HURRICANE KATRINA AND NEW ORLEANS: DISCURSIVE SPACES OF SAFETY AND RESULTING ENVIRONMENTAL INJUSTICE

A dissertation submitted to Kent State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy

by

Andrew B. Shears

August, 2011
Dissertation written by
Andrew B. Shears
B.S., Ball State University, 2003
M.S., Ball State University, 2005
Ph.D., Kent State University, 2011

Approved by

________________________, Chair, Doctoral Dissertation Committee
Dr. James A. Tyner

________________________, Members, Doctoral Dissertation Committee
Dr. Mandy Munro-Stasiuk

________________________
Dr. Robert M. Schwartz

________________________
Dr. Scott C. Sheridan

Accepted by

________________________, Chair, Department of Geography
Dr. Mandy Munro-Stasiuk

________________________, Dean, College of Arts and Sciences
Dr. Timothy Moerland
TABLE OF CONTENTS

LIST OF FIGURES ........................................................................................................ iv
ACKNOWLEDGEMENTS ............................................................................................... vi
DEDICATION ................................................................................................................... vii

CHAPTER

I. INTRODUCTION ........................................................................................................ 1
   A. DEFINING ENVIRONMENTAL JUSTICE ................................................................. 3
   B. THE GAME PLAN ................................................................................................. 19
   C. METHODOLOGICAL FRAMEWORK .................................................................... 20

II. ABOUT NEW ORLEANS ......................................................................................... 29
   A. THE HISTORY OF NEW ORLEANS .................................................................... 33
   B. NEW ORLEANS IN 2005 .................................................................................... 85
   C. CONCLUSION ..................................................................................................... 111

III. HURRICANE KATRINA ......................................................................................... 113
   A. DISASTER PREPAREDNESS AND RELIEF APPARATUSES IN THE UNITED STATES .............................................................. 115
   B. “HURRICANE PAM” .......................................................................................... 121
   C. THE GENESIS OF KATRINA ............................................................................. 136
   D. EARLY WARNINGS OF A SHARPENING TARGET ................................................. 138
   E. DIRE WARNINGS, EVACUATION AND THE ANTICIPATION OF LANDFALL ................................................................. 144
   F. KATRINA GRAZES CITY ...................................................................................... 151
   G. DIRECT AND IMMEDIATE IMPACTS ................................................................ 154
   H. KATRINA TRAVELS INLAND ............................................................................. 158
   I. KATRINA’S WAKE ............................................................................................... 161
   J. THE FAILED RESPONSE ...................................................................................... 169
   K. MOVING FORWARD ........................................................................................... 176

IV. DISCURSIVE SPACES OF SAFETY ........................................................................ 178
   A. THEORETICAL SIGNPOSTS ............................................................................. 180
   B. A SAFE PLACE FOR CAPITAL ......................................................................... 218
   C. DISCOURSES OF A SAFE PLACE THROUGH THE STATE’S APPARATUSES ........................................................................... 221
   D. FAILURES OF APPARATUSES TO UPHOLD DISCOURSE .............................. 242

V. CONCLUSION ......................................................................................................... 268
   A. WHAT TO DO WITH NEW ORLEANS? .............................................................. 273

BIBLIOGRAPHY ........................................................................................................... 279
LIST OF FIGURES

Figure 2.1: An early plan of La Nouvelle Orleans, 1728………………………………………...38
Figure 2.2: Map of New Orleans in 1798……………………………………………………………...43
Figure 2.3: Map of territory included in the 1803 Louisiana Purchase .........................47
Figure 2.4: Map of Settled Area of New Orleans, including canals, 1835………………51
Figure 2.5: Table of New Orleans Population, 1810-1900…………………………………….57
Figure 2.6: Map of Settled Area of New Orleans, including canals, 1900………………63
Figure 2.7: Map Displaying Progression of Drainage System, 1910-1940………………64
Figure 2.8: Map of African Americans in New Orleans, 1940……………………………67
Figure 2.9: Reference Map showing Inner Harbor Navigation Canal………………...69
Figure 2.10: Topographic Cross Section of “The Bowl” of New Orleans……………76
Figure 2.11: Floodplain map of central New Orleans………………………………………..79
Figure 2.12: Population Table of New Orleans Metro Area, 1910-2000………………81
Figure 2.13: Reference Map showing Mississippi River Gulf Outlet………………….84
Figure 2.14: Reference Map showing Urbanized New Orleans, 2005…………………...86
Figure 2.15: Map of Elevation in central New Orleans………………………………………87
Figure 2.16: Map of Average Annual Subsidence, 2002-2005…………………………...88
Figure 2.17: Map of Major Canals, Levees and Pumping Stations……………………….91
Figure 2.18: Diagram Showing I-Wall and T-Wall……………………………………………92
Figure 2.19: Population Density in New Orleans and Neighboring Areas, 2000……94
Figure 2.20: Map Displaying Seven Parishes of New Orleans MSA…………………...96
Figure 2.21: Map of Neighborhoods of New Orleans………………………………………97
Figure 2.22: Map of African Americans in New Orleans, 2000……………………………99
Figure 2.23: Map of Residents Under Two Times Poverty Level, 2000.................107
Figure 2.24: Map of Households Without Personal Vehicles, 2000..........................109
Figure 2.25: Map of Residents 18+ years, Lacking High School Education, 2000....110
Figure 3.1: Hurricane Katrina Satellite Images, Florida Landfall.........................137
Figure 3.2: Hurricane Katrina’s Windfield Shortly Before Louisiana Landfall.......141
Figure 3.3: Two Different Warning Maps, Hurricane Katrina..............................143
Figure 3.4: Satellite Imagery of Hurricane Katrina pre-Louisiana Landfall.........152
Figure 3.5: Map of Approximate Storm Surge Depth from Hurricane Katrina......153
Figure 3.6: Map of Breached Levees in central New Orleans.............................156
Figure 3.7: Satellite Imagery of Katrina’s Louisiana and Mississippi Landfalls....159
Figure 3.8: Satellite Imagery of Katrina Dissipating Inland...............................160
Figure 3.9: Map of Floodwater Depth, August 31, 2005.................................162
Figure 3.10: Map of Floodwater Depth, September 3, 2005.........................163
Figure 3.11: Map of Floodwater Depth, September 14, 2005..........................164
Figure 3.12: Map of Floodwater Depth, September 15, 2005..........................165
Figure 3.13: Map of Floodwater Depth, September 20, 2005..........................166
ACKNOWLEDGEMENTS

As the author of this behemoth of an academic work, I honestly cannot believe that it is finished. I never in my wildest expectations growing up ever thought that I would write a dissertation and earn a PhD in any field; I’m still in a sort of disbelief that I earned my undergraduate degree back so long ago. I certainly could not have gotten to where I am now if I didn’t get substantial help from so many sources.

First, many thanks go to my parents, Frederick and Carol Shears, for providing me a good foundation for my intellectual pursuits, the motivation to achieve more, and yes, at times, a cash loan here and there when we couldn’t quite make it to payday. I strive for nothing more in life than to make you proud, a product worthy of the parenting efforts you’ve invested in me over the years. Also, my “adoptive” parents, Paul and Kay Eldridge, to whom I’m forever thankful for bringing Amy into the world, and who’ve welcomed me into their family as one of their own, for providing so much support over the past seven years I’ve known them.

To Jim Tyner, my adviser and mentor, I must extend the utmost gratitude. His direction has been crucial not only to the successful completion of this project, but also to encouraging me to seek my full potential as an academic geographer. His incredible examples of scholarship will be one that I will always try to match and never quite reach. I will forever be grateful for his guidance in this process as a mentor, a role model and a friend.

I also owe many thanks to Rob Schwartz, my masters thesis adviser at Ball State who led me on a track to academic geography, and by a crazy coincidence landed at the nearby University of Akron during my pursuit of a doctoral degree at Kent State. Rob’s guidance (and occasional prodding!) has helped me immeasurably in maintaining the motivation necessary to see the completion of this project.

Three of my colleagues deserve special recognition for their contributions to my life during the past few years: Emily Fekete, Don Colley and Jennifer Huxley. The three of you have been an incredible source of intellectual and emotional support, cheering me up when times were difficult, celebrating with me when times were going well, and all-and-all being great friends as we all tackle this adventure together. I’ll never forget the times we’ve spent together, having beer in the local pubs, critiquing each others’ papers and arguments, laughing about the latest example of gross student ignorance, venting frustrations behind closed doors, sharing both our oddball intellectual ideas and the latest pieces of juicy gossip. Thank you for being a part of my life and shaping so much of this experience in a positive way.

Beyond these folks, I have been fortunate enough to develop an unbelievably large community of colleagues and friends to whom I owe a substantial debt of gratitude for providing support in so many ways, whether providing intellectual discussion late nights in a pub, serving as a sounding board for my crazy ideas or my frustrated ranting, helping me out of jams, sending uplifting notes when I needed it most, and providing consistently excellent advice to help set my path in academe. I list them here alphabetically, to not minimize any of their contributions: Chris
Airriess, Michael Allen, Valerie Aquila, Shawn Banasick, John Barr, Bethany Beams, Surinder Bhardwaj, Gregg Bowser, John Boyer, Bill Breder, Carla Brown, Steve Butcher, Kevin Butler, Collette Callaway-Johnson, Mary Lou Church, Alex Colucci, Pat Coy, Dave Czajkowski, Michelle Davis, Kory Dakin, José Díaz-Garayúa, Shanon Donnelly, Michael Dunbar, Ute Dymon, Sam Edmonds, Ken Foote, John Frye, Michael Gregorio, Derek Gregory, Mark Guizlo, Jason Haley, Marlene Harmon, Kurt Heidelberg, Dave Hollinger, Josh Inwood, Adam Johnson, Dave Kaplan, Benjamin Keil, Don LaFraniere, Lindsay LaPorta, Del Levia, Christina Longo, Sage McMillan, Mandy Munro-Stasiuk, Vanessa Myers-Dudley, Tony Nasuta, Becky Parylak, Erin Patch, Chris Post, Doug Rivet, Kelsey Robinson, Jesse Rouse, Nick Schenkel, Tom Schmidlin, Beth Schoening, Dorris Scott, Jason Senkbeil, Deric Shannon, Janet Shears, Scott Sheridan, Derrin Smith, Maria Soucek, Jeremy Spencer, Scott Spiker, Dave Stasiuk, Mary Swalligan, Emariana Taylor, Jeff Tucholski, Kevin Turcotte, Dave Widner, Stacey Wicker, Nick Wise, Ron Wright, Maria Yates and Michele Zils. To each of you I extend hearty and endless thanks for your support in this incredibly lengthy process that has finally come to its conclusion.

Perhaps most importantly, I must thank my wonderful wife, Amy, for her immeasurable patience and unwavering support. She is my rock, my muse, my best source for laughter and sanity, for grounding and motivation; she is my love and my best friend, and she is my partner and my soul mate. Without her by my side every step of the way, this would have proven to be an impossible task to complete. I’ve demonstrated that I’m able to write hundreds of pages about Katrina’s impact upon New Orleans, but I could never write enough about Amy’s positive and lasting impact on my life. Thanks, Amy, for choosing me. Each day I spend with you makes me feel as though I’ve won the lottery ten times over.
DEDICATION

To Mom: I might have written this thing, but you beat cancer. I’m thrilled to be finished, but I’m certainly happier about your accomplishment than mine!
CHAPTER I

INTRODUCTION

“You simply get chills every time you see these poor individuals... so many of these people... are so poor and they are so black, and this is going to raise lots of questions for people who are watching this story unfold.”

–Wolf Blitzer on CNN, September 1, 2005 (powell et al., 2006: 59).

As I watched the television news coverage of Hurricane Katrina before, during and after the landfall in August and September of 2005, my mind filled with a number of questions. I wondered how, economically, a city like New Orleans is even possible, with such a high level of risk that comes from being in a hurricane prone area while located mostly below sea level. I wondered whether its feasibility comes mostly from the continuous subsidy of levee development and other protective measures, or whether the economic benefits of a city in such a location simply exceeds any risk from such a disaster. As it became increasingly more obvious that the protective levees had failed and the city had flooded, I began to wonder how technology such as levees, draining, floodgates and other methods of mediation are used to make this city possible. As reports continued to filter in about
the impotence of recovery efforts led by government agencies, including the city of New Orleans, the state of Louisiana, and the Federal Emergency Management Agency (FEMA), I began to ask other questions. The imagery of people stranded on overpasses without food or clean water for days was nothing short of stunning, permanently embedding my memory with something that looked very much like a scene from an undeveloped country occurring in the wealthiest country in the world. I wondered, often with a stream of accompanying obscenities, why these people were without hope in this disaster, beyond government intervention. I asked why they felt safe staying in a bowl-shaped city during an approaching hurricane. And I asked how the government of the wealthiest and most powerful country in the world was unable or unwilling to either prevent such a situation, or at least help to clean up the mess.

Ultimately, these questions evolved into a larger question about the role that the state plays in mediating such disastrous events, before, during and after. Certainly, environments at high risk to disaster that are still densely populated by humans must have some important role in the larger economy or to the state; otherwise, these places would not exist in their current forms.
DEFINING ENVIRONMENTAL JUSTICE

"Communities are not all created equal. In the United States, for example, some communities are routinely poisoned while the government looks the other way. Environmental regulations have not uniformly benefited all segments of society."
--Robert Bullard (1993)

Within the broader environmental movement, one specific segment that arose in the late 1980s was the environmental justice movement. A leader in the development of this perspective, Robert Bullard (1993) criticizes the “mainstream environmental movement” for failing to diversify their base to include “poor and working-class whites, let alone African Americans and other people of color.” That various sectors of society are affected by environmental abuse unequally was one of the main recognitions of the environmental justice movement.

The movement has two major components. First, proponents of environmental justice actively seek to affect environmental policy through exercising civil rights. Secondly, a group of academics use the perspective of environmental justice to situate research, while serving to inform the advocates in the social movement. Academically, the environmental justice movement uses interdisciplinary methods to assemble compelling evidence regarding the disproportionate effects of environmental abuses and accompanying policy on already disadvantaged groups.
The environmental justice movement claims that people have a civil right to environments that are not harmful to their health and well-being (Kurtz, 2007: 111). Bullard (1999) claims that environmental policy implemented within the United States often more negatively affects members of disadvantaged socioeconomic classes. He defines the notion of “environmental racism” as any environmental policy or directive that affects disadvantaged groups disproportionately, intentional or otherwise. In his book Dumping in Dixie: Race, Class and Environmental Quality, Bullard (2000) relates in shocking detail a number of case studies in which predominantly African-American communities have faced health challenges caused by spatially targeted dumping of pollutants.

Such environmental policy, whether formal or informal, is not practiced without purpose. Indeed, such policies are often designed specifically to benefit the wealthy, an oversight excused through a constructed “universalism,” a perceived benefit to the local economy used to excuse targeted pollution by capitalists (Harvey, 1996). Bullard claimed that such environmental policy is aimed at poorer populations to preserve expensive property values owned by the rich, and to further disadvantage the poor through what essentially amounts to poisoning. Such policy, which is justified through means remarkably similar to the “Reaganomics” of the 1980s, continues even today as Devine (2004) has argued: the driving force behind federal environmental policy under the George W. Bush administration has been the preservation of corporate profits through the lowering of production costs.
Seeking redress of disproportionate environmental impact through targeted action and research, an environmental justice framework incorporates the principle that all individuals have the right to be protected from environmental degradation (Goldman, 1996). As Bullard (2001) explains, the burden of proof in his research is shifted to the polluters who harm through discriminatory practices or fail to offer equal protection to all groups. This allows the actual disparate impacts of environmental degradation, not the intent of the polluter, to infer discrimination. Additionally, members of the environmental justice movement are exceptionally interested in matters of environmental racism, in which the environmental inequities are focused specifically against racial minority populations (Bullard, 1993). Most of the earliest concerns of the environmental justice movement involved the resistance of rural African Americans in the southern United States against such polluters (Bullard, 2000; Bullard, 2001). To those examining issues of environmental justice the perspective is an exceptionally applied research objective, focused on the acquisition of statistical evidence used to rectify inequalities in the legal system (see: UCCCRJ and PDA, 1987; Bowen et al., 1995; Bullard and Johnson, 2000; Pastor et al., 2001; Bowen and Wells, 2002; Bolin et al., 2005).

Inspired by the work of Bullard and others, geographers have engaged with concepts of environmental justice, working to situate the perspective within the realms of Marxist geography (Castree, 2001). To these geographers, environmental justice has become increasingly more relevant with the increasingly globalized economy, as class inequality has markedly deepened (Goldman, 1996). Geography
is, of course, intrinsically tied to aspects of the traditional environmental justice movement, as proximity (one of the most fundamental of geographic terms) of disadvantaged groups to dangerous environmental influences is an important source of discrimination. Furthermore, geographers have theorized such environmental injustices as the ultimate spatial realizations of global capitalism. The environmental justice movement is recognized by geographers as an “inspiring critique” of both the capitalist development that produces such injustice, and the general impotence of the mainstream environmental movement to stop these injustices (Featherstone, 1998). Indeed, as Harvey (1996) explains, the capitalist system of uneven development has produced “natural” spaces out of disadvantaged communities, allowing the “ecological sacrifice” of these communities for the benefit of capitalist development. At the same time, Harvey positions the fight for environmental justice as “raw class content of a wide array of anti-capitalist struggles” (1996: 431-32), which simultaneously positions geography’s engagement with environmental justice as one focused on broader injustices based on differences of class, not only those injustices caused by differences of race (Goldman, 1996).

According to Kurtz (2007: 112), environmental justice activism is not limited to pollution, but includes the entire “paradigm in which environmental degradation is incurred by the relentless (thoughtless?) pursuit of profit and development.” The city of New Orleans, dependent throughout its history on a labyrinth of levees to protect it from flooding, is a corporatist project, built jointly by capitalists and the
state in pursuit of profit. The consequences of this project, as revealed by the environmental destruction of Hurricane Katrina, hit the disadvantaged populations especially hard. In the vein of McLaren and Jamarillo (2007: 218), the disadvantaged people most affected by Katrina represented acceptable “collateral damage” for this development, the inherent costs of locating a city fulfilling certain roles in the larger American economy, borne by the lower classes with “minimal effect on the lives of the transnationalist capitalist class.”

Though the damages caused by Hurricane Katrina in New Orleans were not directly related to pollution, they do reflect a profound environmental injustice. New Orleans, like many cities, was a capitalist project from its inception, but New Orleans required significant subsidies from the state not just to grow, but to exist at all! When many capitalist activities failed New Orleans in the 1960s, and the white and affluent residents fled for suburban wastelands, a large underclass of poor African Americans were left behind in this risk-plagued city. By creating and maintaining the infrastructure and instituting risk-reduction programs that made capitalism possible in this place, the state subsidized risk, but not fully. Some of the programs instituted by the federal government to restimulate the New Orleanian economy during this period, such as the Mississippi River Gulf Outlet canal, actually put the city more at risk.

The physical causes of the Katrina catastrophe were a bit different than most hurricane events. When hurricanes make landfall, they bring winds as fast as 175 miles per hours, which can drive a wall of seawater – called a storm surge – as tall as
40 feet on to coastal areas. New Orleans did not experience the brunt of Katrina’s wind nor its storm surge. The limited storm surge that did come toward New Orleans caused a number of levees to fail, even though the surge did not exceed the supposed functional limits of these levees. With these levees breached, the water surrounding the city, heightened by the storm surge, was allowed to pour into the city, the topography of which trapped the water from draining away (Congleton, 2006).

With a majority of New Orleans’s urban population being African American, and a large number of those in poverty, the already socioeconomically oppressed population that remained in the failed corporatist project was especially at risk when Hurricane Katrina arrived on August 29, 2005. As Katrina demonstrated, the mitigating infrastructure provided inadequate protection; much of the city flooded from a cascade of water flowing through failed levees. And as Katrina’s aftermath demonstrated, the state was not willing to follow up on protecting the city’s residents, even though FEMA had long established a demonstrative discourse of promising rescue and recovery following a disaster.

**How Katrina fits**

The effects of Katrina are a tremendous environmental injustice. Regardless of location, disasters have an inequitable effect upon disadvantaged populations
(Powers, 2006). In the case of New Orleans, the state has encouraged, through the implementation of infrastructural mitigation, the continuation of capitalist activity in an environment unsuitable for such. And this city, due to the failures of capitalism, hosted a large population of socioeconomically disadvantaged individuals. It was a perfect illustration of Briggs’s (2006) “geography of risk,” in which segments of an urban population, those that I have called socioeconomically disadvantaged, are divorced from “institutional resources, economic opportunity, and political influence,” which made them particularly vulnerable to an extreme environmental conditions. That extreme came with Katrina, and when it did, it was the socioeconomically disadvantaged groups that bore the brunt of destruction.

The geography of risk that Briggs forwards is not a completely new approach to disaster events. As hazards geographer Kenneth Hewitt (2000: 46) noted, catastrophes are really the result of “poor humanitarian conditions” for which a natural event provides a catalyst to invoke widespread human suffering. Steinberg explains that the differential effect of disasters upon disadvantaged groups has continued even after the government took a major role in disaster management following Hurricane Camille in 1969:

“Give government decision makers enough rope and they are destined to choke off any attempt to help the poor reach some semblance of justice in disaster’s wake,” (2006: 173).

He attributes this systematic oppression to a faulty interpretation of calamity:
“Policymakers have tended to justify their actions in the realm of postdisaster relief aid by saying, in effect: Look what nature has done to us. Since the natural forces are often unforeseen, political leaders have reasoned that it is impossible to budget adequately for a disaster… Woefully insufficient annual relief appropriations, in turn, have forced Congress to pass supplemental budgets, a highly charged political undertaking that has not always worked the advantage of those most in need.

Moreover, such chronic underfunding can be read as a collective act of denial that has, if nothing else, simply reinforced the unpredictableness of these events—creating in turn a self-fulfilling cycle of doom. Second, relief officials have tended to embrace a set of wrong-headed assumptions about the poor, about their style of life, about their spending habits, their values, that, added to the usual bureaucratic incompetence, helps to explain why when the wind howls or the earth shakes, those least able to tolerate such shocks are pushed that much closer to the economic abyss,” (2006: 173-174).

New Orleans represented a unique case study of Steinberg's assertions, in that the city was enabled by state projects aiding capitalism, and the population most affected by the storm was, by and large, socioeconomically disadvantaged. The pre-Katrina population of New Orleans was 67.3% African American, and 40% of the city lived below the federally defined poverty level (U.S. Census Bureau, 2009). Of course, New Orleans is not unique in these demographic characteristics that made Katrina so unjust. Brown (2005) illustrates that Atlanta has a higher poverty rate and a deeper level of segregation, both fueled by white flight to the suburbs and the subsequent decay of inner city schools and local economic opportunities. But Atlanta is not susceptible to hurricanes.

Before Katrina, New Orleans had 47 census tracts denoted as extremely poor – in which at least 40% of the population lives below poverty – during the 2000
Census. Of these, 38 flooded. (Troutt, 2006). Some 20.9% of households in the damaged areas were in poverty before the storm, but in undamaged areas, the pre-Katrina poverty rate was only 15.3% (Hartman and Squires, 2006). Troutt (2006) calculated the average household income in flooded areas to be $38,000, compared with $55,000 in dry areas. Not surprisingly, home ownership, a symbol corresponding loosely to the development of personal wealth, was 53% in flooded areas compared with 69% in dry areas.

But economic class is not the entire story. As powell et al. (2006: 76) rightly recognize, “a purely class analysis is incapable of fully explaining what happened.” Indeed, people of racial and ethnic minorities were more likely to be living in areas of lower elevation, those areas most vulnerable to flooding. Not surprisingly, the lower elevations, hosts to concentrations of poor people of color – such as the Lower Ninth Ward – received the most damage. Aptheker (2005) notably compared the French Quarter, the historically significant district that served as the city’s largest tourist destination, was one of the highest-lying areas of the city, to the Lower Ninth Ward, a low-lying area well below sea level, just across the Mississippi River. Indeed the population of the French Quarter, pre-Katrina, nearly all-white, suffered little from flooding, while the Lower Ninth Ward, nearly 100% African American, was completely deluged. In New Orleans, African Americans made up 45.8% of people living in damaged areas, but only 26.4% in undamaged areas.

The driest areas of New Orleans were the whitest, which Klein (2006: 61) attributes to the fact that “wealth in New Orleans buys altitude.” Of the
neighborhoods where water drained the earliest, large proportions of the population were white. Neighborhoods like the French Quarter (90% white), the Garden District (89% white) and Audubon (65% white) all drained quickly following inundation by virtue of their relatively higher elevation, and residents were allowed to return shortly following the storm. In the flooded areas of Orleans Parish, 80% of inundated houses were home to African American residents (Troutt, 2006). Denzin (2006) calculated similar numbers, reporting that areas of New Orleans with significant flooding, aggregated, were 76% black, but just 18% white.

However, neither is race the entire story. Blacks of means escaped the tragedy while blacks without them were far more likely to and die from Katrina. According to Dyson (2006a), the same system that punishes poor African Americans also targets poor whites; however, not all inequalities were equal. Poor whites in New Orleans were far more likely to have access to cars. Only 17 percent of poor whites lacked access to cars, while 53 percent of poor African Americans did. Certainly, being either poor or black on the eve of Katrina proved to be disadvantages to survival and recovery, but being both poor and black trapped a significant group of New Orleanians in a dangerous and often deadly situation.

Socioeconomic disadvantage had grave consequence during Katrina. Of the bodies identified within six months of the storm, about three-fourths of the victims came from New Orleans. Of the identified, slightly more than half were African Americans. Many white victims had died within the wealthy neighborhoods of the city's lakefront district, and two-thirds were over the age of sixty (Denzin, 2006). A
A report published by Knight Ridder Newspapers found that blacks only represented a slight majority of those who died in the storm even though they represent a significant majority of the population of areas struck by Katrina. This study hence implied that whites were overrepresented amongst the storm’s dead and that the impact of the storm on the poor was not magnified. However, a more exhaustive analysis by Sharkey (2007) disputes the validity of this study and instead suggests that race was deeply implicated in the tragedy of New Orleans, not only in those killed during the storm but also when those missing and property losses are taken into account.

By controlling for age – there were more white elderly people in New Orleans than elderly African Americans, a function of differential access to health care resulting in lower life expectancies for oppressed groups – Sharkey (2007) found that African Americans were in fact overrepresented in Katrina-related deaths. Some 84% of the missing persons following the storm, those still not officially counted as fatalities, were African Americans. Census tracks in which many bodies were found had a disproportionately African American population, while Census tracts with no bodies were disproportionately white.

The destruction of African American society in New Orleans was profound. Shortly following the storm, people were also allowed to return to dry areas of New Orleans. A large majority of these areas were predominantly white. One quick-to-dry neighborhood, Algiers, had a large poor African-American population, but the lack of a transportation budget meant that these people, despite being legally
allowed to return often could not (Klein, 2006). Housing and Urban Development Secretary Alphonso Jackson, a month after Katrina, said that New Orleans "is not going to be as black as it was for a long time, if ever again." Jackson estimated that the city would lose as many as 125,000 of its population, and would be perhaps 35-40 percent black, compared to 67.3% black as it was before Katrina. The Lower Ninth Ward, the hard-hit area of which the residents were 95% black, were scattered through at least 40 states at this time. Jackson doubted whether the Lower Ninth should be rebuilt, given its risk (Brasch, 2006).

Race and class also shaped the federal response to Hurricane Katrina, those actions taken following the event to rescue endangered people and to help them attain pre-storm status. A number of scholars have directly attributed the suffering of socioeconomically disadvantaged groups following Katrina to racist and classist politicians and officials, though the emphasis on classism or racism varied. Frye (2005), for example, argues that, while the majority-minority status of New Orleans did not help the city in its pleas for assistance after Katrina, ultimately economic class was the driver of official response.

"[I]f the population had been 67% mostly poor white, with no real say in New Orleans or Louisiana politics, intentional neglect would still drive the official responses." (151)

Weisberg (2005) partially blames a combination of race, class and party politics for the failed response:
“Had the residents of New Orleans been white Republicans in a state that mattered politically, instead of poor blacks in a city that didn’t, Bush’s response surely would have been different. Compare what happened when Hurricanes Charley and Frances hit Florida in 2004 [in the lead-up to the 2004 presidential election]. Though the damage from those storms was negligible in relation to Katrina’s, the reaction from the White House was instinctive, rapid, and generous to the point of profligacy. Bush visited hurricane victims four times in six weeks and delivered relief checks personally. Michael Brown of FEMA, now widely regarded as an incompetent political hack, was so responsive that local officials praised the agency’s performance. The kind of constituency politics that results in a big life-preserver for whites in Florida and a tiny one for blacks in Louisiana may not be racist by design or intent. But the inevitable result is clear racial discrimination.”

Cooper and Black (2006: 240-1) recorded a number of similar disparities between the handling of Hurricane Katrina in 2005, and that with Hurricane Charley in Florida a year before:

“Within hours of the storm’s landfall, FEMA and its partnering agencies had six Urban Search and Rescue teams deployed (twice what it had in Louisiana); twenty trailers of cots and blankets, portable toilets, sleeping bags and tents (Louisiana had none); and an unspecified number of sea containers filled with building materials to perform quick housing repairs (Louisiana had none).

Two days after Hurricane Charley hit Florida, FEMA had moved 2 million meals into Florida and 8.1 million pounds of ice. Four days after Katrina made landfall, FEMA had distributed only 1.9 million meals and 1.7 million pounds of ice. Two days after Charley hit, FEMA had opened 12 disaster recovery centers and had offered living assistance to 19,000 people. In the Katrina disaster, FEMA did not open its first disaster center until four days after the storm hit, and that was in Alabama, far from the area that was hardest hit.”
Bush lamented the lost of U.S. Senator Trent Lott’s shorefront home while visiting Mississippi, declaring that “we” were going to rebuild “a fantastic house” there, and that he looked forward to rocking on the porch of that house (Williams, 2006). He also, from a distance, lamented the loss of Bourbon Street, relaying some minor anecdotes about the great parties he had enjoyed there, back when he did those types of things. But he paid no attention to the poor:

“The good news is—and it’s hard for some to see now—that out of this chaos is going to come a fantastic Gulf Coast, like it was before. Out of the rubbles of Trent Lott’s house—he’s lost his entire house—there’s going to be a fantastic house. And I’m looking forward to sitting on the front porch.” (Dyson, 2006a: 94-5).

Certainly, the president would not be assigned blame for the effects of this disaster, not that there was anything to blame. Touring Biloxi with Lott, Bush told a reporter, “I am satisfied with the response. I am not satisfied with the results,” (Dyson, 2006a: 95). On Tuesday, September 6, when the atrocities of non-response became more apparent, U.S. House of Representatives Minority Leader Nancy Pelosi urged Bush to fire Michael Brown because of “all that went wrong.” Bush did not understand, asking Pelosi, “[W]hat didn’t go right?” (Brasch, 2006: 57). The continued denial and plain ignorance of the Bush administration in the years following Katrina is well documented, but the blame was often shifted to the victim. As powell et al. (2006: 60) explain:

“[P]oliticians and pundits... assured us that nature is colorblind, and that the
government response, although clearly inadequate, was not a result of racial animus. We were told that class and poverty, rather than race, were the keys to understanding the crisis.”

Essentially, the poor African American victims of this storm are told that their personal situations – residence in a risky environment, lacking access to the resources of capital – are the fault of the people living there. Certainly, if the victims had worked harder and fulfilled their potential as laborers within the capitalist system, such hardship would have never befallen them. And it is this argument that seeks to undermine the realities of a systematic oppression, which kept many of these groups within that risky environment to begin with! Woods (2006: 1013) argues that:

“[T]he practices of residential segregation...kept the black community of New Orleans in a floodplain surrounded by a faulty levee system further devastated by recent Bush administration budget cuts.”

And certainly other, more traditional issues of environmental injustice entrapped poor African Americans into this situation as well. Woods notes that African Americans living in Louisiana were subjected to the “worst instances of environmental racism in the world,” (1013).

In 1990, Louisiana legislator Avery Alexander described an environment that have been turned against the African American community: “should we celebrate or mourn the fact that among African American women, near Saint James... that vaginal
cancers are 36 times the national average... here in Louisiana... we have found the job promises empty and the risk of poisoning inevitable.” (Woods, 2006: 1013).

Significantly, Louisiana also hosted a plethora of other environmental concerns, existing pre-Katrina, which compounded the effects of the storm. Between Baton Rouge and New Orleans on Interstate 10 is an 85-mile stretch of oil refineries known as “Cancer Alley.” (Mann, 2006). Bravo and Garcia (2005: 57) described Cancer Alley as the “epitome of Environmental Racism,” from which “white communities have received more protection, compensation and remediation from contamination,” while racial minorities bore the brunt of this proximity unassisted. Prevalence of vaginal cancers in African American women living along Cancer Alley were, in 1990, recorded to be 36 times the national average (Woods, 2006).

The toxicity of this environment before Katrina was appalling, but the storm exacerbated the poisoning. Following the storm, a Murphy Oil storage tank spilled 670,000 gallons of oil into the sludge, adding to the environmental destruction (Brasch, 2006). Even though effects of the “toxic gumbo” that filled the floodwaters were devastating, minority groups had been coping with dangerous environmental conditions for years before Katrina. Bravo and Garcia (2005) note the tremendous environmental pollution endured by the segregated minority communities of southeastern Louisiana before the storm, amplified by the destruction of industrial facilities and subsequent release of toxic chemicals. Indeed, the very immigrant
laborers that worked in these dangerous heavy industries were often denied help from FEMA if paperwork was not fully in order and on person.

Beyond the major destruction and tremendous despair caused by the flooding, there were a number of residual effects that continued long after the floodwaters receded. The Centers for Disease Control reported in December 2005 that cases of West Nile virus in Louisiana, Alabama, Mississippi and Texas had increased by 24 percent from the year before, which the CDC attributed to Hurricanes Katrina and Rita (Van Heerden with Bryan, 2007). The “Katrina Cough” a mild chronic respiratory illness affecting many within the disaster zone, became prevalent in the months following, which some doctors attributed to the increase of debris-caused dust and flooding induced mold. Like many environmental effects of this catastrophe, the long-term prognosis for Katrina Cough infections remains unknown (Nead, 2008).

**GAME PLAN**

The purpose of this dissertation is to critically examine the evolving role played by the state in natural disasters through an analysis of the construction of disasters as part of nature. I situate this work within the realm of environmental justice, a social and political movement that recognizes the disproportionate environmental burden endured by disadvantaged socioeconomic groups.
Important to this relationship between humans and the environment are constructions of nature. In society, “nature” is dictated in many cases by political discourse of the state.

I employ Clark and Dear’s (1984) conceptualization of the state as an agent existing to preserve the capitalist system in times of crisis. I also recognize that enforced political control over a territory’s economic capacity, and its accompanying “stability,” is crucial to a state’s legitimacy, which suggests an engagement with notions of occupation. I will examine political discourse deployed to meet these ends during disaster events with a post-structuralist framework using coding as a tool for data organization and analysis. I have produced grounded theory to explain the evolving relationship between the state in a capitalist society, specifically in the United States and disasters.

**Methodological Framework**

Grounded Theory is a research method that was developed as “constant comparative method” by sociologists Barney Glaser and Anselm Strauss (1967). The purpose of Glaser and Strauss’s grounded theory approach was to develop a systematic methodology in which quantitative data could be used to generate and support either formal or substantive theories. Later, Glaser and Strauss split
philosophically, with Strauss embracing qualitative methodologies in the
development of grounded theory.

According to Strauss and Corbin (1990), grounded theory is a method of
analysis that uses recursive inductive reasoning to produce theories from which
other similar phenomenon can be analyzed. The development of grounded theory
begins with the first reading of materials on a phenomenon. As reading continues,
an explanatory theory is developed, of which modification continues until the
addition of new statements adds nothing to the theory.

Grounded theory includes three basic elements: theoretically sensitive
coding, theoretical sampling, and comparison between phenomenon to strengthen
the theory (Legewie and Schervier-Legewie, 2004). Theoretically sensitive coding
enhances the process of coding by recognizing, early in the process of analysis, the
applicability of various theoretical backgrounds. A related component, theoretical
sampling is the notion that analysis begins with the first collection of knowledge and
continues throughout the process.

To ground the theory for this project, I collected “data;” that is, statements
for a case study event of Hurricane Katrina on New Orleans in 2005. I focused
specifically on gathering those statements related to the policies enacted by various
levels of government before, during and after the event from a multitude of sources.
The focus of this study on discourses of the state required limiting data collection to
statements made by entities of the state apparatus. For New Orleans and Katrina,
this included statements produced by a variety of organizations, including the Army
Corps of Engineers, various emergency management agencies (EMAs) at local, state and federal levels, the political figures in the executive branches at each level of government that oversee the operation of the EMAs, and the various levels of the Red Cross. Some 452 archival government documents were gathered as primary sources. Most of the infrastructural mitigation employed in the New Orleans area against flooding events consists of an extensive system of dikes and levees designed and installed by the Army Corps of Engineers, the approval, funding and construction of was chronicled extensively by public government records. While not an uttered statement, these forms of infrastructural mitigation do indeed serve as discourses, promoting a discursively constructed space of safety that is suitable for both the artificially inexpensive – meaning that the mitigation obscures the true financial and physical risks of living in this area – residential use of laborers.

In the case of the aftermath of Katrina, policy guiding the government’s reaction to the disaster is not limited to official government documentation. According to the state apparatus as prescribed in the United States, the first line of defense against a natural disaster is the local EMA. As a local EMA is considered overwhelmed in coordination and execution of the response, the elected officials overseeing that EMA’s operation (e.g., the mayor of New Orleans as chief executive that oversees the New Orleans EMA) are to seek assistance from a higher level of government. In the case of Hurricane Katrina, the disaster was deemed substantial enough that it prompted response from all levels of emergency management, including local, state and federal. Because of the involvement of each of these levels
of EMAs and their parent executive bodies, I drew upon statements made by each of the local EMAs within the New Orleans metropolitan area, as well as the offices of the mayors and city managers of included communities. I also sought made the Louisiana EMA and its overseeing executives in both the Office of Homeland Security and Emergency Preparedness, and the office of the governor of Louisiana. Finally, I sought statements made by FEMA, its overseeing Department of Homeland Security, and the entirety of the executive branch of the United States government including the Office of the President of the United States. In addition, though the Red Cross is a private charity organization, it is deeply entrenched – with a formal relationship guaranteed by written policy -- into the emergency management plans of local and state EMAs. Though an examination of the Red Cross in these events might seem superfluous minutiae to how the state produces “nature” of the disaster, it proved that I include the organization because of its deep formal involvement with the state.

The most fruitful resource for all of these statements was the news media, at local and national levels, from which 2,081 distinct articles were gathered from newspapers, magazines, weblogs (blogs), collected volumes and underground ‘zine publications. Statements derived from these documents were cross-referenced to ensure legitimacy of reporting. These sources proved important for tracking interviews, press conferences and decisions made without a “paper trail” within government documents.
From these sources, I acquired a significant collection of qualitative data for my analysis. Fortunately, most of the sources were already digitized; however, some of the older documents required that I digitize the by either scanning (using text-recognition software) or manually retyping these documents. Once the entire collection was digitized, I carefully organized the documents chronologically based on when the statements occurred. Additionally, I connected each statement to the agent making the utterance, creating distinct individual timelines of many officials, organizations, agencies and corporations for the events before, during and after Katrina’s landfalls. These timelines were broadly constructed as a reference point for my later coding.

Then, I began to initially organize this data using a process called “open coding,” in which data is categorized according to various common themes for organization and exploratory purpose, placing these statements into usable categories. Open coding is best described as a technique of data reduction used to extract common themes from large amounts of qualitative data. To code these digital sources, I used a specialized qualitative research software package called NVivo 7.0, run on an Apple MacBook Pro using the Parallels program to emulate a Microsoft Windows Vista operating system environment. The process of coding is two-fold: to organize data in an accessible format, and to aid in analysis and theory building through enhanced data exploration (Cope, 2005). The NVivo software package aided the coding process by providing a rigid system of organization. By simply selecting a block of text in a digitized source document, I
linked that text to a code that I feel properly described the discourse mobilized in that particular statement.

As I initially examined data acquired for this project, I produced initial categories (or “codes”) into which statements fall, based on my preconceived notions as expressed in the guiding research questions and initial readings. The linguistic units (e.g. words, sentences or paragraphs) I analyzed using this method were variable, because the sources I am examining for this project vary in format. I assigned two types of codes into which data fit: descriptive codes and analytic codes. Descriptive codes are defined by Cope (2005) as category labels that reflect themes or patterns obvious upon an initial read. I sought specifically four different types of themes in each of the case studies, as suggested by Strauss and Corbin (1990): conditions, interactions among actors, strategies and tactics, and consequences. As patterns emerged in these descriptive codes, I organized them into what Cope (2005) calls analytic codes, in which I tied the commonalities within a category to notions from which I derived my original research focus, that is, the role of the state in the disaster. In recognizing the theoretical applications offered by Marxist conceptualizations of the state, I chose to use the following initial codes: “constructed disaster,” “legitimization of action,” “capitalist activity,” “economic infrastructure,” “relief and rescue,” “recovery,” “funding,” and “occupation and order.” Throughout the process of analysis, these codes changed as new ideas emerged regarding how the statements should be organized.
As I developed these descriptive and analytical codes, I kept a detailed written taxonomy of how I defined each code so that as I continually refined the coding of the data, I was sure to keep definitions behind the labels I choose consistent throughout the procedure. This coding was both a recursive and a reflexive process. To ensure that my understanding continually grew as the analysis progressed, I needed to go through the entirety of the dataset repetitively. Each of the 2,533 total sources were examined and coded through five different iterations between November 2009 and February 2010. As new themes emerged from the data, I added additional codes into which data could be organized more interpretively, and in the next reiteration, recoded previously organized data into these themes as well. If initial codes began to fit the data less appropriately, they were disbanded. The coding process continued until further iterations of the data added no further codes or knowledges, which was the fifth time through, after creating 187 different codes. The knowledge derived from this coding derived the grounded theory I present in this work.

The purpose of grounded theory is to give qualitative research a theoretical basis, which is used to interpret qualitative data in a non-arbitrary fashion. By using a methodology of open coding, I sought to explore the complex and dense layers of discursive formations laid forth by various agents during a disaster event, specifically in regards to the intervention of the state. By employing a methodology that allowed me to categorize immense amounts of qualitative data through repeated processes of reflexivity, I armed myself with a tool that will help to
theoretical notions that are grounded in existent data. I truly hope that the work and theory that follows finds its legitimacy strengthened through this process.

I begin my exploration in chapter two, which traces two inseparable histories: that of the city of New Orleans, its culture, economy and demographics; and that of the city’s environmental manipulation, in which various mitigation strategies are employed to create a space deemed suitable for capitalist investment and development. I use this history to build my argument that New Orleans would not have existed as it was in 2005 before Hurricane Katrina without substantial economic input from government entities. I then use these histories to provide as a basis for a contemporary sketch of the city, including population demographics, neighborhood layout and makeup, and implementation of mitigation strategies.

Chapter two ends at the eve of Katrina, with New Orleans in tact. Chapter three traces the story of Hurricane Katrina, and its direct and indirect effects on the city of New Orleans. Building upon the contemporary sketch drawn in chapter two, I provide a background for how the environmental manipulation failed, and an assessment the city’s status immediately following the storm.

Chapters four documents and analyzes the governmental response, before the disaster and during in its immediate aftermath, examining the storm as a disruption of a theoretical concept, “discursive spaces of safety,” in which I argue that many of the government’s actions were focused upon creating spaces that were discursively produced safe, though not necessarily shielded from environmental conditions as the discourse suggested. Drawing from the history and contemporary
sketch of New Orleans provided in chapter two, I argue that this pragmatically unfulfilled discourse resulted in dramatic environmental injustices. And finally, chapter five is a conclusion chapter, in which I attempt to draw these insights into an argument against the environmental oppression of all people. This is perhaps an impossible argument to fully articulate, but it one that I take seriously and personally. Environmental injustice, such as those precipitated in New Orleans by events before, during and after Hurricane Katrina, has no place in this country, or in this world, and I hope that the simple indictment – contained herein – of these types of policies, might bring such atrocities to an earlier extinction.
"New Orleans has always been a city that lived on the edge... with Elysian Fields and cemeteries and the quest for paradise. When you live so close to death, behind the levees, you live more intensely, sexually, gastronomically, psychologically.” - Cornel West (2006)

There is no city in the United States that is quite like New Orleans. A wide variety of cultural influences over a history spanning more than three centuries led to this city, uniquely diverse on the North American continent. Globally, New Orleans is synonymous with its cultural produce – Mardi Gras, intricate iron balconies crowning all-night clubs of the Vieux Carré (French Quarter), live jazz music, fresh Cajun cuisine, a laissez-faire attitude toward sexuality – of which each are related to indulgence of the senses. ‘Laissez les bon temps roulez,’ which translates to ‘let the good times roll,’ serves as an unofficial motto for the city that draws millions of tourists seeking debaucherous pursuits annually from a global audience.

In the quote above, Cornel West (2006) refers to this attitude and intensity of lifestyle, which together align an imagined paradisiacal New Orleans at the edge. In
several ways, placing New Orleans here is a relevant exercise. The city, by virtue of its location near the southern coast of the United States – the edge of the continent -- the city is consistently at risk to hurricane activity. At this edge, it is precariously sandwiched between the Mississippi River, a deep river channel that drains most of North America, and Lake Pontchartrain, a shallow body of freshwater directly connected to the Gulf of Mexico (Cooper and Block, 2006). With a bowl-shaped topography, the city has proved difficult to drain throughout its history. Combining this difficulty with an exceptionally moist environment that includes regular heavy rainfalls, seasonal river swelling, and hurricane-driven storm surge, the area is so prone to flooding that it would be entirely uninhabitable without technological innovation (Colten, 2005).

An edge is a place of danger, a precipice from which visitors face risk of gravity's primary threat: the fall and subsequent collision with a distant and possibly unknown bottom, doled to those who foolishly venture past the brink. Gravity itself, the true peril of occupying an edge, also beguiles the physical geography of New Orleans, though the represented risks are somewhat different. The city was built on a small ridge overlooking the Mississippi River, and was subject to frequent seasonal river swelling as gravity brought floodwaters downstream. As the city grew, development spread into lower-lying areas and gravity's influence expanded. New urbanization in neighboring swampland was subject to subsidence, the gravity-driven compacting of drained soils, leaving portions of the city as low as twelve feet below sea level. To curb flooding, levees
were built around the city, effectively raising the relative levels of Lake Pontchartrain and the Mississippi River, but prohibiting gravity from draining away rain that fell on the city, which instead had to be pumped up and out (Van Heerden with Bryan, 2007). The continued existence of New Orleans represented a paradox of gravity: the city was dependent upon levees to protect it from the damages of flooding, which now further endangered the city in the event of an extreme flood event because the water could not efficiently escape by draining with gravity’s help.

Certainly, the physical location of New Orleans at an edge imperiled the city to certain environmental threats. The city can also be placed at several edges in terms of social conditions. New Orleans occupies a social edge distant from the safety of a relatively prudish American mainstream, located in a socially distant place where carnal desires are realized without immediate discipline. To those who consider the attitude of New Orleans indulgent, being at the edge represents a fall to come later, through a sort karmic retribution represented by death or other punishment found in religious dogma.

However, New Orleans has long resided on another sort of social edge: the city hosts a massive resident population of socioeconomically disadvantaged people. The long and varied history of New Orleans had resulted in alarming oppression. Africans first came to the city as slaves, people without rights and owned by others as property. After emancipation, former slaves and their descendants remained members of an underclass, relegated to segregated neighborhoods lacking city services. When the affluent whites fled the city in the mid-20th century for the
suburbs, this underclass was left behind in a decaying metropolis. Some 67.8% of the population of New Orleans proper was self-identified in the 2000 Census as African-American (U.S. Census Bureau, 2008). Even 135 years after emancipation, New Orleans was the second most racially segregated city in the United States. And nearly 30 percent of the city’s total population lived below the poverty level (West, 2005).

It is this social edge, at which the livelihood of disadvantaged New Orleanians teetered precariously, that proved the most dangerous to the city. As hazards geographer Kenneth Hewitt (2000: 46) noted, catastrophes are really the result of “poor humanitarian conditions” for which a natural event provides a catalyst to invoke widespread human suffering. At its absolute simplest, Hurricane Katrina found the city of New Orleans balancing on both its physical and social edges. By bringing heavy rainfall and a storm surge that caused the failure of levee systems, Katrina flooded the bowl-shaped city beyond the ability of gravity-defiant technology to drain the water. Within this bowl rested a human society already near catastrophe, deeply impoverished and oppressed. Only a tap was needed to send New Orleans, as a microcosmic society, hurtling toward doom. With flooding induced by Hurricane Katrina, the city got a full-bodied shove, pushing the city over the edge and into a freefall.

In this chapter, I will examine in detail the history of New Orleans and how this history led to its pre-Katrina situation on edge. My goal with this examination is two-fold: first, to trace the steps that led to both its unique cultural diversity and the
severe socioeconomic oppression of certain groups; secondly, to chart the environmental history of the city, tracking the technological innovations and implementations of mitigation that led to the city’s continued existence in an impossible location. Next, I will link these interlinked histories to the human geography of New Orleans immediately preceding Hurricane Katrina, describing the suspended conditions of humanitarian crisis that existed before the storm. This chapter serves to provide context for chapter three, in which I describe the direct result and consequences of the storm and its immediate aftermath.

THE HISTORY OF NEW ORLEANS

“I find myself forced to the conclusion that entire dependence on the leveeing system is not only unsafe for us, but I think will be destructive to those who shall come after us.”

-- A.D. Wooldridge, State Engineer of Louisiana, 1850 (Colten, 2005: 29).

The destruction of a city as unique as New Orleans and subsequent display of human tragedy disturbed observers throughout the world. To disaster researchers, the effects of Katrina though predictable, were somewhat inexplicable. Louisiana State University disaster researcher Ivor Van Heerden (with Bryan, 2007: 3-4) wondered how the United States “left one of its crown jewel cities so vulnerable to a preventable disaster.” Public policy researcher Roger Congleton (2006: 15) wondered how, in a location where such high risks are well known, why there
lacked “more substantial planning than elsewhere in the state, whether assisted by the national or state governments or not. After all, the residents of New Orleans were personally at risk!” Perhaps both Van Heerden and Congleton would have been better served to ask how a city in such a high-risk location survived long enough to become any sort of crown jewel.

Hazards geographer Gilbert White (1974) has long argued that urban dwellers tend to occupy floodplains after structural flood protection devices such as levees have been erected. Yet building on the floodplain was unavoidable in New Orleans – even the highest ground on the natural levee was a product of regular river inundations. The city’s precarious perch along the banks of the Mississippi River has haunted New Orleans with a constant threat of flooding since its settlement, whether from hurricane driven storm surges amplified by the shallow depth of Louisiana’s coastal waters (Steinberg, 2006) to seasonal riverine cycles of the continent’s largest drainage channel, the Mississippi River (Cooper and Block, 2006).

Beyond this propensity to flooding, New Orleans also faces a significant difficulty presented by local topography, that when a flood event occurs, local relief is so slight and uncooperative that the drainage of inundated land is very slow to occur. Indeed, the digging of artificial drainage canals is as prevalent throughout the history of New Orleanian infrastructure as the construction of levees. Since the city’s founding, engineers have concerned themselves not only with constructing levees, built to keep water out, but tackling the impracticalities of draining water
from this low-lying place. The oldest parts of the city, those near the river, drain south toward the river. The northern part of the city generally drains toward Lake Pontchartrain, but the gentle grade inhibits quick drainage in that direction (Colten, 2005). Dividing these patterns of drainage are a couple of ridges that represent high lines, the Chantilly Ridge and Metairie Ridge, which ultimately prevent rain falling in the French Quarter from naturally draining to the lake. Particularly challenging to the situation is a notable catch-22: levees, earthen walls constructed to prevent flooding at the edges of the settlement heighten the elevation to which water must be raised to drain out of the city. These levees, combined with subsidence of swamp soils drained for development, created the infamous “bowl effect” (Van Heerden with Bryan, 2007).

Colten (2005: 6) describes, in great detail, a long and constant struggle that New Orleanians have faced “to make a habitable city, to transform the flood-prone, ill-drained, mosquito-infested site into a metropolis.... Activity to transform New Orleans has reflected the urge to remove nature. New Orleans has so thoroughly reworked its original setting through forest removal and drainage that one could call it the “unnatural city” – although it never completely escaped nature. The city’s efforts to manage nature, as well as global politics and economic influences, have shaped the city’s internal geography and the resulting urban landscapes.” (Colten, 2005: 6).

However, despite this hazardous location, New Orleans still existed in 2005 before Katrina struck; the contemporary survival of the city was driven increasingly
by active intervention by the state apparatus into the natural processes endemic to the city’s risky location. Such interference was not solely a 20th Century invention, though many canals and levees were built and programs instituted during this period. Certainly, Colten’s (2005: 8) primary thesis, written before Katrina – that capitalist economics alone is fruitless in explaining the development and continuation of New Orleans because such explanations fail to acknowledge the substantial costs borne by public, private and corporate entities in creating a suitable site for this urban enterprise – holds true. Indeed, the state had been working to ensure New Orleans as a safe place for investments of capital since the city’s founding.

**Colonial History**

The first French colony on the coast of the Gulf of Mexico, considered part of the land called Louisiana, was founded near present-day Biloxi, Mississippi in 1699. For the first two decades of the eighteenth century, the sparsely populated and unprosperous colony of Louisiana functioned as an ad hoc prison colony, as French officials sentenced criminals to forced emigration. Word quickly spread of exceptionally poor conditions, both on the voyage across the Atlantic and in the colony itself, that inmates in French prisons rioted simply from unfounded rumors of their pending deportation to Louisiana. Those imprisoned that were sent to
Louisiana were often simply homeless beggars, rounded up from the streets to provide the colony warm bodies for settlement. Plantation owners enslaved the few surviving prisoners upon arrival, forcing them into hard labor that generated a horrific mortality rate. Such conditions gave Louisiana a terrible reputation in France, and few citizens ever voluntarily moved to the colony (Sublette, 2008).

The settlement known as New Orleans was founded in 1718 by Jean-Baptiste Le Moyne Sieur de Bienville, a French-Canadian nobleman who believed a seaport on the Mississippi River would prove profitable (Congleton, 2006). After 20 years of exploring the delta, Bienville had what Brinkley (2006: 5) calls an “intimate understanding of its alternating swamps and bayous (naturally occurring drainage canals).” After long considering where to locate this port, Bienville selected a piece of high ground, which he calculated to be approximately 10 feet above sea level, that overlooked a crescent-shaped curve of the river. A joint venture between French and Scottish entrepreneurs, the trading post was established to capitalize on economic exchange for crops and animal furs with long-established native groups up the Mississippi, allowing for access to the Gulf of Mexico and hence routes to Europe (Congleton, 2006). Bienville named the new town “La Nouvelle Orleans,” after Philippe II, Duke of Orleans (Brinkley, 2006), a regent of France considered by contemporaries to be a scandalous, orgiastic drunkard. Bourbon Street, the main artery of the Vieux Carré, carries his family name (Sublette, 2008).

To Bienville, the location chosen for New Orleans (Figure 2.1) was ideal because it provided the benefits of river access while, he thought, being
above the river to avoid flooding. The high ground, though, was part of the river’s natural levee, built by sediment deposition during seasonal flooding, was actually prone to frequent flooding (Colten, 2005). As Bienville worked to plot the first streets in 1718, a swelling of the Mississippi flooded the fledgling town. Despite reassurances to his superiors in Paris that difficult location was the best possible place for the settlement, Bienville worried about such flooding and immediately began to construct the first protective levees to a height of three feet, using French
prison labor (Robinson, 2005).

On September 23 and 24, 1722, New Orleans was slammed by a storm that has come to be called the “Great Hurricane,” bringing with it a 10-foot storm surge. The town was destroyed. Bienville refused to rebuild on higher site because the situation of New Orleans had a tremendous economic advantage in the 18th century context, despite its vulnerability. The difficulty of sailing a weighed-down ship up the swiftly flowing Mississippi meant that the Port of New Orleans was ideally located for those sailors who decided against fighting the river (Brinkley, 2006). Plantations near the port also held tremendous advantages of location because of the lower cost of transporting goods to market. Such plantations, protected by slave-constructed levees, occupied the most valuable land in Louisiana at that time (Van Heerden with Bryan, 2007). Bienville ordered that the city remain in its original location, and that more levees be constructed (Brinkley, 2006).

According to Brinkley (2006: 7), by this time “entrepreneurial delusion” had become the “mindset in the region. There was money to be made in the burgeoning river port, and that’s what mattered most.” French engineers insisted that the city could remain solvent through the construction of levees, which would tame both the river’s seasonal swelling and storm surges of seawater, so New Orleans was rebuilt in the same location. It soon became the destination of many French settlers. Some of these settlers were exiles from Acadia, an area that included parts of present-day New Brunswick, Nova Scotia and Prince Edward Island in Canada. As these Acadians (“Cajuns”) were expelled by British conquerors, many of moved to French
New Orleans (Sublette, 2008). Cuisine, language, religion and architecture originating from this Cajun heritage still mark the city’s cultural landscapes (Searight, 1973; Sublette, 2008). And as the city grew, more levees were constructed to protect development from flooding, usually by private interests (Colten, 2005).

It was also during the French period that the first African slaves arrived in Louisiana. Between 1719 and 1743, a total of 23 slave ships visited Louisiana, disembarking a total of 5,951 African slaves. The slaves came from a wide swath of the African coast. The earliest to arrive were from Ouidah, in what is now Benin. Six ships from Ouidah brought slaves to the colony, each before June 1721. Early slaves were subject to extremely high mortality rates; as many as 35% died in transit, while others were killed by poor working and living conditions in Louisiana. Despite the significant number of slaves transported during this early period, a 1721 census only recorded 680 Africans in Louisiana. Later shipments represented the largest number, sixteen ships carrying 3,909 slaves that came from the coast of Senegal. These Senegambian slaves brought advanced technological knowledge in agriculture and artisanship, and fostered unique cultural contributions. Under their guidance, rice farming and the production of indigo became profitable activities in Louisiana. From their musical culture, the slaves brought the banjo and a unique technique for playing bowed string instruments they used on the European violin, later called “fiddling.” Sublette (2008) notes that these slaves represented the beginning of a rich Afro-Louisianan culture, the roots of much later blues and jazz
music in New Orleans.

The city was transferred to Spain through an odd series of events that accompanied the end of the Seven Years War. Both Carlos of Spain and Louis XV of France were Bourbons, making the kings cousins. Despite long attempting to remain neutral in the conflict, Carlos decided to honor an old family compact of mutual aid in 1862, entering the war on France’s side. By this point, France was nearly defeated by Britain, and Spain’s contribution to the fight was minimal. Britain responded to Spain’s belligerence by capturing its New World prize, the plantation market of Havana, as well as fleet of boats docked there that were carrying the annual haul of New World silver. Havana remained in British hands until the Treaty of Paris ended the war in early 1863. Before the war ended, Louis XV quietly offered Louisiana to Carlos, not only as compensation for losses endured from joining the conflict, but to prevent the British from assuming control of the colony (Sublette, 2008). Though Britain proved uninterested in the colony, Louisiana’s transfer from France to Spain was completed on April 21, 1764 (Brinkley, 2006).

The Spanish period had a profound effect on the city. Two fires – one in 1788, another in 1794 – erased the entirety of the building stock from the French period, meaning that all structures in existence when Spain took control in 1763 were gone by 1794. But the transformation of New Orleans by Spain went beyond just buildings. According to Sublette (2008: 95), “[i]t was during Louisiana’s time as a Spanish colony that New Orleans became a city.” At the beginning of Spanish rule,
a “cabildo,” a body resembling a town council and consisting of merchants and planters, was established to govern the settlement. Under the cabildo, a number of civic development policies were implemented. Town property owners were required to build and maintain sidewalks, safety codes regarding chimney inspection were implemented, licensing procedures for doctors and lawyers were outlined, and public works such as street lights were funded.

Importantly, the cabildo provided public funds to build and maintain the levee system protecting New Orleans, unlike the surrounding rural areas where landowners retained responsibility for protecting their assets from floods. Problems related to poor drainage were also recognized during the Spanish period. Seeking to improve drainage in the Vieux Carré, Cabildo Governor Francisco Luis Hector de Carondelet XV authorized the construction of the first government-sponsored canal, the Carondelet Canal (Figure 2.2), running from the city to Bayou St. John and completed in 1796 (Searight, 1973). While the Carondelet Canal did succeed in draining the Vieux Carré, the canal’s gentle grade to the lake made it only marginally effective for lower portions of the city (Colten, 2005).

Colten (2005) explains that these Spanish policies underscore the recognized importance of New Orleans, particularly its port and strategic functions, to the colony and justifies the significant investment of Spanish treasure in protecting the city. The city soon became vital in Spain’s New World trade. While only an average of six ships a year visited the city during French rule, some 113 disembarked from the port in 1786, many of which were bound for Havana. And in
FIGURE 2.2: Map of New Orleans in 1798, compiled from contemporary records in 1886. Note the Carondelet Canal, constructed by the Spanish in 1794 to drain the city. (Source: Waring 1886)
1789, Spain allowed, for the first time, downriver traffic from U.S. territory, though at a high tariff. Once this tariff was removed in 1792, flatboats – rafts 15 feet wide and as much as 80 feet long – were floated downstream, bringing a hundred tons of produce from newly settled Kentucky farms to the international market. By virtue of the disposable nature of these flatboats, brought by their inability to efficiently travel back upstream, their arrival in New Orleans also brought good building materials, free and already processed. As the boats were disassembled, the lumber was used in buildings and to replace the constantly rotting wooden sidewalks. This arrangement lasted until 1798, when the cabildo revoked U.S. vessels the right of passage (Sublette, 2008).

With Spanish governance also came a change to laws regarding slavery. Under the French, African slaves had been regulated under the strict Code Noir, a 1685 decree from Louis XIV that detailed ownership practices for New World slavery. With Spanish rule, some of these regulations were considerably loosened. Now, slave owners were allowed to free slaves without government permission, slaves were allowed to own property, and slaves were provided a court in which to bring complaints of mistreatment. According to Sublette (2008), the most important right established under Spanish rule was that of slaves to demand a contract to purchase their own freedom, with a price determined through formal arbitration. Certainly, with these changes slaves were treated more like human beings and less like livestock under Spanish code.

A 1791 census of New Orleans recorded 4,897 people in New Orleans, of
which just less than half – 2,446 – were white, though an unknown number in this
group had ancestors of color. Of the 2,451 residents of New Orleans identified as
black, some 862 were free. These free people of color were the roots of a middle
caste of society not present in other cities in North America. Many free women of
color became sex workers through a practice of contractual concubinage that
proved quite lucrative, establishing long-term relationships with male patrons who
often provided a house and regular payment in silver. Free men of color were often
hired to round up “maroons,” or escaped slaves from encampments throughout
surrounding swamps of Louisiana (Sublette, 2008).

By 1800, the French monarchy had been upended by revolution, and
Napoleon Bonaparte’s armies were rampaging through Europe. More importantly,
France’s most prosperous plantation colony, Saint-Domingue, was under in a state
full and bloody slave rebellion. To focus energies on the Caribbean colony,
Bonaparte made peace with the British in the fall of 1801, ending hostilities that had
begun 22 years before. Without a war against the British, Bonaparte no longer had
use for his Spanish ally. Despite signing the Treaty of San Ildefonso in 1800, which
established terms for a gradual retrocession of the colony, Bonaparte simply
demanded immediate the return of Louisiana from Spain in 1802. The transfer,
initially planned to supply French troops fighting for control of Saint-Domingue, was
officially carried forth on November 30, 1803 (Sublette, 2008).

Beginning in 1801, U.S. President Thomas Jefferson offered through envoys
to purchase the port city from the French for as much as $10 million (Brinkley,
2006). Through this purchase, Jefferson sought to reacquire the economic benefits of free passage of the entirety of the Mississippi River, access that was economically crucial to Midwestern farmers but which had been lost in 1798 upon the cabildo revocation of American rights to the city (Sublette, 2008). Sent to France with instructions to acquire New Orleans, Jefferson’s envoys were shocked into immediate actions. Bonaparte’s counteroffer was the entirety of Louisiana, a vast swath of land west of the Mississippi and inclusive of New Orleans, for $15 million. Nearly doubling the territory of the United States when finalized, the Louisiana Purchase (Figure 2.3) transferred ownership of New Orleans to American by a treaty finalized on April 30, 1803 (Sublette, 2008; Brinkley, 2006). Despite holding a strict constructionist interpretation of the U.S. Constitution, which would have prohibited the executive branch of government from carrying out such a purchase, Jefferson announced the purchase on July 4, 1803 (Searight, 1973). The transfer of Louisiana from Spain to France was finalized on November 30, and just 20 days later on December 20, the United States took control of the sprawling territory and its major southern port (Sublette, 2008).
New Orleans, USA

During the first century of American rule, New Orleans residents experienced a number of the same challenges that had been prevalent since the city’s founding. Indeed, the city still occupied a low-lying site on the edge of a major river that flooded seasonally. The northern portions of the city, which naturally drained north toward Lake Pontchartrain, was still a gentle enough slope that drainage was still painfully slow if not totally inhibited. And the high water table inhibited percolation of rain and sewage, resulting in a constant standing water and filth (Colten, 2005).

The reliance of New Orleans upon government intervention in the city’s
environmental situation continued under American control. As a U.S. territory, Louisiana passed a law in 1807 that placed authority for the construction and maintenance of levees upon the parish-level governments, which in turn enforced the accountability of landowners (Colten, 2005). While the ultimate responsibility still rested on the landowners during the early American period, this change represents the first involvement of parish-level governments in the mitigation of flooding outside of New Orleans.

The transfer of Louisiana to the United States also brought major changes to the social structure of New Orleans. During the periods of French and Spanish hegemony, an ultimately unrecorded number of African slaves were brought to Louisiana. Under the French and Spanish, these Africans partially acculturated and reproduced with their colonial masters, producing a mixed race non-slave group, the Creoles. White (2005) explains that the Creoles occupied one of three levels of New Orleanian society under both the French and the Spanish: the white Europeans at the top, the mixed-blood Creoles occupying the middle rung, and African slaves at the bottom. When the United States assumed control in 1803, the social position of the blackest Creoles was lowered. While the blackest Creoles were not suddenly enslaved, they were viewed equally in the larger society to African slaves (Wing, 2006). White creoles were largely integrated into white society (Hirsch, 1992), which by relinquishing their distinct racial identity diminished incentives for integration by simplifying the city’s class structure (Troutt, 2006).

The importance of New Orleans as a river port grew as Americans claimed,
cleared and settled lands in the Ohio Valley and the Louisiana territory. Foodstuffs and lumber produced by Midwestern farmers and cotton from southern plantations were sent downriver on riverboats to New Orleans, where the products were transferred to ocean vessels for international trade (Congleton, 2006). While it was this prime location along the river that gave New Orleans function, the position also imperiled the small port settlement. Flooding threatened New Orleans to an extent unmatched in any other U.S. city.

By statehood in 1812, a piecemeal system of privately constructed levees, with accompanying lack of effectiveness, stretched upriver to Baton Rouge on the east bank, and the Red River on the west (Brinkley, 2006). In contrast, levees protecting urban New Orleans remained jurisdiction of the municipal governments, loosely following precedent set during Spanish rule. The municipal levees were maintained using revenue raised by taxing riverfront anchorage. Such a tax was considered unlawful by the U.S. Congress – which considered the riverfront federal property – but questioning the levy brought a strong rebuke. As the New Orleans City Council noted in 1819, “it is an established fact that the Port of New Orleans would not exist, that the whole city would soon be submerged if the waters of the Mississippi were not confined by levees,” (Colten, 2005: 22).

The city's situation at the mouth of the continent's largest drainage basin meant that extreme seasonal precipitation in the Missouri or Ohio River basins could overwhelm a system developed with the limited resources of the sponsoring municipalities (Congleton, 2006). Despite this constant risk, the city's trade
economy was considered so important that the U.S. government not only allowed the questionable anchorage tax levy to stand, but supplemented this revenue directly with budget allocations. The partial funding of levee construction projects before 1820 is recognized as one of the earliest federal expenditures for infrastructural projects in U.S. history (Brinkley, 2006).

Drainage in New Orleans remained poor, and the city was often waterlogged. As Colten explains, the topography of New Orleans dictated the city’s socioeconomic layout; the wealthiest citizens occupied the highest ground, while the poor occupied the lowest. Of course, the city’s propensity for flooding meant, “the utmost distress prevailed among the poor who lived in the lower sections of the city that went under the water first,” (2005: 28).

To combat the city’s ubiquitous drainage problems, the state legislature chartered two private corporations, the New Orleans Canal and Banking Company and the New Orleans Draining Company. Financing canal construction through investment and real estate speculation (Searight, 1973), these companies had dug three canals through the dividing ridges by 1830 to provide outlets north, either to Bayou St. John or directly to Lake Pontchartrain (Figure 2.4). Each of the canals was designed to drain part of the city of both runoff and sewage, though none served lower income or free black neighborhoods. However, the lack of a significant gradient rendered the canals mostly ineffective at moving volume, resulting in standing, open-air troughs of sewage. Additionally, the limited gradient allowed wind-blown water from the lake to back up into the city, and flooding extended
FIGURE 2.4: New Orleans, settled area in 1835, including Carondolet Canal draining the Vieux Carré into Bayou St. John and the “New” Canal, constructed between 1832-1835 to drain land for new development directly adjacent to the earlier settled Vieux Carré. (Source: Waring, 1886; Colten, 2005)
within a few city blocks of the Mississippi River on multiple occasions throughout the 1830s and 1840s (Colten, 2005).

Seeking to improve the new drainage system, the two canal corporations jointly conceived and constructed the New Canal over a ten-year period, completed in 1835 (Searight, 1973; Colten, 2005). Extending from downtown through the lowest parts of the city to Lake Pontchartrain, it was considered a marvel of engineering. The fill removed during the excavation was used to construct a road-topped levee paralleling the canal from the city to the lake. This levee was to provide additional protection from “backfloods” – water that had breached or otherwise gotten around upstream levees and drained through the swamps north of New Orleans – that plagued the northern reaches of the city. The road atop this levee was a popular destination, and visitors to the city often took carriage rides to the lakefront. Though the gradient was more substantial and capacity larger, the New Canal, like earlier canals did little to drain the lower, poorer neighborhoods; in fact, the lowest neighborhoods in the city during this time found their drainage blocked from the canal by the levee/road (Colten, 2005).

The private drainage companies were marginally successful in keeping some areas in the northern portions of the city dry, but were ultimately unable to lower the water table there. Even with the addition of rudimentary mechanical pumps to speed the flow, these canals sat stagnant, and became “beds of garbage and excrement fit only to generate fever and breed mosquitoes,” (Colten, 2005: 51). Both of the chartered corporations failed during the Bank Panic of 1837 (Searight,
1973), and municipal government reabsorbed drainage responsibilities. Following this failure, little progress was made on improving drainage for a decade. The New Canal’s levee itself proved useless, failing to protect the city from back-flooding during a major upstream breach in 1847 (Colten, 2005).

Occupying the lowest rung on in free society, the free people of color were often displaced into less favorable environments in the first half of the nineteenth century. Early in the American period, these free African Americans occupied horseshoe-shaped fringes, encircling the American and French, on land adequately protected from flooding. In the portions of this horseshoe directly north of the city, these free people of color people operated fruit and dairy farms. However by 1850, a large influx of European immigrants, especially Germans and Irish, had displaced most of the black population in the American sector and pushed them toward the “back of town,” to poorly drained areas. (Colten, 2005)

While the implementation of effective drainage strategies for the city lagged badly during this time, a strong focus still remained on preventing river floods. To coordinate the state’s growing public works, the Louisiana legislature created the Office of the State Engineer with a series of legislation in the 1840s. The Engineer’s office took over maintenance and implementation responsibility for a patchwork system of privately and municipally constructed levees which lined the Mississippi from New Orleans upriver approximately 200 miles to Simmesport, where the river split with a major distributory, the Atchafalaya River. Even with this massive installation in existence, engineers questioned the levees-only policy, deeming them
suitable for temporary protection but deficient for a permanent solution. Noting that these walls provide friction that slows stream flow during flood events, increasing deposition of sediment, the engineers reported that levees would ultimately raise the river beds over time and hence the potential for flooding. The office proposed to the state legislature a specific alternative that implemented spillways to reduce the volume of water in the main channel during flood events. Such a project was seen as beyond the state’s means, and plantation owners whose land bordered the proposed spillways protested the potential for increased risk to their property. Colten (2005) cites the continuing problem of path dependence as one that has beguiled the city throughout its history. Because of decisions made regarding infrastructure early in the city’s history, i.e. the choice of levees over other methods of mitigation, completely replacing this expensive, already implemented and only mildly effective system of flood control presented a challenge that neither the city nor state governments were ready to accept.

During the early years under American rule, New Orleans had acquired, rightly, a reputation for being a disease-ridden city. Frequently home to standing water that served as breeding ground for mosquitoes, and drained by slow-flowing canals filled with sewage, the city was especially susceptible to disease outbreaks throughout the nineteenth century. In one of the earliest actions to fight disease, the Louisiana legislature, at the urging of New Orleans health officials, approved the removal of the cypress woods that covered the entire space between New Orleans and Lake Pontchartrain, to “allow lake breezes to reach the city free of ‘exhalations’
from the swamp,” (Colten, 2005: 36). It was believed that removing the forest and draining the area would make the city drier, and hence healthier.

To improve the limited drainage provided by the existing ineffective canal system, in 1849 the city installed steam-powered waterwheels at the ends of canals feeding into Bayou St. John and Lake Pontchartrain. These machines, it was hoped, would supply the force that gravity, from a virtually nonexistent slope to the outlets, could not. The waterwheels were used to force the canal contents into the outlets, and using these, all swampland within two miles of the city was soon drained (Colten, 2005). While officials were certain this innovation would end the port’s disease outbreaks, an 1853 outbreak of yellow fever killed as many as 11,000 citizens, taking particular toll on the immigrant communities of Irish and Germans (Searight, 1973). As rumors spread of the city's susceptibility to disease and businessmen worried that merchants would divert shipments elsewhere, city officials realized that a more permanent drainage solution would be needed. Even with substantial investment in the canals during the past 30 years, the system remained useless for draining the entirety of the swampland and eliminating disease. Partially because of the path dependence that such an investment had fostered, alternative solutions for flood and disease control, such as state senator Lewis de Russy's 1854 suggestion of leaving the lowest areas as swamps and adding sediment to raise drained areas, were rejected. Coordination of drainage projects amongst various municipalities was lacking and any effectiveness the system attained was uneven and often lost with inadequate maintenance. And with the
collapse of the canal corporations, the city had lost its source of financing for such projects (Colten, 2005).

Despite the lackluster flood protection, occasionally disastrous river floods, and poor drainage, this patchwork system of levees and drainage canals had served New Orleans enough for the city’s population to grow (Figure 2.5). By 1850, it hosted 116,375 residents, making it by far the largest city in the rural south and the fifth largest city in the entire United States by 1850 (Colten, 2005). Just ten years later in 1860, on the eve of the Civil War, the Census recorded a population of 168,675 (Congleton, 2006).

By the time of the Civil War, tourism had become a growing part of the New Orleanian economy. The city’s unique architecture, driven by the historical French and Spanish influences, gave the city a dramatic urban landscape unique to the United States. As Brinkley (2006: 27-28) explains, tourism “gave the city a swagger—and a reason to accentuate its traditional tendency toward hedonism.” Indeed, New Orleans had long been a port city with an economy emphasizing the pursuits of pleasure: legal gambling, fine dining, and all-night drinking establishments. The oppression of sexuality common elsewhere in the United States in nineteenth century was discarded in New Orleans, as strip joints and brothels were allowed to operate unfettered in downtown. By the 1850s, New Orleans had grown to being the most popular tourist destination in the south. Even Rhett Butler took Scarlett to New Orleans for their honeymoon in the novel, Gone with the Win (Mitchell, 1936).
As the economy and population of New Orleans expanded, so too did the city's footprint, further imperiling its residents. This sprawl was directly encouraged by municipal policy. Throughout much of the history of New Orleans, development was fully dictated by the elevation of the land. From its founding until 1800, most of New Orleans had remained atop the natural levee on which Bienville originally chose to build the city. Built by the gravity-driven deposition of sediments brought downstream from the massive Mississippi River drainage basin, this site was indeed subject to annual inundation from the river's seasonal cycles, this ridge was the highest point paralleling the channel, the last to be underwater and the first to reemerge (Brinkley, 2006; Colton, 2005).
As the city grew throughout the nineteenth century and sprawled northward from its initial ridge toward Lake Pontchartrain, first only a handful of high-lying parallel ridges that lie north from the river’s edge to Lake Pontchartrain were occupied. By the beginning of the nineteenth century, much of the high ground was saturated with development. Concerted efforts began by developers to fully drain the surrounding unsettled swamps through the privately funded construction of canals that fed swamp water into the lake (Brinkley, 2006).

In 1849 and 1850, the federal government passed a collection of legislation known as the Swamp Land Acts. These acts provided a virtual subsidy to the state and municipal bodies responsible for flood control, giving Louisiana the authority to sell swamplands to developers and apply proceeds toward levees. The swampland in high demand was that north of New Orleans, and being swampland, developers were forced to dig rudimentary drainage canals to drain the land before building, an expensive and often partially ineffective undertaking. With sprawl now directly driven by policy, progressively lower land toward the lake was settled; in fact, much of the contemporary extent of the city drains north to the lake (Colten, 2005).

Ironically, the land sold under the Swamp Land Acts, the proceeds of which funded the entirety of Louisiana’s flood control efforts, remained particularly subject to flooding. These northern stretches of the city were particularly prone to backflooding, and natural or artificial levees often breached, allowing water to break through higher terrain into these lower-lying parts of the city. The remaining land even farther north, downhill from the development, was left as swampland, which
became the depository for the city’s runoff, sewage and all (Cooper and Block, 2006). Though the frequency of particularly devastating floods decreased during Louisiana’s direct administration of the levee system, seasonal flooding was still a part of life in New Orleans during this time, especially the northern reaches of the urban area. Even with the flooding problems, this swampland proved in enough demand that Louisiana’s venture into real estate reaped the entirety of funding for flood control efforts through this method for nearly 30 years (Colten, 2005).

**Federal Assumption of Flood Control**

In 1879, citing the ineffectiveness of mitigation strategies deployed against the Mississippi and its extensive system of tributaries, the U.S. Congress established the Mississippi River Commission (MRC), a federal agency charged with oversight of protection and navigation projects throughout the entire river system. The commission’s spatially extensive assignment represented the first formal and permanent assumption of a role in hazard mitigation by the federal government. The Army Corps of Engineers was assigned the role of implementing these measures (Congleton, 2006).

The MRC was charged with improving the largely ineffective infrastructural protection in Louisiana’s rural agricultural hinterlands upriver from New Orleans. New levee installations planned and implemented upriver by the MRC directly
brought the city additional security because these levees finally provided the city additional protection from backflooding. As administered by the MRC, the levee system was not only successful in protecting New Orleans, but a large portion of its immediate economic hinterland. Significantly, this federal intervention in flood control came at a time when New Orleans was expanding spatially, making protection measures more expensive to implement (Colten, 2005).

That the federal government invested in preventing floods on the lower portion of the Mississippi River is important in several respects. According to Colten, this active concern demonstrates that problems caused river’s frequent seasonal flooding were national in scale. Indeed, by this point New Orleans had become an important port facility for midwestern farmers who shipped their produce downriver, ultimately to international markets. New Orleanian officials had argued since before statehood that this important role in the development of the continent’s interior entitled the city to mitigation measures provided by the federal government’s deeper coffers, which river commerce had helped to fill. By allowing the deflection of costs for levee construction from local to federal government, the commission greatly improved the city’s fiscal standing. Though river flooding was far less common, the hazard was not entirely eliminated, “it was merely hidden behind a now federally maintained earthen curtain between the city and the waterway,” (Colten, 2005: 32).

The improvements made by the MRC to the levees nearest the city were perhaps the most substantial, because after 1890, despite a number of floods that
threatened such as those in 1907, 1910 and 1914 where the water reached a height of 23 feet or more, the river never breached the riverfront barrier into central New Orleans. Perhaps the greatest threat to the river levee system came in the spring of 1927, when the Mississippi River basin experienced the worst flooding in recorded human history. This flood broke through levees upstream from New Orleans, flooding thousands of homes in the drained swamps north of the city, killing hundreds and destroying crops. As the floodwaters continued down the main channel, the city leaders of New Orleans pressed for an artificial outlet to relieve pressure from those levees protecting the city. The Army Corps of Engineers, with the approval of Louisiana’s governor Oramel H. Simpson, dynamited a hole in the levee just below the city at the town of Caenarvon (Brinkley, 2006; Price, 2006). This new controlled crevasse allowed floodwaters to flow across the largely uninhabited wetlands of St. Bernard Parish, lowering the water level at New Orleans and saving the city at the expense of fish and muskrat harvests downstream, upon which the rural poor depended (Colten, 2005).

**More Threats: Poor Drainage, Subsidence and Canals**

Despite these improvements to mitigating floods from the river, the city was still plagued by a relatively ineffective set of canals meant to drain the city which, coupled with the lack of a separate and universal sewage system, meant that sewage
often languished in the city on its slow course to Lake Pontchartrain. Ironically, the problem was compounded by the successful levees along the river, which had, in essence, raised the elevation of the land bordering the rivers. The oldest parts of the city, since its platting, had been dependent upon south-flowing slope into the river to clear rainwater, and this change made such drainage impossible. The southern wall of the bowl was now in place. As Colten (2005: 142) explains, “[p]rotection against one flood hazard guaranteed the city’s long-standing struggle with the second.” Now, the entire city was dependent upon the ineffective canals (Figure 2.6).

The city’s susceptibility to standing water left New Orleans still prone to diseases that most American cities had left in the past. Though outbreaks most often effected the poor neighborhoods, which through this period were along the waterfront or bordering the wetlands, more affluent citizens were not immune. Civic leadership was finally inspired to action at the close of the nineteenth century when a local physician named S.S. Herrick reported that two diseases common to this environment, malaria and pulmonary consumption, cost the city at least $1.2 million annually. When Herrick suggested that an effective subsurface drainage system would halve these costs, the civic leaders listened (Colten, 2005).

In 1899, a plan was approved by the city council to construct a modern drainage and sewage system that would reach the entirety of the developed area (Figure 2.7). The system was to consist of an underground, gravity-driven sewage system that was used to transport water to pumping stations at the city’s periphery
FIGURE 2.6: New Orleans in 1900, including extent of urbanization, drained unbuilt areas, and undrained wetlands. Note that development is stretching north from natural levees into drained former wetlands at lower elevations. (Source: Colten, 2005)
FIGURE 2.7: The progression of areas of New Orleans serviced by the city’s drainage system. (Source: Cohen, 2005)
or at canals. There, large steam pumps would lift the water into the canals that would then drain to the lake. The plan was implemented first in the central business district to serve the business elite, and then was developed in other neighborhoods. By 1910, most of the city was served by the new system, but it was unable to adequately drain the significant individual downpours that account for most of the city’s annual precipitation. Still, the Sewerage and Water Board recorded a substantial decline in malaria deaths between 1910 and 1912, which was attributed to the new drainage system’s removal of environments conducive to mosquito breeding. In 1917, newly invented pumps, which used large mechanical screws to raise the water into the canals, were installed and proved far more effective. The ability of these pumps to remove a larger volume of rainwater more quickly lowered the water table, significantly aiding efforts to keep the lowest parts of the city dry. Of course, by lowering the water table, these pumps ultimately caused subsidence when the newly dry soils compacted (Van Heerden with Bryan, 2006)

Even though engineers knew that, for this system to finally end the city’s drainage problems, it needed to adequately cover all parts of the city. However, because of what Colten (2005: 80) calls “[t]he politics of exclusion,” rooted by the region’s rise of racist Jim Crow ideals, the city engaged in “deliberate attempts to deny [African-American] neighborhoods an environmental amenity.” While most of the predominantly white areas of the city received service from this system by 1919, many African-American neighborhoods had been left behind. A 1923 assessment
showed that a large low-lying and predominantly African-American neighborhood remained completely unserved. This lapse was made clear in April 1927, when the city received 15 inches of rain, overwhelming the drainage and pump systems and leaving parts of the city beneath water for 48 hours or longer. Some of these low areas, which had been predominantly African-American during the 1910s as the system was installed, were now populated primarily by whites. Following this storm, the Sewerage and Water Board added drainage service to the omitted areas, and by 1930 the entirety of the city, even the African-American neighborhoods (Figure 2.8), were connected to this drainage system (Colten, 2005).

The Reconstruction Era immediately following the Civil War represented the peak of New Orleans’s importance as a port, because many of the geographical advantages as a port city that had led to the ascendancy of New Orleans were fading. The advent of steam ships, germinators of import-led prosperity for the city by opening the port to upriver traffic, eventually bypassed the city as ocean barges were adapted to taking goods upriver without stopping at a break-bulk point (Brinkley, 2006). This loss of river traffic would slowly choke the New Orleanian economy and provide the impetus behind many of the infrastructural projects undertaken during the 20th century. In 1923, the first major canal project aimed at improving the city's accessibility to shipping traffic, the Inner Harbor Navigation Channel and Lock (called the “Industrial Canal”) was completed, connecting Lake Pontchartrain to the Mississippi River and opening up land along the canal to
FIGURE 2.8: African Americans in Urbanized New Orleans, 1940. Percentage of population represented by African Americans, by Census Block Group, in the urbanized extent of New Orleans in 1940. (Source: Colten, 2005)
industrial development, drawing industrial development north of the river along the canal’s western bank (Dicharry and Stout, 2000). By divorcing New Orleans from its ninth ward, as well as New Orleans East, the Industrial Canal also brought waterway exposure to new portions of the city (Figure 2.9). Connected to Lake Pontchartrain, the Industrial Canal was subject to the same tidal surges of water driven by hurricanes. Though the Army Corps of Engineers constructed the canal, responsibility for non-riverine levees remained with local government. The Orleans Levee Board constructed levees along the entirety of the canal to minimize the city’s exposure.

At the same time, the city of New Orleans was creating new land near the lake for development. Beginning in 1922, the Orleans Levee Board was authorized to overhaul the lakefront from the new Industrial Canal west toward the “New” Canal’s outlet. Conceived by populist governor Huey Long, this project gave the Orleans Levee Board the right to build seawalls paralleling the shoreline, and to create new land from lakebed sediment, then selling the land to developers to fund further drainage and levee projects. Completed in 1934, the new land created by this lakeshore overhaul was developed into upper-class residential neighborhoods (Colten, 2005).

The Mississippi River was held in check after 1927 by levees built with a tremendous margin of error over the worst-case flooding scenarios. The city’s now rapid northward sprawl meant Lake Pontchartrain now represented the primary source for flood risk threatening New Orleans. Partially open to the Gulf of Mexico,
FIGURE 2.9: The Inner Harbor Navigation Canal, commonly called the Industrial Canal, connects Lake Pontchartrain to the Mississippi River, and is highlighted in light blue. (Source: Google Maps, 2010)
the estuarial lake is subject to walls of wind-driven water endemic to hurricanes. With a massive influx of water into a lake that borders development built on a virtually flat lakeshore slope, the new northern portions of the city were especially at risk to inundation from this threat (Colten, 2005).

Much of the land in the northern part of the city, nearest the lake, was formerly swampland, which had been drained by a complex system of machinery working in concert with canals that dated to the mid-1800s. The canals, which normally flowed northward into the lake, were essentially permanent inlets of the lake, reaching into the newly developed suburban neighborhoods north of the old city. Van Heerden (with Bryan, 2007) likens these canals to allowing an enemy to situate behind lines of defense; when hurricane winds drove the water in reverse, these canals acted as delivery channels, allowing water deep into the city center. To prevent this scenario, the Orleans Levee Board constructed levees along the canals’ paths.

The risk of hurricane surge flooding from Lake Pontchartrain was not new to the city. In 1893, a hurricane had driven the lake’s water into the northern reaches of New Orleans, killing as many as 2,000 people (Brinkley, 2006). The Great Storm of 1909 flooded the south shore of the lake with 130 mph winds, killing hundreds in the city. And just six years later, a hurricane delivered a six-foot storm surge from the lake into the city’s drainage canals, swamping the city (Cooper and Block, 2006) and killing at least 275 people (Steinberg, 2006).

Additionally, exacerbation of the river threat came with an unforeseen
problem. With more than two centuries of attempts to tame the Mississippi through the construction of levees, while finally successful in regards to controlling riverine flooding, had taken away the source of sediment deposit in the delta. With the loss of this deposit, the delta’s balance between deposition and coastal erosion had shifted. Louisiana lost thousands of acres of valuable protective marshlands annually, further opening Lake Pontchartrain to storm surge (Van Heerden with Bryan, 2007).

The Great Depression impeded new projects during the beginning of the 1930s, and few improvements were made to the drainage or levee systems during this time. With the establishment of the Works Progress Administration as part of President Franklin D. Roosevelt’s New Deal legislation, an influx of money allowed the Sewerage and Water Board to expand the drainage system farther, providing for the first time comprehensive drainage to the new neighborhood developments on the lake side of the dividing ridges (Colten, 2005). Though the drainage system was finally connected to the new northern development, the service there was not comprehensive. The drainage system in the northern suburban areas operated inefficiently and were unchecked by the local government. The streets of these newly constructed neighborhoods were prone to filling with standing water and sewage following rainstorms, as well as the horrifying health concerns that accompanied the employment of insufficient infrastructure for disposing sanitary waste (Brinkley, 2006).
Post-War Development

Suburbanization in New Orleans, like in many American cities, really hit its stride during the post-World War II period. The growing petroleum industry had displaced shipping as the city’s most important economic activity, and contributed to a population expansion in the immediate postwar years. While Lake Pontchartrain presented the northern boundary to development, wetlands largely blocked expansion both east and west of the city, and tremendous acreage of wetlands remained between the city and the lake until 1940. Coupled with mosquito eradication programs and the adoption of air conditioning, new developments in drainage engineering that finally dewatered these wetlands made dense residential development possible in peripheral areas such as New Orleans East and Jefferson Parish for the first time (Colten, 2005).

That southeastern Louisiana had avoided hurricane activity since 1915 certainly bolstered this development on the periphery. The leveeworks protecting new development from storm surge were not tested until September of 1947, when an unnamed hurricane’s 112-mile-per-hour winds pushed water gulf water into Lake Pontchartrain. Waves from the storm overtopped the seawall, covering nine square miles of residential neighborhoods with water. Farther west, the water flooded 30 square miles of Jefferson Parish, overtopping levees that had been built on subsiding soil. The failure of these levees prompted action from both parishes, which together with the Army Corps of Engineers worked to raise the levees to 14
feet above the lake level by the 1970s (Colten, 2005). It is notable here that, unlike flood control for the Mississippi River, the responsibility of which had been assumed by the Mississippi River Commission in 1879, management of the lakefront and canal levees remained within the domain of local government, with assistance from the Army Corps of Engineers only at the request of the U.S. Congress.

Because of substantial urban sprawl, land use in New Orleans changed dramatically during the twentieth century, which often outpaced the extension of storm drainage services provided by the Sewerage and Water Board. Upon initial implementation in 1895, the system was supposed to provide drainage for 13,349 urbanized acres. By 1950, nearly 50,000 acres of New Orleans were developed, including sprawl into former wetlands both north and east of the central city. Such development also increased rainwater runoff through the installation of impervious surfaces. As asphalt replaced wetlands in the sprawl of New Orleans, floodwaters were further denied the ability to percolate or drain away from the developed areas (Brasch, 2006). The challenges to providing storm water drainage to this area were exacerbated by subsidence of peaty soils suddenly devoid of groundwater, which had been removed to allow for development. This subsidence in suburban neighborhoods, which has proven worse than in the older areas of the city, has lowered the elevation to a point significantly lower than Lake Pontchartrain, into which rainwater would have naturally drained from this area (Colten, 2005).

New developments in more distant marshlands, otherwise inaccessible to urban commuters, were made possible when these areas became accessible through
massive highway and bridge projects. The Lake Pontchartrain Causeway, a 24-mile bridge connecting Jefferson Parish to the north shore, was completed in 1956, opening lands north of the lake to draining and development (Brinkley, 2006).

Development of other land within the city’s boundaries, including as the Ninth Ward and New Orleans East, was also stimulated by such transportation infrastructure. Prior to the completion of the Claiborne Avenue Bridge over the Industrial Canal in 1959, the Lower Ninth Ward remained only half-developed (Dyson, 2006a). Being reclaimed wetlands, each of these areas faced significant problems with subsidence as well.

The continued sprawl of New Orleans northward, both within the urban areas toward the lake and the exurban areas farther removed, increasingly brought residential development to areas at great risk. Hurricane-induced flooding continued to plague New Orleans, even after the levee boom inspired by the hurricane of 1947. These floods occurred because of the inadequate height of levees along the lake, or simply because of structural failure of levees that bordered the industrial canal. In 1956, Hurricane Flossy inundated the Gentilly neighborhood by overtopping lakefront levees. Storm surge from both Flossy and Hurricane Hilda in 1964 broke through levees bordering the Industrial Canals, causing significant damage to industrial properties. When Hurricane Betsy roared through town the next year, 160 mile per hour winds drove a surge that breached the west levee of the Industrial Canal, and water reached a depth of eight feet in the city’s lowest areas (Colten, 2005). Betsy also drove water over the canal’s eastern levees,
inundating the Ninth Ward and causing enough damage that the storm is blamed by Dyson (2006a) for leading to the neighborhood’s initial decline. And though 1969’s Hurricane Camille – like Katrina – actually tracked east of the city, destroying the Mississippi coastline, waves from Camille scoured through levees along the Industrial Canal, flooding a number of neighborhoods in New Orleans East. Improved lakefront levees, inspired by the 1947 hurricane, were credited with preventing further damage from these storm surges (Colten, 2005).

It was Hurricane Betsy that prompted the U.S. Congress to pass the Flood Control Act (1965), which kicked off a frenzy of levee construction. Before the Act was passed, the construction of all levees blocking the lakefront and canals were under the jurisdiction of each parish’s levee board; in New Orleans, the Orleans Levee Board was the assigned bureaucracy. The major provision of the Flood Control Act was the transfer of these responsibilities from the levee boards to the federal government, specifically the Army Corps of Engineers (Brasch, 2006). The act designated over $80 million of federal funding to a joint project led by the Army Corps of Engineers, but supplemented by state and local agencies, which was to raise the entirety of the levee system protecting New Orleans from the canals and lakefront to 16 feet above water level (Flood Control Act, 1965). This project was slated for completion by 1979, but remained unfinished in 2005 (Brinkley, 2006).

The never-ending construction of these levees was to form the completion of the New Orleans topographic bowl (Figure 2.10). By aiming to raise the entirety of the city’s periphery, including canal walls, to 16 feet above the water level of
surrounding waterways, the Army Corps of Engineers created a situation for the city where all precipitation that falls on the city must be pumped up above that 16 feet to drain away (Brinkley, 2006). Colten (2005) argues that the decision to surround the entire city with levees for flood control reflected an accepting of dependence upon one key type of risk mitigation; in this case, the survival of New Orleans would be fully dependent upon the structural mitigation provided by levees, and that later non-structural (and hence less expensive) strategies would be designed to simply complement the levees. Of course, this significant investment in structural protection proved inadequate because “the bowl [which the construction of these levees would ultimately complete] can accumulate water more quickly than it can be pumped out,” (Colten, 2005: 145-6).

Coupled with years of environmental abuse that has destroyed barrier islands and coastal wetlands, the constant pumping of water from the former
wetlands now occupied by the city of New Orleans has resulted in widespread subsidence, a literal sinking of the city. Indeed, research scientists at the University of New Orleans estimated in 2000 that much of the city had been sinking at a rate of three feet per century. The city, which had been above sea level when Bienville founded it, now averaged six feet below sea level by 2000 (Brinkley, 2006).

Following Betsy, levees had been constructed to a height of 16 feet or more above the water level – and hence above the city – creating the bowl. Subsidence caused the bottom of the bowl to deepen further.

While New Orleans was perhaps the most at risk in the United States from its levees because of its unique topography, the city was not alone in a sole reliance on structural mitigation for flooding. The National Flood Insurance Program (NFIP), established in 1968, was the first non-structural flood control strategy implemented in many cities, including New Orleans. Before the NFIP, drainage of natural wetlands and construction of protective levees immediately stimulated residential development projects in these high-risk areas (Colten, 2005). Aimed at shifting the national pattern of mitigation from structural protection to strategic land-use, the NFIP allowed federal control of land use in flood areas. By nationalizing flood insurance, a prerequisite for the acquisition of financing for construction in flood prone areas, the federal government seized the authority to disallow development in floodplains. Using maps of floodplains produced by the Army Corps of Engineers, the NFIP refused to insure new construction within zones that had a 1:100 probability of flooding in a given year. (Note: These floodplains are often called 100
year floodplains, which is a misnomer based loosely on the 1:100 probability). Once the municipal government had implemented prescribed land-use strategies such as prohibitive zoning and minimum height building codes in flood zones, older buildings within these zones were grandfathered into the program and residents of the floodplain were allowed to purchase the heavily subsidized but still expensive flood insurance. Property owners that purchased a policy would be required to rebuild elsewhere as a condition for benefit payments after a destructive flood event. Though the NFIP actively discouraged occupation of flood plains, New Orleans had little choice but to continue dependence upon its levees and pumps, given its topographic bowl. A broad majority of the metropolitan area was located within the 1:100 floodplains (Figure 2.11), which functionally prohibited true implementation of building codes proscribed by the NFIP, made the program largely ineffective as a strategy for controlling land use (Colten, 2005).

Between 1978 and Hurricane Katrina in 2005, most of the flooding in New Orleans was caused by intensive rainfall, not storm surge. The lack of storm surge flooding was a product of the city’s good fortune, having been avoided by most gulf hurricanes during this period. Though flooding continued, the mitigation against flood damages provided by the NFIP was minimal in the city. From early in the program, policyholders in New Orleans represented a larger proportion than the national average of property owners within flood zones, but without accompanying land-use controls, the flood insurance program ultimately served to provide endless funding for property owners to repeatedly rebuild within the floodplain following
FIGURE 2.11: FEMA's Flood Insurance Map for central New Orleans. The explanation is actually quite simple: any zone NOT marked as "B" in Orleans Parish has at least a 1% chance of flooding annually, and is therefore eligible for the National Flood Insurance Program. Approximate neighborhood boundaries are also superimposed for reference (see Figure 2.21 for more information). (Source: City of New Orleans, 2010)
destructive floods. Because most of the city was built within the 1:100 floodplain, made possible only by the structural mitigation, a land-use policy would never be able to fully mitigate flooding in New Orleans (Colten, 2005).

Decline

A long period of decline begun in 1960, the year the U.S. Census Bureau (1998) recorded the city's peak population of 627,525 people. The population of the city declined significantly in the following years, down to 484,674 residents by 2000 (Figure 2.12). With this decline of population in New Orleans proper came an increasing level of segregation and ghettoization as affluent whites moved to the newly constructed suburban developments in places like St. Bernard and Jefferson Parishes, and even the north shore of Lake Pontchartrain.

When New Orleans became the first city to receive federal housing funding in 1937, the city constructed enormous housing projects, locating these projects as buffers between white working-class areas and black middle-class neighborhoods. After World War II, as African Americans economically suffered further from institutionalized segregation, whites in and around the projects prospered and moved away to better opportunities. As the tax base further declined, services lacked, and the city became significantly ghettoized. As affluent white residents were encouraged to move to newly drained suburban areas, the drainage of which
<table>
<thead>
<tr>
<th>Year</th>
<th>City Pop</th>
<th>Change</th>
<th>U.S. Rank</th>
<th>2000 MSA Parishes</th>
<th>MSA Pop Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910</td>
<td>339,075</td>
<td>18.1%</td>
<td>15th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1920</td>
<td>387,219</td>
<td>14.2%</td>
<td>17th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1930</td>
<td>458,762</td>
<td>18.5%</td>
<td>16th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1940</td>
<td>494,537</td>
<td>7.8%</td>
<td>15th</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>570,445</td>
<td>15.3%</td>
<td>16th</td>
<td>770,190</td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td>627,525</td>
<td>10.0%</td>
<td>15th</td>
<td>987,695</td>
<td>28.2%</td>
</tr>
<tr>
<td>1970</td>
<td>593,471</td>
<td>-5.4%</td>
<td>19th</td>
<td>1,149,130</td>
<td>16.3%</td>
</tr>
<tr>
<td>1980</td>
<td>557,515</td>
<td>-6.1%</td>
<td>21st</td>
<td>1,303,800</td>
<td>13.5%</td>
</tr>
<tr>
<td>1990</td>
<td>496,938</td>
<td>-10.9%</td>
<td>24th</td>
<td>1,285,270</td>
<td>-1.4%</td>
</tr>
<tr>
<td>2000</td>
<td>484,674</td>
<td>-2.5%</td>
<td>31st</td>
<td>1,337,726</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

Figure 2.12: Decreasing Population in the City of New Orleans after 1960 is accompanied by continued growth in the parishes representing the extent of the 2000 New Orleans MSA (Census, 2000).

was directly subsidized by local, state and federal governments, the largely poor majority African American society that remained found itself in a state of deepening isolation and concentration (Troutt, 2006).

This geographic separation created a social distance that grew with each generation, realized in a vicious cycle that both feeds and is fed by deepening poverty. Cultural distinctions gained from such distance meant the populations were less assimilable and hence had difficulty finding gainful employment. The resulting lower socioeconomic status contributed to a lack of public investment in
education, which in turn leads to crime, drug use, teen pregnancy and single-parent households, and health issues elsewhere eradicated. Of course, then, these problems feed into creating a new generation of the impoverished, and the cycle continues (Brinkley, 2006; West, 2006a).

Some scholars have likened the decline of New Orleans to an extreme example of the “rust belt” cities of the Midwest (Troutt, 2006). At first glance, this is an odd comparison because New Orleans never emerged as a leading manufacturing center, instead concentrating on port activities, petroleum and tourism. An emphasis upon these activities has brought marked consequences to New Orleans, much like the concentration on manufacturing eventually devastated the Midwest. Throughout the latter half of the twentieth century, port activity in the city has greatly declined as more ocean transport has used river-navigable vessels, in many cases ending the need for break-in-bulk stops at New Orleans. The variable market for petroleum in the United States has brought that industry a continual boom-and-bust cycle, exacerbated by gulf hurricanes that damage offshore drilling apparatuses. A rising tourism industry, while fickle to global economic fluctuations, replaced lost port and refining jobs with low-paying positions in retail and hospitality sectors. Jolivette (2005: 31) blamed gentrification and poverty in New Orleans squarely on the rise of corporate tourism, which he argued resulted in citizen neglect and a loss of hope.

The changing economic conditions have prompted federal investments in infrastructure to prop up declining industries. Some 8,000 miles of canals have
been but through the marshes since the 1950s to allow for ship traffic and petroleum resource exploration (Dyson, 2006a: 85). The Mississippi River Gulf Outlet (MRGO, colloquially called “Mister Go”), completed in 1968 by the Army Corps. Connecting the Industrial Canal to directly to the Gulf of Mexico, MRGO dramatically shortened the path from New Orleans to the Gulf of Mexico, allowing river traffic to bypass the winding delta that continues several dozen miles through Plaquemines Parish before its Gulf outlet (Congleton, 2006; Cooper and Block, 2006). MRGO had been opposed by a number of groups from its conception, including the Army Corps, which said the canal did not satisfy cost-benefit analyses (Van Heerden with Bryan, 2007). The environmental consequences of this infrastructure were profound and blunted directly against the citizenry, because as became abundantly clear in 2005, the MRGO provides a direct pipeline for wind-driven storm surge to reach the center of the city (Figure 2.13).

But even before Hurricane Katrina struck the city in 2005, New Orleans was a city on the edge, a city dangerously close to a wide expression of crisis. The majority African American city had a poverty rate among the highest of U.S. cities, and boasted very few public resources for reversing this status. An economy based in notoriously unreliable industries meant that external economic conditions regularly imperiled thousands of laborers in the city, and downturns threatened the livelihood of thousands more citizens dependent upon government welfare or charity. And, of course, these impoverished and oppressed urban citizens lived in a location facing significant environmental threats to their already tenuously eked out
FIGURE 2.13: Reference map of the Mississippi River Gulf Outlet (MRGO). The canal’s path is highlighted in light blue. (Source: Google Maps, 2020)
well-being. While well-protected from river flooding, the levees paralleling the lakefront and connected canals were dubiously underconstructed, with the latest levee building spree, prompted by the 1965 Flood Control Act after Hurricane Betsy, was never fully completed. When Katrina hit New Orleans, the city was the site of a pending humanitarian catastrophe, a perfectly destructive combination of physical, social, economic and infrastructural factors that led to widespread suffering and oppression, particularly amongst the already disadvantaged. The poor condition of New Orleans will be further discussed next section of this chapter, which provides a descriptive snapshot of the city of New Orleans at the time immediately before Katrina struck.

**NEW ORLEANS IN 2005**

While the original city was located fully within a curve of the Mississippi – from which New Orleans has the nickname “Crescent City” – it since spread out to include a significant area (Figure 2.14), coextensive with Orleans Parish, and including 180.56 square miles of land (Census, 2000). Though several New Orleans neighborhoods, notably Algiers Point, Whitney and McDonough, lie on the west bank of the Mississippi, most of the city was sandwiched between the river and Lake Pontchartrain. Much of the city rests below sea level (Figure 2.15). With subsidence (Figure 2.16) having lowered the elevation of many areas, some places as much as
FIGURE 2.15: New Orleans elevation in meters, with neighborhood boundaries shown. See Figure 2.22 for full neighborhood map.
(Source: The Greater New Orleans Community Data Center, 2005)
FIGURE 2.16: Average annual subsidence of land in New Orleans and neighboring areas, using data collected by Canada’s RADARSAT satellite between April 2002 and July 2005. Note in inset how subsidence is recorded along the MRGO levees. *(Source: Earth Observatory, 2006)*
one inch per year (Anderson et al., 2007), in 2005 most of the city rested well below the normal surface elevations of both the river and the lake.

The physical landscape of New Orleans had been changed remarkably during nearly 300 years of the city’s existence. Huge protective levees, built by the Mississippi River Commission, paralleled the Mississippi River as tall as 25 feet about its normal surface, lining both banks along the river’s entire path through the city. Canals had been carved through New Orleans, some to drain water out of the city north to the lake, and others to bring water into the city as a means of transportation. Bordering each of these canals was an incomplete system of levees, built starting in 1965 by the Army Corps of Engineers as a result of the Flood Control Act. Though the city was officially governed by land-use approaches in concert with participation in the National Flood Insurance Program beginning in 1968, implementation of these guidelines were impossible in a city that lied mostly within a prohibitive floodplain (Colten, 2005).

Even with the partial failure of land-use strategies as mitigation for flooding, the structural mitigation protecting New Orleans was certainly lacking. The lakefront and canal levees funded by the Flood Control Act (1965) were finished, designed to insufficient standards that were never met. As Van Heerden (with Bryan, 2007) notes, even in 2005 on the eve of Katrina, the difference between the substantial and effective river levees and those protecting the city from the lake and canals was stark. According to Brinkley (2006: 13) the levees constructed by the Army Corps of Engineers along the lake “were known to be more unstable. You
could tell just by looking at them.” Like much of the rest of the city, these levees had been subject to subsidence, and in some cases rested two feet lower than the expected operational elevation (Anderson et al., 2007).

The differences in levee design were also stark. Levees along the river were massive earthworks, reaching 25 feet above river level. They were built by the Mississippi River Commission with a tremendous margin of error above the highest recorded flood levels (Van Heerden with Bryan, 2007). These earthworks were held in place with substantive concrete foundations extending as much as 50 feet below the surface, and had never failed without active sabotage by civic leaders, such as that in 1927 (Anderson et al., 2007; Brinkley, 2006).

By contrast, the never-completed system of lakefront and canal levees was much shorter. None of these levees reached a height taller than 16 feet above the normal water level, while some were designed to be as short as 12 feet. At the time that Katrina struck, the system was still under construction. Figure 2.17 shows the approximate extent of these levees in 2005. These levees were constructed with a smaller earthwork, internally supported by vertical piece of corrugated sheet metal, and reaching the full designed height only with a topping concrete wall. The corrugated sheet metal pile, from which most of the structural integrity was to be derived, was simply pushed downward into the existing silty and unsettled soils and buried, never to a depth more than 12 feet below the surface. A short concrete wall was attached to the top of the sheet metal, completing the levee (Van Heerden with Bryan, 2007; Anderson et al., 2007). Figure 2.18 details the insufficient design used
for levees bordering canals. The Army Corps of Engineers claimed that this levee system was designed to protect New Orleans against a storm surge consistent with a Saffir-Simpson Category Three hurricane, or between nine and 12 feet above normal water levels (Anderson et al., 2007). However, Van Heerden (with Bryan, 2007) notes that these designs were approved for such protection in places with drier and more structurally sound soils than those found in New Orleans.

Compounding the threat to New Orleans was the invasion of the city by a number of canals. Three drainage canals of varying vintage, the London Avenue Canal, the Orleans Avenue Canal and the 17th Street Canal, still provided drainage to from the city north into Lake Pontchartrain. However, when the lake level rose from
local flooding or storm surge, water backed up these canals into the city, necessitating the use of levees to border these canals, protecting the neighboring residential areas from flooding during these events.

The city was also host to several major navigational canals. The Industrial Canal connected the Mississippi River directly to Lake Pontchartrain along a north-south route. From the approximate midpoint of the Industrial Canal, the Gulf Intracoastal Waterway (GIWW), part of an interstate canal system, extended to the east. A few miles east of the Industrial Canal, the MRGO branched off of the Intracoastal Waterway south and east, providing a shortened route from the city of New Orleans to the Gulf of Mexico. For a storm surge coming from the east, the GIWW and the MRGO provided a pathway into central New Orleans, funneling together and providing that surge with substantial water pressure.

**Human Geography**

This project focuses specifically on incorporated city of New Orleans, which is coextensive with Orleans Parish. In 2000, that incorporated area was home to 484,674 residents, making it the 34th largest incorporated area in the United States (Figure 2.19). The New Orleans Metropolitan Statistical Area, which is designated by the U.S. Census to include contiguous parishes of high population density, had a population of 1,337,726 in 2000. In addition to Orleans Parish, the New Orleans
FIGURE 2.19: Population Density of the City of New Orleans and surrounding areas in according to the 2000 U.S. Census. The most prominent outlying area is suburban Jefferson Parish to the west and south. (Source: US Census Bureau, 2009)
MSA in 2000 (Figure 2.20) included Jefferson, Plaquemines, St. Bernard, St. Charles, St. James, St. John the Baptist, and St. Tammany Parishes (U.S. Census, 2000).

The city of New Orleans before Katrina, however, was not a simple urban black box in which we could find demographic homogeneity. The City Planning Commission of New Orleans (2003) identified at 72 distinctive neighborhoods within the city, each of which had distinct demographic patterns and cultural identities (Figure 2.21). Many New Orleans residents live in their neighborhoods for their entire lives, and share a history of that residence that spans generations historically. Flaherty (2007) notes that New Orleans hosted the second largest percentage of all U.S. cities of which the residents had been born in the state. Despite the long tenure of many New Orleans residents, the city hosted a tremendously diverse population.

**Race and Ethnicity**

In 2000, New Orleans was a minority-majority city. Some 67.3% of the city's residents were African Americans, while only 28.1% were white (Census, 2000). Even 140 years after emancipation and 35 years after the abolishment of Jim Crow laws, African Americans in New Orleans occupied the lowest social class of society. While some opportunities had been made for African Americans, most of those who had made it to the elite class in New Orleans under American rule even today are
FIGURE 2.21: Neighborhood boundaries of central city of New Orleans and Orleans Parish. (Source: Greater New Orleans Community Data Center, 2004)
overwhelmingly of Creole descent (Wing, 2006).

Beyond this overall picture of race demography in New Orleans, the internal racial geography of New Orleans was one of continued racial segregation. Starting in the earliest colonial times, New Orleans was a segregated city in which free people of color lived in clustered neighborhoods distinct from white residents, and that segregation increased after emancipation. Throughout the 20th century, New Orleans was consistently rated as one of the nation’s 10 most segregated cities. The Brookings Institution (2006: 5) reported that in 2000, New Orleans was the site of high levels of segregation by neighborhood. Figure 2.22 displays a maps showing percentage of African American by Census block group, contained within neighborhood boundaries.

Beyond segregation, the racial geography of New Orleans before Katrina was one influenced by elevation as well. Bullock (2005) attributes the reflection of social difference found in elevation to the long-standing social class system found in the city. The predominantly white, “old-line” families had been in the city for generations and lived in old houses that had forever occupied the highest land. Another example: Pontchartrain Park, built in 1950, was the first middle class development available to black doctors, lawyers and teachers. It was built on low ground (Troutt, 2006).

Additionally, there were significant minority populations of Asians (2.3%), specifically Vietnamese, and Hispanics (3.1%), specifically Hondurans (Census, 2009). Members of these particular minor groups mostly lived in sprawling
FIGURE 2.22 African Americans in New Orleans. Percentage of African Americans as part of U.S. Census Block Group’s population. (Source: The Greater New Orleans Community Data Center, 2006)
developments stretching from the city's core, in areas forgotten by civic improvement initiatives (Brinkley, 2006). These relatively sparsely occupied areas on low ground were the least protected by levee systems (Colten, 2005).

Cultural Geography

A long history of diverse influences made New Orleans a major center of American culture, displaying a wide array of unique cultural expressions. New Orleans was known throughout its history for a focus on indulgence. Throughout the 1800s, when the city’s port function drove the economy, visitors came to New Orleans for to take advantage of legalized gambling and prostitution; industries prohibited throughout the U.S. at that time but developed to serve sailors and boatmen. While prostitution is now outlawed and gambling saw a hiatus that lasted much of the 20th century – the latter of which was reinstated in the 1990s by city officials hoping for an economic boost – the city remains a popular tourist destination for its cultural produce. The annual Mardi Gras celebration, live jazz music, haute Cajun cuisine, and a relatively liberal attitude to sexual mores have drawn visitors throughout the city's history. (Robinson, 2005).

The Mardi Gras celebration, or “Carnival,” is perhaps the most bold and well-known aspect of New Orleanian culture. The annual celebration was brought to present-day Louisiana as early as 1699 by French settlers, and in New Orleans at
least as early as 1743. The festival, derived from the calendar of the Roman Catholic Church, begins nearly two weeks before its culmination in Fat Tuesday, or “Mardi Gras.” Mardi Gras marks the last day before Ash Wednesday, which begins Lent, the Catholic season of repentance and discipline. The few days before Mardi Gras, hundreds of thousands of revelers visit the city, attracted by freely flowing alcohol and relaxed standards of sexual behavior. Some estimates state that the Mardi Gras celebration brought around $1 billion into the New Orleans economy each year, before Katrina.

New Orleans was the host of many cultural influences that spawned jazz music. Congo Square, which was located on land occupied by present-day Louis Armstrong Park, was the site of Sunday dance meetings that started early in the city’s history and continued until the 1840s. Under both the French and Spanish rules, no person enslaved or free was allowed to labor on Sunday. Slaves and free people of color were allowed to gather at Congo Square to play instruments, sing songs, and perform dances passed down from African ancestors. In New Orleans, these cultural artifacts existed far longer than other American cities; no such practice was allowed elsewhere on the continent, and slaveholders extinguished African culture in slaves quickly and intentionally (Sublette, 2008).

In New Orleans, though a strict racial hierarchy existed, the longstanding existence of a freed Creole population meant that this hierarchy was far more blurred than in other southern U.S. cities, both before and after emancipation. In fact, it was because the Creoles and Africans began to trade cultural ideas that jazz
music eventually emerged (White, 2005: 26). The Storyville neighborhood was the birthplace of jazz music, developed by African-American musicians working as performers in the neighborhood’s legal brothels from 1897 to 1917. Jazz spread quickly, both throughout the city and the country. Live jazz, in all of its different forms, followed soon by blues, were soon performed nightly all over New Orleans, on street corners and in music halls (Brinkley, 2006), an activity ubiquitous in the city in 2005, drawing live music devotees from all over the globe.

The city remains world-famous for its cuisine. Given its diverse heritage and its proximity to fresh seafood from the gulf, food in New Orleans offers a combination of flavors derived from its position as a cultural crossroads. Some of the city’s specialties include square deep-fried pastries called beignets, po’boy seafood sandwiches, a dish of crawfish and rice called “étouffée,” jambalaya, gumbo, Gulf oysters on the half shell, and red beans and rice (Robinson, 2005). The city features several of the longest continually operating restaurants in the United States (Sublette, 2008).

Economy

With a unique cultural landscape that attracts visitors, tourism has long been an important industry in New Orleans. Since 1960 especially, as shipping traffic waned, tourism has grown in importance within the city’s economy. The growth in
tourism was coupled with petroleum exploration in the Gulf of Mexico and expansion of local refining capacity as the city’s only growth industries during the latter half of the 20th century. However, the growing dependence of New Orleans upon industries for which success is inseparably tied to external economic conditions has resulted in a fickle and unpredictable local economy. The consequences of this economic transition have been most felt on the lower socioeconomic classes (Reed, 2006b).

While greatly diminished from its peak importance, shipping is still a major industry in New Orleans. Before Hurricane Katrina, the Port of South Louisiana was the fourth busiest seaport in the world. Approximately 5,000 ships and 50,000 barges docked at the port annually (Robinson, 2005). According to the U.S. Census (2002), commercial water transportation and support industries employed 9,754 people in the New Orleans MSA.

Unlike cities in the industrial Midwest or even those urban areas in the south like Atlanta and Birmingham, New Orleans never developed a substantial manufacturing sector (Reese, 2006). In the entire metropolitan area, only 35,355 workers were engaged in manufacturing in 2002, of which only 8,584 were employed in Orleans Parish. Far more employees working in the city of New Orleans were engaged in retail (19,628 laborers) and visitor accommodations (13,121) and food service (11,244). This disparity speaks to the importance of the tourism to the local economy. In each of the pre-Katrina years of the 2000s, New Orleans hosted some 10 million visitors annually, who contributed at least $5 billion
to the local economy (Brinkley, 2006). However, little of this wealth filtered down to the employees working in the tourist industry. In 2002, the 37,141 workers in the MSA employed in either hospitality or food service earned an average annual salary of $14,510 (U.S. Census Bureau, 2002).

**Income and Poverty**

Despite a productive tourist industry promoting the city’s inarguable cultural charm, New Orleans suffered from a very high rate of poverty amongst its residents. Of course, this state of extreme economic inequality had dramatic effects on the cultural landscapes of the city. Historian Douglas Brinkley (2006: 33) likened pre-Katrina New Orleans to “a legendary beauty, but one that had refused to look in the mirror for a long, long time. Selling the world on the historic stage set that was so much of the picturesque New Orleans, the city seemed not to care about its other decaying side.” Despite the fact that New Orleans never developed the manufacturing industry found in Midwestern cities that decayed during the 20th century, (2006: 7) argues that Katrina’s ruins “reveal[ed] more similarities to Cleveland, Chicago and Philadelphia than differences.” He explains that in New Orleans, with Katrina acting as the great revealer, we see a “deepening isolation and concentration of the urban (particularly black) poor,” which he attributes to long-standing federal policies that encourage white flight, urban depopulation and the
establishment of a low-wage service economy around tourist dollars.

Within the city limits of New Orleans lived a higher proportion of people below the poverty level, some 28% in 2000, compared to 12% nationally, higher than any U.S. city of similar size. Indeed, dilapidated housing stretched for miles outside the tourist and affluent areas. In 2000, median household income within New Orleans – $27,133 – was some 23% below the MSA’s median of $35,566, and 35.4% below the national median of $41,994 (GNOCDC, 2005; Robinson, 2005).

Unemployment in the gulf region was the highest in the country before Katrina, and between 18-30% lived below poverty (McLaren and Jamarillo, 2007). Woods (2006: 1009) calls the pre-Katrina Gulf Coast region the “Third World on the Mississippi” and “America’s Ethiopia,” and warns that visitors “see a swath of human devastation and permanent crisis,” a “racist project” perpetuated by “the decision of white leaders, black leaders and scholars to accept this situation in silence.” The situation in New Orleans mirrored these claims about the larger region. While White (2006) noted that more than 87% of the city’s “inner-city” residents were employed in 2005, this employment was not universal across demographics; some 44 percent of black men in New Orleans were unemployed immediately before Katrina (Troutt, 2006).

Many of those people who worked in New Orleans were employed in low-wage tourist support service jobs, upon which the city inordinately relied. The jobs, by and large, had exceptionally low wages and often lacked health insurance benefits. Some 47,000 workers in New Orleans pre-Katrina (some 10 percent of the
total population) earned less than $6.15 at their jobs (White, 2006). A total of 18.8 percent of the population in New Orleans lacked health insurance, higher than the national average of 15.5% (Dyson, 2006a). The impact of these low wages was expressed in a wide lack of personal transportation. Over 19 percent of households in New Orleans, which translated into one in four citizens, lacked any access to a vehicle in 2004, ranking the city fourth out of 297 metropolitan areas in the country in proportion of people lacking access to cars (White, 2006).

Poverty was not universal in pre-Katrina New Orleans. Beyond being one of the poorest cities in the United States, Dreier (2006) notes that the city was also one of the “most ghettoized.” The city ranked third in the country in 2000 in poverty concentrations, and 23% of the poor in New Orleans lived in high-poverty neighborhoods, those in which at least 40% of the population live below the poverty line (Figure 2.23). The oppressive effect of ghettoization cannot be understated. Citing studies that show ghetto residents readily seize available opportunities when they are allowed to move to middle-class neighborhoods, Cashin (2006: 34) argues, “ghetto behaviors are intrinsic to high-poverty places, not people.”

Neither is poverty intrinsic to people, though by looking at pre-Katrina New Orleans, that fact seems obscured by socioeconomic oppression. While both white and black residents lived in poverty in 2005, there were substantial differences between the two race groups. The Brookings Institution (2006) reported that concentrations of poverty were most prominent in minority neighborhoods, noting “African Americans and whites were living quite literally in different worlds before
FIGURE 2.23: Percentage of Residents living in households earning less than twice the federally mandated poverty level, 2000, with neighborhood boundaries superimposed. (Source: Greater New Orleans Community Data Center, 2005)
the storm hit.” Some 43% of African Americans in New Orleans lived in poverty, compared to just 11% of whites. African Americans were far less likely to have access to personal transportation (Figure 2.24). While only five percent of non-Latino whites lacked access to cars, while 27 percent of African Americans did (Dyson, 2006a). Much of this was caused by the city’s terrible public school system (Figure 2.25). New Orleans has a 40 percent illiteracy rate, and 50 percent of black ninth graders fail to graduate in four years (Dyson, 2006b). And from Cashin’s (2006) observation about poverty’s causation of “ghetto behavior,” it is a small step to concluding that combining concentrated poverty with extreme racial segregation, the condition of many pre-Katrina neighborhoods, results in severely reduced opportunity for residents (Hartman and Squires, 2006).

A disturbing example that displayed the coalescence of these factors in pre-Katrina New Orleans was the Lower Ninth Ward. The Lower Ninth Ward was the city’s most impoverished area. The average household income in the Lower Ninth Ward, which is more than 98% black, was below $27,500 in 2000, not even half of the national average (Alterman, 2006). One quarter of the households in the Lower Ninth earned less than $10,000 (Cooper and Block, 2006). This neighborhood was vulnerable not only because of its situation near poorly constructed levees bordering the Industrial Canal, but because some 32% of residents lacked access to automobile transportation. Many of the city’s poorest residents knew nothing -- beyond unreliable word-of-mouth sources -- of the approaching storm because they lacked access to media such as television, radio or internet (Brinkley, 2006), and
FIGURE 2.24: Percentage of Households in each U.S. Census Block Group in which residents reported lacking access to personal automobile vehicles, 2000.
(Source: Greater New Orleans CommunityData Center, 2005)
FIGURE 2.25: Percentage of all residents older than 18 years of age who lack at least a high school education or equivalency, by neighborhood, 2000. (Source: Greater New Orleans Community Data Center, 2005)
they couldn’t read it in the newspaper, because as much as 40% of the neighborhood was functionally illiterate (Dyson, 2006a).

**CONCLUSION**

On the eve of Hurricane Katrina’s devastating visit to the Gulf Coast of the United States, the city of New Orleans was already the host of a social crisis. The city developed economically because of its convenient location near the mouth of the Mississippi, but that very location came with environmental threats that mostly made investment prohibitively risky. From the beginning, various government entities subsidized the risk of this location through the construction of expensive infrastructural mitigation projects, such as levees, and the funding of other ineffective land management programs, such as the National Flood Insurance Program. With these structures, the balance of risk was shifted enough to create a capitalist space in which investment was less prohibitive.

New Orleans’s flagging importance in the shipping industry led to new government projects to improve the city’s accessibility, particularly canals that led to the heart of the urban area. These canals, designed to stimulate capitalist development, ultimately endangered further the people that called New Orleans home. Simultaneously, with a transitioning economy, this environmentally dangerous location became the host of a vast population of socioeconomically
disadvantaged people. Through the later half of the 20th century, unemployment and underemployment enacted harsh consequences on the city’s collective well being. A transitioning economy shifted workers into jobs supporting the newly prevalent but lowly paid tourist industry, putting financial solvency farther out of reach of thousands of residents. Policies encouraging suburbanization resulted caused ghettoization of the poor, and segregation of the races, leaving an inner-city population that was predominantly African American and less affluent (Stivers, 2007).

So, on the eve of Katrina’s landfall, New Orleans was the site of a humanitarian crisis: disadvantaged people living in a dangerous environment. The state, in each of its incarnations, had shamefully done nothing but encourage this situation. New Orleans was located at an edge, a precipitous place of danger under the threat of gravity, at which a fall was eminent. Just a tap was needed to send the city into a free-fall.

On August 29, 2005, Katrina came with a full-bodied shove.
CHAPTER III

HURRICANE KATRINA

Hurricane Katrina, the storm itself, has a history traceable to genesis at a distinct place in space and time. This atmospheric disturbance first organized as a tropical cyclone over the southeastern Bahamas on August 23, 2005. Within 96 hours, it had transformed an existing humanitarian crisis – New Orleans at the dawn of the 21st Century – into a prolonged catastrophic freefall. While the formation and development of the storm, between August 23 and its ultimate demise just six days later, can be measured with tremendous scientific precision, the many problems which doomed New Orleans to Katrina’s wrath stretch much farther back into history and include a significantly larger geography. I have already described the site and situation of New Orleans as a city resting on a dangerous precipice, awaiting a push from an environmental hazard, and detailed some of the factors that allowed Katrina the power to shove the city into oblivion. The failures of the state to break the fall, especially after its very actions had enabled the city to balance on edge for decades, made the conditions in New Orleans far more egregious, as some of American society’s most oppressed people faced an exceptional circumstance of environmental injustice, resulting in over 1,700 deaths, countless more injuries, and
a torturous combination of irrecoverable financial loss and immeasurable mental horror that will follow survivors for the rest of their lives.

As explained in Chapter Two, the simple existence of New Orleans as an urban area in its particular location only continued because of intervention by various state entities throughout the city’s history. Through material capital investment, such as the building of protective levees, the digging canals and the installation of floodgates, governmental bodies – including local, state and national bureaucratic agents – have altered the economic system, constructing a capitalist place where continued investment in New Orleans seems feasible and potentially profitable. In simultaneous fashion, particularly in the 20th and 21st centuries, the state had bolstered this construction of capitalist space with investments in additional bureaucratic agencies, including the creation of programs like the National Flood Insurance Program (NFIP) in 1965, and the Federal Emergency Management Agency (FEMA) in 1979. Indeed, the use of infrastructural mitigation, a very material and very visible protector, against the threat of flooding in New Orleans presented a message of prevention; bureaucracy like the NFIP and FEMA reassured potential investors that any losses not prevented by the infrastructure would be restored by direct capital investment from the state itself. Potential loss was doubly shielded, unless the infrastructure and the bureaucracy both failed. The bureaucracy provided a safety net to ensure than a city falling off of the edge would be caught.
In New Orleans, in the face of Hurricane Katrina, both failed, and both failures were long coming.

**DISASTER PREPAREDNESS AND RELIEF APPARATUSES IN THE UNITED STATES**

To understand disaster preparedness and relief in the United States requires an examination of the lengthy history of its implementation. Preparedness has been handled by a myriad of public and private organizations at many scaled levels of jurisdiction. The distribution of disaster relief aid following an event is similarly complicated by a substantial web of bureaucratically tangled government agencies at federal, state and local levels, plus one government-chartered nonprofit organization, the American Red Cross. While the Federal Emergency Management Agency (FEMA), since 2002 under the jurisdiction of the Department of Homeland Security, is responsible for directing the federal government's response to disasters declared “national” in scope, most cities, counties and states have their own emergency management agencies charged with local coordination. While each of these individual agencies command resources to deploy, many also plan to incorporate the efforts of the American Red Cross into the official governmental response to any disaster event (Shealy, 2003).

These odd partnerships of government and nonprofit formed over a lengthy period of time. Entities of the state have been involved in disaster response for over
200 years, though before 1950, disaster response in the United States was largely an informal exercise left to the private sector (Reckdahl, 2007). Response from the federal government was limited to direct action taken in the wake of specific disaster events. The first came in 1803, when Congress passed a relief bill consisting of port tariff waivers for Portsmouth, New Hampshire in the wake of a late-1802 flood that devastated local merchants. Other Congressional actions provided similar fiscal relief dedicated to specific events, such waiving tariffs for citizens of New York City following the Great Fire of 1835, and paying hospital bills for bystanders injured in the panic following Abraham Lincoln’s assassination in 1865 (Cooper and Block, 2006). These acts accounted solely for the funding of those activities and provided no mechanism for funding future relief efforts. Victims of many disasters through the 1800s, though, derived whatever limited relief aid they received through local and private donations. News of large-scale natural disasters would garner private donations from individuals and corporations elsewhere, but almost never did disasters inspire organized relief campaigns spearheaded by government, and rarely did any organized raising or delivery of aid take place (ibid; Reckdahl, 2007; Shealy, 2003).

Such efforts became more organized beginning in 1881, with the foundation of the American Red Cross by Clara Barton. Barton was a teacher and nurse who, while vacationing in Europe, had become inspired by the Red Cross humanitarian movement’s progress in aiding those injured in the Franco-Prussian War. When she returned to the United States, Barton founded the American Red Cross, a
chapter of that movement and a volunteer-based, nonprofit organization (Reckdahl, 2007: 67). Unlike other branches of the Red Cross movement, Barton dedicated the organization to helping victims of circumstance beyond warfare (Shealy, 2003). In 1889, the American Red Cross provided significant aid to victims of the Johnstown, Pennsylvania flood, marking its first major relief campaign for a natural disaster (McCullough, 1968).

In 1898, Barton's influence as leader of the American Red Cross was surpassed by volunteer Mabel Boardman, who sought to improve the organization's response by achieving a public legitimacy for its relief efforts. Under Boardman's leadership, the American Red Cross formalized its role in serving wounded prisoners of war and victims of disaster (Shealy, 2003). In 1900, the organization received a formal charter from the United States Congress, establishing it as a sanctioned organization to “mitigate the sufferings caused by pestilence, famine, fire, floods, and other great national calamities,” (Reckdahl, 2007: 67). Upon receiving this charter, Boardman worked to transform the organization into a “more bureaucratic philanthropy” (Shealy, 2003: 62), allowing the federal government more authority over the organization. As a result of changes instituted during Boardman's tenure, the federal government's tentacles extended deeply into the American Red Cross, so much that the U.S. president has long been considered its honorary chairperson, and the White House has long been responsible for appointing no fewer than eight of organization's 20 board members (Reckdahl, 2007: 67). Shealy (2003) further argued that involvement moved the American
Red Cross far from its original mission of compassionate humanitarian aid, and into the realm of serving as a propaganda machine for U.S. expansionism through World War II and beyond. The peculiar status of the American Red Cross's federal charter, a distinction made to honor the works of fewer than 100 charitable organizations in the country, has led the organization a unique role of leadership in governmental response to natural disasters (Reckdahl, 2007).

For much of the 20th century, the pseudogovernmental American Red Cross was the sole nationally organized response agency for natural disaster events, though a number of federal programs supplemented this responsibility (Simo and Bies, 2007). Various disaster events, including the Mississippi River flood of 1927 and particularly Hurricane Betsy in 1965, had led to the passage of a piecemeal series of legislation by the U.S. Congress, aimed at altering prevailing risk of disaster events to capital (Morris, 2007). The Disaster Relief Act of 1950 was the first Congressional action establishing permanent funding dedicated toward disaster relief; however, this money was only allocated to rebuild government buildings following disasters. Indeed, response and relief was still considered the domain of local government and the private sector (Cooper and Block, 2006). Political implications of Hurricane Betsy's strike on New Orleans led President Lyndon Johnson to push the Flood Control Act of 1965 and the National Flood Insurance Act of 1968 through Congress, pumping substantial government funding into the construction of protective levees (see Chapter Two) and the establishment the National Flood Insurance Program (NFIP), (Morris, 2007; Cooper and Block, 2006).
Only in 1969, with Hurricane Camille’s devastation of the Mississippi Gulf Coast, did federal disaster relief funding extend to individuals and businesses. The limited authorized areas of government response were spread across many agencies within the executive bureaucracy. The NFIP, for instance, was part of the Department of Housing and Urban Development, while highway repair was the domain of the Bureau of Roads, and the rebuilding of other infrastructure was charged to the Army Corps of Engineers. The responsibility for disaster response, as assumed by the federal government, had been dispersed so broadly that local and state governments fought significant bureaucratic hurdles to obtain any aid (Cooper and Block, 2006). With the passage of the Stafford Act of 1974, a new type of executive order, the Presidential Disaster Declaration, was created as a necessary precondition for the authorization of any expenditure for disaster relief through these agencies (FEMA, 2009; Cooper and Block, 2006). Through the 1970s, the National Governors Association continually petitioned President Gerald Ford, then Jimmy Carter to establish a central apparatus to coordinate the federal government’s response (Morris, 2007; Cooper and Block, 2006).

Soon, the governors received their wish. Beginning in 1979, the American Red Cross shared its primary responder responsibilities with a true government agency, the Federal Emergency Management Agency (FEMA). Carter created FEMA with Executive Order 12127 on March 31, 1979 (FEMA, 2009). With this action, the disparate disaster agencies were taken under a single umbrella called FEMA, which
Carter declared “would be independent, apolitical, and adequately funded,” (Cooper and Block, 2006: 49).

Under Executive Order 12127, FEMA was organized to combine all of the functions of the other disaster response apparatuses, separating them from bureaucratic oversight from cabinet departments. Moved under FEMA's umbrella were a number of pieces of the emergency management puzzle, including Emergency Broadcast System and the Fire Prevention and Control Administration from the Department of Commerce, and the components operating under the Flood Insurance Act of 1968 from the Department of Housing and Urban Development (Carter, 1979a). Executive Order 12148, enacted on July 20, 1979, moved additional response agencies into FEMA, further consolidating disaster functions and responsibilities into the new apparatus. In this order, all emergency management duties were transferred from the Department of Defense to FEMA, and the Director of FEMA was officially assigned the role of creating policy and coordinating:

“all civil defense and civil emergency planning, management, mitigation and assistance functions of the Executive agencies... represent[ing] the President in working with State and local governments and the private sector to stimulate vigorous participation in civil emergency preparedness, response, and recovery programs.” (Carter, 1979b)

Carter appointed John Macy, a well-organized career bureaucrat, as the first director of FEMA (Cooper and Block, 2006). According to Morris (2007), the mere composition of the agency, combined from many dispersed units pulled from
multiple departments within the cabinet bureaucracy, led to a number of turf wars and ideological differences about its mission. Though FEMA was designed to theoretically respond to all hazards, a debate raged regarding which hazards deserved more of FEMA’s focus, natural disasters or terrorist attacks (Elliston, 2004). Despite the inner turmoil, Cooper and Block (2006) observe that the agency’s first dealings with disaster events won significant praise from local and national politicians. Under Macy’s leadership, FEMA’s response to such events as the Three Mile Island nuclear accident, the Love Canal toxic waste spill, Hurricane Frederic’s landfall on the Gulf Coast, and the Mount St. Helens eruption were widely lauded as evidence to the new agency’s efficiency and effectiveness.

Macy’s tenure at FEMA ended with Ronald Reagan’s inauguration to the presidency in 1981, having soundly defeated the unpopular Carter’s reelection bid. Reagan appointed Louis Giuffrida, who had been a security adviser during Reagan’s tenure as governor of California, as FEMA’s second director. Giuffrida’s appointment proved to be a landmark event in FEMA’s history, dramatically shifting the agency’s focus from natural disaster aid to national security and civil defense. Under the paranoid Giuffrida, FEMA prepared for civil unrest from coming race wars, nuclear holocaust, terrorist attacks and other potentially apocalyptic events (Elliston, 2004). Giuffrida resigned from FEMA in September 1985 in the face of investigations suggesting funding misappropriations and possibly embezzlement, leaving the agency under the control of Julius Becton Jr., a retired Army general. Under Giuffrida and Becton, and with Reagan’s encouragement, FEMA spending on
civil defense and nuclear winter preparedness initiatives outpaced natural disaster response spending twelvefold (Cooper and Block, 2006). Civil defense initiatives, and huge budget items for high technology for that dedicated purpose, were routinely approved while natural disaster preparedness measures were ignored (Elliston, 2004). Additionally, staffers working on the natural disaster functions of the agency were excluded from administrative decisions and often mocked by those working in civil defense (Cooper and Block, 2006).

As Morris (2007) observes, Reagan’s administration was remarkably free of large-scale disasters, which left FEMA’s ill-advised new focus hidden from the general public. However, that executive neglect of disaster management and response was very quickly exposed during the George H.W. Bush administration. When Hurricane Hugo made landfall at Charleston, South Carolina as a Saffir-Simpson Category 4 storm in September 1989, the agency was caught off-guard (Morris, 2007; Cooper and Block, 2006). Though over 100,000 people were rendered homeless in the Charleston area, response to Hugo was left largely to local emergency management agencies by FEMA’s inattention. With the agency’s grossly inactive responding to his home state, Senator Ernest Hollings, D-SC, famously called FEMA “the sorriest bunch of bureaucratic jackasses I’ve ever known,” (Franklin, 2005; Daniels, 2006; Cooper and Block, 2006; Morris, 2007). A month later when a magnitude 7.1 earthquake centered on Loma Prieta, California shook the Bay Area, interrupting Major League Baseball’s World Series, FEMA responded with perhaps National Guard troops to the region within hours of the quake the ultimate display
of overcompensation by deploying 32,000. Though the response was largest
domestic deployment in U.S. history to that point, FEMA was subject to criticism
because the troops were ill equipped to coordinate disaster response (Elliston,
2004; Morris, 2007).

In 1990, Becton was replaced as Director of FEMA with by Bush’s former
neighbor, Wallace Stickney. A past holder of several appointed positions, Stickney
had no professional experience related to disasters, and the move was widely
panned as a crony appointment. Indeed, as Stickney himself claimed in an
Associated Press interview, he was only interested in the job to enhance his federal
government retirement package with a few more years of service (Cooper and
Block, 2006). Loma Prieta also inspired the House Appropriations Committee to
initiate an investigation into FEMA’s handling of the post-disaster response. The
report from this investigation, released in July 1992, called the agency a:

“political dumping ground... a turkey farm, if you will, where large numbers
of political positions exist that can be conveniently and quietly filled by
political appointment.” (Morris, 2007: 47)

The report also blamed Wallace Stickney’s inept management of the agency for
FEMA’s “all-time low” morale and suggested that Stickney’s failed leadership had
made the agency impotent to its designated functions. Just weeks later, FEMA faced
more criticism from the botched handling of Hurricane Andrew’s devastation of
Homestead, Florida. Causing some $27 billion in damage, the Saffir-Simpson
Category 5 Hurricane Andrew was the most expensive disaster in U.S. history to that
point. Despite considerable advance warning that the hurricane was poised to strike southern Florida with potential for incredible destruction upon landfall, FEMA’s was so slow to respond that Kate Hale, Miami-Dade County’s emergency management director, famously asked at a nationally televised news conference:

“Where in the hell is the cavalry on this one? They keep saying we’re going to get supplies. For God’s sake, where are they?”

(Elliston, 2004; Morris, 2007: 47; Cooper and Block, 2006: 57; Daniels, 2006: 22)

Hale was not alone in her critique. The Hurricane Andrew snafu inspired an in-depth study of the agency by the National Academy of Public Administration, which concluded that under George H.W. Bush, FEMA had become “a patient in triage” and that the president needed to:

“decide whether to treat it or let it die... FEMA has been ill-served by congressional and White House neglect, a fragmented statutory chapter, irregular funding, and uneven quality of its political executives.”

(Morris, 2007: 48)

Only the IRS had a worse reputation than FEMA amongst the general public by the end of Bush’s term (Cooper and Block, 2006). Though Bush was quick to blame Florida’s Democratic governor Lawton Chiles for the failed response, Congress demanded action from the president.

Following FEMA’s failures with Hugo and Loma Prieta, the agency began the development of the first Federal Response Plan, completed in 1992. FEMA’s slow reaction to Hurricane Andrew prompted the agency to quickly update the plan with
a more proactive approach to emergency management, for the first time planning for various disaster contingencies instead of reacting to reported conditions (Morris, 2007). Stressing George H.W. Bush’s administrative focus on privatization, the plan assigned a primary responsibility for disaster relief to the American Red Cross, giving it responsibility for providing disaster victims with first aid, shelter, food, and direct financial assistance (Reckdahl, 2007). Disaster preparedness was relegated to emergency management agencies at the state and local levels (Cooper and Block, 2006). Only FEMA’s apparently forgotten disaster functions were privatized and localized in the plan; civil defense and anti-security measures, which had become FEMA’s main focus, remained fully under bureaucratic jurisdiction (Morris, 2007).

Bill Clinton’s election to the presidency in 1993 brought FEMA another new leader in James Lee Witt. The first FEMA director with any disaster experience, Witt had served under Clinton as director of the Arkansas office of emergency services, overseeing 51 employees. Senate Republicans questioned the need for a new FEMA director during Witt’s appointment confirmation hearings, and expressed interest in dismantling the agency. Witt asked the Senate for a year to transform FEMA into “an agency that would deliverer on political promises,” and he got it along with praise from senators in both parties (Cooper and Block, 2006). His frustrations in dealing with FEMA while heading the Arkansas office greatly shaped how Witt reorganized FEMA. Witt’s leadership brought FEMA into a new era of competence, reducing bureaucratic hurdles to distributing disaster aid, ending the Reagan-
originated plans for post-nuclear detonation scenarios and instead focusing on realistic disaster-oriented planning (Morris, 2007).

Under Witt, FEMA’s reputation as an unfocused, ineffective and wasteful bureaucracy was slowly reversed (Elliston, 2004). Because of his close ties to Clinton, Witt answered directly to the president, and the Director position was considered a “cabinet-level” post (Cooper and Block, 2006). The streamlined bureaucracy seemed to improve the agency’s reaction: FEMA’s response to the 1994 earthquake centered in Northridge, California was quick and efficient, repairing damaged public infrastructure “in record time,” (Morris, 2007: 47). The focus of the agency shifted from planning response following potential terrorist attacks to planning mitigation and response strategies for all potential hazards (Cooper and Block, 2006). Effective response to Northridge and other disasters through the 1990s, and a new focus on planning and mitigation of disasters before they occurred, significantly improved the morale of FEMA staffers, who were now proud to be serving a valuable role in the larger bureaucratic structure (Elliston, 2004; Morris, 2007)

Perhaps the hallmark of Witt’s tenure as Director of FEMA came in 1997, with the announcement of Project Impact. Project Impact represented the shift of FEMA from an agency focusing on disaster response to an agency that minimized the need for response resources through preparedness and mitigation (Elliston, 2007; Cooper and Block, 2006). The program partnered FEMA with local and state level emergency managers to create preparedness plans, with FEMA provided
additional resources to accomplish mitigation objectives. After implementation, the plan was called an exceptional success, and was credited with keeping the Seattle Earthquake of 2001 from becoming a major catastrophe (Morris, 2007; Cooper and Block, 2006; Elliston, 2004; Elliston, 2006).

FEMA’s renaissance ended in 2001, when incoming Republican president George W. Bush replaced Witt with Joseph Allbaugh, the national campaign manager for Bush-Cheney 2000 and Bush’s former chief of staff as governor of Texas. Like earlier Republican appointees to FEMA’s top post, Allbaugh had no disaster experience prior to taking the director position (Elliston, 2004). Under the George W. Bush administration and Allbaugh’s leadership, FEMA’s focus again shifted, now back largely to civil defense, and from disaster preparedness to disaster response. Critics of FEMA and Project Impact under Witt and Clinton argued that the agency was too generous with granting aid (Bovard, 1997), and was therefore too effective in serving as propaganda for the current administration (Cooper and Block, 2006). Bush himself directly eliminated Project Impact through executive order, labeling the program’s $20 million annual budget wasteful because of its focus on preparation for future events that, in Bush’s mind, might never happen anyway (Elliston, 2004; Morris, 2007). Grants for mitigation projects, which were a fraction of the Project Impact budget footprint, were instead awarded on a competitive basis, leaving many projects in poor communities entirely unfunded. Each of these changes happened under Bush and Allbaugh, despite the fact that analysts from
Bush’s own administration had estimated that every dollar spent on mitigation saved roughly two dollars in recovery costs (Elliston, 2007).

Some eight months into his first term, the September 11, 2001 terrorist attacks allowed George W. Bush to reposition FEMA’s focus further toward antiterrorism measures and civil defense, and away from disaster planning and response. The agency, which had been an independent part of the executive bureaucracy, was absorbed by the newly created Department of Homeland Security (DHS) in January 2002 (Cooper and Block, 2006). Now, instead of the Director of FEMA reporting directly to the president, there were now several DHS administrators bureaucratically positioned above FEMA. The repositioning drove Allbaugh to eventually quit the position, stating:

“When you have three or four other decision-makers between the FEMA director and the president, information becomes clouded.... There’s a loss of urgency.... It’s just a no-win situation.” (Morris, 2007: 50)

His deputy director, Michael D. Brown, succeeded Allbaugh as Director of FEMA in August 2003. After working for Bush’s 2000 presidential election campaign, Brown had been hired by FEMA in 2001 as a staff lawyer. From that position, he rose through the ranks to the position of Deputy Director quickly as senior officials retired and resigned during the reorganization of FEMA under DHS. His confirmation hearing for the position of Deputy Director in 2002 was a 45-minute Senate hearing consisting mostly of pleasantries and soft-ball questions (Cooper and
Block, 2006). Allbaugh personally nominated Brown for the Director position upon
his resignation, though Brown’s most notable prior work experience had been as the
commissioner of the Arabian Horse Association through the 1990s (Morris, 2007;
Cooper and Block, 2006).

As part of the DHS, FEMA was again forgotten. Morris (2007: 50) notes that
most of the organization’s staff had been “poached by other DHS agencies to combat
terrorism.” One infamous example of this disconnect occurred in Shelby County,
Alabama, a suburban county outside of Birmingham which was known to be prone
to tornadic activity. The DHS awarded Shelby County with a $250,000 grant for
chemical warfare suits, but denied a grant for an emergency operations center
proposed for tornado events (Cooper and Block, 2006). The replication of history
was not lost on those familiar with FEMA’s earlier years:

“What we’re seeing here was exactly what happened in the ‘80s. This is a
total repeat. FEMA did the same thing under Bush II [as it did under
Reagan]: They took three-quarters of the agency and devoted it to
terrorism. The parallels are unbelievable.”
--Jane Bullock, longtime FEMA employee (Morris, 2007: 44)

Key services provided by FEMA were privatized, ending the jobs of experienced
disaster experts employed there, replaced by “politically connected novices and
contractors,” (Elliston, 2007). The loss of “high-level talent” stunned the agency,
and a seeming lack of importance granted to FEMA’s mission made staffers lose
pride in their work. This loss of personnel not only cost FEMA valuable “institutional
knowledge” (Elliston, 2007), but also cut off many of the relationships staffers had
built with state and local agencies during Project Impact (Morris, 2007).

Rechanneling funds to antiterrorist activities swallowed FEMA’s budget, and bureaucratic barriers were resurrected that prevented Brown from replacing lost staffers, destroying staff morale. Privatization of FEMA functions meant less control efficiency to the agency’s missions, and led to more reliance upon the American Red Cross for disaster relief. Though Brown was reported to favor the all hazards approach espoused during the Witt’s effective tenure, he was limited by FEMA’s new position within the DHS (Cooper and Block, 2006). Beyond this, Brown’s personality proved divisive amongst the FEMA staff, plunging the agency’s morale even lower. To Morris (2007), FEMA had become a joke once again.

The cash-strapped and understaffed FEMA was depending more on the American Red Cross for disaster response and relief aid functions. The American Red Cross, though, was facing its own problems in the first decade of the 21st century. The nationally chartered volunteer-based nonprofit organization, but like FEMA, had faced extensive criticism targeted at alleged misdirection of donated funds. Reckdahl (2007), among others (Horne, 2006; Wood, 2006; Mann, 2006; Morris, 2007) have condemned the American Red Cross for channeling donations intended one disaster’s relief to another unrelated purpose. Relief efforts for 1989 Loma Prieta earthquake brought the charity $55 million of donations, much of which ended up in the organization’s general fund. Politicians in Minnesota and North Dakota challenged the organization to distribute the money donated to the 1997 Red River of the North flood that destroyed the city of Grand Forks, North
Dakota. Perhaps most publicly noted, nearly half of donations to the American Red Cross meant for people affected by the September 11, 2001 terrorist attacks ultimately went to the Red Cross’s Liberty Disaster Relief Fund, and not to the victims or their families (Reckdahl, 2007).

Though a number of other private organizations often committed resources for disasters in the United States, FEMA and the American Red Cross were the official agencies charged with disaster response in the United States in 2005, as the “safety net” responsible for stepping in when infrastructural mitigation strategies failed. Due to a sequence of events happening in the decades preceding Hurricane Katrina, each was faced a number of problems that made the organizations each less able to respond to disaster events. Oddly enough, despite the relative impotence displayed, the agencies had been anticipating an event like Katrina in New Orleans for quite some time, to the point of rehearsing that very scenario in advance.

**“Hurricane Pam”**

In 2004, the emergency managers and other officials on all levels of government gathered for the “Hurricane Pam” exercise, a “table-top” simulation of governmental actions before and after a fictional hurricane’s striking of New Orleans. A “table-top” simulation is an exercise for which all relevant officials gather to practice a disaster scenario and how response would be managed, without said
disaster actually taking place. Officially called the Southeastern Louisiana Catastrophic Hurricane Plan, the Hurricane Pam exercise was designed to improve governmental response to such a disaster by providing a risk-free fictional event to exercise planned responses. Hurricane Pam was organized in the wake of Hurricane Georges in 1998. Georges was a relatively small hurricane that had killed more than 600 people in its march through the small islands of the Caribbean. As it approached the U.S. gulf coast, forecasters wrongly predicted that Georges would make a direct hit on New Orleans. Georges veered east at the last moment. The resulting disorganized, panicked evacuation led by entirely uncoordinated local, state and federal officials reminded Louisiana emergency management officials that the plans in place for such an event were relics of the last time a hurricane had directly impacted New Orleans, Camille in 1969 (Cooper and Block, 2006).

Immediately following Georges, local emergency managers repeatedly petitioned FEMA for assistance in revising hurricane plans for the worst-case scenarios. Louisiana Deputy Director of Hurricane Preparedness, Michael L. Brown (who is not related to Michael D. Brown, later much maligned director of FEMA) wrote a letter to FEMA in 2000 asking for money to initiate a simulation exercise for local emergency managers. Despite spelling out doomsday scenarios in which seventeen feet of water flooded New Orleans, killing 5,000 and stranding 300,000 more, the letter received tepid response until after the reorganization of FEMA within the DHS following the September 11, 2001 terrorist attacks. The susceptibility of New Orleans to a hurricane event had also been well documented
elsewhere. In a five-part series published in 2002, the New Orleans Times-Picayune described the doomsday scenario of a storm surge would flood the city:

“Tens of thousands of people with no transportation would be trapped on rooftops and in attics, struggling for their lives; thousands more would be stranded at the Superdome; and in the aftermath, the city would be all but destroyed, with many of its displaced residents living indefinitely in FEMA trailers,” (Bergal, 2007: 4-5).

Only in late 2003, as part of a larger set of anti-terrorism and civil-security scenarios drafted by Homeland Security at the White House’s request, did the Hurricane Pam exercise plan finally see daylight (Cooper and Block, 2006).

Unlike other disaster “table-top” exercises that had been conducted in the past, Hurricane Pam brought together hundreds of people interested in emergency management in southeastern Louisiana, from political figures and emergency management bureaucrats to school superintendents, military personnel and volunteer firefighters (ibid). Nearly 270 participants gathered in the Louisiana Emergency Operations Center on July 16, 2004 for the exercise, which lasted eight days and cost over $500,000 to coordinate (Van Heerden with Bryan, 2007). They watched on televisions as the fictional Hurricane Pam made landfall, following the direct-hit path on which Hurricane Georges, the inspiration for the exercise, had been originally predicted to follow. Then, the grim simulated results of Pam were announced, including the deaths of some 61,290 people in the thirteen-parish area surrounding New Orleans, of which 20,000 fatalities occurred in New Orleans itself.
Officials were then broken into groups by expertise to solve specific problems related to the hurricane. Predicted problems included the reconstruction of the 462,000 destroyed homes, the removal of 30 million cubic yards of debris cluttering the city, the placation and supply of 60,000 hungry people waiting for provisions, or the rescue hundreds of thousands trapped in their homes by floodwaters (ibid). In the longer term, the Pam scenario predicted that over 135,000 New Orleans households would be subject to long-term displacement from the flooding (Koughan, 2007; Molotch, 2006).

To solve these problems, each group was required to respond within realistic resources available, meaning for instance that the search-and-rescue group was unable to summon thousands of rescue helicopters without accounting for a real-world source and availability of this equipment. It also made non-binding recommendations for resources that FEMA should acquire in preparation for such an event, including such inventory as 100,000 sets of bedding, and 400 buses operated by 800 drivers to move people out of the city before a coming storm (Cooper and Block, 2006).

Unsurprisingly, the Hurricane Pam exercise did not lack bureaucratic turf wars. Van Heerden (with Bryan, 2007) reports that the offers of his resources at LSU to update tremendously antiquated maps provided for the exercise, on short notice. Within six hours, he received a call from someone within the Louisiana emergency management personnel to “back off,” because the company that had been hired to create these maps, however outdated, was upset by the competition.
Indeed, the provision of supplies, both planned for the “real world” scenario and the Hurricane Pam exercise itself used private, commercial contractors to achieve objectives instead of government, educational or research apparatus.

Despite these functional problems and turf wars, FEMA called Hurricane Pam “at least a qualified success” by Cooper and Block (2006: 62) because it created a plan for a scenario for which no plan had existed before. The result of the project was a formal report presented to FEMA, suggesting needs for the implementation of such a disaster plan. The envisioned follow-up exercises to the initial eight-day planning program, intended to shore up potential problems and shortfalls that Pam brought to light, were ultimately cut by FEMA due to a lack of funding, with FEMA officials later noting a budget shortfall of just $15,000. The money for Hurricane Pam implementation was ripped out of the FEMA budget by the Bush Administration and redirected to a “more pressing matter” within DHS, preparation for terrorist attacks (Robinson, 2005). Still, Michael D. Brown, FEMA’s Director during Pam, pointed to the exercise during an interview with CNN on the eve of Hurricane Katrina’s landfall as evidence of the agency’s foresight and competency:

“We actually started preparing for this two years ago. We had decided to start doing catastrophic-disaster planning, and the first place we picked to do that kind of planning was New Orleans, because we knew from experience, based back on the forties and even the late 1800s, if a Category 5 were to strike New Orleans just right, the flooding would be devastating. It could be catastrophic. So we did this planning two years ago. And, actually, there’s a tabletop exercise with the Louisana officials about a year ago [Hurricane Pam]. So the planning’s been in place for a year now. We’re ready.”
(Van Heerden with Bryan, 2007: 147)
Hurricane Katrina was about to put that readiness to the test.

**THE GENESIS OF KATRINA**

The storm that would become Hurricane Katrina formed over the southeastern Bahamas on August 23, 2005. A tropical cyclone was recognized by the National Hurricane Center (NHC), which named it Tropical Depression 12 that evening. The next morning, August 24, the storm had strengthened significantly to having winds above 39 miles per hour. Upgraded by the NHC to Tropical Storm Katrina, was the 11th named storm of the record-breaking 2005 season. The storm, which remained over the Bahamas, continued to strengthen; by 7:00 pm EDT August 24, it produced sustained winds of over 74 miles per hour, the threshold for hurricane status (Knabb et al., 2005). As it strengthened, Katrina came under the influence of upper-atmospheric winds that moved it westward. As a Saffir-Simpson Category 1 Hurricane, Katrina first made U.S. landfall near Hallandale Beach in southeast Florida around 9:00 pm EDT Thursday August 25 (Figure 3.1). Katrina moved quickly to the Gulf of Mexico on a southwestward path, slightly weakened by landfall to tropical storm status (Robinson, 2005; Knabb et al., 2005).

Whenever a hurricane ventures into the Gulf of Mexico, residents of New Orleans take notice, by necessity, because of city’s historical experience and its geography. The National Climate Data Center has recorded at least 42 hurricanes
FIGURE 3.1: Hurricane Katrina makes landfall on Florida and continues into the Gulf of Mexico. Images A, C and E were captured by satellite NOAA-17. Images B, D, and F were captured by NOAA-15. Image B is a Four-Channel Composite AVHRR satellite images, while all others are Three-Color Composite AVHRR images. (Source: NOAA, 2005)
coming within 60 miles of the Crescent City since it was founded in 1718. The first came just four years after European settlement of New Orleans began, the “Great’ Hurricane” of 1722. Since then, hurricanes have routinely visited this city, which as discussed in chapter two, is located at the worst possible geographic location for enduring storm surge. The National Weather Service prepares warnings for the Gulf Coast the moment a hurricane arrives in the Gulf, sometimes to the point of “crying wolf.” New Orleanians know this history and geography well; perhaps too well, as many of the city’s residents have been known to avoid evacuation until no other choice exists, citing personal survival through earlier storms.

**Early Warnings of a Sharpening Target**

FEMA supervisor Leo Bosner, who was in charge of monitoring and analyzing potential disasters around the country, collecting and coordinating information coming from the agency’s ten regional offices and various state capitals. Each evening, he worked with a staff of six to publish the National Situation Update, which is distributed digitally to all DHS employees at 5:30 am daily. On August 26, before Katrina struck, he was focused on the storm, noting that “Any storm above a Category 2 hurricane heading to New Orleans was something that needed to be treated with extra care.” Even this far in advance, Bosner did not like the odds for New Orleans (Cooper and Block, 2006: 100).
Once it entered the Gulf of Mexico early on August 26, 2005, Katrina encountered a large area of very warm water. Such an area of warm water provides a tremendous amount of convective energy for tropical cyclones, delivering the capability of dramatic strengthening. With this fuel, Katrina quickly regained the wind speed lost while over Florida, and intensified further. The National Hurricane Center recognized this potential and issued an advisory at 11:00 am on August 26 stating that the Category 1 winds of Katrina could strengthen to Category 2 speeds by the next day (Van Heerden with Bryan, 2007). The forecast was far too conservative; Hurricane Katrina’s sustained maximum wind speed increased from 74 miles per hour at 2:00 am EDT on Friday August 26 to 109 miles per hour at 2:00 am EDT on August 27, nearly achieving a Category 3 designation. As Katrina churned across the warm waters of the Gulf of Mexico on a due westward path, a second period of intensification followed beginning at 8:00 pm EDT that evening (Graumann et al., 2005). Within just 12 hours, this second strengthening brought Katrina’s winds up from speeds just below Category 3 to the strongest designation, a Category 5, with maximum winds reaching 167 miles per hour by 8:00 am EDT on Saturday, August 27. Katrina’s spatial extent also expanded substantially with these periods of intensification, and continued to widen until its second landfall. Having been a relatively compact cyclone upon landfall in Florida several days before, by late Sunday August 28, Katrina’s wind field was enormous; tropical storm-force winds extended 200 miles from the center, and hurricane-force winds extended 90 miles outward (Figure 3.2), (Knabb et al., 2005).
At the beginning of the 2005 hurricane season, researchers noted a particular threat presented by hurricanes to the Gulf Coast of the United States that year. The cause for concern was a mass of high pressure normally situated over Bermuda,
called the Bermuda High, which had tracked to the west. This air mass, with winds rotating clockwise outward from its center, directed wind flow through the mid-Atlantic Ocean, the Caribbean Sea and the Gulf of Mexico. When the Bermuda High was situated to the east, it tended to turn storms from a westerly track to the north along its clockwise airflow, causing hurricanes paths that threatened the Atlantic coast of the United States. During the summer of 2005, because the Bermuda High was farther to the west, this northward tracking effect also moved west into the Gulf of Mexico. With this shift, storms could be drawn storms northward, not along the Atlantic Coast, but instead directly into the Gulf Coast (Van Heerden with Bryan, 2007).

These developments elsewhere in the atmosphere would prove to profoundly affect Katrina’s path. Beginning on August 27, Katrina’s track of movement began to shift from the southwestward path it had maintained since making landfall on Florida, curving northward. Noticing this trend and the aforementioned atmospheric conditions that might lead Katrina north, at 10:00 am CDT on August 27, the NHC issued a Hurricane Watch for the low-lying Louisiana coast covering the areas from Morgan City, 60 miles southwest of New Orleans, to Pearl River at the Louisiana-Mississippi border. As Katrina drew closer to the coast, the NHC expanded the extent of the initial Hurricane Watch at 4:00 pm CDT to include the Gulf coast from Intracoastal City, Louisiana in the west to the Florida-Alabama border in the east (Knabb et al., 2005).
Katrina’s impending landfall became more evident in the hours ahead. At 10:00 pm CDT, the NHC issued a Hurricane Warning for an uncharacteristically wide swath of the Gulf Coast, stretching from Morgan City, Louisiana to the Florida-Alabama Border, a zone some 300 miles wide inclusive of perhaps 500 miles of shoreline (Van Heerden with Bryan, 2007). Such a zone not only accounted for prediction errors of Katrina’s path, it also included a wide enough region to account for the devastation expected from the storm’s exceptionally large and growing wind field, and the warning zone stayed the same through Sunday afternoon (Figure 3.3). While still 36 hours from landfall, the varied predictions of the Katrina’s path centered on a path that included a direct hit on city of New Orleans. And Katrina continued to strengthen, reaching its peak intensity of 172 mph, well above the threshold Category 5 status, during the afternoon of Sunday August 28. At this point, the center of the storm was approximately 250 miles southeast of New Orleans (Knabb et al., 2005).

Indeed, it appeared as though Hurricane Katrina represented the storm, “The Big One,” feared for generations by officials, planners and residents of New Orleans, which had witnessed a number of near-misses with hurricanes in recent memory. Even New Orleans Mayor Ray Nagin told the press that this one was “The Big One:

“[w]e are facing the storm that most of us have feared. This is a once-in-a-lifetime event. It most likely will topple our levee system,” (Dyson, 2006a: 57).
FIGURE 3.3: The first hurricane warning issued by the National Hurricane Center at 10 pm CDT on August 27 (Image A) showed an uncharacteristically wide swath for the warning, which included coast from Morgan City Louisiana to the Florida/Alabama border. Even at 4:00 pm CDT August 28, just 12 hours before landfall, the same wide swath remained. (Source: NHC 2005)
Now was the time when New Orleans would find out once and for all if those levees were truly protective, and whether all of the preparations made by the state would pan out.

**Dire Warnings, Evacuation and the Anticipation of Landfall**

In anticipation of Katrina's landfall on the Gulf Coast, President George W. Bush declared a national emergency on Saturday, August 27 that was retroactive to the day before. Under the Stafford Act of 2000, this meant that Bush had placed the federal government in charge of disaster response for Katrina. FEMA's responsibility, by law, is to serve as “the cavalry” for such a case (Van Heerden with Bryan, 2007: 65).

Before Katrina's landfall, some staffers within the White House and the Department of Homeland Security called the DHS to preemptively activate the Interagency Incident Management Group, which included a group of experts drawn together from relevant agencies to anticipate response needs for a disaster event. This would have also mobilized the new Operations Center in Washington, a facility within the DHS that had a $70 million annual budget, 300 expert employees, and tremendous cutting-edge technological resources including computers and communications equipment. However, Deputy Secretary Michael Jackson, who
maintained that such mobilization was only appropriate for terrorist attacks, rebuffed these calls (Cooper and Block, 2006).

Despite these federal actions, local evacuation decisions are typically left to local government leaders. It is considered a civic-level decision to declare a mandatory evacuation for a city, township, parish, or county. In the case of New Orleans, orders to evacuate came far too late, and were too ambiguous to express the magnitude of the situation.

“They say it’s mandatory evacuation except for the hospitals and the hotels. So it can’t be that bad.” – NYC tourist Elaine Biebel (Robinson, 2005: 11).

On the afternoon of Saturday, August 27, New Orleans Mayor Ray Nagin held discussions with his advisors about the potential ramifications of evacuation on the hotel trade. Instead of placing the safety of tourists first, he purposely delayed releasing an evacuation order to preserve hotel owner profits (Brinkley, 2006: 34). He had personally observed the failed evacuations of Ivan, yet failed to enact the evacuation early enough to ensure that all residents had time to escape. Only at 5:00 pm that day did Nagin issue a voluntary evacuation order, saying at a press conference that:

“[w]e strongly advise citizens to leave at this time. We want everyone not to panic, but to take this very seriously. Every projection has this hitting New Orleans in some form or fashion.” (Brinkley, 2006: 55-56).
These speeches sent mixed messages, speaking of both a city that would be underwater for two weeks and which might never truly recover, while at the simultaneously repeating that the evacuation order was only a voluntary one (Van Heerden with Bryan, 2007).

Nagin issued an executive order implementing “Contraflow,” a transportation scheme for evacuation, on Saturday. Contraflow is the transformation of major highways in a coastal area to one-way evacuation route when targeted by a hurricane (Brinkley, 2006). Evacuation from New Orleans has always been plagued by problems, partially because of the limited routes out of the city. This was exemplified by the evacuation in anticipation of Hurricane Georges in 1998, when many people were unable to get out of the city, despite plenty of lead time, because of traffic jams (Van Heerden with Bryan, 2007). The Contraflow plan was originally implemented during Hurricane Ivan’s 2004 threat to the city, but a lack of coordination amongst local government entities resulted in a massive traffic jam as 600,000 people left southeastern Louisiana for points north and west, making the 80-mile trip from New Orleans to Baton Rouge take 14 hours or longer. Some New Orleans residents who were trapped in traffic by Ivan, which ultimately turned east and made landfall on coastal Alabama, vowed to never evacuate again (Cooper and Block, 2006). The Louisiana State Police instituted Contraflow at 4:00 pm on Saturday afternoon, and the initial evacuation on these highways went remarkably smoothly (Brinkley, 2006).
On Sunday, August 28, the National Weather Service issued a bulletin warning that Katrina would make southeastern Louisiana “uninhabitable for weeks, perhaps longer,” and that there would be “human suffering incredible by modern standards.” (Dyson, 2006a: 77). The bulletin also warned, in capital letters that the levees would likely be overtopped. Forecasters and pundits filled television with grim predictions that a surge that simply overtopped the levees could result in a massive levee failure.

National Hurricane Center director Max Mayfield told a videoconference headed by FEMA director Michael Brown at 12:00 noon (EDT) on Sunday, August 28 that Katrina was the worst storm he had seen. As Mayfield described the storm to an audience, which included President George W. Bush among other officials, as having the intensity of 1992’s Hurricane Andrew, which had flattened part of southern Florida, but said that Katrina was spatially a much larger storm (Cooper and Block, 2006).

Mayor Ray Nagin resisted declaring the mandatory evacuation for New Orleans because the city faced potential legal liability if it forced hotels and other businesses to close for an idle threat (Dyson, 2006a: 57). Despite hearing harrowing predictions via cellular phone at dinner on Saturday evening, and deciding then to issue the mandatory evacuation Nagin waited until 10:00 am the next morning, 20 hours before landfall, to make the official announcement.
On Sunday morning, Nagin ordered the first mandatory evacuation in the city’s history, less than 24 hours before Katrina’s landfall. As Van Heerden (with Bryan, 2007: 59) explains:

“‘mandatory’ is just a word, and it really doesn't mean that the cops are ordering everyone out at gunpoint, but it’s a scarier word than ‘voluntary’ and should have been invoked on Saturday.”

Nagin suggested that the 134,000 citizens without cars should hitch rides with family, friends or church members, and that anyone who was unable to leave should go to the Superdome as quickly as possible (Dyson, 2006a). Nagin activated a few programs to help those lacking transportation evacuate New Orleans. “Operation Brother’s Keeper” was a partnership between the local government and churches by which clergymen were enlisted to help those without automobiles find a way out of the city. Officials credited the program with helping thousands get out of the city before the storm.

For those who could not leave the city, the options were grim. For those with some money to spare, hotels unwittingly became refuges of last resort, with citizens opting to evacuate vertically to avoid the storm surge. Other vertical evacuators included members of hotel staffs, who were offered shelter in exchange for keeping the hotels operational (Robinson, 2005).

In his early Sunday press conference announcing the order of mandatory evacuation, Nagin turned the certainty of a mandatory order into an ambiguity by offering the Superdome, a domed football stadium as a shelter of last resort
beginning at 8:00 am Sunday. He stated, “Let me emphasize, the first choice for every citizen is to figure out a way to leave the city,” (Robinson, 2005: 11). It had been initially planned for people with pressing reasons not to evacuate inland, such as medical problems. Though Nagin stressed that remaining in the Superdome would be quite uncomfortable, he simultaneously activated a last-minute program, announcing a dozen collection areas around the city, at which residents could get a ride via municipal bus to the Superdome (Cooper and Block, 2006). By noon, thousands of people had lined up outside of the stadium for shelter from the coming storm (Van Heerden with Bryan, 2007). It was the only shelter in New Orleans authorized to accept evacuees, because the American Red Cross had refused to establish any shelters within the below-sea-level city citing the risk to flooding (Cooper and Black, 2006; Reckdahl, 2007). Once the Superdome’s declared capacity of fewer than 20,000 people was reached, people were sent away (Congleton, 2006).

The Superdome was the only city maintained within the city of New Orleans. The older network of smaller neighborhood shelters had been dismantled at the request of the American Red Cross and the federal government. Officials felt that maintaining the old system of a network of smaller shelters in the vulnerable low-lying areas would convince residents already ambivalent to evacuation to remain in the city (Cooper and Block, 2006).

Those remaining in the city were instructed to have a three days supply of food and water on hand, whether remaining in their homes or evacuating to the Superdome. Ultimately, this was less than half of the provisions that victims would
need following the storm. Though officials expected as many as 150,000 residents to stay behind, they supplied the Superdome with only enough supplies to host that declared capacity of 20,000 for less than two days (Congleton, 2006). The city’s emergency director, Terry Ebbert, took the notion of supplying the Superdome lightly because he had seen similar events before in the cases of Hurricanes Ivan and Dennis. For those storms, people evacuated to the Superdome and stayed overnight. Once the storm veered away, everyone went home. He expected the same from Katrina: “[w]e’re thinking forty-eight hours and this’ll all be over. Nobody's going to starve to death by then.” (Cooper and Block, 2006: 113).

Accurate numbers for evacuation are difficult to determine. McLaren and Jamarillo (2007) claimed that 112,000 people remained in the city during Katrina, more than 20% of the population. City officials a higher evacuation rate, around 90%, which was higher than storms past (Cooper and Block, 2006). However, the notion these officials maintained, the impossibility of 100% evacuation, is flawed. Plaquemines Parish, a low-lying swath of land that traces the last 50 miles of the Mississippi River’s course into the Gulf of Mexico, had an extensive evacuation plan in place. As Brinkley (2006) explains, there were officials within the parish government assigned the responsibility of knowing not only which residents were in need of evacuation assistance, but also where these residents lived. Plans were made before the storm and followed to help get these people out of Katrina’s path. Plaquemines Parish began evacuating on Saturday, August 27, and boasted a nearly 100% evacuation rate of its more than 26,000 residents.
Katrina Grazes City

After reaching peak intensity of 172 mile per hour winds on the afternoon of Sunday, August 28, the storm unexpectedly weakened considerably as it approached its first Gulf coast landfall. At approximately 6:10 am CDT on August 29, the center of Katrina made landfall at Buras, Louisiana with maximum sustained winds of 127 mile per hour winds, at the upper extent of Saffir-Simpson Category Three (Graumann et al., 2005; Knabb et al., 2005). After passing over the extremity of southeastern Louisiana, Katrina briefly passed over Gulf waters again before making its third and final landfall near the mouth of the Pearl River at the Mississippi-Louisiana Border at approximately 10:00 am CDT (Graumann et al., 2005) (Figure 3.4). The maximum wind speed recorded at this final landfall was still a powerful 121 miles per hour.

The most damaging winds and accompanying massive storm surge, on the eastern side of the storm’s eye, missed New Orleans entirely, instead devastating the coast of Mississippi (Knabb et al., 2005). The largest recorded storm surge from Katrina, some 27.8 feet above average sea level, hit the town Pass Christian at the far western portion of Mississippi’s coast (Figure 3.5). This extreme level of storm surge was caused by the storm’s Category 5 strength before its pre-landfall weakening (Graumann et al., 2005). The city of New Orleans was actually subjected to winds estimated around 95 miles per hour, with a storm surge between 12 and 14 feet.
FIGURE 3.4: Hurricane Katrina regroups over the Gulf of Mexico and turns northward toward New Orleans and the Gulf Coasts of Mississippi and Alabama. Images A, C and D are from satellite NOAA-17, while B, E and F are from NOAA-15. Images A, B and F are Four-Channel Composite images, while C, D and E are Three-Color Composite images. (Source: NOAA, 2005)
FIGURE 3.5: NOAA Estimates for Maximum Storm Surge endured during Hurricane Katrina. The worst storm surge occurred on the Gulf Coast of Mississippi, devastating the coasts of Hancock, Harrison and Jackson counties. (Source: NOAA, 2005)
DIRECT AND IMMEDIATE IMPACTS

Hurricane Katrina was ultimately the most destructive and expensive natural disaster in U.S. history. The area of impact included nearly 140,000 square miles, nearly the size of Iraq. It is estimated that government expenditures to deal with the aftermath of Katrina may surpass $200 billion, while estimates of private sector damages range upwards of $100 billion more. The hurricane resulted in 1.3 million internally displaced people that scattered to all 50 states, the District of Columbia and Puerto Rico. It ultimately was directly responsible for the death some 1,872 people (Sexton, 2007).

New Orleans was drowned by three main sources: rainfall, levee overtopping, and levee breaching. Because Katrina was a fairly quick-moving hurricane, New Orleans received relatively little rainfall, perhaps as much as eight inches from the storm. In New Orleans, this amount of rainfall is problematic because of the city’s topography, which requires mechanical pumps to adequately drain (see discussion on this infrastructure in chapter two). Flooding originating from the other sources inflicted far more damage. With the arrival of the storm surge, many levees in New Orleans, particularly those bordering canals and Lake Pontchartrain, were not tall enough to block the water and were overtopped. While levee overtopping can result in a weakening of the ground on the formerly dry side, compromising the structure, levees can be indeed be overtopped and never breach.
Levees are breached when the pressure of the storm surge is strong enough to result in failure of the levee’s structure.

Most of the catastrophic flooding in New Orleans was caused by five major breaches (Figure 3.6). Van Heerden (with Bryan 2007) estimates that some 87 percent of all of the water flooding the New Orleans metro area came from breached levees. The first breaches occurred between 4:30 and 5:00 am, when weak piles of sandbags, which had been hastily installed in gaps left by non-functioning floodgates, collapsed along the northern portion of the Industrial Canal, flooding New Orleans East and Gentilly (Cooper and Block, 2006; Van Heerden with Bryan, 2007). Cooper and Block (2006) also cite overwhelming evidence brought forward by the Army Corps of Engineers that some of the city’s levees and floodwalls had collapsed before Katrina ever made landfall.

Around 6:15 am, a storm surge of between 14 and 17 feet, higher than the normal surge because of the compression of water into a channel, traveled up MRGO and the Gulf Intracoastal Waterway, converging at the Funnel and overtopping levees on both sides, flooding New Orleans East to the north and the Lower Ninth Ward to the south. However, this overtopping failed to relieve water pressure on the Industrial Canal levees. The Industrial Canal levee was breached on the northwest side several hours before sunrise – and hence, well before landfall and well before the surge’s peak – flooding most of Gentilly and the northern, lower part of downtown New Orleans. However, the slightly higher topography of Gentilly and
FIGURE 3.6: Post-Katrina breaches in levee infrastructure surrounding central New Orleans. (Source: USGS, 2005)
downtown saved these areas from the deeper floods that occurred in the Ninth Ward (Cooper and Block, 2006).

Between 7:30 and 7:45 am, a 400 feet section of the eastern levees of the Industrial Canal south of the MRGO collapsed, sending a wall of water into the Lower Ninth Ward (Cooper and Block, 2006). Because the levee collapsed before the water’s peak in the Funnel at 8:30 am, this neighborhood, resting an average of four feet below sea level, was subjected to the full brunt of surge, which drowned the Lower Ninth in some 18 feet of floodwaters (Van Heerden with Bryan, 2007). At an unknown point during the surge, levees along the northern side of the MRGO also failed, flooding the entirety of New Orleans East (Salaam, 2007).

Levee failures continued after the surge’s peak. The surge peaked in Lake Pontchartrain at 9:00 am, but none of the drainage canal levees, which drained the central city uphill into Lake Pontchartrain, had been overtopped. Three sections of levees on two drainage canals, totaling around 500 yards of levee, collapsed and drowned much of central New Orleans (Van Heerden with Bryan, 2007). According to the Army Corps of Engineers, the 17th Street Canal began to collapse around 6:30 am, failing “catastrophically” between 9:30 and 9:45 am (Cooper and Block, 2006: 71; Van Heerden with Bryan, 2007). In the neighborhoods surrounding the breach in the 17th Street Canal, the water rose as quickly as 10 feet per hour until its peak (Vidrine, 2005). At 9:00 am, a levee on the eastern side of the London Avenue Canal failed, over a mile and a half inland from Lake Pontchartrain. By 10:00 am, a portion of the western side of the London Avenue Canal had failed as well (Van
Heerden with Bryan, 2007). The failures of these levees have overwhelmingly been blamed on poor design (See: De Marchi, 2006; Van Heerden with Bryan, 2007; Cooper and Block, 2006; Vidrine, 2005; among many, many others).

**Katrina Travels Inland**

With Katrina’s eye passing to the east of New Orleans, far east of its initially predicted path through the city, much of the direct damage from the hurricane actually missed New Orleans. The brunt of the storm surge, a wall of water higher than 27 feet, came ashore with the east portion of the storm’s eye at the mouth of the Pearl River, Mississippi, leveling the cities of Waveland, and Pass Christian, and causing catastrophic damage in Bay St. Louis and Gulfport (Figure 3.7), (Graumann et al., 2005). Moving inland over Mississippi, Katrina weakened rapidly. By 3:00 pm CDT on August 29, the storm was down to Category One status. Six hours later, centered over Meridian, Mississippi, it was downgraded to a tropical storm. Traveling northeastward over the Tennessee Valley, the storm weakened further on August 30 to tropical depression status, and by that evening the low pressure cell had been absorbed by a front in the eastern Great Lakes (Figure 3.8). Katrina was no more, but the storm’s tremendous devastation remained, leaving hundreds of thousands of people in an even more precarious condition than poverty and oppression had placed them before the storm.
FIGURE 3.7: Hurricane Katrina making landfall in Louisiana (Image A, taken 5:47 am CDT) and Mississippi (Image B, taken 10:23 am CDT). Image A was captured by satellite NOAA-17, while Image B was captured by NOAA-15. Each image is an AVHRR Three-Color Composite image. (Source: NOAA, 2005)
Figure 3.8: Hurricane Katrina's remnants continue inland (Image A, 5:07 am, August 29), weakening (Image B, 10:44 am, August 29) and dissipating. By the time Image C is taken at 5:25 am CDT on August 30, less than 24 hours after the storm's landfall in Louisiana, Katrina is mostly absorbed by a mid-latitude storm system. Images A and C were captured by satellite NOAA-15, while Image B was captured by NOAA-17. Images A and C are Three-Color Composite images, while Image B is a Four-Channel Composite Image. (Source: NOAA, 2005)
KATRINA’S WAKE

Because of the rainfall, the storm surge and the resulting breaches of the levees protecting New Orleans, more than 80% of the city’s land area was flooded with water up to 17 feet deep. Figures 3.9 through 3.13 display the extent of flooding in the New Orleans Metropolitan Area immediately following Katrina. It took officials weeks to drain the water from some of the lowest-lying areas.

Crowley (2006: 123) suggests that Hurricane Katrina “acutely impacted” – meaning that neighborhoods that experienced flooding or significant structural damage – the lives of at least 710,000 residents of the Gulf Coast. Approximately 105,000 properties in the city were left “badly damaged” by Katrina, a number lower than Pam’s predictions (Koughan, 2007). The vast majority of these residents, some 650,000 people or 90.6% of this measure, lived in New Orleans. And 78% of these “acutely impacted” people were black (Crowley, 2006).

Geography and history do well to explain this phenomenon. The driest areas of New Orleans had the highest elevations, and were the places where the city was settled first. These areas were also the whitest, which Klein (2006: 61) attributes to the fact that “wealth in New Orleans buys altitude.” For example, neighborhoods that were barely impacted by flooding, such as the French Quarter (90%), the Garden District (89%), Audubon (86%) and even suburban Jefferson Parish (65%) were predominantly white. At the same time, areas that had historically been African American neighborhoods, like the Lower Ninth Ward and New Orleans East,
FIGURE 3.10: Depth of floodwaters recorded via satellite, September 3, 2005. (Source: NOAA, 2005)
FIGURE 3.13: Depth of floodwaters recorded via satellite, September 29, 2005. Though floodwaters have noticeably receded, a significant portion of New Orleans remains under water. (Source: NOAA, 2005)
had long been neglected by the city utilities, with better drainage system provided to the wealthier, whiter neighborhoods (Colten, 2007; Lavelle and Feagin, 2006). The dry neighborhoods were also the first to allow people back in as floodwaters continued to drain.

Approximately 112,000 people remained in the city proper during the storm, more than 20% of the city’s population (McLaren and Jamarillo, 2007). Researchers had noticed before “a kind of New Orleans culture of staying through hurricanes,” (Bergal, 2007: 5). Those most likely to remain behind were the poor, the sick, those with disability, and members of minority groups (Sobel and Leeson, 2006). A 2003 survey by Louisiana State University found that only 43% of those self-identified as being in poor health would bother evacuating during a hurricane. The study also found that higher incomes were significantly correspondent to the likelihood of evacuation, and that white residents were far more likely to leave than black residents (Bergal, 2007). Still, more people got out than officials ever expected.

“There wasn’t a panic, but people were truly genuinely frightened. They heeded the evacuation warning. People got out. People I had talked to who lived in the city for 50 years and had never evacuated in a hurricane evacuated this time.” --Tim Ryan, a lifelong resident, (Robinson, 2005: 13).

The Hurricane Pam exercise was credited with improving the evacuation rate of ambivalent New Orleans residents considerably from the expected level. At the same time, though, many of the lessons of Pam were ignored. Cooper and Block (2006: 116) explain that the New Orleans city government “essentially threw in the
towel" regarding maintaining an evacuation plan for those estimated 100,000 residents without a source of private transportation, determining that the city’s approximately 500 municipal buses were unable to handle such a task.

Only three of the nine hospitals in the region, all of which were outside of the city of New Orleans, remained in operation through Katrina. Charity Hospital was hit particularly hard by the flooding. The streets around the hospital quickly flooded on Monday, knocking out the electricity. Within 24 hours, the backup generators had failed. For the first time in its 270-year history, Charity Hospital was forced to turn people away.

“We were unable to care for the people we had. We had to tell people to go elsewhere. We had to turn away hundreds. They went to the Superdome, the convention center” – Dr. Peter DeBlieux, Charity’s director of emergency medicine, (Bergal, 2007: 81).

The hospital staff was told not to worry, because FEMA was on the way, though the agency did not arrive for days. National Guard troops attempting to reach the hospital were stymied by the floodwaters, and evacuation of the hospital was delayed, citing potential harm to rescuers because of rumors of violence in the flooded city. Health and medical workers faced horrific conditions in the hospital, which were continually declining as time progressed (Quinn, 2006). The malfunctioning bathrooms were full of waste, so people began urinating in stairwells where dead bodies were kept. Those who needed to defecate did so into cardboard boxes, discarding those too into the stairwell.
“In the ICU, about 50 patients were critically ill, and the medical staff had to
ventilate them by hand with bags because there was no power. “We had no
infusion pumps, no dialysis, no X-rays,” Dr. Ben deBoisblanc said. “We were
taking care of these people without any technology, just basic skills,”
(Bergal, 2007: 81).

In all cases, because of the lack of running water, the best possible practices for
sanitation was to use antibacterial hand cleaner, containers of which were in such
high demand that they were traded “like cigarettes in a prison,” (Bergal, 2007: 83).
At least 215 people died in New Orleans-area hospitals and nursing homes as a
result of failed evacuations.

THE FAILED RESPONSE

“Considering the dire circumstances that we have in New Orleans, virtually a
city that has been destroyed, things are going relatively well.” – Michael
Brown, to Wolf Blitzer on CNN, September 1 2005.
(Lapham, 2007: 10).

Hurricane Katrina was the first disaster effecting this large of a population
and geography that the Department of Homeland Security had ever faced. As Horne
(2006) argues, Hurricane Katrina was supposed to be the disaster that the DHS,
which had swallowed FEMA in the reorganization following the September 11, 2001
terrorist attacks, could use to prove itself. To Horne, the DHS was designed to
protect the United States, “not just from predictable, well-foreseen disasters like
hurricanes but sudden ones,” (65). Morris (2007) argues that “FEMA is supposed to
take the lead during disasters of Katrina’s scope,” (55). To countless observers following Katrina, FEMA failed to do its job, and it failed in a big way. One reason for that was the administrative impotence of its leadership, including FEMA Director Michael Brown, DHS Secretary Michael Chertoff, and President George W. Bush. Morris argues (2007: 43) that:

“[d]espite unusually strong warnings from the National Hurricane Center as Katrina was strengthening in the Gulf of Mexico, local, state and FEMA officials all failed to grasp the severity of the storm’s potential impact on low-lying New Orleans.”

Rescues were delayed by such ridiculous internal debates over whether the flooding was caused by overtopping or breaching of levees. Certainly, how the flooding occurred is less important, almost trivial information in the days following a hurricane, when people are dying from the floodwaters, but the arguments continued (Van Heerden et al., 2007). A number of officials, including Chertoff and Bush, argued that none of the levees actually breached until a day after the storm. Chertoff referred to the levee breaches as “a second catastrophe” that “really caught everybody by surprise.” He maintained this view, even with overwhelming evidence brought forward by the Army Corps that some of the city’s levees and floodwalls had collapsed before Katrina made landfall (Cooper and Block, 2006: 133). Van Heerden (with Bryan, 2007) argues that both Bush and Chertoff were informed within twelve hours of the levees’ failure. Regardless, they did little to help the situation. Bush remained on vacation for the first several days following the storm’s landfall.
Both Morris (2007) and Cooper and Block (2006) blamed part of the failed response to Katrina on the lack of follow up and implementation of Hurricane Pam’s findings due to budget cuts. The Pam exercise had been based on a scenario that was exceptionally similar to what Katrina brought, but many potential needs for the marooned population were never tackled during the project (Morris, 2007). For example, the resulting report from Pam called for FEMA to have 100,000 sets of bedding on hand. It also envisioned that at least 400 buses staffed by 800 bus drivers would be waiting, staged on higher ground to help ferry people out of New Orleans to higher shelters. When Katrina struck, FEMA had one small truck full of blankets, but no cots, sheets or pillows. It also had no buses in the state at all. (Cooper and Block, 2006).

Countless evidence has been presented that FEMA Director Michael D. Brown did not take Katrina’s devastation seriously – to the point that providing individual citations for these sources would be a fool’s errand – despite days of warnings about the potential catastrophe. The Senate Homeland Security Committee (2006) found Brown responsible for failing to pre-position a sufficient number of staffers or supplies to adequately respond, and for failing to communicate with Chertoff and others to mobilize aid after Katrina struck. FEMA grant programs, which required Brown’s approval to mobilize, sat unused for days after the storm (Morris, 2007). On Monday, Brown suddenly became a stickler for bureaucratic procedure. Despite that people needed immediate rescue, Brown required a tremendous amount of time-consuming bureaucratic paperwork for FEMA employees to take even minor
action (Dyson, 2006a). Buses sent to New Orleans after the storm to evacuate residents lacking transportation were held up in La Place, Louisiana, so that FEMA could check the tire tread dept to ensure the buses were in compliance with safety regulations (Kunreuther and Pauly, 2006). “That’s the kind of bureaucratic bullshit you get into when you’re trying to mobilize all of these contractors,” FEMA director Michael Brown later said (Morris, 2007: 52). The buses never showed up.

One of the largest expenditures by FEMA in the aftermath of Hurricane Katrina was the distribution of direct monetary aid. In Houston, some victims were initially distributed debit cards, but the limited availability nearly caused a riot in the Astrodome, an abandoned sports stadium that was acting as a shelter. Victims of Katrina received an average of $2,300 from FEMA in the form of a bank check, which proved difficult for residents to cash after Katrina. Many received nothing else. Fred Yoder, a Lakeview resident and executive for a construction company who, by his own admission, did not need the money, received such a check:

“I got a $2,300 check from FEMA through this whole thing…. I got zero else. What bothers me is the illusion that they did.” Money, he says—even for those who don’t have any—is hardly the biggest obstacle to rebuilding his city. For him, and countless others trying to reconstruct their homes and lives after Katrina, a bigger obstacle is the lack of official leadership. (Koughan, 2007: 111).

Despite being the official partner of the U.S. government for disaster aid and being well-funded for the effort, the American Red Cross failed in a number of ways, especially in the first wave of response. By January of 2006, the ARC had raised over
$2 billion for Katrina aid, more than six times as much as the second-highest raiser, the Salvation Army (Reckdahl, 2007). Only 10% of that money went to providing food and shelter, serving 995,000 meals and funding 3.4 million overnight hotel stays. As the official charity of U.S. disaster relief, the American Red Cross didn’t fare much better than FEMA with initial response efforts.

The organization refused to operate shelters nor preposition staff south of Interstate 12, which runs on the north shore of Lake Pontchartrain. According to the American Red Cross, any place south of Interstate 12 was considered a risk area, so all staff and supplies were positioned north of the highway, and hence north of the Lake where it could not be realistically expected to be able to return to the city with any immediacy following the storm (Reckdahl, 2007).

The first wave of ARC aid went to hurricane victims who were housed in designated Red Cross shelters. Of course, there were none of these shelters within the city of New Orleans, where a large majority of the people in need were still located (Sothern, 2006). The ARC was blocked from entering the city by governmental organizations because, according to Terry Ebbert, the homeland security director for New Orleans, “we can’t depend on a volunteer organization for initial response,” (Reckdahl, 2007: 63). Media reports of crime, looting and vigilantism also contributed to a decision by the organization to wait until a later time to enter the city. When the ARC did finally arrive in New Orleans, they were handicapped in their abilities by the fact that they had no established linkages with local social service providers. They simply were not integrated into local networks,
so it was difficult for the ARC to find needs and fill them. Other organizations, such as the Salvation Army, had these kinds of connections and allowed the volunteers autonomy to make decisions about distributing aid. Such autonomy was not a luxury that ARC volunteers were allowed (Reckdahl, 2007; Cooper and Block, 2006). Additionally, the ARC’s attempts to distribute direct financial aid were slowed by the computer systems necessary to activate debit cards, the preferred means of monetary distribution from the organization. It ultimately was forced to give paper vouchers to evacuees, but the process of attempting to activate the debit cards cost the organization days in the delivery of aid (Reckdahl, 2007).

African American community leaders in New Orleans criticized the ARC for the places chosen to serve first, which were largely upper-class parts of town. The organization cited safety issues and crime as the main concern for the location of its temporary aid distribution facilities. Louisiana state representative Francis Thompson argued that the location of the facilities showed an institutional bias against the people who needed the most help in Katrina’s wake:

“When you have people not accustomed to working with certain people, certain biases and fears set in. Even without a hurricane, the same people could travel through that area and still have the same fear.” (Reckdahl, 2007: 66).

Evacuees who were staying in hotels or other places outside of designated shelters were denied access to the services provided by the American Red Cross. Anyone who was located outside the shelter was given a toll-free number, which was usually
The organization began providing aid to people outside of the shelters a few weeks after the storm (ibid).

Those who tried to leave the city to flee the floodwaters after Hurricane Katrina struck were often prevented from doing so by various factors. Residents who New Orleans who had remained during the storm attempted to flee the rising floodwaters by crossing the Crescent City Connection bridge over the Mississippi River into Gretna, a suburban community in Jefferson Parish. They were turned back at the bridge by armed police officers (Lee, 2006; Wilkie, 2007; Cooper and Block, 2006). Parish President Aaron Broussard wanted no part of the looting and violence erupting in New Orleans after the storm and declared that:

“[p]eople with guns are going to be guarding our borders. They are not getting into the east or the west of us... We’re locking this parish down.” (Wilkie, 2007: 105)

Another problem following the storm was the evacuation of nursing home and assisted living facilities. Bethany Nursing Home in New Orleans was surrounded by floodwaters, and needed high-water vehicles to evacuate residents from its facility that now lacked electricity and plumbing (Lambrew and Shalala, 2006). Though officials of the Louisiana Nursing Home Association had promised buses, they did not arrive until three days after promised. In that delay, six patients died from lack of medical facilities and stress (Bergal, 2007).

Bush left Crawford, Texas on Wednesday, cutting his five-week vacation short by four days. On the return flight to Washington, he ordered the pilot of Air
Force One to fly low over New Orleans to view the devastation. News photographers onboard were encouraged to snap pictures of the Bush gazing out a small oval window at the devastation of New Orleans, some 2,000 feet below. “It’s got to be doubly devastating on the ground,” Bush said before the aircraft returned to its normal itinerary (Cooper and Block, 2006: 191). Many Americans were absolutely dumbfounded by this display. Horne (2006: 83) noted the curiosity of the moment, wondering why Bush’s brilliant political tactician Karl Rove had allowed this “study mixing impotence and indifference in equal parts” to be photographed and published.

By Wednesday, the population of the Superdome had grown to more than 20,000 people, who were becoming quite restless at the prospects of staying at this ad hoc shelter without running water, toilet facilities or air conditioning. Since food supplies from FEMA had slowed to being nearly non-existent, the 649 National Guard soldiers charged with maintaining order amongst the evacuees were forced to ration food, an unpopular decision (Cooper and Block, 2006).

MOVING FORWARD

Certainly, New Orleans was the site of a humanitarian catastrophe in following Hurricane Katrina, and the state was responsible for this condition. The city was allowed to exist, thanks to infrastructure and other government
intervention into the economic system, in a place that was far too hazardous for a
city to exist in a purely capitalist environment. The predominantly poor and
minority city was slowly flooded by breeches in insufficiently constructed levees,
the very same infrastructural mitigation that allowed the city to exist in the first
place. And the very promises made by the various levels of the state, that any failure
of these levees would be a disaster ultimately worthy of rescue from agencies such
as FEMA and the American Red Cross, were broken, leaving the more than 112,000
people remaining in the city in a real-life nightmare, and more than 1,800 people
dead. It is truly indisputable that these events were an injustice of epic proportions.
What I intend to do in the following chapter is to express the means of this injustice
from an intellectual standpoint, using the geographic conceptual mainstays of
“space” and “place” to articulate one argument as to why New Orleans after Katrina
represents perhaps the most disgusting environmental injustice in U.S. history.
The populating of New Orleans as an urban area would not have occurred without the manipulation of the capitalist system by various governmental apparatuses. The city’s precarious situation between the Mississippi River and Lake Pontchartrain led to a significant risk from damaging flooding events throughout its history. Beginning with the founding of New Orleans in 1718 by the French-Canadian Jean-Baptiste Le Moyne Sieur de Bienville, various structural mitigations, particularly levees, were used to protect the city and surrounding areas from floodwaters (McQuaid, 2007). Such actions to alter the physical environment, or at least the perception thereof, were undertaken repeatedly in the nearly 300 years until Hurricane Katrina came howling ashore in 2005 (Bohannon and Enserink, 2005). In essence, if the relationship between humans and their environment were governed by a truly capitalistic system in southern Louisiana, New Orleans would never have developed to its size or scope existent in the early part of the 21st Century. In essence, various entities of the state have repeatedly communicated a message stating – even promising – that New Orleans was safe, but then failed to back those messages with action. And because New Orleans was not only allowed,
but encouraged to develop as a major metropolitan area, the city’s experience of “white flight” and urban decline throughout the latter half of the 1900s led to a concentrated urban population of oppressed people located in a very dangerous physical environment. The state’s interaction with the natural environment, through discursive construction evident in investments like infrastructure and through the creation of bureaucratic apparatuses -- and the failure of the state to actively keep the promises made with this discourse -- led to a significant environmental injustice.

I intend to fully situate the initial impacts of Hurricane Katrina on New Orleans into the environmental justice perspective’s interpretation of human-environment interactions. The philosophical theory that I have developed to analyze this situation is the argument that the various apparatuses of the state produced New Orleans as a “safe” place, and that the implementations of both material and bureaucratic infrastructure represented a discourse that so produced the city as a place worthy of capitalist investment. I use a variety of what I have called “theoretical signposts” to this end, guides that have shaped my trains of thought and my processing of this wealth of information. With these ontologies, I examine the discourse that “produced” New Orleans as a place safe for capital. By demonstrating this discursive construction, I then tie the actions of the state directly to the encouragement of populating this tremendously dangerous place, New Orleans, by disadvantaged peoples, resulting in a dramatic environmental injustice brought forth by Hurricane Katrina.
**THEORETICAL SIGNPOSTS**

To elucidate my arguments situating the effects of Hurricane Katrina on New Orleans into a perspective of environmental injustice perpetrated by state entities, I use a number of theoretical signposts to inform my examination of the events surrounding this disaster. While disasters are typically studied in the realms of hazards geography, I argue that other epistemological perspectives, including Foucauldian understandings of power/knowledge and discourse, notions of capitalist space and place forwarded within Marxist geography, and the recognition of “nature” as a discursive, nonessential entity. Throughout this section, I will attempt to flesh out my theoretical underpinnings to strengthen my main arguments in this project: that New Orleans had been discursively produced through its history as a place safe for capitalist investment. The investment in this place, and of course its subsequent neglect and abandonment through the reorganization of capital and the continuance of the classist system, led to the disgusting oppression of environmental injustice on the city’s disadvantage residents.

**Hazards Geography**

The discipline of geography offers a wide array of tools useful to understanding the complicated relationships between natural and human systems. The most used of these is the lens of hazards geography, which looks at extreme
interactions between humans and nature through the lens of terms such as risk, vulnerability and loss. What I am proposing in this paper is the need to look beyond the tools provided by the work of hazards geographers, to incorporate other ontological and epistemological perspectives capable of providing a deeper understanding of these complex interplays.

The hazards perspective in geography has its roots in physical geography. Considered the “father” of hazards geography, Gilbert White focused first on floods as natural events, later adding consideration of the effects on humans. The physical processes of the hazardous events dominated early hazards research, and the perspective of hazards as a field of scientific inquiry remains today. In his doctoral dissertation at the University of Chicago, White (1945) posited his theory that humans were more likely to live in floodplains if protective levees were constructed, the very basis of my main argument. As the hazards perspective aged, the focus of researchers shifted from the physical processes of the hazards to the human interaction with the environment. Among the first to promote a strong societal focus in hazards research, Hewitt and Burton (1971) criticized those focusing on physical processes for lacking a social science insight to the effects of hazards. Still, the primary focus of hazards research remained on the occurrences of the natural event itself.

Within the field, the term hazard has a variety of definitions, all of which involve human interactions with the environment. Specifically, hazards have been defined as elements of the physical environment that were “harmful to man but
beyond his control,” (Burton and Kates, 1964), and as interactions between humans and nature ruled by “coexistent state of adjustments in human use systems and the state of the natural system,” (White, 1974). A natural hazard is commonly defined as a representation of “the potential interaction between humans and extreme natural events,” by definition creating a threat to society (Tobin and Montz, 1997).

With its traditional basis in the physical sciences, hazards research has largely been conducted using quantitative methodological analysis. The analysis of individual hazards is conducted geographically by combining hazards found in places to determine overall hazardousness of individual locations. This hazardousness is measured in terms of risk and vulnerability (Hewitt and Burton, 1971). Risk is generally defined as the “probability of hazardous events” to a location (Hewitt and Burton, 1971; Kovach, 1995). Determining vulnerability requires a quantitative consideration of exposure, resistance and resilience to the hazardous force. Similar to risk, exposure is the probability that the hazardous event will strike humans or their property. Resistance is generally defined as the ability of a structure, society or property to withstand the forces of a hazardous event. Resilience is the ability of the society to return to “full forward motion,” -- which includes both response (immediate action) and recovery (long-term rebuilding) – after the effects of a hazardous event (Dow, 1999). As an aid to mitigation against hazards, the determination of vulnerability provides insight into potentially dangerous situations both in terms of location and proximity to hazardous physical features as well as coping ability (Dow, 1999). To their credit,
researchers using these perspectives strive to analyze hazards data as a proactive attempt to prevent loss of life, health and property (Cutter, 2001).

Situated as a spatial science, hazards geography has, however, unwittingly become another mechanism of the state apparatus in securing conditions for capitalism. As Bruno Latour observed (1999) it is impossible to extract science from the structures of the society in which it is practiced. As the spatial science of hazards geography arose in a capitalistic society, it is impossible to remove the capitalist influence from the hazards perspective. Indeed, even the most basic terms of hazards geography – risk, vulnerability, susceptibility -- used to describe the potential or real ill effects of an event, are synonymous to those used in finance.

Evidence of the hazard perspective’s embedding within the larger capitalist society can be found in definitions of hazardous events. Degrees of personal harm and property damage are categorized into the smaller-scaled disaster and the larger-scaled catastrophe. Thresholds for these classifications are anything but standard, but certainly share a common unit of measure – either human casualties or a dollar figure representing property damages. The first attempt at standardizing these definitions, Sheehan and Hewitt (1969) established “disaster” as an event that leads to at least 100 deaths, 100 injuries, or $1 million in property damage, while they defined a catastrophe as 500 fatalities or $10 million in damage.

Often in hazards research, humans have been generally viewed in terms of populations or demographic groups, but rarely in terms of individuals nor as the irrational beings that most humans are. To solve this discrepancy, various scholars
have argued for a greater integration of such irrational human factors into hazards research. Pelling (2000) argued for a greater integration of human factors into the study of natural disasters, and questioned exactly how “natural” any disaster event might be. Similarly, in claiming that hazards geography placed far too much emphasis on the physical environment, Blaikie et al. (2004) presented famines as evidence that the most damaging of disasters are not truly “natural,” but mostly products of social, political and economic environments. Certainly this is true in the case of New Orleans and Katrina (Gray, 2005).

An alternate viewpoint is that natural disasters are essentially humanitarian disasters with a natural trigger. For example, in famines, the natural trigger of drought or pest infestation amplifies differential access to resources amongst various socioeconomic classes by essentially pricing out those less able to afford the suddenly scarce resources (Pelling, 2000). Additionally, a problem of access, not only economically, but socially and spatially exists. Certainly, those alienated from normal social support networks by evacuations or the event’s fallouts may lack the intermediary normally used to acquire necessities such as food and medicines. Similarly, those stranded or trapped by a disaster’s fallout are unable to acquire those and other necessities such as clean water, adequate waste disposal and perhaps shelter. These are things that, in many cases, the hazards perspective fails to address.

Disasters have long been shown to negatively affect the status of disadvantaged populations far more than the privileged. In contrast, environmental
justice has focused chiefly on pollution legislation and disposal of pollutants, though these pollutants are not the only ways in which certain groups have been disproportionately affected by the human-environment relationship. Higher socio-economic status bestowed certain benefits upon disaster victims, including not only economic resources but also abilities to act in self-protective manners cultivated with enhanced education (Tierney, 2006; Shears and Schwartz, 2009).

In citing California’s proneness to earthquakes and Florida to hurricanes, Steinberg notes that nothing is predestined about an assumption that disasters are humanitarian crises. He claims that this view, that disasters are “natural” to certain places

“effectively naturalizes a particular set of geographies of risk, instead of asking how these historically specific hazards profiles came to be. Florida, like California, was not born risky. It was built that way.” (Steinberg, 2006: 47)

Ultimately, events blamed on the produced “nature” tend to affect groups of people with unequal consequences. This certainly holds true for so-called “disasters,” those extreme interactions between humans and their environment, when people with limited resources are less able to face the daunting monolithically constructed “nature.” In any advanced capitalist society, disaster events result in state intervention, as the state functions to reestablish conditions conducive to capitalist development. The discursive production of nature justifies these direct, sometimes oppressive actions. Idealistically, emergency managers and others in the
disaster management profession argue that they act during such events to help people, and for some individuals this is certainly the case. The problem is that the recognition of existing injustice and oppression is often unnoticed or ignored by even the most compassionate of emergency managers because of their scientific approach. Academic hazards researchers join this conundrum. Though Colten (2007), for instance, recognizes that such injustices exist, the remanifestation of these injustices by state entities during disaster events counter his arguments:

“Deeply rooted injustices cannot be expunged by hazards planners, but the policy of federal agencies should be to avoid contributing to such injustices.” (Colten, 2007: 173).

Here Latour’s (1999) discussion about the fallibility of science– the impossibility to extract science from the society in which it is practiced – is crucial to the theoretical direction that I take from here. Indeed, hazards geography is practiced largely in a capitalistic society and in fact draws much of its very vocabulary from capitalist terms. To fully understand, and hence critique, hazards geography, capitalism must also be examined, which I attack from a Marxist perspective.

**Marxism: A Compelling Critique of Capitalism**

“Capital is reckless of the health or length of life of the laborer, unless under compulsion from society.”
(Karl Marx and Freidrich Engles, *Capital*, 1867: 16)
Capitalism is a profit-driven system through which all parties, including producers and consumers, are fully dependent upon the supposedly free market for their needs. Means of production to fulfill these needs, including capital, land and labor, tend to be privately owned by producers, while producers employ consumers as waged labor. These wages are used to purchase produced goods, allowing producers to realize a profit on the capital investment of production. With the competitive nature of the system, profit maximization and accumulation drives production (Marx, 1867; Harvey, 1982).

Crucial to continuing this cycle of production and accumulation is the realization of added value to produced goods through maintaining demand. Simply put, if consumers fail to consume, producers fail to profit from realizing the added value returned from that investment production and the system quickly collapses. Marxists recognize this collapse, the resultant crisis of overaccumulation, as a slowing of consumer demand caused by financial overextension of consumers and the flooding of the market with goods (Harvey, 2003).

Producers compensate for this problem by cutting costs and hence prices, offering fictitious capital (credit), or purposefully producing goods with a measure of built-in obsolescence. For example, costs are lowered through generating more efficient modes of production, usually focusing on reducing labor costs, in order to lower consumer prices and encourage consumption. Credit, while increasing the amount of capital consumers have to spend in the short term, also manages to cheapen labor costs because laborers, lacking financial stability to seek alternative
employment or strike against unfair employers, are indebted and therefore subject to abject working conditions enforced by producers. Built-in obsolescence is a way to drive demand by producing consumer goods and services that eventually wear down. Cultural production serves as an excellent example of the built-in obsolescence. To Theodor Adorno (2004), nearly every aspect of a society’s culture was mobilized as a commodity to ensure a growing supply of goods for public consumption. Indeed, with anything from music to movies to books to technological gadgets to automobiles, most consumer products have an operational life that far exceeds desirability.

Even with these measures, capitalism, as an economic system, has a marked inability to continually operate without reaching a point of crisis caused by overconsumption and thence a loss of demand and realized value of investments. Capitalism’s predisposition to crisis, a threat against capital investment posed by the inherent instability of such a system, requires intervention. In Marxist theorizations, because disruptive crisis is endemic to capitalism, the state serves as the intervener, ensuring the continuance of the economy on which many other aspects of the society are based. The state, and its role in alleviating crises caused not only by overaccumulation, but also by “natural” disruption and imperial and colonial projects, is crucial.

Many conceptualizations of “the state” have been developed, incorporating a variety of economic ideologies. For a theorization that best fits my Marxist interpretation of capitalism, I draw heavily from *State Apparatus* by Gordon Clark
and Michael Dear. Here, the state is recognized as a “process, for the exercise of power through certain institutional arrangements” (Clark and Dear, 1984: 37). Of course, the development of the state in a capitalist economic society binds its power to certain functions dictated by that society. Using what they call a “form-function-apparatus” analysis, Clark and Dear recognize that theorizing the “state apparatus,” the executing instrument of state activity, requires an understanding of the state’s function. The function of the state, in turn, calls into question how the society’s structures form the state’s structure and purpose. Therefore, proper analysis of the state apparatus must begin with form, proceed to function and later apparatus.

Clark and Dear outline, through a detailed taxonomy, the form, function and apparatus of a theoretical state in a capitalist economy.

In a capitalist society, as Clark and Dear (1984: 39) assert, the form of the state exists to guarantee the continuation of capitalism, specifically “conditions for capital accumulation and the reproduction of the social formation,” because no single capitalist can ensure this. Clark and Dear observe a trend to “corporatism,” a structure that integrates producers into leadership roles and institutes social control for the masses. Corporatism is achieved through a strengthening and ascendance of the executive portion of the government and an accompanying expansion of the state’s functions. Through such transformations of form, the state is able to gain more autonomy in the society at the expense of the representative branch of government, which acts specifically as the voice of the masses.
If a disaster is defined as a disruption to life from which recovery was not possible without an influx of external aid, the state often serves as that agent of recovery (Blaikie et al. 1994). Due to the very social inequality inherent to a capitalist system, specific groups of people are more vulnerable, and these social factors generate disasters where the natural event is nothing more than a trigger that disrupts a delicate balance. In the case of disaster events, a “crisis” arises when stability of a society is disrupted by a natural event, and capitalism is unable to continue at full speed in affected areas. Of course, as Clark and Dear (1984) recognize, one important and necessary condition of capitalism is social inequality. To date, the environmental justice perspective has focused chiefly of human-use issues such as the effects of natural resource exploitation and pollution on oppressed groups, as allowed (and perhaps encouraged) by government intervention (policy).

With recognition that the form of the state is greatly influenced by the structures of the society at-large, the functions of that state can be explored. Clark and Dear (1984: 43) identify three specific functions undertaken by the capitalist state: securing “social consensus,” securing “conditions of production,” and securing “social integration.” By securing social consensus amongst the constituency, the state ensures that all groups within the society at least generally accept the prevailing social contract. This consensus is important because stability is the first necessary ingredient for the promotion of capital investment. It is important that Clark and Dear highlighted stability in this theorization of the state, because only
when social stability is established do producers find a properly continuative environment to foster capitalist exchange.

With this baseline social stability, securing further conditions of production are the next function of the state. Production is encouraged through the regulation of social investment and through the regulation of consumption. The state’s social investment includes the provision of both physical and social infrastructure, including utilities and education. By providing a profitable physical environment and a trained labor force, the state provides conditions necessary for economic growth and market exchange. In doing so, the state reaffirms its allegiance to capitalist elites by promoting their profits, and hence ensures the reproduction of the labor class (i.e. cheap laborers) by maintaining a society in which laborers have no ownership of the means of production. Indeed, by promoting capitalist profits, the state ensures workers must work within the system to acquire means of survival.

However, if such a structure of labor oppression were obvious to the working class, revolt against the producers would be an attractive alternative for laborers trapped in this system. Of course, conditions of stability would be lost in any popular revolt. In order to avoid this potential disruption, the state functions to facilitate social integration, specifically “by ensuring the welfare of all groups, but especially the subordinate classes” (Clark and Dear, 1984: 43). Arising from social inequality, cheap labor is absolutely necessary to induce capitalist investment (see Smith, 1990). Though dangerous due to the threat of popular revolt, the state acts
to secure the conditions of production through the implementation of social welfare programs. Essentially, through taxation and redistribution of social wealth, the state “buys” the conditions of social inequality from the masses, ensuring the continuance of the society without a class revolution. The state also uses various constructed notions of difference, such as race and gender, to situation

In these ways, the state secures a social consensus, conditions of production and social integration, each essential to the state’s perpetuating existence (See Weber, 1964). By executing these three functions, the state achieves a situation conducive to capitalist investment and exchange, importantly by creating the stability that offers capitalist investors opportunities to realize profit. However, the slew of capitalist-friendly social conditions is not achieved solely through these specific social functions.

In order to achieve its function of promoting capitalism, the state has to establish institutions through which its power is exercised. Clark and Dear (1984) situate these institutions as the state’s apparatus, but stress that the existence of such apparatus is not directly related to the current condition of the society. Indeed, over time, these apparatus tend to take a nearly material characteristic based upon the contemporary condition of social relations. These apparatus then have a sort of inertia that is independent of evolving policy and class relations. At the same time, the nearly material quality of these apparatus allow undue influence by those in privileged economic and political positions within the society; the autonomy of the state is depended upon the degree of active influence of
these groups. Ultimately, the apparatus acts as a medium through which the exercise of power is “filtered” and inevitably transformed, usually to address the functions of the state.

Within the state apparatus, Clark and Dear (1984) identified four sub-apparatuses: consensus, production, integration and executive, each with multiple components. By ensuring that each social group has some, albeit limited and unequal, access to the proceedings of the state, the first sub-apparatus seeks consensus in the society through political, legal and repressive institutions. The political institution includes the entirety of the constitutional government, the selection of personnel to fulfill prescribed positions, and the execution of internal and external affairs. By providing a forum through which the demands of the constituency are heard, guaranteed by supposedly free and equal elections, parliamentary democracy system has long been regarded as “the best possible shell for capitalism” by ensuring that dissent is channeled internally and not into revolt. The legal institutions act as a companion to the political institutions by providing mechanisms that mediate between groups. These mechanisms, used by all groups to secure rights, include statutes of law and the court system. However, these mechanisms cannot escape the society in which they develop and, despite promising universal access, often reflect the inequality of the society at large. The state’s political and legal institutions exercise power via the enforcement of laws by repressive institutions, specifically civilian police, the military, and the prison system. Indeed, as Foucault (1975) explained, simply the threat of punishment
manages to discipline most members of a society into proper behavior. Clark and Dear (1984) recognize that this third repressive institution acts to execute surveillance on the society, to prohibit and restrict opposition, to harass and terrorize opponents to the state. It is from this repressive enforcement that the society is disciplined to accept the legal and political institutions of the state. This acceptance creates the social stability necessary for capitalist development.

A second sub-apparatus through which the state encourages a social environment friendly to capitalist interests focuses specifically on production by directly securing the necessary conditions of social investment and consumption, and includes three institutional divisions. The state encourages capitalist investment through the public provision of such products that individual capitalists cannot afford, including infrastructure such as roads, utilities, waste disposal, and protective levees. These goods are distributed through public provision institutions, through which the state contracts other agencies for production and distribution of goods and services. Increasingly in neoliberal societies, such provisions are contracted to private firms as a way to directly stimulate consumption and hence profit for those producers. Beyond the social stability ensured by the consensus sub-apparatus, the production sub-apparatus guarantees economic stability with the treasury, which controls the fiscal and monetary policies of the state.

Additional social stability is guaranteed by the integrative sub-apparatus, which, at least theoretically, promotes the physical and social well being of all within the society. The integration sub-apparatus includes four institutional frameworks.
Healthcare and educational institutions provide appropriate workers for the labor force, in both number and skill, serving to socialize children to suitable work behaviors. The institution of social welfare provides capital to non-productive groups to enable them as consumers. In exchange for the provision of healthcare, education and welfare, the state assumes an increasingly penetrating role into the everyday affairs of individuals, groups and communities through increased regulation of social relationships. The state seeks further integration through exercising various degrees of control over information dissemination, especially those that are state-sponsored or state-controlled. Often, these sources peddle the ideological viewpoint of the ruling class by strangling sources of information through self-censorship. The information is further disseminated through the communications and media institutions, including newspapers, television, radio and other media. While these institutions are usually granted a level of autonomy by the state in capitalist societies, the state still intervenes through establishing regulations regarding libel and “quality” standards.

Finally, the fourth mechanism through which the state exercises power is the executive sub-apparatus. As the executive sub-apparatus does not fulfill any of the three major functions of the state, it is positioned as an enabling mechanism. As forecast by Marx and Engels (1867), the state bureaucracy rises to ascendancy to ensure the operation of the other sub-apparatuses and ensures the state’s continued existence. Within the bureaucracy are regulatory agencies, which serve to extend the state’s intervention into decidedly non-state activities. As these agencies
simultaneously represent and regulate the constituency, their existence and
exercise of power is a potentially important element in the thrust toward
corporatism. Indeed, what Clark and Dear (1984) have explained in great detail is a
type of the state in which the state’s main function is to facilitate interference
within the capitalist society to encourage investment and production.

Clark and Dear’s (1984) efforts have been categorized as a “regulation
theory” approach to conceptualizing the state. Regulation theory “assigns a nanny
role” to the capitalist state, which exists solely to serve the dual functions of
alleviating crises of overaccumulation in a privately formed economy, and nurturing
those not participating in that economy through welfare programs (O’Neill, 1997).
Regulation theorists assume that the management of accumulation, which occurs in
a privately originated capitalist system, is the most important tool to securing
legitimacy of the state. This approach is efficient for explaining the state’s role as a
social regulator during the Fordist period, but allows little room for recognizing
restructuring of the state’s roles as the economy evolves. However, the state is
indispensable in the creation and maintenance of an economy because capitalism
never arises completely from private investment, and economic institutions are
never free from political influence. As O’Neill argues, the state’s role in this
theorization is contradictory, in that the state maintains its legitimacy by
reorganizing collective activities in a society while fully depending financially on the
supposedly private economy for existence.
Clark and Dear’s (1984) state apparatus also privileges the nation-state model as the primary container of governance, despite the fact that economic relationships in an increasingly globalized world cross such boundaries freely. This privilege arises from the fact that the capital redistributing mechanisms of the state are enacted with the territorial boundaries inherent to the nation-state’s form (Martin and Sunley, 1997). A lack of scalability in Clark and Dear’s (1984) model is an important weakness to recognize. The state is always spatially organized because it exercises specifically spatial strategies to intervene in society, regulating social and physical interactions among individuals and groups, something discussed a bit later in this paper (Lefebvre, 1974). However, as Erik Swyngedouw (1997) explains the scale of governance is an exceptionally important component of these strategies, because any rescaling, continually happening as economic relationships change to a lesser dependence on nation-state boundaries, “the articulations... redefine and rework the relationship between state and civil society, or between state power and the citizen.” Birkland and Waterman (2008) further suggest laying blame for these dependences against the many governmental steps of federalism.

A number of suggestions regarding a newer conceptualization of the state have been introduced, each specifically aiming to resolve the question of scale. O’Neill (1997) proposes a “qualitative” conceptualization of the capitalist state that serves two roles: to organize structures through which private groups within the economy can actively pursue their goals, and to influence the behaviors of the society through the actions of these organized structures. In this way, O’Neill’s
version of the state is more than just the government, but the exercised construction of societal relationships, both between and within groups, and between the groups and the state, by the state's administrative, legal, bureaucratic and coercive systems. Similarly, Martin and Sunley (1997) suggest that the new scalar state model should accomplish two objectives, each of which are manipulations of social systems: the facilitation of local social networks that encourage entrepreneurism, and the institution of state intervention aiming to foster cooperation between label and capital to ensure the continuation or production. However, neither of these suggestions directly addresses the changing scale of social relationships which has, as Swyngedouw (1997) cautions, resulted in power reverting to the hands of a small group of elites who remake the world as they see fit. Of course, the resistance mounted by those sectors of the society who remain left out of the new structures is missing from these proposals.

In the conceptualization of scale which he calls ‘spaces of dependence,’ Kevin Cox (1998) advocated the use of networks of dependence to understand the constructed scales at which agents interact politically. He defined these as “...localized social relations upon which we depend for the realization of essential interests and for which there are no substitutes elsewhere.” Agents organize in order to secure condition for the continued existence of spaces of dependence because it is through these relationships that their particular level of power is derived. These spaces include a set of spatial inputs and outputs necessary to the continued influence held by the agent. The other conceptualization that Cox offered,
'spaces of engagement,' were defined as “space created by agents that are engaging in other centers of social power in order to secure spaces of dependence.” These spaces were to be organized in areal terms, defensible because agencies engaging in politics are so attached to finite territorial boundaries. The ‘spaces of engagement’ conceptualization describes the exercise of economic relationships in a way that allows for these relationships to change in accordance with scalar adjustments and accounts for resistance to power. However, in accomplishing these objectives, Cox’s model seems to oversimplify the state into mere agency in a group of economic and social relationships.

These newer theorizations of the state are certainly not without merit. At the same time, Clark and Dear’s (1984) conceptualization of the state currently appears most relevant to this particular research subject, because I argue that disasters are economic crises in capitalist societies. In times of crisis, whether Harvey’s (2003) crisis of overaccumulation or a disruption of the capitalist system brought forth by so-called natural disaster events, the function of the capitalist state is to intervene and return societal conditions to those favoring capitalism. While the state apparatus model is not without weaknesses, the further suggestions of O’Neill (1997), Martin and Sunley (1997) and Cox (1998) refine my conceptualization of the state’s interference in economies as catalyzed by disaster events.

What of New Orleans and Katrina? These Marxist conceptualizations are certainly easy enough to grasp with a broader, more theoretically based understanding. Indeed, these approaches feed into the larger theme of
environmental justice; disasters, which result in government intervention to ensure capitalism and which effect populations unequally, should be examined under an epistemology guided by that environmental justice perspective. Indeed, Hurricane Katrina’s impact upon New Orleans provides the perfect case study to connect these theoretical frameworks and models of the state’s involvement in politically economic spaces and places, particularly those related to disasters.

Michel Foucault, Discourse and Power/Knowledge

“Those who control the past control the future. Those who control the present control the past.” (George Orwell, Nineteen Eighty-Four, 1949: 23)

Power is a complicated concept that philosophers have struggled to understand for centuries. My guidance for understanding power comes largely from the writing of philosopher Michel Foucault. The epistemology Foucault prescribes examines power relationships from the perspective of discursive knowledge. Much like Orwell’s dystopic suggestions in Nineteen Eighty-Four, the past – or more succinctly, the compilation of “knowledges” – determines the future, and those in power can manipulate these “knowledges” to a determined end. I use this as a basis for my primary argument, that knowledge about the safety of New Orleans was produced by state entities in a fashion encouraging to the investment of capital. Foucault wrote extensively on the intersections of power, knowledge and discourse, recognizing that power and knowledge could not be divorced, and that knowledge is
disciplined by discourse. Most important for my purposes is how the inseparable power and knowledge are derived through discursive formations. Here, I draw heavily on James Tyner’s (2004) usage of Foucauldian approaches, in which power is understood by examining how knowledge is produced and deployed. And, of course, to understand the origins of that knowledge, the discursive formations of the society must be analyzed.

In his *Archaeology of Knowledge* (1972), Foucault established a theorization of discourse as a set of linguistic relationships in a society through which relationships can be better understood. These relationships are reflected in statements, which include any expressions or enunciations, and that serve as the basic units of Foucault’s discourse analysis. Evident in the various enunciations of every organization, institution and discipline, statements are found in laws, rules, regulations, contracts and other official and unofficial utterances.

To Foucault, examining these statements is crucial to uncovering the larger social conditions from which the utterances emerged. When the statement is free from essentialist ties to meaning, it frees the statement to be a discursive object, one that is dependent upon the larger social context. With this freedom, Foucault established the place of statements as part of a web of meanings, which can be examined together as larger discursive formations.

Discursive formations ultimately serve as the producers of knowledge. Foucault offered four crucial principles to guide the understanding of discourses: the principles of discontinuity, rarity, specificity and limitation. In his principle of
discontinuity, discourses must be treated as discontinuous, polydactylous activities
with many manifestations, any of which can range between complete cooperation to
complete exclusion of other discourses. Additionally, as outlined in the principle of
rarity, discourses are selective because everything is never said, and hence
knowledges are partial. At the same time, Foucault warned, the absence of certain
substance in a statement cannot be construed as repression, nor can it be assumed
that such discursive practices conceal hidden realities, especially in government
discourses. In the principle of specificity, Foucault explained that discourse could
only be resolved in its own system of signification and should not be subjected to
the interpretations of other systems. Ultimately, this means that the world is not a
set of meanings waiting to be deciphered, but that all meanings are granted by the
specific system of signification in which the discursive formation arose. Lastly, in
his principle of limitation, Foucault explained that discourse finds a way to limit its
domain, to define what it is talking about, and to give itself the status of an object by
making itself nameable and describable. Indeed, this recognition provides an aid
against the dangerous stumbling point of assuming that discursive formations have
material origins.

With these principles in mind, a Foucauldian approach allows us to view
discourse as practices, constantly working to form objects of which they speak, not
as representations or signifiers. Of course, all knowledge is demarcated by these
discursive practices, and this applies to disasters as well. Following Foucault’s four
principles, discourses of disaster are simultaneously discontinuous (multiple,
contested meanings), rare (only used in certain instances by certain groups), specific (only applicable as produced in specific systems) and limited (produced as objects to define the discursive domain).

The production of “disaster” or any related term by discursive formations is also the production of knowledge about disasters. Foucault focused chiefly on the sanctioning of knowledge claims as a way to critique the control exercised by modern societies. As Tyner (2004) noted, these knowledges are absolutely crucial to subsequent political practices. Policy regarding disasters, including aspects of prevention and recovery, are informed by these discursive knowledges. Obviously, then, understanding the production and deployment of knowledge in regards to disaster is absolutely critical to understanding how a state apparatus intervenes in events produced as disastrous.

To Foucault, power is not an object to be held or acquired, nor is it an ultimate force of repression. Instead, power “produces things, it induces pleasure, it forms knowledge and produces discourse. It needs to be considered as a productive network which runs through the social body, much more than as a negative instance whose function is repression.” (Foucault, 1980: 119). Using a Foucauldian approach to understand power requires an examination of how knowledge is produced and deployed, specifically who does so and what implications this production and deployment have on exercises of power, such as policy. No power relations take place without a field of knowledge, and knowledge cannot exist without exercised power. In this way, knowledge and power are inseparable.
Foucault’s conceptualization of power differs from both the traditional account of power as an object that can be possessed, and from the Marxist notion that power is the force through which oppression is enforced. To Foucault, power is exercised, circulating throughout the society, never possessed and never objectified. This Foucauldian notion is important because, as Tyner (2004: 14) explains, it recognizes that “power and the production of knowledge are not simply the result of an oppressive capitalist system or its apparatuses.” Indeed, power is not limited to the privileged class, because authorities lack a total monopoly on the production of knowledge. There is always potential for liberation from power through resistance; the realization of such resistance is ultimately an exercise of power by the supposedly oppressed. It is within these margins, this potential for resistance, that proponents of environmental justice promote their cause.

At the same time, as Foucault explained in his History of Sexuality, Volume I, this means that there is no binary of opposition between the rulers and the ruled. Of course, power is never exercised without aims and objectives, which are reflected in and reflective of the knowledge produced in the society. As power is exercised dependent upon the produced “reality,” so is more knowledge produced not only by the exercise of power but in reaction to it by those resisting the power.

The production of knowledge within disaster events has various consequences. For instance, if the United States government, via presidential decree, formally declares an event to be a disaster, there are a number of actions taken by various parts of the government’s apparatus to minimize risk to people and
property before the disaster occurs, and, following the event, to reestablish economic conditions existent beforehand. Critical to this mobilization of resources is the person whom declares the event to be a disaster; in the United States, it must be declared by the president to ensure federal aid, while the state’s governor can declare a disaster to ensure state aid. If an event is not declared a disaster by these figures, those people affected by the event are likely to receive no such aid.

A tremendous amount of knowledge is produced by the state regarding the consequences of those events labeled disasters. Governments worldwide dedicate tremendous funding to research of hazards and disasters, producing knowledge of the consequences of these events that often lacks accessibility to the public at-large. State-produced discursive statements are found throughout hazardous zones (the establishment of which itself is discursive), encouraging capitalist development in these areas. Mitigation measures such as dams and floodwalls, tornado sirens, tsunami alarms, hurricane evacuation routes, and even building codes act as a reassurance that, should a disaster event occur, that losses of humans and physical property, and hence capitalistic infrastructure, will be limited.

Though Foucault was not specifically a geographer, his works have been widely influential on how geographers and other philosophers perceive space and place. Foucault’s wide work mentions little directly about the core geographic concepts of space and place, but the connections are easy to understand. Indeed, if all discursive formations are products of the societies in which they originate, and discourse is used to create knowledge about material and actions with the intention
of exercising power, then knowledge can also be created in a culturally specific context about space and place with the intention of exercise power.

**Henri Lefebvre and *The Production of Space***

Certainly the use of discourse to create or produce space, and hence exercise power over it, is not a new concept. Here, I mobilize the writings of philosopher Henri Lefebvre, specifically from his landmark work *The Production of Space* (1991), to connect Foucault’s use of discourse to a more specific theorizations regarding how space is produced. Though Lefebvre is traditionally classified as a Marxist and by my earlier statements somewhat at odds with Foucauldian conceptualizations of power, overlap between the two philosophers is significant, and joining the two theorizations is sensible. Lefebvre argues convincingly that spaces can be produced by any number of social activities. He defined social spaces as the interwoven multiplicity of human-created, interpenetrating spaces that are informed of their meanings, “the outcome of a sequence and set of operations, and thus cannot be reduced to the rank of a simple object” (73). Of course, most requisite to this definition is the fact that social spaces are produced by humans because humans “are in space; they cannot absent themselves from it, nor do they allow themselves to be excluded from it” (132).
Lefebvre differentiates this human-produced social space from other “natural” space by noting that places within social space “are not simply juxtaposed; they are intercalated, combined, superimposed – they may even sometimes collide” (88). Simultaneously, he recognizes that these social spaces are not divorced from that previously existing natural space when he writes that space “begins with the spatio-temporal rhythms of nature as transformed by a social practice” (117). Instead, Lefebvre views the social space as a result of a continuing transformation from a natural space, the path of which provides larger insights into the society producing spaces.

“All social space is the outcome of a process with many aspects and many contributing currents, signifying and non-signifying, perceived and directly experiences, practical and theoretical. In short, every space has a history, one invariably grounded in nature, in natural conditions that are at once primordial and unique in the sense that they are always endowed with specific characteristics” (Lefebvre, 1991: 110).

Included in this history are those parties that actively shape to produce the space in the image they see fit, and the signifiers those agents use to shape social spaces. Lefebvre notes the importance of recognizing the producers of space when he describes social space as “a blank page upon which a specific message has been inscribed (by whom?),” (142). To Lefebvre, space is not simply modified by actors; rather, space is produced through a contested process within social boundaries. He cautions that “[m]ediations, and mediators, have to be taken into consideration: the
action of groups, factors within knowledge, within ideology, or within the domain of representations” (77).

Additionally, the spaces of society are produced using signifiers of other meanings, and as Lefebvre argues, “[t]hat space signifies is incontestable” (142). To this end, space is certainly produced socially, but these social relations are constantly reproduced by material signifiers, and the meanings of these signifiers are constantly reproduced by social relations (Lefebvre, 1991: 77). Because such signifiers can have strong meanings yet communicate these meanings abstractly, “the sign has the power of destruction because it has the power of abstraction – and thus the power to construct a new world different from nature’s initial one” (135).

The exercise of power through the production of space is the key reason that Lefebvre’s writings on this topic are relevant. Channeling the writings of philosopher Friedrich Nietzsche, Lefebvre notes that visual elements and representation had achieved a “precedence over elements of thought and action deriving from the other senses... So far has this trend gone that the senses of smell, taste, and touch have been almost completely annexed and absorbed by sight” (139). Because of the inherently visual attributes of social space, the production of space provides an influential medium for the forwarding of agendas and the exercising of power, specifically through the signifiers employed. Indeed, Lefebvre links discursive control of a social space to the power exercised over visual elements of that space’s production.
“Thus space indeed ‘speaks’ – but it does not tell all. Above all, it prohibits. Its mode of existence, its practical ‘reality’ (including its form) differs radically from the reality (or being-there) of something written, such as a book. Space is at once result and cause, product and producer; it is also a stake, the locus or projects and actions deployed as part of specific strategies, and hence also the object of wagers on the future – wagers which are articulated, if never completely.”
(Lefebvre, 1991: 142-3)

Lefebvre recognized that, unlike the limited abilities of humans to perceive the time they are enveloped within, humans are able to perceive their surroundings despite their direct interactions with these spaces (95). Certainly, material installations within this space influence the perceptions of this space by humans. Recognizing the important visual influence of such material signifiers in the production of space and hence the exercise of power, Lefebvre explains that “[a]ny determinate and hence demarcated space necessarily embraces some things and excludes others” (99). He differentiates the durability of produced spaces by contrasting those reinforced with “material” objects, such as concrete and stone, to those propped by “materiel” objects, which are disposable and must be frequently replaced (86-87).

Certainly, the durability of a social space is important when a space is produced as a memorial to a historic event, regardless of whether the event even occurred where a built memorial is installed. Indeed, just as those who win a war tell its story, those who control memorialized space control the discourse of the event. This point is not lost on Lefebvre:
“Monumentality, for instance, always embodies and imposes a clearly intelligible message. It says what it wishes to say – yet it hides a good deal more: being political, military, and ultimately fascist in character, monumental building masks the will to power and the arbitrariness of power beneath signs and surfaces which claim to express collective will and collective thought. In the process, such signs and surfaces also manage to conjure away both possibility and time.”  
(Lefebvre, 1991: 143)

What is communicated (or specifically not communicated) in monumentalized space results from the mobilization of social space to tell a story that is discursively informed by that actor’s exercise of the production of space. This is, of course, directly parallel with Foucault’s notions of discourse and representation, but LeFebvre speaks directly to how space and place produced. With this production, Lefebvre explains that space “acquires a symbolic value,” and that these symbols, displayed visually and hence powerfully, then

“always imply an emotional investment, an affective charge (fear, attraction, etc.) which is so to speak deposited at a particular place and thereafter ‘represented’ for the benefit of everyone else”  
(Lefebvre, 1991: 141).

While monumentality and memorialization may seem far-fetched for a discussion on the production of capitalist space, remember, as Foucault (1974) explains, knowledge that is left intentionally unsaid is a discourse as well. Similar conceptualizations are found in Don Mitchell’s Cultural Geography: A Critical Introduction (2000) and especially Kenneth Foote’s Shadowed Ground (1997), a landmark work on geographic aspects of memorialization. In Foote’s work, there is no mention, citation or other evidence that he was familiar with Foucauldian or
Lefebvrian theory, but still he talks about a strategy of removing the event from public consciousness, which he calls “rectification:”

“Rectification is the process through which a tragedy site is put right and used again. The site gains only temporary notoriety in the aftermath of the tragedy. Associations with the fatal event eventually weaken, and the site is reintegrated into the activities of daily life. No sense of honor or dishonor remains attached to the site; it is, so to speak, exonerated of involvement in the tragedy.” (Foote, 1997: 23).

Certainly an “erasing” of monumentality or potential memorials, by not only failing to create material monuments but by further discursively producing a place where nature seems to pose no threat represents a similarity to Foote’s idea of rectification, and a corollary to Lefebvre’s (1991) notions of produced space. Such ideas have been utilized throughout the growing subfield of memorialization geography (see: Shackel, 2003; Dwyer and Alderman, 2008; among others) To suggest, though, that safety from nature is a discursive production of space requires that the very concept of “nature” be considered a discourse itself.

The Discourse of “Nature”

“I would like to know why it is we distinguish between natural disasters and those made by man.” --Former New York City Mayor Ed Koch, (Steinberg, 2006: 180).

Nature, like any concept, is socially constructed, the definition of which cannot be understood outside of the society in which the conceptualization arose.
(Demeritt, 2000). As Blaikie (2001: 147) explains, those interested in environmental justice “cannot abandon nature to an unresolved relativism, where one view in uncritically accepted alongside many other, often contradictory ones.” Indeed, understanding the different definitions of nature in any society is tremendously important. The variability of such definitions has consequences for those who fail to understand; for instance, those who choose to weather a hurricane based solely on a personal knowledge that underemphasizes danger subjects themselves to a risk of substantial physical harm. On the other side of the proverbial coin, in a capitalist society, nature is discursively formulated to provide certain opportunities to producers of goods. The discourse of nature allows for the exploitation of so-called “natural resources,” including raw materials and disposal of waste products, with little regard to environmental consequences.

Nature has been theorized in three dominant ways: external nature, intrinsic nature and universal nature (Smith, 1990; Castree, 2000). The first, external nature, represents an ontological separation between society and nature, with each studied entirely separate from each other. By this definition, nature is an “inherently nonsocial and nonhuman” environment to be studied scientifically, which is the very perspective taken by many studying hazards geography. The second, intrinsic nature, is a very similar concept to external nature. When nature is considered intrinsic, it is portrayed as an unchanging entity of essential quality or a truth, something far broader than the “environment” described by external nature. It was using this definition of nature that racist notions of environmental determinism
gained traction. The third, universal nature, includes everything in its domain, even human beings as participants in the ecosphere. Popular from this definition is the idea that humanity must be conceived “as part of a holistic, living, integrated earth,” (Castree, 2001: 16) in which humans must be careful to live with limited disruption.

These conceptualizations of nature have been critiqued. While in each of these definitions, nature is considered something that can be known essentially, from which facts can be considered unaltered universal truth, Castree (2001), for example, argues that the so-called ‘facts’ of nature depend upon perspective. With its existence before human society, nature is granted agency as earth’s great balancer, achieving and maintaining a stability of existence. In this eternal balancing act, a sense of agency is further encouraged by the notion that everything natural has an inherently good and valuable quality. Castree noted, though that such constructions are normally used to wield power and domination, providing as an example the land alienation of native Kenyans in the name of preservation.

A Marxist interpretation of nature adds the importance of capitalist production to nature’s construction. In a capitalist society, nature is produced in a way that legitimizes its exploitation. As Neil Smith (1990) argues, nature is a produced entity, set in place to fulfill the material needs of humans. Humans are born with specific needs, such as food, water, social interaction, sex and warmth. Discursively, nature provides the means to accomplishing these goals, because it was convenient and useful for humans to position nature as an exploitable resource. However, to exploit nature in a productive way, Smith argued, there must be a
domination of nature by humans that results is a level of consistent control.

Without both a produced nature that provides resources and a control of that nature, there could not be industrialization because necessary capital investments would prove too risky.

European constructions of modernity included a measure of power or control over a feminized, and hence disempowered, “Mother Nature.” Feminizing deserts served as a way for humans to assert dominance over it and to make its landscape less imposing (Cosgrove and Domosh, 1993). It is obvious, as Derek Gregory explained (2000), that such a portrayal of nature as a powerless, feminine and empty space legitimized the exploitation of colonized lands by colonizing Europeans. Nature was, in fact, used and abused until some natural event demonstrated that man was unable to tame it.

Interestingly, the feminization of nature was also applied to hurricanes. The process of naming hurricanes began in the Pacific theater during World War II, as American military meteorologists began assigning female names to identify typhoons. In 1949, the U.S. Weather Bureau adopted the practice, naming a storm that made landfall on southern Florida as “Bessie's Hurricane.” The next year, the Weather Bureau formalized the practice of naming them with women's names. The attribution of hurricane damage to female storms, which were described in the 1950s as wild, capricious, fickle, whimsical and erratic, acted in a society in which post-war gender roles were rapidly changing as women entered the paid workforce,
to liken nature to these gender roles as being fully out of control. Only in 1979 were men’s names introduced to the annual line-up (Steinberg, 2006: 68).

Materially, nature can be “constructed” as well. In order to provide for needs, people have sowed crops, ridded out pests and distinguished “weeds” from “crops” based on cultural values, which are reflected on the physical landscape through human labors (Demerritt, 2000). The usefulness of nature in a place is certainly dependent upon the cultural characteristics of whoever exploits it. Natural conditions can be shifted between statuses of benign, resource or hazard, dependent upon the mobilization of different values or knowledge by a given culture at different times (Pelling, 2000).

Such a conquering of nature to ensure stability of production has required a great deal of technological infrastructure, starting with the earliest irrigation systems and continuing even to today’s use of genetic engineering. Threats to humanity represented by “disasters” are often perceived as threats to the concept of modernity (Gregory, 2001). The notion that modernity is tied to a power over nature extends into the deterministic notions of the early 19th century. As the story goes, the “civilized” people only resided in temperate zones, while those living in the so-called torrid or frigid zones were unable to cope with their environment to contribute to the world’s history. Certainly, the temperate zones were not always the perfect situation for human living, but those humans living there were able to conquer any circumstances through modern technology.
In the United States, the government has long played an important role in the conquering of nature by humans. Through policies promoting economic development of rural areas, through implementation of infrastructure and through funding of applied scientific research, the United State government has actively participated in the taming of nature. Importantly, human modification of the environment has extended into protection from natural events as well.

In the United States, many measures of material mitigation against hazards have been deployed, including flood barriers, signage demarking hazardous places and evacuation routes, and warning systems among others. Technology, such as the use of floodwalls and levees to control natural floodplains, has been suggested to result in a false sense of security to potential victims, increasing the risk that flood events could occur on populated areas (Pelling, 2000). In fact, some of the effects of 2005’s Hurricane Katrina in New Orleans have been attributed to an errant faith in the ability of technology leading to an over-reliance on a complex human infrastructure to avoid flooding (Tierney, 2006). Indeed, the government has participated in the mitigation of hazards in many places, specifically to protect the physical and financial well being of people who choose to settle there. Consequently, these measures of mitigation are physical manifestations of a discourse of safety, encouraging economic activity in places unsuitable without such measures.
Simultaneously, as Steinberg (2000) argues, a significant discursive binary is established between “natural” and “cultural” to justify state action following disasters to maintain the capitalist status quo:

“Briefly put, it is a way for the federal government to subsidize prodevelopment interests and uphold the prevailing economic order, with all its injustice and convenience. The federal disaster response to disaster is premised on bankrolling only those disasters the government deems sufficiently “natural” to warrant federal intervention.... Obscured, of course, are the human social and economic forces behind such calamities. Although the boundary between nature and culture is hardly a clear one, policymakers have behaved as though it were, doling out money to help relieve people when nature has rebelled, even as countless other economic disasters lacking a proximate natural cause go unaddressed. Of course, making this distinction helps to hide the fact that such “natural” calamities are as much if not more the product of a social order founded on the maximization of private property than they are the workings of the natural world.” (Steinberg, 2000: 183)

Again, Pelling’s critique (2001) that disasters are a social event with a natural trigger remains sharply relevant. If a state can create a sufficiently compelling discursive argument that a disaster even is, as Steinberg writes “sufficiently ‘natural’” to justify mobilizing various apparatuses of the state to intervene in the capitalist society, then the preconditions of immense poverty and social instability seem minimally important in comparison. Cigler (2006) states that all disasters are actually the result of human action, Katrina included. Indeed, the upholding of capitalism, with its accompanying cost of oppression levied against disadvantaged people, in this case represents the status quo, the apparently desired condition disrupted by a “natural” event. Inarguably, Hurricane Katrina’s effect on New
Orleans represents a significant social injustice, but the additional interplays between the state and “nature” bring the tragedy within the realms of environmental injustice as well.

**A Safe Place for Capital**

The purpose of the state in a capitalist society, as Clark and Dear (1984) argue, is to ensure the extension of conditions conducive to the accumulation of capital, and therefore the continuations of the essence of capitalism. The main underlying necessary ingredient to encouraging capitalist development and exchange is a condition of social and environmental stability. Such stability is the common theme to Clark and Dear’s (1984) three functions of the state: creation of social consensus, maintaining the conditions of production, and securing wide social integration.

The biggest, most notable threat to this stability for New Orleans was “nature.” In this particular case, “nature” was not socially constructed as the nurturing, feminized, plentiful and powerless – and therefore excusably exploited – collection of resources so often utilized in Marxist critiques of capitalist productions of space (Smith, 1990; Castree, 2001). For a city situated in a place where the environment is a daily concern for human inhabitants, the state produced “nature” as menacing New Orleans, a powerful and threatening entity that created potentially
dangerous, modernity-disrupting consequences (a la Gregory, 2001) for citizens and particularly their possessions. Though this terrorizing construction of nature suggested a place unsuitable for capitalist investment, the state took steps to ensure the apparent eradication of this threat, establishing stability. Indeed, only through the state’s intervention within the human-environmental system was the modernity of human society – and hence the stability of capitalist society – established.

Just as “nature” is socially constructed in this case to be a threat needing disarmament, the state worked through its many apparatuses to distinguish a discrete relationship between the place called New Orleans and its environment. To this end, I have identified two underlying themes in which New Orleans was discursively produced as a safe place. First, the levees and other infrastructural mitigation strategies served as an enduring, monumental and non-verbal discourse presented to both investors of capital and the citizenry that environmental problems endemic to the place have been thoroughly and effectively addressed by the state. These strategies emphasized the implementation of “modern” technological advancements in infrastructure to control nature and to separate the modern spaces of New Orleans from the decidedly non-modern “natural” conditions. Though this particular discourse presents New Orleans as a place deemed “safe” for investment, this material and monumental discourse is further enforced by bureaucratic entities both within and parallel to the state, constituting the other discursive theme which produces a place of stability for capitalism. Agencies such as FEMA, the NFIP and the American Red Cross present a sort of
social safety net for the event which environmental hazards overtake the infrastructural mitigation strategies instituted by the state. In short, the state expressed a discourse that New Orleans was safe, but if that safety were ever to become jeopardized, the state was ready to respond. If the levees were to fail, these agencies were prepared to minimize individual losses of capital endured by effected investors and citizens. FEMA and the American Red Cross served to provide direct aid to victims of a disaster to return citizens back to their financial and social position before the disaster. The federally subsidized NFIP communizes the financial risk, not only between all investors in the risk zone, but among all U.S. taxpayers. Risk was subsidized through both infrastructural and social capital. Between these two discursive bulwarks, New Orleans was produced as a discursively safe place for capital. In essence, the environmental risk of occupying and investing in this place was discursively erased by the state, by which the state established this the city as a place for capitalist development (a la LeFebvre, 1991).

Though the construction of this place as one of safety is the underlying geographic argument I present, the environmental injustice of Hurricane Katrina effects on New Orleans are not solely evident from said construction. Indeed, the construction of this place as a place safe from risk in itself does not present the injustice; rather, the failure of the state’s apparatuses to create the new spatial reality, promised to be part of the social contract through this discourse, had ultimately inflicted injustice upon the oppressed citizenry of New Orleans. Many of the state’s apparatuses identified by Clark and Dear (1984) are seen clearly working
towards the targeted end – stability for capitalist investment and exchange –
through these two themes, and the same state’s apparatuses are seen failing to fulfill
their promised aspect of the social contract.

**DISCOURSES OF A SAFE PLACE THROUGH THE STATE’S APPARATUSES**

The construction of New Orleans as a safe place was established through
three specific discursive media: first, the provision of visible infrastructural
markers, levees, that communicated a state-sanctioned symbol of the place’s safety
regardless of the ability of those levees to provide the safety expressed; second, the
promise of sufficiently universalized loss through the provision of social welfare
capital in the aftermath of the dangerous event from which New Orleans was at risk;
and third, important to each of the other two media is the presentation and control
of information related to the riskiness of New Orleans through the control of a wider
verbal narrative. The infrastructural developments were, in Clark and Dear’s
(1984) taxonomy, part of the production apparatus of the state, in which the
requirements of production – in this case, infrastructure beyond the means of
individual capitalists – are provided to encourage capitalist development through
the fulfillment of these requirements. Both the provision of social welfare capital
and the control of information fall under the integrative apparatus of Clark and
Dear’s (1984) framework, which serves to keep social classes integrated into the
corporatist system by supposedly providing for the society’s wider physical and social well being.

Infrastructure

The infrastructure of levees was a discourse for the city’s safety. As De Marchi (2007) suggests, the “path of dependence” upon the system of levees protecting New Orleans was established from the very beginning of its settlement. Steinberg (2001) notes that the organization of land, real estate, into capitalist terms served as a precursor for dense urban developments in risky areas. Certainly, if there were great capital gain possible from such development, the state involved would be more willing to provide mitigation infrastructure to commonize that risk.

I have explained, in exhaustive details through chapters two and three of this work, how New Orleans came to be founded at its current location and continued to exist in a dangerous site that is too risky for the investment of capital. The city’s location in the low-lying floodplain of the Mississippi River has long presented tremendous challenges to inhabiting the area so significant that without such interference by the state in a purely capitalist system, the city would simply have been either abandoned or never developed to its scale by 2005. The city is situated between two hydrological threats: the Mississippi River, a deep stream that drains
much of the interior of North America, and Lake Pontchartrain, a shallow freshwater lake which is influenced by tidal bores from its connection to the Gulf of Mexico (Cooper and Block, 2006). The topography of the city is “bowl-shaped,” meaning that the settled areas of the city are actually at a lower elevation than the water levels of these two hydrological features. Building the city outside of a floodplain in this area was simply impossible, because the fluvial processes of seasonal flooding created its topography entirely (Steinberg, 2006). The area is constantly subjected to extreme environmental events, from a climatology that causes significant downpours of precipitation throughout the region throughout each year, to seasonal swelling of the Mississippi River, to regular visits by hurricanes that bring a wind-driven storm surge up both the river and the lake.

Throughout the city’s history, flooding remained the largest environmental concern. River flooding plagued the city from its first day, with the Mississippi submerging the site as the city was platted in 1718 (Robinson, 2005). Another major river flood put the city under water for several months beginning in December of 1734. Such seasonal floods put the city under water on an annual basis, though extremely rainy springs in the Midwest brought floods that inundated the city in 1788, 1809 and 1825 (Hoyt and Langbein, 1955). Consequently, after the 1825 flood, a private system of levees upstream mostly blocked the city from the yearly seasonal flooding. The Mississippi River did remain a risk to the city, as it would still occasionally flood New Orleans during major flow events, such as those
in 1851, 1858, 1859, 1874, 1882, and 1884 (Hoyt and Langbein, 1955; O’Brien, 2002).

Hurricanes have regularly damaged the settlement to varying degrees, beginning with the “Great Hurricane” of 1722, which brought a 10-foot storm surge to the fledgling town just four years after its founding. Other hurricanes grazed the area in 1779, 1879, 1787 and 1788 (Williams, 2009; Sublette, 2008). A major hurricane in 1893 drove water from Lake Pontchartrain south into the city, killing nearly an estimated 2,000 people (Cooper and Block, 2006). The “Great Storm” of 1909, and another hurricane in 1915, flooded significant portions of the city and each killed hundreds of residents (Steinberg, 2006), followed by a smaller hurricane the next year, which was blamed for killing ten (Williams, 2009). An unnamed hurricane in September of 1947 again inundated the city with gulf water via Lake Pontchartrain. Even as infrastructure was continually developed through the 20th century, more hurricanes caused significant damage in the city. Hurricane Betsy in 1965 caused tremendous damage to New Orleans, putting the city under water for weeks and killing hundreds. The city was further affected by other hurricanes in 1969 (Camille), 1979 (Bob), 1985 (Elena) and 1992 (Andrew), (Williams, 2009). In short, the extensive climatological history of New Orleans and hurricanes was well established long before Hurricane Katrina in 2005.

From its location along the oft-flooding Mississippi River and its precarious situation on a portion of the Gulf Coast with a high tendency of hurricanes, New Orleans and flooding have always been synonymous. Colten (2005) repeatedly
argues that environmental threats to human life and investment would have rendered the site uninhabitable without the utilization of extensive technological innovations to control this “nature.” And from the city’s founding, such technology has been utilized to alter the natural system in this way. In the earliest years of settlement, founder Jean-Baptiste Le Moyne de Bienville created an early precedence for state interventions into the natural system by using French prison labor to construct rudimentary protective levees to block and divert floodwaters (Sublette, 2008). Other levees were constructed under the French, some by private interests often influenced by decrees of the colonial government – others by the colonial government directly (Colten, 2005). To keep the city dry, canals were dug to drain water out of the city starting in 1796, during city’s period of Spanish rule, allowing floodwaters to drain north of the settlement into Bayou St. John (Searight, 1973).

Similar strategies continued after the area was acquired by the United States; the Louisiana territorial government passed a law in 1807 that required construction and maintenance of levees along the Mississippi River by parish governments, which in turn required property owners of land adjacent the river to construct earthworks (Colten, 2005). By 1812, a series of levees, each built by private landowners to varying levels of stability, stretched upriver as far as Baton Rouge (Brinkley, 2006). Levees directly protecting New Orleans remained within the city government’s jurisdiction, and the city charged a tax on riverfront anchorage to raise funds for the construction. As Colten (2005) quotes, which because of its exceptional significance I repeat both earlier in this text (Chapter
Two) and here, the New Orleans City Council responded to criticism of this tax by stating in 1819:

“[I]t is an established fact that the Port of New Orleans would not exist, that the whole city would soon be submerged if the waters of the Mississippi were not confined by the levees.” (Colten, 2005: 22)

The economic importance of the New Orleans site as a port of trade was recognized by the federal government, which both allowed the legally questionable tax to stand, but also supplemented levee construction costs with direct federal aid – an unprecedented expenditure at this point in U.S. history (Brinkley, 2006), further establishing a precedence of strategy and thought that nature could be conquered through the implementation of modern technology. Government involvement continued in the city’s natural system, with the Louisiana State Legislature chartering two corporations to build drainage canals in the 1830s. The goals of these canals, to keep the city drained and to develop larger swaths of swampland for development, both largely failed due to a low gradient incapable of efficiently compelling water northward using the force of gravity. The companies went bankrupt in 1837 (Searight, 1973).

From this point, the Louisiana state government began assuming the role of mitigation. The Louisiana legislature funded construction of a levee system based upon the piecemeal system that had been begun by private landowners during French rule and which had continued through U.S. rule. The city government began
measures to improve the northward drainage of canals, installing steam-powered waterwheels in 1849 (Colten, 2005). Beginning in 1850, with the federal passage of the Swamp Land Acts, Louisiana’s government began draining swamplands for sale to developers, using the proceeds to fund further levee construction (Brinkley, 2006). In 1879, the United States Congress established the Mississippi River Commission, which granted the responsibility for controlling the river’s flooding to the Army Corps of Engineers (Congleton, 2006). After 1890, the improvements made by the Army Corps of Engineers was apparent, because no floods breached the river levees protecting the city despite marked threats in 1907, 1910, 1914, 1927, 1937, 1950 and 1997. [Note: the Great Mississippi River Flood of 1993 had minimal effects on places downstream from Memphis, Tennessee]. However, by blocking this floodwater with a massive earthwork wall, the interior was further threatened by an inability to drain any water that did enter the urban area (Colten, 2005).

Thus, giant screw pumps were installed in 1917 by the city to raise water from the low-lying city into high points in drainage canals so that water could drain north to Lake Pontchartrain (Van Heerden with Bryan, 2006). And yet, these pumps were used by the Orleans Levee Board to drain yet more land for development, funding the non-riverine levees that still lied under the board’s jurisdiction.

Additional mitigation strategies were implemented by the state in the wake of 1965’s Hurricane Betsy. Through the passage of the Flood Control Act, the United States Congress had authorized the Army Corps of Engineers, for the first time, the responsibility for constructing levees away from riverbanks in New Orleans. A
massive levee-building project was begun shortly thereafter, intended to ring the entirety of the city and its drainage canals with significant levees. The project was scheduled for completion within 12-15 years of its start, and it remained unfinished and drastically over budget in 2005. Though responsibility for this project was given to the Army Corps of Engineers, the same agency that had so effectively built protective levees along the Mississippi River's course through the city, the levees built elsewhere were poorly planned and weakly constructed.

Though these levees were terribly designed, in a manner insufficient for the workload they were implemented to encounter, the levees served an important purpose. They were what Lefebvre (1991) would call material signifiers of social space, in this case producing a space with a specific message, that of safety for capitalist development. Indeed, the levees were powerful material signifiers used to communicate that message, constructing, quite literally, “a new different world from nature’s initial one.” Nature’s threat for this place had been fully erased by these representations of safety, strictly visual, as an appeal to what Lefebvre described as the most easily convinced of human senses. Simultaneously, these levees were not only a discourse creating New Orleans as a safe place, but an homage to the state and its power conquering a terrorizing vision of a constructed nature. The threats of that scary, primitive and carnal nature are quite visibly demarcated – by the levees themselves – as being in a different space than the orderly, modern, capitalist and decidedly “safe” space, all accomplished by the almighty state apparatus as a service to the citizenry. Certainly, in this case, where humans alone could not
succeed – the conquering of nature – the state could and did, and the flag of that victory was flown in the manner of presenting daily views of earthwork levees surrounding New Orleans, supposedly protecting it from harm.

The implementation of various federal disaster strategies represented only one attribute of state adjustments in the structured coherence (see Smith, 1990) of New Orleans. State actions also sought to make the economic benefits of the city’s perilous location continue after transport technologies had left the port mostly bypassed, because ships no longer needed the city as a break-in-bulk point between carrying freight on the Gulf of Mexico and in the Mississippi River. The Industrial Canal, constructed in 1923 with federal money, connected Lake Pontchartrain to the Mississippi River just east of downtown (Dicharry and Stout, 2000). Since the 1950s, some 8,000 miles of canals had been built through the Louisiana marshes to stimulate further development in the petroleum and transport industries. The largest of these was completed in 1968; the Mississippi River Gulf Outlet (MRGO) connected the Industrial Canal directly to the Gulf of Mexico, shortening the path of river traffic by nearly 50 miles (Congleton, 2006; Cooper and Block, 2006). The MRGO was lightly used by ship traffic and local officials believe that economic development stirred by the canal never compensated for its cost, paid by federal funding (Van Heerden with Brian, 2007).

In fact, one of the causes of subsidence in the protective wetlands surrounding New Orleans was the oil industry. Canals and pipelines established to support the most productive source of crude oil in the United States actually
allowed the encroachment of saltwater into the wetlands, thereby destroying them. Of course, this also exposes the infrastructure of the petroleum industry to greater threat during hurricanes, but oil executives threatened to move the rigs and refining facilities overseas if such infrastructure was not provided (Van Heerden with Bryan, 2007: 161, 255).

These canals, in sum, represented huge expenditures of money into infrastructural development by the state, at the demand of corporate interests, to further enhance the accessibility resources of a city that had developed as a transport hub, but ultimately these expenditures failed to bring the New Orleanian shipping industry back to the forefront of the local economy. Contrarily, the canals actually made the city more at risk to flooding by providing a direct pipeline for storm surges from hurricanes (Colten, 2005; Dyson, 2006a). Indeed, both canal building and levee construction had put the city more at risk by robbing the delta of its crucial land-building component: sediment. As Comfort explains, New Orleans:

“had been sinking slowly, farther below sea level, as the levees constructed upriver prevented the replenishing of soils in the coastal wetlands that gave some protection to the city.” (Comfort, 2006: 502)

Ironically enough, the building such infrastructure, both levees and canals, the state’s production apparatus had acted for a significant period of the city’s history to attract capital investment to a hazardous place – New Orleans – by making that place appear less risky, and hence, profitable.
Social Welfare Capital

Though New Orleans had, as Colten (2005) and De Marchi (2007) both suggest, become path-dependent upon levees as the primary method for preventing flooding, other state-implemented strategies were put in place on a supplemental basis. These alternate strategies provided for to balance any failure of the infrastructure, including federally subsidized flood insurance programs and fully funded disaster response mechanisms, were a social net of safety best fitting under Clark and Dear’s (1984) integrative apparatus, as part of the implied provision of social welfare capital. At the same time, each serve as a discourse to minimize the perceived risk of places from hazardous events and hence to encourage the investment of capital.

The federal government served as an insurer of assets in disaster areas since the Great Depression. As early as 1934, the Reconstruction Finance Corporation, a New Deal program, was providing federally subsidized loans to repair local public facilities (Congleton, 2006). In 1968, Congress approved the National Flood Insurance Program, in which taxpayer money underwrites costly flood insurance policies that private insurance companies refuse to offer. In 1969, with Hurricane Camille, the government began to offer private loans to individuals in disaster zones for the first time. The National Flood Insurance Program was established in Hurricane Betsy’s wake, and targeted a mitigation of flood damage by limiting development to areas outside of floodplains (Steinberg, 2001). This requirement
was largely ignored for New Orleans because the entirety of the city rested in a 1:100 floodplain; however, a number of homes in New Orleans were insured by federally subsidized flood insurance through the program, minimizing the individual losses of those participating (Colten, 2005). In the first 25 years of the NFIP, Orleans and Jefferson Parish alone accounted for over 20 percent of the nation’s property claims for repeat losses in the National Flood Insurance Program (Steinberg, 2001). Steinberg (2001: 33-34) argues correctly that this government entrance into the management of risk has actually increased risk by supplementing development costs in risky areas, calling it “a subsidy for suspect development” which amounts to the severance of local risk from space, repackage and distributed amongst the larger base of taxpayers. Indeed, this was an engagement into the capital market in which the state employed aspects of Clark and Dear’s integrative apparatus (1984) to promote a supposedly universalized social welfare role, in this case communizing risk for developers who invest capital in hazardous areas. By doing so, risk for those investors is eliminated, essentially altering that place’s structured coherence through the discourse of safety.

Through the 1970s, the state assumed other social welfare duties beyond insurance and infrastructure through various pieces of legislation, including the ability to declare a disaster something of national interest with 1974’s Disaster Relief Act. Further bolstering a perception of infallibility amongst the citizenry was the Federal Emergency Management Agency (FEMA), formed by President Jimmy Carter (Congleton, 2006). Despite suffering substantial growing pains in the 1980s,
FEMA had evolved to become a popular and well-respected organization amongst the U.S. public (Morris, 2007; Cooper and Block, 2006). FEMA was credited with diverting a number of potential catastrophes through preparedness, including excellent response to disasters such as Hurricanes Ivan and Charley in 2004, and even the very weak Hurricane Cindy early in the 2005 hurricane season. The agency had even organized the Hurricane Pam exercise in 2004, a simulation designed to train emergency managers how exactly to cope with a hurricane’s direct hit on New Orleans. Coupled with the government-chartered American Red Cross, disaster response was widely regarded as a solved issue in the United States. New Orleans, and every other place in the United States had been discursively situated by the state to face a minimized risk of hazardous events. Nature had been conquered.

**Information**

Equally important to the state’s focus of creating a spatial discourse of safety in this place through the construction of infrastructure and the implementation of social welfare programs is the control of information, which Clark and Dear (1984) classify as part of the integrative apparatus of the state. In the case of New Orleans and Hurricane Katrina, the state’s control of information was continuous through the storm, and generally supportive of both discourses of safety presented by the state’s provision of infrastructure and social welfare capital. The state controlled
information regarding the safety of New Orleans in three ways: first, by directing the
dominant narrative of information by delegitimizing various reports from third
parties regarding doubts of the city's safety; second, by actively assuming the role of
chief agency for dissemination of verbal classifications of information regarding the
storm ("watches," "warnings," and preparations for it (evacuation orders); and
third, by spreading incomplete, false or otherwise unreliable information during and
after the storm concerning both the storm’s effects on the built infrastructure and
the state’s response of implementing social welfare capital. An in-depth analysis of
these aspects of controlling information is crucial for understanding the role of state
apparatuses in maintaining a place of capitalism during Hurricane Katrina.

The potential failure of these levees to truly protect New Orleans from a
strong hurricane was well known, even to agencies within the various
administrative hierarchical levels of the state. Cigler (2006: 64) calls Katrina “the
most predicted natural disaster in American history.” Indeed, a 2001 FEMA report
stated that a catastrophic hurricane in New Orleans was one of the three likeliest
disasters facing the country (Dyson, 2006a). Brinkley (2006: 14-15) describes a
“steady stream of so-called doomsday treatises on the inevitability of a major
hurricane laying waste to New Orleans,” beginning with John McPhee’s (1989) The
Control of Nature. Articles outlining the city’s vulnerability to hurricanes, often
including blunt predictions of tens of thousands of fatalities and the ultimate demise
of New Orleans, appeared in such publications as Scientific American (Fischetti,
2001), the Houston Chronicle, the Harvard University Gazette, New York Times,
National Geographic News (Handwerk, 2005), and the local newspapers, the Baton Rouge Morning Advocate and the New Orleans Times-Picayune (McQuaid and Schleifstein, 2002). The 2002 coverage of New Orleans’s vulnerability was particularly detailed in breadth and stark in outlook (Van Heerden with Bryan, 2007). The aftermath of Hurricane Ivan inspired Shirley Laska (2004) to write a brief piece detailing what might have happened had Ivan not turned. In 2005, the book selection for One Book One New Orleans, a shared reading program encouraging New Orleans residents to read a common book, was John Barry’s (1998) tome Rising Tide, known for its tough stance on the Army Corps’ failure to protect the city (Brinkley, 2006). Steinberg (2006) had warned, in the first edition of his book Acts of God: The Unnatural History of Natural Disasters in America, that “a direct hit” by a hurricane “would likely turn New Orleans into a huge lake 20 feet deep, with mass death a very real possibility.” Certainly, academics and scientists had been warning government officials of the danger New Orleans faced for years. In June 2004, the FX cable television network showed a docudrama entitled Oil Storm, which explored the ramifications of high oil prices triggered by a direct hit of New Orleans by a hurricane. In 2005, before Katrina hit, geographer Craig Colten published a book – cited so often in this work – entitled An Unnatural Metropolis: Wrestling New Orleans from Nature which detailed both the long history the city had endured while dealing with environmental hazards, and the incredible vulnerabilities faced by New Orleans over a long-term future.
At the same time, though, these dangers were ignored in terms of the state’s action. By simply ignoring the suggestions of both internal agencies and third parties (particularly academics and the media), the state controlled the information regarding the dangers of this place by delegitimizing it through that ignorance. Ignoring information that was or ran counter to the dominant narrative neutered its importance (a la Foucault, 1973). Indeed, the state’s priorities were elsewhere, on threats presented as far more vital to the expansion of capitalism, particularly creating spaces for further capitalist investment and for defending it from threats of terror. Steinberg (2006) argues that the Army Corps, playing the marionette to string-pulling by Louisiana politicians in Congress, was far more focused on projects allowing the development of wetlands, politically attractive projects, instead of enforcing levees to protect the areas already developed. Also, in the wake of the September 11, 2001 terrorist attacks, FEMA had been swallowed into the new Department of Homeland Security and its focus was redirected to fighting terror. As Graham (2006, 63) argues, the construction of the large “homeland security” risk as the major issue facing Americans has, by proxy, minimized the risk seen from “natural” events through the reassignment of perceptions. In essence, the risk of nature threatening New Orleans was no longer a priority, because other dangers were far more likely to disrupt the modern American capitalist lifestyle.

For those risks actually posed by nature, a patchwork of bureaucratic agencies were charged with controlling the information disseminated to the public. A government agency responsible for the monitoring of atmospheric conditions and
the issuing of watches and warnings, the National Weather Service was founded in 1870. Originally named the Weather Bureau, the agency was part of the U.S. military at its founding. It became a civilian agency in 1890 as part of the Department of Agriculture, and was moved into the Department of Commerce in 1940. The name “National Weather Service” (NWS) came into use for the agency in 1967 with the creation of the National Oceanic and Atmospheric Administration (NOAA) as its parent agency (National Weather Service, 1970). The mission statement of the National Weather Service places it fully within Clark and Dear’s (1984) taxonomy of the state apparatus as a contributor to the creation and maintenance of conditions conducive to capitalism:

“The National Weather Service (NWS), under the National Oceanic and Atmospheric Administration (NOAA) and Department of Commerce, is responsible for providing weather service to the Nation. It is charged with responsibility for observing and reporting the weather and with issuing forecasts and warnings of weather and floods in the interest of national safety and economy. Enabling legislation provides for:

• Public weather service
• River and flood service
• Specialized services to aviation, agricultural, forestry, marine, and commercial interests
• Climatological service (Environmental Data Service (EDS) has primary responsibility under the NOAA organization; the National Weather Service manages the field program for EDS)
• Basic weather service, i.e., the observing, communications, and processing activities needed to support the other services.

Within the framework outlined above, and in very broad terms, the priorities for service to the Nation are
1. protection of life,
2. protection of property, and
3. promotion of the Nation’s welfare and economy.”

The very purpose of the National Weather Service lists two particular aims of the agency that are bluntly encouraging to capitalism: the “protection of property” and the “promotion of the Nation’s welfare and economy.” The NWS accomplishes this through the creation and distribution of information, by observing, recording and predicting weather events and disseminating that information and analysis to the larger citizenry. One device the NWS uses specifically to communicate this information in a consumable product is the issuance of “watches” and “warnings” in advance of severe weather or flooding events that could prove harmful to people or their property. In effect, by assuming this responsibility to communicate such dangers, the NWS is promoting a discourse of safety by suggesting that no atmospheric dangers will present a hazard without proper warning communicated to the citizenry by the state.

By all accounts, the National Weather Service did communicate the dangers of Hurricane Katrina as it approached. Hurricane watches and warnings for the Gulf Coast began after Katrina passed over Florida on August 26 and continued through landfall. On 10:11 am August 28, the Sunday morning before Katrina hit, the NWS issued a particularly bleak warning about the conditions to come:

“Most of the area will be uninhabitable for weeks... perhaps longer. At least one-half of well-constructed homes will have roof and wall failure. The
majority of industrial buildings will become non-functional. Airborne debris will be widespread. Power outages will last for a few weeks. Water shortages will make human suffering incredible by modern standards.” (Van Heerden with Bryan, 2007: 67).

This bluntest of the warnings came less than 24 hours before Katrina made landfall on Louisiana, when people had a limited amount of time to evacuation. Despite these bleak warnings from the NWS, a significant number of people still did not evacuate New Orleans in advance of Katrina. As Elliott and Pais (2006) astonishingly report, even with this kind of warning, “those who stayed behind during Katrina did not believe the results would be as devastating as they were,” (317).

This odd disconnect has been explained by several researchers. Van Heerden (with Bryan, 2007: 4) explains that New Orleans residents became complacent after enduring flooding by Hurricane Betsy in 1965. For 40 years after Betsy, New Orleans had endured no storm surge-related flooding, which locals attributed to the massive Congress-directed projects undertaken by the Army Corps in the hurricane’s aftermath. According to Brinkley (2006), many residents had confidence that the levees constructed by the Army Corps were hurricane-proof:

“Besides, people liked to believe they were safe behind their Category-3-proof levees. New Orleans was a fortress—so what if it was surrounded by a moat?” (Brinkley, 2006: 16).

These reactions are certainly products of the state’s discourse of safety for development, though the reason for that was clear: the Army Corps of Engineers
repeatedly asserted and supposedly designed the levees to withstand the storm surge most often associated with a Category 3 storm (Van Heerden with Bryan, 2007).

Part of this disconnect, though, was undoubtedly brought forth by the state’s role in declaring mandatory evacuation of potentially affected areas in advance of a hazardous event. Typically, this responsibility has fallen not to the NWS or NOAA, or even to FEMA, but to local governments such as cities or parishes. New Orleans did possess an evacuation plan, but as Brinkley (2006: 19) explains, the evacuation plan “backed away from substantive directives” and dedicated only about a page and a half of a 14-page pamphlet to a vague explanation of evacuation procedure. The plan did state that evacuation zones would be established following further study, which never happened. Reflecting data derived by Van Heeren (with Bryan, 2007) that showed some 30% of New Orleanians would not evacuate due to low mobility, the city’s evacuation plan stated that evacuation should begin at least 72 hours before the storm. The evacuation needed to start this early because of the “approximately 100,000 citizens of New Orleans [who] do not have the means of personal transportation” and these people needed time and assistance to leave (Brinkley, 2006: 19).

The local government of New Orleans had prescribed itself the responsibility to announce and enforce evacuation, because it possessed both the information and the authority to do so. By taking control of this information, the state created a discourse of safety by ensuring citizens that a sufficiently dangerous event would
prompt an evacuation order from the government. In fact, by seizing control of the information, it deemphasized the importance of the National Weather Service’s harshly worded bulletins by being the main conduit through which “official” decisions concerning evacuation were routed to the citizenry.

Certainly, the construction of spaces suitable for the investment of capital through the mobilization of discourses of safety – in and of itself – did not result in the environmental injustice that occurred following Hurricane Katrina’s visit to the Gulf Coast. The construction of levees to show the safety of a place did not singlehandedly drown over a thousand New Orleanians and permanently displace many more, neither was the state’s distribution of social welfare nor the control of information regarding the consequences of occupying such a place solely responsible for the environmental injustices of Katrina. It was, in fact, the state’s failure to fulfill the promises presented by these discourses of safety that resulted in a tremendous environmental injustice. Despite its assurances of the city’s safety, reinforced by many of the state’s apparatuses, the state did not construct levees to adequately ensure the safe space presented, did not effectively distribute social welfare capital following the event, and did not empower the citizenry to take action in the face of danger by appropriately distributing information. Each of these was a role assumed by the state to create a safe place in New Orleans, which was accomplished discursively. Unfortunately for those effected actually living in New Orleans, the creation of a safe place was not accomplished in a physical reality.
FAILURES OF APPARATUSES TO UPHOLD DISCOURSE

Much has been written about the failures of the governments of the United States, Louisiana and New Orleans in the years before, days during, and years after Hurricane Katrina’s drowning of the Crescent City. From the utter incompetence displayed in the construction of infrastructural mitigation features, such as levees and canals, to the display of disinterest from authorities regarding the rescue and recovery efforts; from the invasion and colonization of New Orleans by military force, to the displacement of Katrina victims into far-flung “FEMA Trailer Parks” where poverty and need and hence crime were rampant, the many situations of injustice and oppression resulting from Katrina have been well documented. What makes these horrific injustices more obscene is the very fact that these failures are counter to the discourses of safety presented by the state to make New Orleans a place safe for capitalist investment. Simply, the state failed to uphold its many promises, and in doing so, widely oppressed its citizens by subjecting them to unnecessary suffering and death.

The three apparatuses of the state that had been so important to creating a discursive place of safety in New Orleans were the very entities which failed to deliver that safety. Just as the state had mobilized infrastructural mitigation, the provision and distribution of social welfare capital, and the control of information as discourses constructing New Orleans as a safe place for capital, so too did the state fail to provide the very safety it promised in each of these areas. The infrastructure
built by various state agencies was incapable of protecting the city from the floodwaters, the mechanisms for the provision and distribution of social welfare capital were gutted by budget cuts and rendered inefficient by bureaucratic nonsense, and the control of information during and after the event broadcast partial truths and untruths that upheld the discourse of safety while further endangering citizens.

Infrastructure

Substantial levee failure occurred from a relatively low level of stress from the very factors they were installed to protect against, resulting in the drowning of New Orleans. The system of levees bordering Lake Pontchartrain, being west of the storm's center, was subjected to a 10-foot storm surge and winds of around 75 miles per hour, levels firmly within Saffir-Simpson Category 1. In addition, Katrina was a fast-moving storm, moving forward at between 14 and 17 miles per hour, meaning that the levees were subjected to this surge for a shorter time than would have been the case in most hurricanes.

When levees are positioned as a symbolic discourse of safety, this oversight makes more sense. Levees used to protect New Orleans from floodwaters were, in many cases, nowhere near the structural integrity necessary to provide much protection whatsoever. Indeed, many of these levees had the appearance of
providing protection but lacked the engineered capacity to protect the land they stood guard above. They were the provision of safety, but only as a discursive construction and in no way based on an ability to uphold the content of that discourse. The creation of this discourse and the failure of its structure to fulfill its promise are rooted in the many funding inadequacies faced by the various responsible state apparatuses.

Though federal agencies had been required by Congress following Hurricane Betsy in 1965 to make a concerted effort for solving the New Orleans flooding problem, the implementation of the levees constantly faced bureaucratic and administrative hurdles. By the 1980s, many older canals and levees had deteriorated significantly. When the Orleans Levee District and Sewerage & Water Board of New Orleans jointly proposed a $100 million project to bring the canals and surrounding levees up to standard, the corps balked at paying 70% of the tab in this costs, instead proposing a much cheaper solution involving the installation of automatic floodgates at the end of the canals for use during hurricane events.

Despite authorization to the Army Corps of Engineers to implement these flood control strategies, Aptheker (2005) notes that the Army Corps of Engineers had been unable to complete levee repair projects since 1985 because of budget cuts at both the federal and state level.

With the cost debate stalling the progress of upgrades and the Army Corps refusing to pay, the Sewerage & Water Board and the Levee District sought lower cost alternatives for flood protection. They chose what was called an I-wall design,
a far-cheaper design for floodwalls that met the bare minimum of Army Corps-instituted engineering requirements. Construction of an I-wall involves using a buried sheet of corrugated steel to strengthen an earthwork barrier, which is topped with a concrete wall. According to Brinkley (2006), the I-walls “resembled the tall cement fences that safeguarded Los Angeles from forest fires, not from fourteen-foot storm surges.” Unlike the more expensive T-wall, which is similar to the I-wall but with perpendicular brackets installed at the bottom of the steel to encourage stability, the entire structure of an I-Wall is dependent upon the stability of that underground steel piling, which unlike the T-wall, is only supported by soil (Van Heerden with Bryan, 2007). While this made the I-Wall design a terrible choice for New Orleans, given the area’s mix of sandy and alluvial soils with high organic content, the design was the cheapest (only $21 million) and was used for 35 miles of protection parallel to canals, including the 17th Street Canal (Cooper and Block, 2006) and Lake Pontchartrain (Brinkley, 2006: 13). Ultimately, these poorly designed levees were unable to contain the tremendous pressure exerted by surge-driven water, and they failed in a number of places.

After a huge May 1995 rainstorm caused flooding that killed six people in New Orleans, the U.S. Congress established the Southeast Louisiana Flood Control Project (SELA), to be completed by the Army Corps. Focused on strengthening levees and building pumping stations, the Army Corps spent $430 million on SELA, but was denied an additional $250 million of Congressionally appropriated funds
that were ultimately redirected toward the Iraq war effort (Dyson, 2006a; Lerner, 2005).

Furthermore, Louisiana’s federal funding was dramatically curtailed by the George W. Bush Administration, as the White House and Congress aggressively sought to end “earmarked” expenditures (Eikenberry et al., 2007). The federal appropriations to the Orleans District of the Army Corps fell by 44% from 2000 to 2004, while much of its staff was already absent, reassigned to efforts supporting the Iraq War. Thus, despite requesting $22.5 million for New Orleans flood control projects for 2005, the Army Corps was funded only $5.7 million. In any case, pre-Katrina estimates showed that shoring up levee protection in New Orleans would total at least $2.5 billion (Van Heerden with Bryan, 2007), but money was not allocated. Further efforts by local governments to acquire funding to repair levees compromised by subsidence also failed. In July of 2004, Army Corps project manager Al Naomi begged the East Jefferson Levee Authority for $2 million to repair levees for which federal funding, despite earlier authorizations of the project, had dried up. The money was not allocated (Robinson, 2005). Another cut to the New Orleans district of the Army Corps resulted in the inability to repair the weakened 17th Street Levee (Dyson, 2006a).

Such shortfalls did not plague other specially funded Army Corps projects; the rarely used Mississippi River Gulf Outlet (MRGO) was assigned $14 million for dredging (Cooper and Block, 2006), and an extensive system of locks for the Industrial Canal was funded an astonishing $748 million (Van Heerden with Bryan,
Steinberg (2006) argued that Louisiana’s congressional delegation was controlling the motives of the Army Corps, focusing its efforts on the development of wetlands by allocating money for those politically attractive projects. Of course, the drainage canals needed to drain wetlands for development actually made the city more at risk to flooding by providing a direct pipeline for storm surges from hurricanes (Colten, 2005; Dyson, 2006a).

When the Army Corps ran out of money dedicated to that purpose, the project of building levees to protect New Orleans was left largely unfinished. The I-walls, which flawed though they were, paralleled many of the drainage canals but stopped several hundred feet short of their outlet into Lake Pontchartrain. As Cooper and Block reported (2006), the last 200 feet of the Orleans Outfall Canal, right before it reached Pumping Station No. 7, used to propel water into the lake, remained unparalleled by even I-walls. This discrepancy allowed floodwaters to freely backflow into surrounding neighborhoods from Katrina’s surge. The corps had plans ready to fix this problem, but were rebuffed when money was requested. Many, including Robinson (2005), Dreier (2006), Apthekar (2005) and Dyson (2006a), blame these shortfalls on reallocation of funding into the Iraq War effort.

The implementation of levees might have been an acceptable way to protect the citizenry of New Orleans from catastrophic flooding events and hence made the discourse of safety presented by the state legitimate, had those levees been constructed in a way that they prevented flooding in the city. Instead, because they collapsed, more than 80% of the city was underwater. The failures of the state to
follow that discourse with action, though, led to a situation where a significant portion of the city’s population believed that discourse and were subjected for the very forces of nature they were supposed to be protected from. Another facet of that discourse of safety, though, was the promised provision of social welfare capital – that is, aid for disaster response and recovery provided by the state – which in the case of New Orleans arrived in a delayed fashion, or not at all.

Social Welfare

The many failures in response to Hurricane Katrina, attributable to both the state itself and the pseudo-state chartered charity agency, the American Red Cross, brought many pointedly horrific results to the impoverished populations of New Orleans particularly, as discussed in Chapter Three (“The Failed Response,” page 161). Despite the Hurricane Pam practice scenarios FEMA conducted in 2004 that predicted 61,290 deaths in the region resulting from a hurricane much like Katrina, both FEMA and its private-sector partner, the American Red Cross, were woefully unprepared and ultimately underperformed. These failures occurred, remarkably, in the face of a catastrophe that was less dramatic than the Pam exercises had predicted.

The Hurricane Pam simulation predicted that some 150,000 people would be left in New Orleans proper in the event of such a storm, and therefore supplies
would need to be stockpiled for a similar number of survivors (Congleton, 2007). During that exercise, officials had discovered that finding and deploying enough vehicles to evacuate the expected 127,000 people in New Orleans without transportation would be impossible given current resources. The solution to this problem was marked “To be determined at a later date,” for which the later date never came (Van Heerden with Bryan, 2007: 147).

As a result of this unfinished project, those people left behind in Katrina’s aftermath were presented with few options. The city never mobilized over 500 municipal buses because they were deemed insufficient to evacuate the remaining residents, and FEMA, which had planned to have 400 additional buses on hand to evacuate the city, never put the plan into action (Cooper and Block, 2006). As McLaren and Jamarillo (2007: 205) argued, the evacuation of New Orleans was “a private-sector evacuation, open only to those with means to participate.”

The ARC had, since the late 1990s, refused to build any shelters in New Orleans proper, precisely because of its proneness to flooding (Reckdahl, 2007). The city established the Superdome as a shelter of last resort, limiting its capacity at 20,000 people (Cooper and Block, 2006); once this capacity was reached, people were sent away (Congleton, 2006). Including those in the Superdome, as many as 112,000 people remained in the city during the storm (McLaren and Jamarillo, 2007), subject to Katrina’s wrath, still fewer than predicted during the Pam exercise.

Though fewer remained than expected, the state’s provision of social welfare to those weathering Katrina and its aftermath in the city was an utter failure. Upon
the order of mandatory evacuation issued by the city, those who chose to stay through the storm were advised to stockpile three days of food, water and other supplies, a common warning for hurricane events. This message, though informative and disruptive of the overarching safety discourse in the short term, simultaneously strengthens it in the long term by inferring that help was imminent, even if did not arrive immediately. Ultimately, the decree communicated half of the need that people faced, as the help did not arrive in many cases for six days following the storm. In the Superdome, some 20,000 people were marooned without sufficient food or water, awaiting supplies and eventually evacuation (Hodges, 2005). In the nearby Ernest N. Morial Convention Center, an ad hoc shelter established by victims who had rescued by the U.S. Coast Guard from underwater homes and deposited on overpasses as the floodwaters rose, another perhaps 20,000 people waited for days without sufficient food or water (Cooper and Block, 2006; Napier et al., 2006). The city’s hospitals, without electricity or clean water, operated under nearly medieval medical practices for days after Katrina (Bergal, 2007). According to plan, much of the direct aid toward recovery for Katrina’s victims was to be distributed through the American Red Cross. The ARC, though, first distributed aid to displaced people in their designated shelters, none of which existed in New Orleans proper where the poorest people lived. Those who had evacuated to other shelters, such as the Superdome, or had found temporary housing in hotels were denied access to aid until those in Red Cross shelters had been serviced (Hodges, 2005; Reckdahl, 2007).
While, in many situations, people were prepared for a disaster scenario, there were limitations to the temporal scale of their preparedness. Additional social welfare capital, from the larger scaled entities of the state (the state and federal levels) was slow enough that even the most prepared of people were left without by the time this capital arrived. Suffering was prolonged in New Orleans by a trust in the ability and willingness of modern capitalist state apparatus to provide such welfare, which had been demonstrably shown in other recent disaster events. As Tiessen (2006: 36) argues:

“[I]t was precisely on the basis of speed’s ability to make the world small that the refugees [sic] of Katrina were expecting a speedy delivery of aid; it was precisely the technologically fortified state, itself a state of speed, on which they were pinning their hopes. Unfortunately, in this instance, those able to apply speed were happy to apply it in different directions: Iraq, Afghanistan, tax cuts. Speed did not desire Katrina’s victims. And so speed waited as hundreds of Katrina’s most fragile victims suffered a slow death.”

Regardless of how the failures of FEMA, the American Red Cross and others were precipitated, the discursive promise was broken that the immediate needs of the people would be cared for by the state’s social welfare capital. Even once those immediate initial human needs of food, water, sanitation and shelter had been belatedly filled in some way, the continued distribution of social welfare capital still failed to uphold the narrative presented of New Orleans as a place safe, or at least less risky, for capitalist development.

Providing a longer-term need, shelter, was just as convoluted of a process. During the Hurricane Pam exercise, researcher Ivor Van Heerden (with Bryan, 2007:
was “laughed out of the room” when he suggested that the emergency management agencies should stockpile tents and make agreements with landholders north of the city, to facilitate the quick construction of tent cities in the aftermath of a storm. One high-ranking official told him in a condescending tone, “Americans don’t live in tents.” Instead, FEMA intended to use modified camping trailers, promising 300,000 trailers for housing in the disaster area (Nigg et al., 2006). Within days the agency realized that the last trailer would be rolling off the production line in nearly four years (Cooper and Block, 2006: 226).

The next attempt to move evacuees to more permanent housing came on Thursday, September 8, when Brown announced a plan to distribute $2,000 debit cards to Katrina victims. “The concept is to get them some cash in hand which empowers [them] to make their own decisions,” Brown declared. The next day, a near riot broke out in the Houston Astrodome as evacuees fought for a chance at the money, forcing the arena into lockdown. The program was cancelled two days later, with FEMA officials announcing plans to distribute aid in “more traditional methods,” which ultimately took weeks. (Cooper and Block, 2006: 228). These more traditional methods were typically a bank check for $2,300, given to all citizens who applied using an address in the affected area, regardless of need, at a time when cashing such a check proved impossible for most (Koughan, 2007).

Oddly enough, the distribution of social welfare capital was partially determined by the state’s control of information. Many media outlets, though particularly those based in foreign countries, were quick to criticize this
distribution, noting that services were provided to specific locations as part of a larger discursive manipulation of the state’s actions. Only when television cameras were present did it seem that response efforts were effective and efficient.

Brasch (2006) wrote extensively about the chronicling of this particular disparity as reported by German television networks. Christine Adelhardt, of Germany’s ARD television network, reported on Bush’s first visit to the disaster area, including a description of the geography of that injustice, as in her view, Bush’s visit failed to reach those who needed the help most:

“Here, just two minutes ago, the President drove by in his convoy. But what happened here throughout the day in Biloxi is really unbelievable. Suddenly, salvage groups appeared here, suddenly clearing vehicles were here. Those had not been seen here all the days before and this in an area where it really would not be greatly necessary to clean up [now] because nobody is living here, far and wide, anymore. The people are further inside the city.” (Brasch, 2006: 68).

ZDF, another German television network, confirmed this manipulation:

“[S]uddenly help crews showed up, people who cleaned out the rubble, that searched the houses for dead bodies. And this exclusively along the route of the president. The president left Biloxi and with him all the help crews.” (Brasch, 2006: 68)

Perhaps most disgusting of all, ZDF further reported that a food distribution center that Bush visited was set up before he arrived, and then closed after he and the TV cameras left the area (Brasch, 2006: 68). In the case of the magically appearing and disappearing food station, the distribution of social welfare, in the form of food aid, was certainly nothing more than an empty discourse used to
perpetrate that overarching larger discourse of safety. That message of safety was, in fact, a continuance of similar discourses presented during earlier but recent disaster events, such as Hurricane Charley and Ivan.

**Information**

As another part of the discourse of safety, the state had long ago seized the control of disseminating information for such disaster events. The purpose behind this seizure was the assurance that all hazardous events were well under the control of the state and its agencies of experts. These experts, employed chiefly to study potential threats and inform the public about them, were an assurance by the state that all areas under its jurisdiction were suitable for capitalist development. If any natural event threatened, the discourse inferred that citizens would be properly warned in advance time to ensure minimal loss.

The state’s failure to disseminate information during Hurricane Katrina, and hence its failure to uphold the promise of this discourse, was essentially two-fold. First, the state failed to adequately warn the citizenry of the approaching danger, a task that the state had promised to fulfill so residents could focus on other matters. Part of this failure comes from the “crying wolf” syndrome, where warnings for earlier events that failed to damage the city had made residents less likely to trust those warnings for truly threatening storms. Secondly, during and after Katrina
made landfall, the state not only failed to disseminate information regarding the magnitude of the disaster, but also did actively express incomplete or inaccurate information which was more in sync with the larger discourses of New Orleans as a safe place.

Through precedent and legislation, the state had assumed control of providing information to the citizenry regarding threats of natural disasters and other hazardous phenomena. Indeed, in New Orleans, it had become the responsibility of the city's governmental, particularly the city's executive – the mayor – to issue orders of evacuation in advance of such a storm.

This responsibility is a particularly thorny one to assume. Van Heerden (with Bryan, 2007), Brinkley (2006), Eisenmann et al., 2007, among others, note that one problem with evacuations is that many of them are ultimately unnecessary. The call to evacuate an area is not an easy decision to make, and officials risk being “The Boy Who Cried Wolf,” after the popular children’s fable, if too many evacuations are executed without the dangerous conditions actually striking the evacuated area. Through the 1990s and 2000s, this had already happened to New Orleans. Governor Blanco later referred to this in her Congressional testimony:

“’You put your four kids in the car and you’re sitting in traffic and they’re screaming and nothing happens and you go home and say ’I’m not doing this again. This is crazy.’” (Van Heerden with Bryan, 2007: 49).

This reluctance was found throughout the city. City Councilman Oliver Thomas represented the Lower Ninth Ward. On the eve of the storm, he went door-
to-door in the neighborhood, telling people to evacuate (Elder et al., 2007). One of his lifelong friends, Frank Watson, refused, telling Thomas “I ain’t going nowhere. Y’all always talkin’ about leaving and every time we leave and just turn around and come right back.” Frank never evacuated, and was never found after the storm (Brinkley 2006: 45-46).

The “Crying Wolf” syndrome had resulted in a peculiar situation for the state’s information apparatus: the state was the only truly trusted source for information regarding dangers, and by its own positioning, the only authority with sufficient authority to issue evacuation orders; however, the state had overplayed its hand in earlier storms and combined with statewide government corruption, had lost trust with the citizenry to the point that citizens barely paid mind to its warnings (Jurkiewicz, 2007). Brinkley (2006: 5) explained this phenomenon, stating that the for the warning-weary citizens of this hurricane-prone city, “only a mandatory evacuation drew the attention… anything less was inadequate.”

Nevertheless, the state’s communication of evacuation orders left much to be desired. The bizarrely nonchalant manner that New Orleans mayor Ray Nagin prepared for the coming storm was well noticed by both public officials and the press. That Nagin lacked a sense of urgency in the hours leading up to Katrina’s landfall has been cited as a key reason that evacuation orders may have been taken less seriously (Eikenberry et al., 2007; Brinkley, 2006). When Nagin appeared at a Saturday, August 27 funeral service for Clarence Barney Jr., a leader of the local Urban League, the political figures in attendance wondered why Nagin was there
when poor and elderly citizens needed to be evacuated in advance of the storm (Eikenberry et al., 2007). Former New Orleans mayor Mike Morial, an attendee at this funeral, later told Brinkley (2006: 41) that he figured “Ray has it under control,” or else “he wouldn’t be hanging around.” Indeed, the lack of concern on Nagin’s part was communication of a message directly counter to a voluntary evacuation order he had announced just hours earlier.

The reports generated during the Hurricane PAM planning exercise in 2004 noted that New Orleans required approximately 72 hours notice for a complete evacuation (Van Heerden with Bryan, 2007). Though the city’s hurricane evacuation plan remained remarkably generalized at the time of Katrina’s threat, the guidelines derived from PAM had been incorporated, and the plan was distributed amongst all city agencies. Despite the wide availability of this updated plan, however lackluster, including publication on the city’s website, neither Nagin nor his staff followed none of the plan’s outlined procedures (Brinkley, 2006). On Saturday, August 27 at 6:00 pm CDT, New Orleans mayor Ray Nagin issued an unfocused and unclear “voluntary evacuation” order just 36 hours in advance of the storm. During the press conference issuing that voluntary order, Nagin noted that his reluctance for issuing a mandatory evacuation order was because the city would have been financially liable to hotels and other tourist businesses should the order prove unnecessary (Nolan, 2005). Life continued much as normal for most of the residents of New Orleans. During a conference call on Saturday evening to discuss
the coming storm, Cedric Richmond sat on a city playground watching his children play baseball. He told the assemblage of officials,

“Let me tell you, if this storm is the ‘Big One’ as you say, the seven hundred people on this playground don’t know it.” (Cooper and Block, 2007: 109).

Only on Sunday at 9:00 am CDT – the morning before Katrina struck – did Nagin issue a mandatory evacuation. Ultimately put into effect less than 24 hours before the storm, the order left some hurrying to evacuate, and others convinced that the storm still wouldn’t cause any problems (Forman and Lewis, 2006).

Benjamin Johnson, a former U.S. Marine who was employed as a security guard, was one who took the initial voluntary evacuation as being inappropriate for an impending threat:

“‘My view was that if it wasn’t mandatory it can’t be a bad storm. I did sneak out under the wire… But the people in the projects, those I knew, kept saying ‘Katrina ain’t nothing. They ain’t even asked us to leave.’” Brinkley (2006: 63)

Worse still was the fact that these evacuation orders, confusing and late as they were, failed to express the compounding dangers likely to come from the failure of protective levees, a danger that was known well before Katrina’s landfall. Computer generated flooding models produced by researchers at Louisiana State University were showing catastrophic flooding in New Orleans as early as Saturday morning. Because the parameters in the computer program did not allow for changes caused by destruction of protective infrastructure, these projections were
based on a surge that would overtop the levees. Possible levee destruction would make any such projection far worse. Despite the availability of these reports, local, state and federal officials ignored the reports until Sunday (Van Heerden with Bryan, 2007: 53). FEMA videoconferences leading up to the storm, in which Brown, Bush and Chertoff all participated, anticipated the failure of levees on that Sunday afternoon before the storm made landfall (Horne, 2006). Despite this, nothing was said to the media about the possibility of levee failure, and even most experts had thought New Orleans had escaped the worst (Garnet and Kouzmin, 2007).

The state’s failure to disseminate information, as promised by the assumption of that responsibility, continued after the storm when information was routinely mishandled and ignored by state agencies, and in some cases, misinformation was deliberately spread. The state’s initial releases of information following Katrina’s landfall early on the morning of August 29 was that New Orleans had mostly avoided the worst effects of the storm. This was partially true; the Mississippi River, Lake Pontchartrain and the waterways surrounding the city had only been subjected to a storm surge of about eight feet, typical of only a Saffir-Simpson Category 1 storm. However, these statements failed to recognize the possibility of levee breaching.

Oddly and as a contradiction to all other reports, the Army Corps repeatedly emphasized a position following Katrina, without any evidence, that the storm had brought New Orleans a storm surge consistent with a Category 4 level of intensity, far above the project’s guidelines.
“‘The levees were sound, but the event exceeded design. Congress told us to
design to a Cat 3, and that’s what we did. Our hands were tied. Katrina was
a Cat 4 storm,’ explained Al Naomi of the New Orleans Army Corps of
Engineers.”
(Van Heerden with Bryan, 2007: 200).

Despite the fact that the levees had indeed failed at pressure consistent with
a Category 1 – or at most a low Category 2 storm – the levees protecting the city
from the water of Lake Pontchartrain were supposedly constructed to withstand a
Category 3 hurricane, and that despite recent history demonstrating that stronger
hurricanes often visited the Gulf Coast. As Van Heerden (with Bryan, 2007: 204)
rightly asked:

“[W]hy protect against just a Cat 3 storm? Why leave the city of New Orleans
in jeopardy against a Cat 4 or Cat 5 storm? Does the Corps think that water
from the lake and storm surge from the Gulf of Mexico is somehow less wet
than water from the Mississippi River? Would this water not rise as high, do
as much damage, and require just as much time to pump out?”

If the state, which has taken charge of disseminating all ‘important’ information
during such a disaster cannot agree on important details about the event’s genesis,
what good is that information? By lying about the storm’s intensity, the Army Corps
was vainly attempting to uphold the earlier discourse that New Orleans was a safe
place. Sadly, that misinformation was not limited to the Army Corps.

Eyewitness reports of widespread flooding and rising waters began filtering
into city officials before dawn, who immediately forwarded the reports to FEMA
officials. In a 7:30 am conference call, New Orleans city Disaster Director Terry
Ebbert explained, in great detail, that the types of flooding that were being reported
were exactly what were to be expected with levee failure, and that the city was now in grave danger from submersion. In a later 11:00 am conference call, NHS Director Max Mayfield disputed Ebbert’s claim, stating that given the relatively minor storm surge that struck New Orleans, he found it unlikely that federal levees protecting New Orleans had been breached (Cooper and Block, 2006).

At first, officials failed to admit that the city was indeed filling with water. The Army Corps in New Orleans, with a skeleton crew remaining bunkered down to ride out the storm, was unable to provide firsthand accounts of damage until after the storm calmed (Cooper and Block, 2006: 140). Even after a number of first hand reports were delivered to City Hall by the Army Corps, and other eyewitnesses and forwarded to FEMA representatives, Brown refused to admit that breached levees had caused the flooding. On CNN the evening of August 29, he claimed that:

“[w]e have some, I’m not going to call them breaches, but we have some areas where the lake and the rivers are continuing to spill over.” (Cooper and Block, 2006: 147)

Foucault (1972) would have found humor in this statement, because Brown must have considered the word “breach” a significant threat to that discourse of safety despite his immediate contradiction to its meaning. Sure, water was “spill[ing] over,” which sounds more like someone left the kitchen faucet on in a plugged sink than a city drowning, but Brown refused to call the water’s entrance to the city a “breach.” Later that evening, during an interview on Fox News, Brown completely contradicted his earlier report while stating a mixture of opposing
statements, both saying that “we averted a catastrophic national disaster,” but also saying “[w]e now have breaches. We now have water flowing into New Orleans.” (Cooper and Block, 2006: 147).

Some twenty hours after the levee failures, most of the world believed that New Orleans had dodged a bullet, not recognizing the failure of the levees nor the pending filling of the bowls. Part of the reason for this was that many parts of the state’s information apparatus were engaging in misinformation, intentional or otherwise. Senator David Vitter said in a press conference at 4:00 pm Tuesday that:

“In the metropolitan area in general, in the huge majority of areas, it’s not rising at all... I don’t want to alarm anyone that New Orleans is filling up like a bowl.” (Van Heerden with Bryan, 2007: 101).

The Director of Information of the Department of Homeland Security, General Matthew Broderick also ignored reports of widespread flooding, despite their origin within government agencies. Citing imagery from CNN Headline News showing citizens drunkenly celebrating Katrina’s departure in the dry French Quarter – which was indeed dry because of its location on the highest-resting part of the city – claimed that New Orleans had in fact “dodged a bullet”:

“The one data point that I really had, personally, visually, was the celebration in the streets of New Orleans, of people drinking and partying because – and they used, they came up with the word – ‘we dodged the bullet. So that’s a pretty good indicator right there.” (Cooper and Block, 2006: 150-151).

Other officials, including Witter and Governor Blanco insisted repeatedly in the days following the disaster that “The French Quarter is dry.” Dyson (2006: 67)
argues that this insistence reinforced the perception that New Orleans possessed a structural integrity beyond reproach of disaster. Blanco downplayed the reports of levee breaching, saying “I think we have not breached the levee. We have not breached the levee at this point in time,” (Cooper and Block, 2006: 138) She said this while she admitted that reports claimed many of the city’s neighborhoods to be submerged.

Cooper and Block (2006) noted what they called a “tremendous debate” amongst the various officials from the many agencies tasked with response to Katrina whether the flooding was caused by the breaching of levees or if the levees had been “overtopped” by a substantial storm surge. More and more eyewitness reports were submitted to City Hall that water was continuing to pour into the city, a chronic flooding indicative of levee failure, not an acute flooding that would happen in an overtopping event. Counter to these reports, many of the officials still refused to accept that levees had breached. Broderick refused to acknowledge any “facts” about levees breaching until late Tuesday (Cooper and Block, 2006).
Likewise, the Army Corps of Engineers maintained for weeks after the disaster that any flooding caused by levee failure was caused by a process of gauging of the base on the levee’s dry side by overtopping. The Corps refused to recognize that the levees failed for any other reason, even with researchers presenting compelling evidence to the contrary (Van Heerden with Bryan, 2007).

The federal executive’s response to Katrina seemed no more urgent than the city’s. President George W. Bush was on vacation at his ranch in Crawford, Texas in
the run-up to landfall (Horne, 2006; Dyson, 2006a) and did not appear in public until after the storm had made landfall. Though Michael Brown reportedly contacted Bush on the morning of August 29, hours after landfall, explaining the potential severity of the disaster, Bush’s demeanor and public persona remained on script (Liu, 2006). In his first post-landfall appearance, Bush spoke at a retirement resort in Arizona about the proposed prescription drug for Medicare at 11:00 am CDT. Then, Bush flew to Rancho Cucamonga, California to give another speech at 4:40 pm CDT, further promoting Medicare reform to a group of senior citizens. In a post-script, he briefly addressed what was happening on the Gulf Coast.

“We’re in constant contact with the local officials down there. The storm is moving through, and we’re now able to assess damage or beginning to assess damage...For those of you who are concerned about whether or not we’re prepared to help, don’t be. We are. We’re in place. We’ve got equipment in place, supplies in place. And once the – once we’re able to assess the damage, we’ll be more able to move in and help those in the affected areas.” (Cooper and Block, 2006: 143).

Following this event, Bush attended a San Diego Padres baseball game with Secretary of State Donald Rumsfeld. The next morning, Bush spoke to a crowd of military personnel at Coronado Naval Base about the importance of continuing the war in Iraq, and he spent the next afternoon at a character-building photo-op, playing guitar with country music musician Mark Willis. He returned that evening to his Crawford ranch for the final night of his vacation (Horne, 2006). Some 36 hours had passed since Katrina’s landfall, and certainly conditions in New Orleans were significantly deteriorated by this time. Only on the afternoon of Wednesday,
August 31, did Bush finally visit the region for a photo-op, through his 35-minute infamous Air Force One flyover.

From this point, Bush appeared repeatedly in the media, hosting stiff press conferences and reporting toll-free numbers and meaningless (and often incorrect) statistics. He kept promising that the federal government would be helping (Cooper and Block, 2006: 227). Directly contrary to reports that he had personally received in anticipation of Katrina’s landfall, on Thursday September 1, Bush told Diane Sawyer on Good Morning America,

“I don’t think anybody anticipated the breach of the levees. They did anticipate a serious storm.” (Van Heerden with Bryan, 2007: 150).

Only after his aides crafted a video DVD of news reports from the storm’s damage, which the president watched on Friday morning, did Bush begin countering the storm more aggressively, at least politically. That morning, he flew to New Orleans and “toured” the area, diverting helicopters, firefighters and members of the Coast Guard to be backdrops for photo-ops. At 10:35 am, at one of these made-for-the-press events, Bush praised the efforts of Brown, telling him “Brownie, you’re doing a heck of a job,” (Horne, 2006: 84). Later that day, when questioned if he was approving of the government response to Katrina, Bush replied “I am satisfied with the response. I am not satisfied with all the results,” (Horne, 2006: 85; Dyson, 2006a: 61). By this point, any public credibility the Bush Administration had
regarding the management of the government response had been lost, reduced to a laughingstock by the overwhelming incompetency displayed.

In the weeks after Katrina, the Department of Homeland Security issued daily documents entitled “Highlights of the United States Government Response to the Aftermath of Hurricane Katrina.” The documents, only a few pages long and created for public consumption, read with congratulatory tones toward all officials involved in the effort. Van Heerden (with Bryan, 2007) critiques these efforts, noting that when these reports were issued, people were still suffering the direct effects of Katrina. Chertoff continued to refer to Katrina as a double disaster, maintaining that the hurricane and the levee failures were two separate events. It was not the case, and according to Cooper and Block “did not excuse the Department of Homeland Security” of falling down on its duty. Indeed such a philosophy was embedded in the post-9/11 FEMA philosophy of fighting natural disasters and terrorism concurrently (Cooper and Block, 2006; Hogue and Bea, 2006).

On September 12, facing days of growing criticism regarding the response to Katrina, Michael Brown resigned as head of FEMA. A few days after Brown left FEMA, Nicol Andrews, a White House-installed FEMA spokeswoman, called him, asking him to begin accounting for failures of Louisiana officials to the press. She asked him to submit to an exclusive interview with the New York Times and “get some stuff out in the press,” and “kind of plant some stuff for us.” “You need to tell the truth about how bad the state was,” she said. According to Brown, the only purpose of the phone call was to shift the blame (Cooper and Block, 2006: 235).
By bumbling the creation and dissemination of relevant information that the state’s discourses of safety had offered as a way to reduce capitalist risk in a dangerous place like New Orleans, the state failed to uphold the promised assumption of risk. The state failed to provide the expert advice and warnings, which various agencies of the state had assumed by creating corporatist state apparatuses designed to encourage conditions necessary for capitalist development. One of these conditions was an assurance that any threat to this place, known to be dangerous, would be well communicated and fears assuaged through the provision of properly crafted information regarding the threats. The state, at all levels, failed to communicate the necessary information for which the provision had been promised in hazardous events. Combined with the failures to provide proper infrastructure and social welfare capital that the state’s apparatuses had promised, New Orleans sat underwater, and its people suffered incredibly as a result. Unfortunately, a large majority of the people who suffered the worst effects of Katrina were the most vulnerable populations, the socially disadvantaged – people from oppressed social minority groups, and people who were living near or below poverty, and the elderly, resulting in a dramatic environmental injustice.
CHAPTER VI

CONCLUSION

New Orleans, as a densely populated area, should clearly have never gone about the trouble of existing; yet, it did. In 2005, nearly 300 years after its founding, the metropolitan area surrounding New Orleans was home to approximately 1.2 million people. Surely New Orleans had encountered historical fluctuations in its population and its importance in the broader U.S. economy throughout its history, but the fact remains that when Hurricane Katrina came barreling ashore on August 29, 2005, a large number of people lived in a place far too dangerous for an urban area to exist in a free-market organization of space. A significant portion of this concentrated population was left behind when Katrina came on land, and these people were subjected the storm's major impact of devastating flooding that essentially destroyed large areas of the city.

New Orleans was a project of government entities from its very beginning. The first alterations of the city's dangerous environs, in an attempt to make such a settlement economically and fiscally feasible to serve primary port functions for the Mississippi River, came with the investment of French prison labor less than a decade after the city's initial platting. Such investments continued through periods
of French, Spanish and American rule of the port, with state entities gradually seizing more control of mitigating the perception of capitalist risk – risk from environmental hazards constantly threatening the city due to its precarious situation. This assumption of risk by state entities continued to grow through the dawn of the 21st Century, with billions of taxpayer dollars invested to create an image, or rather, a discourse of safety enveloping the city in a governmental “seal of approval” for capitalist investment. As I have explored, the apparatuses of the state as a corporatist project, described by Clark and Dear (1984), grew to continue a space suitable for capitalism in New Orleans.

The problem with these efforts, investments and discourses are not the tendency of humans to change their environment, something the human race has been uniquely capable of doing more so than perhaps any species in the earth’s history. Working to create a place that is both safe for humans and their investments and properties does not set New Orleans apart; indeed, the residents of every single urbanized area in the world have made significant adaptations to surrounding environments, in the form of such infrastructure as plumbing and sewage disposal simply to manage the needs of so many people concentrated in a small place. Even the fact that these changes were at least partially discursive in purpose, being a communication of the state to the citizenry that this city was a place suitable for capitalist investment and residence, is not unique to New Orleans; other cities have turned government infrastructure and actions into pro-investment discourse for as long as the mobility of capital has been apparent. No, the true
problem with these efforts by the state – and ultimately the true tragedy of Katrina’s effects on New Orleans – is that these discourses, regardless of any altruism or initial intent, were promises that were not fulfilled by the state apparatuses that presented them. The corporatist state actively promoted New Orleans as a place safe for capitalist investment, and safe for residents to live their daily lives. The state had promised the citizenry that any environmental threats to New Orleans were either eliminated by various investments in infrastructure and other safety precautions, or that such threats were managed by control of expert information regarding the threats and the ability to distribute social welfare capital to minimize the impacts in an event’s wake. With Katrina, the state had failed to fulfill these obligations, which the state had assumed in its promotion of a capitalist space, and left many people subject to tremendous suffering in the storm’s wake.

The tragedy of the destruction of New Orleans is multi-faceted. Certainly it is disturbing to see any fellow person in pain, and Katrina’s impact on New Orleans caused despair in huge numbers. This suffering, though, was magnified in ways that were unnecessarily cruel toward specific groups of people. New Orleans, developed in a particularly hazardous place by a corporatist state using a discourse spatial safety to justify development in that location, ultimately became to many socioeconomically disadvantaged people. It members of these socioeconomic classes who were hit particularly hard by the hurricane’s real environmental consequences levied against the city. Simply put, the impoverished and socially oppressed were encouraged by the state to invest and live a dangerous area; not
through a direct order or communication, but by being told that this place was safe from environmental danger when it was certainly not. As a result, the socioeconomically disadvantaged people of New Orleans suffered a tremendous environmental injustice when Katrina made landfall.

As the storm approached, programs initiated to ensure the public of its safety were ignored or activated foolishly in ways that resulted in mass misinformation. Ultimately, 112,000 people remained in the city when the storm arrived. Katrina’s relatively small storm surge destroyed the city's poorly constructed levees – which were supposedly built to protect New Orleans, but managed to simply present a symbolic gesture of safety. And as floodwaters inundated the city, endangering those left behind, the social welfare safety nets such as FEMA, installed by the state as one more assurance of this place’s safety from environmental hazard, were left in the hands of generally incompetent and, at times, malicious members of the privileged class – politicians and bureaucrats. The classist distinction here cannot be minimized. As Dyson (2006a: 19-21) writes:

“Of course race colored the response to Katrina, although it may not mean that explicit racial prejudice fueled the decision to leave poor black folk defenseless before the fury of the storm. After all, one not need have conscious or intentional racial beliefs to act out a script written long before specific actors come out on the political stage to play.... One may agree that there was no racial intent, no ‘active malice,’ in the response to Katrina, and yet hold the view that there were nonetheless racial consequences that flowed from the “passive indifference” of the government to poor blacks. Active malice and passive indifference are but flip sides of the same racial coin, different modalities of racial menace that flare according to the contexts and purposes at hand.” (Dyson, 2006a: 19-21).
Dyson also argues that Bush and Brown were unable to identify or empathize with the black poor because the agency and the angst of the black poor had been minimized in southern memory, to the point that they did not count as much.

The general inability, or perhaps unwillingness, of the state in its vain attempts to uphold its discourse of safety were viewed contemporaneously as entirely transparent, and failing:

“The generosity of ordinary American citizens [more than one billion dollars by the end of 2005] starkly contrasts with the ineptitude of the government and its abandonment of the poor, mostly African Americans, who could not get out of the city.” (Brown, 2005: 95).

Such oppression against minority groups, in both social and economic classes, is a theme common to the history of the United States, and environmental injustice is just one aspect of a larger picture. Indeed, the socioeconomic conditions of New Orleans on the eve of Katrina should serve as an important ‘canary in the coal mine’ for conditions of socioeconomic disparity throughout the country. Inequalities like those found in New Orleans cannot exist in isolation. As Bullock (2005: 109) notes, “great poverty cannot exist without great wealth. Nor can racial disadvantage exist in the absence of advantage.” Similarly, and rightly, Oden (2005: 143) framed the disaster as a consequence of:

“the neo-conservative formulation of individualism, free market policies and foreign occupants, which have never benefited those individuals in poverty or who are in the working class.”
So, even if the horrors of Katrina in New Orleans were believed to be strictly accidental, caused by an extreme environmental event meeting the incompetence of various officials of the state, the very fact that our country saw such an incredibly wide gulf between the ‘haves’ and the ‘have-nots’ – both in social and economic statuses – acted to position a huge portion of our citizenry for a long and perilous fall to insolvency and suffering. In the best case, the impact of Katrina on the people of New Orleans led to an unacceptable result, but as I found in this project, nothing about Katrina was a best-case scenario for the people exposed to the storm’s consequences. Incompetence, malice, and general inability and unwillingness of the state to provide the very protections it offered in its many discourses of safety for that place led those disadvantaged people to a particularly disturbing and unjust level of suffering which the more privileged classes were far less likely to experience. That, in essence, is the environmental injustice of Katrina.

**WHAT TO DO WITH NEW ORLEANS?**

An urban area with a cultural identity as unique as New Orleans creates some rather prickly concerns in the aftermath of a disaster such as that brought by Hurricane Katrina. Certainly, the city should have never existed because of its many environmental hazards, which made it unfeasible as a place to invest in a purely capitalist system. It only continues to exist, even post-Katrina, due to extensive
manipulation of the larger spatio-capitalist system by state entities seeking to promote the place as safe from its environmental hazards. So, if this city should never exist in its current location, then it would be most logical in the face of such a destructive disaster to allow the city's land to go “fallow.” Abandoning the site and move the city's functions elsewhere, even with the tremendous costs associated with recuperating sunk capital invested in the former site, would seem logical, but New Orleans has aspects of its character that escapes this kind of logic. In the larger American culture, New Orleans itself is given a privileged status as a cultural hearth. In the history of this place, a wide array of cultures converged, including Native American, French, African, Spanish and American influences. Today, these influences are readily recognizable to many Americans, who see New Orleans as the home of Mardi Gras, raised cemeteries, jazz music, the iron-latticed balconies of the French Quarter, and po'boy sandwiches. Even George W. Bush fondly recalled his partying on Bourbon Street before he left the city from his September 2, 2005 visit, remembering New Orleans as "the town where I used to come from Houston, Texas, to enjoy myself—occasionally too much." (Dyson, 2006a: 102). Perhaps the city's very disparity was also a factor in its unique character, as Cockburn (2006: 44) argued that a “scarcely suppressed class war” was what had prevented the "Disneyfication of the core city.” The French Quarter that Bush had wandered drunkenly years ago was the same French Quarter that tourists would find today, and that historical continuity is one of New Orleans's selling points.
Either way, one would think that these cultural distinctions would have provided enough impetus to force officials into action to save the city. Mayor Ray Nagin expressed this very sentiment during a famous September 1, 2005 radio interview:

“We authorized $8 billion to go to Iraq, lickety-quick, to take care of New York and other places. Now you mean to tell me that a place where most of your oil is coming through, a place that is so unique—when you mention New Orleans anywhere around the world, everybody’s eyes light up—you mean to tell me that a place where could probably have thousands of people that have died, and a thousand more that are dying every day, that we can’t figure out a way to authorize the resources we need? Come on, man.... Now get off your asses and do something, and let’s fix the biggest crisis in the history of this country.”

New Orleans is considered a cultural treasure, and key to that treasury is the very location that these influences came together to create a uniquely American place. Though such a unique character failed to prompt immediate action on the part of the state to save the city, that image of cultural identity still plays a major role in decisions regarding what to do with this place. To move the city from that location would be akin to losing the entirety of that history, a solution unacceptable to most Americans, including myself.

That said, the city will continue to function only with a continued influx of dollars from the state’s apparatus (a la Clark and Dear, 1984) that will allow the city to be considered suitable for capitalist development. If the city is to be perpetuated, the laissez faire economic model is an impossible solution because of the environmental risks, even though the model had its supporters during the
rebuilding phase. Van Heerden (with Bryan, 2007) noted the response by the Republican majority in Congress in 2006 that Katrina was proof that government is incapable of performing all necessary tasks and that the private sector should instead be trusted for such duties. This binary, this-or-that only model was a logical fallacy, worthy only of a sound rejection.

However, this fallacy continued to shape policy. In the weeks following Katrina, senators Landrieu and Vitter introduced the Louisiana Katrina Reconstruction Act, which sought to appropriate $250 billion (beyond the $63 billion already authorized) to Louisiana’s rebuilding effort. The request translated to $55,000 per capita, and pumped a tremendous amount of money into commercial interests, especially the energy, construction, shipping and seafood industries. The bill was laughed out of the Senate, and the request seemed to turn off the sympathy for Louisiana many had carried. While Louisiana faced public scorn by legislators in the media, Mississippi’s delegation worked quietly behind the scenes, securing some four times the amount of aid per capita that Louisiana did (Van Heerden with Bryan, 2007).

Of course, failing to fund disaster aid, a direct failure support of the discourses of safety promised to the citizenry, was only part of the problem and was little more than more evidence of a wider problem. The state seemed to have little interest in helping people, but instead was far more engaged in continuing to create conditions favorable to capitalist investment by installing more programs inline with free-market ideals at the expense of the disadvantaged groups. The disparity
was so stark that Scheer (2006) remained skeptical that the state would ever be able to fix the real problems in New Orleans, given what he claimed was a malicious track record from the politicians, who had forced spending cuts to fund tax breaks for the wealthy and military spending:

“None of this is an oversight, or simple incompetence. It is the result of a campaign by most Republicans and too many Democrats to systematically vilify the role of government in American life. Manipulative politicians have convinced lower- and middle-class whites that their own economic pains were caused by ‘quasi-socialist’ government policies that aid only poor brown and black people—even as corporate profits and CEO salaries soared. For decades we have seen social services that benefit everyone—education, community policing, public health, environmental protections and infrastructure repair, emergency services—in steady, steep decline in the face of tax cuts and rising military spending. But it is false savings; it will certainly cost exponentially more to save New Orleans than it would to protect it in the first place.” (Scheer, 2006: 46).

Scheer makes a very interesting point in that last sentence: while it may seem to save money in the short run to allow infrastructure, education and other social services to go without funding, consequences for these decisions in the longer term are dire. The Army Corps of Engineers used inferior – and cheaper – I-Walls instead of T-Walls to protect the northern shore of New Orleans from a storm surge, and many of those levees failed under pressure. Had none of the levees failed, flooding in New Orleans would have been minimal. Welfare programs for the impoverished, including Social Security, Medicaid and Disability, are routinely slashed by politicians as a way to save money, and supposedly as a way to encourage those people to succeed in life. But, if there had been fewer people living in poverty, and
hence, having the resources to easily leave the city without dramatic causing financial concerns in the near future, more people would have left the city and fewer would have suffered Katrina’s wrath. Simply, to maintain a truly safe New Orleans, we must help the poor become less poor, and the oppressed become less oppressed. Surely, we can build levees that hold up to any storm, and create social welfare systems that attend to every need of every disaster victim, each of which would adequately fulfill the discursive promises made about the city’s safety. However, without pulling those who are oppressed or impoverished from their pre-existing state of capitalism-induced suffering, each of those actions would be in vain.


