstreet.htm)>.
- Luther, Linda. *Disaster Debris Removal after Hurricane Katrina: Status and Associated Issues*. Washington, D.C.: Congressional Research Service, June 16, 2006.
- Martell, Brett. "Horse Racing Returns to New Orleans." *Associated Press*, November 23, 2006.
- McKinnon, Jesse. *The Black Population: Census 2000 Brief*. Washington, D.C.: Department of Commerce, August 2001.
- Mittal, Anuradha, and Joan Powell. "The Last Plantation." *Food First* (Winter 2000) <<http://www.foodfirst.org/pubs/backgrdrs/2000/w00v6n1.html>>.
- Moran, Kate. "Public Transit on Agenda at Joint N.O., Jeff Session." *The Times Picayune*, November 6, 2006.
- "The Mother of All Toxic Cleanups." *Business Week* (September 26, 2005).
- Nossiter, Adam. "Thousands of Demolitions Are Likely in New Orleans." *The New York Times* October 2, 2005.
- O'Driscoll, Patrick. "Cleanup Crews Tackle Katrina's Nasty Leftovers." *USA Today*, December 12, 2005.
- Pastor, Manuel, Robert D. Bullard, James K. Boyce, Alice Fothergill, Rachel Morello-Frosch, and Beverly Wright. *In the Wake of the Storm: Environment, Disaster, and Race After Katrina*. New York: Russell Sage Foundation, May 2006.
- Peacock, Walter Gillis, Betty Hearn Morrow, and Hugh Gladwin. *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters*. Miami: Florida International University, Laboratory for Social and Behavioral Research, 1992.
- Pittman, Craig. "Storm's Howl Fills The Ears of Survivors." *St. Petersburg Times* August 18, 2002.
- Remnick, David. "High Water: How Presidents and Citizens React to Disaster." *The New Yorker* (October 3, 2005).
- Riccardi, Nicholas. "Many of Louisiana Dead Over 60." *The Atlanta Journal-Constitution*, November 6, 2005: A6.
- Russell, Gordon. "Landfill Reopening is Raising New Stink," *The Times\_Picayune*, November 21, 2005.

- . “Chef Menteur Landfill Testing Called a Farce: Critics Say Debris Proposal ‘Would Be a Useless Waste of Time.’” *The Times-Picayune*, May 29, 2006.
- Sanchez, Thomas W. Rick Stolz, and Jacinta S. Ma. *Moving to Equity: Addressing Inequitable Effects of Transportation Policies on Minorities*. Cambridge: The Civil Rights Project, Harvard University, June 2003.
- Schwartz, John. “Army Corps Details Flood Risks Facing New Orleans.” *The New York Times*, June 20, 2007.
- Simmons, Ann S. “New Orleans Activists Starting from the Ground Up.” *The Los Angeles Times*, March 24, 2006.
- Solomon, Gina M., and Miriam Rotkin-Ellman. *Contaminants in New Orleans Sediments: An Analysis of EPA Data*. New York: NRDC, February 2006.
- Solow, Barbara. “Cracks in the System.” *The Independent Weekly*, September 8, 2004 <[indyweek.com/durham/2004-09-08/cover.html](http://indyweek.com/durham/2004-09-08/cover.html)>.
- Spake, Amanda. “Dying for a Home: Toxic Trailers are Making Katrina Refugees Ill.” *The Nation* (February 15, 2007).
- State of Louisiana. *Southeast Louisiana Hurricane Evacuation and Sheltering Plan*. Baton Rouge: State of Louisiana, 2000 <[www.ohsep.louisiana.gov/plans/EOPSupplementala.pdf](http://www.ohsep.louisiana.gov/plans/EOPSupplementala.pdf)>.
- Steinberg, Ted. *Acts of God: The Unnatural History of Natural Disasters in America*. New York: Oxford University Press, 2003.
- Tanneeru, Manav. “It’s Official: 2005 Hurricanes Blew Records Away.” CNN.com. December 30, 2005 <[www.cnn.com/2005/WEATHER/12/19/hurricane.season.ender/](http://www.cnn.com/2005/WEATHER/12/19/hurricane.season.ender/)>.
- Tibbetts, John. “Louisiana’s Wetlands: A Lesson in Nature Appreciation.” *Environmental Health Perspective* 114 (January 2006): A40-A43.
- U.S. House of Representatives, Committee on Oversight and Government Reform. “Committee Probes FEMA’s Response to Reports of Toxic Trailers.” July 19, 2007.
- Williams, Leslie. “Groups Warn About Arsenic in Soil.” *The Times Picayune*, March 24, 2006.
- Wing, Steve, Stephanie Freedman, and Lawrence Band. “The Potential of Flooding on Confined Animal Feeding Operations in Eastern North Carolina.” *Environmental Health Perspective* 110 (April 2002).

Worldwatch Institute. "Fact Sheet: The Impacts of Weather and Climate Change." September 23, 2003 <[www.worldwatch.org/press/news/2003/09/15/](http://www.worldwatch.org/press/news/2003/09/15/)>.

Wright, Beverly. "A Safe Way Back Home." Deep South Center for Environmental Justice, Dillard University, March 29, 2007 <[www.dscej.org/asafewayhome.htm](http://www.dscej.org/asafewayhome.htm)>.