Equity in Disaster Recovery, Mitigation and Adaptation
By: Roberto Barrios, PhD & Colette Pichon Battle, Esq.

I. Introduction

The term equity can be defined as the absence of disparities (Putnam-Walkerly and Russell 2016). With regards to disasters, the term equity is essential to the way we understand the root causes of catastrophes, how we recover from them, and how we devise and implement mitigation and adaptation programs. Consequently, if there is one point we wish to communicate in this white paper, it is that disaster mitigation and risk reduction must become synonymous with inequity reduction and equity making. In the early 20th Century, disasters were often conceptualized as unavoidable calamities, "acts of god," or acts of nature. Consequently, governmental and non-governmental organizations charged with the task of responding to disasters saw these phenomena as discrete unpreventable events that could only be prepared for and responded to, but not necessarily mitigated or prevented before they occurred (Oliver-Smith 1999).

In the 1970s, a number of geographers, sociologists, and anthropologists began to notice a particular trend that challenged established understandings of disaster as unavoidable events (Hewitt 1983, Maskrey 1993, O’Keefe et al. 1976). Researchers involved in comparing disasters at a global scale noticed that the magnitude or presence of a hazard alone (e.g. earthquakes, hurricanes, tornados) did not guarantee the manifestation of a disaster. Earthquakes of magnitude 7 on the Richter scale, for example, can present a minor inconvenience in places where proper seismic resistance building construction codes are enforced, and construction is restricted to areas where terrain is less likely to magnify seismic waves. In contrast, an earthquake of the same magnitude can kill 25,000 people, as in the case of Guatemala in 1976, or more than 50,000, as we saw in Haiti in 2010. What transforms the hazard into a disaster are human practices that a) enhance the materially destructive and socially disruptive capacities of geophysical phenomena, and b) inequitably distribute the effects of a disaster along socially defined lines of gender, race, class, and ethnicity. Socially created inequity, then, is something that shapes disaster at various scales. It differentiates disasters at national and regional levels – as in the case of disasters that impact entire regions or nations because of historically imposed conditions of subordination to imperial and colonial global powers – and at local scales – as in the case of disparities along lines of race, class, gender, and ethnicity in affected localities that influence who is impacted and how, and who makes a speedy recovery and who does not.

Because inequity is such a critical element in the transformation of a hazard into a disaster, it is of paramount importance that it be addressed in disaster mitigation, recovery, and adaptation programs. Furthermore, addressing inequity requires an emphasis on equity in disaster risk reduction. In this white paper, we examine how inequity and equity matter in recovery, mitigation, and adaptation programs individually. We also provide examples of case studies that illustrate the diverse ways equity matters in these three realms of practice (recovery, mitigation, adaptation), and conclude by
making a series of policy recommendations that should be prioritized in all disaster risk reduction programs, especially in the context of anthropogenic climate change.

II. Recovery

Post-disaster recovery involves the interaction between a variety of people in varying positions of social and political influence. These people include disaster survivors of a variety of socio-economic backgrounds, urban planners, disaster recovery experts, developers and industry leaders, elected and appointed government officials from local, state, and national levels, and non-governmental and non-profit organization staff to name a few. In the aftermath of catastrophic events, these reconstruction actors engage one another in a variety of contexts. In some instances, recovery planning processes require a participatory element where these people might interact. In other cases, non-governmental organizations bypass central and local state institutions and approach disaster survivors directly, carrying out recovery projects that aim to achieve specific institutional objectives. Other instances may involve the development of reconstruction programs through collaborations between the private sector, local and state governments, and these initiatives can include varying levels of public input (or none at all). What is relevant to this discussion is whether the concept and goal of 

Social science research has demonstrated that some disaster recovery experts (e.g., urban planners), local government officials, and local elites can sideline concerns with equity in disaster recovery (Adams 2013, Barrios 2017, Marchezzini 2015). Recovery experts, for example, may emphasize the importance of "best practices" over equity concerns. The term "best practice" is problematic because it assumes that a particular course of action or policy is universally applicable, without considering the particularities of local histories of inequity-making, or the cultural specificities of the communities impacted by recovery programs. Additionally, local government officials and elites may regard those most vulnerable to disasters as "social undesirables" whose communities sit on prime real estate, and may consequently see disaster recovery as an opportune moment to carry out gentrification and urban renewal projects that do not address equity issues. Although this is not always the case, there are notable examples in the disaster recovery literature that point to key instances when concerns with equity (and addressing inequity) are not considered a primary focus of disaster recovery (Barrios 2014, 2017).

What is important to highlight once again is that disasters are not mere events, they are lengthy historical processes that begin long before a hurricane makes landfall, or a seismic fault line releases its tension. Disasters are historical-ecological processes where human actions enhance the socially disruptive and materially destructive capacities of geophysical phenomena. Furthermore, disasters do not end with the receding of flood waters or the cessation of tremors, they continue and can be compounded by recovery processes that do not take equity, local histories, and cultural practices into account (Oliver-Smith 1999). Because socially created inequalities are a
key element giving a particular disaster its form (i.e., who is affected, who dies, who takes longer to recover or never recovers), equity concerns must be central to all recovery processes. Additionally, conditions of inequity are historically produced, and present long before a natural hazard makes its way through a community, city, or nation. Consequently, it is imperative that concerns with equity in disaster recovery take local histories of inequity-making into account.

To highlight key instances when concerns with equity have been quite purposely sidelined in disaster recovery, we present two cases. The first is the case of recovery in New Orleans, Louisiana in the aftermath of Hurricane Katrina. The second is that of the US Gulf Coast and Houston, Texas following both Hurricane Katrina and Hurricane Harvey.

i. Example 1: Hurricane Katrina

When Hurricane Katrina's rainwaters caused multiple levee failures in New Orleans in 2005, they inundated a city that was the product of three centuries of race and class-based inequities. At the time New Orleans was first founded in the early 18th Century, flood risk was officially inequitably distributed along lines of race. The old colonial center, known today as the French Quarter, was constructed over the ancient natural levees of the Mississippi River, which, to this day, are above sea level and are very unlikely to flood (Campanella 2006). Under French Colonial law, only people who could prove a complete French genealogy could legally purchase land within the colonial city (Hirsch and Logsdon 1992). In a similar way, the plantations outside the city usually featured the construction of the owner's mansion on the river's levee, at higher elevation and less flood risk, while servant's quarters were constructed on the lower elevation land away from the river's shore, making them more flood prone.

New Orleans' late 18th Century expansion beyond the French Quarter, known today as Faubourg Tremé, was the first part of the city where free people of color could legally purchase land (Campanella 2006, Toledano et al. 1980). Because the Tremé is located to the northwest of the French Quarter and extends away from the Mississippi River, it features a gradual elevation loss and is therefore more likely to flood (Campanella 2006). Throughout the city's Colonial period and the 19th Century, the city's elite families constructed their homes on the ridges left behind by the Mississippi's ancient levees. To this day, major thoroughfares where elite homes are located feature higher elevations. Such is the case of Gentilly Boulevard, St. Charles Avenue, and Esplanade Avenue. Across the urban landscape of New Orleans, social inequity along lines of race and class is inscribed into the city's architecture, and is directly related to the inequitable distribution of flood risk. In the present, New Orleanians recognize the distinction between Front of Town (elite, predominantly white, less flood prone, showcase thoroughfares) and back of town (working class, racially and ethnically mixed, more flood prone neighborhoods)(Breunlin and Regis 2006, Regis 1999).

Race, space, and flood risk distribution was also shaped by the white flight that followed desegregation in the 1960s. In 1960, the city of New Orleans had a population
of 627,525, with 233,514 (37%) of these residents self-identifying as Black in the US Census. By 2004, New Orleans’ population had declined to 462,269, and the percentage of residents who self-identified as Black increased to 68% (Campanella 2006, US Census 2016). Prior to desegregation, the City of New Orleans observed a practice of providing separate and unequal public services to its white and black residents. Public schools with African American students, for example, systematically received less than one third the financial resources per student of their white counterparts (Cowen Institute 2018). With de-segregation, many white New Orleanians chose to relocate to suburbs in western Jefferson and eastern St. Bernard Parishes, taking job opportunities and well-funded public schools with them, and forcing many working class African Americans into an imposed condition of urban squalor. Middle class and affluent African Americans also left, some leaving the State of Louisiana to seek employment opportunities in job markets less fraught by racism, others moving to New Orleans East (Jackson 2011). Following de-segregation, the Housing Authority of New Orleans (HANO) followed a pattern of systematic neglect of public housing facilities, allowing the buildings to deteriorate to the point where their demolition and privatized re-development could be easily justified. Many New Orleanians, in turn, often turned to racist discourses to explain the demise of public housing, blaming its African American residents for its condition, rather than white flight and structural racism (Breunlin and Regis 2006).

While a new plan for the city was being created, so was an immediate plan to tear down public housing. Housing in the aftermath of Hurricane Katrina is a multi-layered, complex and divisive topic, particularly in public housing. In New Orleans, the homes that were the strongest and built on the highest ground housed the city’s poorest people. The public housing developments in New Orleans that existed during the most active hurricane season on record at the time were built during the WPA program of the Roosevelt Administration. While New Orleans’ public housing developments had various challenges around social policy, crime, and generational poverty, the physical structures of the buildings were established to withstand both hurricane force winds and the water that would eventually come based on the city’s topography.

As Katrina turned towards southeast Louisiana, officials in New Orleans began to contemplate the worst and many of the city’s poorest residents prepared to ride out the storm in the public housing. Law enforcement raided the homes of tenants in the St. Bernard and Iberville public housing developments (and in public housing across the city), and forced them to leave their homes at gunpoint. Limited space of mass emergency transportation resulted in a limited amount of personal belongings allowed to travel with each passenger. Residents were not told where they were being forced to go and almost all who were evacuated by gunpoint were given one-way tickets to cities that they had never been and had no family or other support system. Meanwhile, homeowners in the city’s wealthy uptown neighborhoods were offered the choice of evacuation- and when refused, their homes were patrolled to ensure looting and other criminal activity was kept to a minimum.

In the months of recovery – after the flood waters subsided, residents of public housing fought to retrieve personal items that were barricaded-in as part of a public
housing lock out. And while public housing residents, activists, lawyers and national political leaders fought to have public housing re-opened to residents – the City of New Orleans joined with national organizations, architects, businesses and urban planners to seek the right opportunity to re-conceptualize public housing and lead a new round of significant federal financial investments. This unprecedented disaster had become an opportunity to make citywide changes that would impact the physical look and demographic reality of New Orleans.

What could have been weeks of climate displacement turned into months of government (local and national) forced displacement for the city’s poorest residents. Decision-makers seized mass displacement as an opportunity to address “population density” in public housing. Plans to restore the city centered on proposals to tear down and rebuild public housing in New Orleans, including buildings that neither flooded nor succumbed to wind damage during the hurricanes of 2005. Public housing residents were locked out of their homes for more than a year, and many – unable to return from their one-way tickets out of New Orleans – never retrieved their personal photos, diplomas, documents, or generational family objects. This type of planning went on throughout the Gulf Coast, as many cities engaged in an immense and decade-long recovery. Whole communities and cities were “re-conceptualized”. The rebuilding of the Gulf Coast cities like Bayou Labatre, AL, Biloxi, MS, New Orleans, LA, brought together the best minds putting forth the best ideas on top of a devastated landscape devoid of most of its people. And if the notion of equality made it into some conversations of recovery, the concept of equity was elusive, if present at all.

In the aftermath of Hurricane Katrina, recovery and planning experts working for the Unified New Orleans Plan (UNOP) failed to make equity a central concern of the city's recovery. The Department of Housing and Urban Development (HUD) and HANO saw the floods triggered by the hurricane as an opportune moment to expedite a long-standing trend of disinvestment from public housing. Without public input, HUD and HANO ordered the city's four main public housing facilities closed after the storm (even though they were all minimally damaged) and planned for their demolition and redevelopment as mixed income housing. At the same time, the US Federal Government required the City of New Orleans to devise a plan for urban recovery through a participatory process, and UNOP was designated to fulfill this requirement. Even though local government authorities characterized UNOP as a planning process where all residents of New Orleans could be potential author's of the city's reconstruction directive, residents were later informed that some key recovery decisions, like the demolition of public housing, had been made a priori, and residents would have little say over the fate of this public resource (Barrios 2011, 2017).

In neighborhoods like Tremé, many residents passionately argued for the preservation of public housing during UNOP participatory planning activities, but urban planners denied their requests, insisting New Orleanians should think about their city as a site of capital investment, and not the provision of public services. These capitalist narratives of disaster recovery on the part of planning experts upheld the idea that the city is, first and foremost, a site of capital replication as an unquestionable "best practice." In
doing so, they promoted capital replication as a priority over equity. Equity, in this instance, would have recognized that the overrepresentation of African Americans in public housing, poverty levels, and vulnerability to floods, was the product of historically imposed inequity, and that recovery should therefore address inequity reduction in the form of providing safe and affordable housing for New Orleans’ most socio-economically vulnerable residents. In contrast, narratives of the city as a site of capital investment completely ignored the city's history of inequity, and effectively eradicated equity from recovery priorities.

A case in point was the redevelopment of Lafitte Public Housing, which housed 900 families before the storm. Nearly ten years after Katrina, only 120 of the facility's previous families had been able to return. In 2013, the city was missing 111,000 of its African American residents, demonstrating that the lack of focus on equity resulted in recovery efforts that failed to assist those who needed help the most. To this day, urban planners and recovery experts involved in UNOP defend their roles in the planning process, insisting that the decision to redevelop public housing was imposed on them by HUD and HANO. Nevertheless, if equity were at the forefront of recovery priorities, it would have been their ethical obligation to work as advocates of New Orleans’ most vulnerable residents, rather than powerful institutional stakeholders.

ii. Example 2: FEMA recovery funding after Hurricane Katrina and Hurricane Harvey in the US Gulf Coast

In the aftermath of both Hurricanes Katrina and Harvey, the Federal Emergency Management Agency (FEMA) upheld the policy that its funds can only be used to cover the expense of damage done by the natural hazard that triggered the emergency phase of the disaster in question (floods), and not the expense of addressing long-standing neglect of infrastructure due to political and socio-economic factors. This policy reinforces a view of "the disaster as hazard," in other words, erroneously conflating the hazard with the disaster. As explained in the introduction of this white paper, a hurricane itself is not a disaster. A disaster is a process that is, more often than not, a historically lengthy one, where human actions give a catastrophe shape and magnitude. The cases of the Lower Ninth Ward in New Orleans, Louisiana; Biloxi, Mississippi; and East Houston in Houston, Texas in the aftermaths of Hurricanes Katrina and Harvey demonstrate how the hazard-centered approach of FEMA’s policy runs counter to established scientific knowledge about disasters, and not only disregards equity as a key element of recovery, it actually perpetuates inequity.

The Lower Ninth Ward is a neighborhood that experienced systematic marginalization and neglect on the part of New Orleans City Government for decades prior to Hurricane Katrina. The neighborhood was originally founded in the late 19th Century by German and Italian immigrants and free people of color, and developed as an area of small family farms (GNOCDC 2007). In the early 20th Century, real estate brokers marketed the neighborhood as a place of residence for working class African Americans who had limited options for housing due to segregation. At the same time, the
US Army Corps of Engineers built a navigation channel and wharf known as the Industrial Canal, which cut the neighborhood off from easy access to the rest of the city, and effectively increased the neighborhood's flood risk (the levee failures along this canal catastrophically flooded the lower 9th Ward and killed at least 75 residents). In the mid-century, the Industrial Canal was directly connected to the Gulf of Mexico via another human-made navigation channel, the Mississippi River Gulf Outlet (MR-GO), which had a significant environmental impact on surrounding wetlands, causing saltwater intrusion that devastated nearby cypress forests and bayous, which would have diminished Katrina's impacts on the area. The construction of the Industrial Canal and the MR-GO are classic cases of environmental injustice. These infrastructure features were built in areas populated by working class and minority New Orleanians who had little input on the development process, and who were left to suffer the ensuing inequitable flood risk. Meanwhile, the Port of New Orleans and maritime companies benefitted from increased revenue.

Like many other parts of New Orleans, the Lower 9th Ward was hit hard by post-desegregation white flight. Today, the Lower 9th Ward is composed of two neighborhoods, Holy Cross and the Lower Nine. Pre-Katrina, Holy Cross had a population of 5,507 residents living in 1,982 households. Of these residents, 87.5% self-identified as Black in the 2000 census, while 9.4% self-identified as white, with much smaller percentages self-identifying as Hispanic, Asian, and American Indian. Forty-eight percent of Holy Cross households reported an income lower than $20,000 per year, while 3.3% reported an income over $100,000. At the same time, the Lower Nine had a population of 14,008 residents who lived in 4,820 households. Of these residents, 98.3% self-identified as Black in the 2000 Census, while only .5% self-identified as White. No residents self-identified as Asian or Native American, and only 0.5% identified as Hispanic. In the Lower Nine, a greater percentage of households reported earning less than $20,000 per year (50.4%) than in Holy Cross, and a lower percentage reported earning more than $100,000 per year (1.6%). While a significant proportion of residents in both neighborhoods lived in precarious economic conditions (as evidenced by the percentage of households earning less than $20,000 per year), both neighborhoods also featured socio-economic heterogeneity, with 18.1% of all Lower Nine and 22.5% of Holy Cross households reporting incomes between $40,000 and $70,000 per year. Even though the neighborhoods were home to a significant number of economically marginalized families, the neighborhoods also counted a small number of households whose income was higher than the average income for Orleans Parish households, earning less than $200,000 per year (35,693). Finally, a greater number of residents owned their houses in the Lower Nine (59%) than in Holy Cross (41.8%), and the Lower Nine percentage exceeded the homeownership rate in Orleans Parish as a whole (46.5%) (GNOCDC 2007, United States Census Bureau 2000).

The census data for the Lower 9th Ward as a whole paint a picture of forced racial homogenization caused by white flight and imposed urban poverty. But the socio-economic marginalization of the Lower Ninth Ward did not end there. The general population decline translated into diminished tax revenue for the city, and a dramatic decline in the provision of public services. For decades, the City of New Orleans
systematically neglected the upkeep of neighborhood streets and sewage infrastructure in the area, effectively creating inequity. In the aftermath of Katrina, Lower 9th Ward civil society leaders and residents found themselves battling FEMA assessors who insisted much of the damage reported was not storm related, but the effect of decades of neglect. Therefore, key infrastructure recovery projects like road rehabilitation remained stalled.

In the case of post-Harvey Houston, the historically neglected and predominantly working class African American and Latino residential area of North East Houston faced similar aid denials on the part of FEMA, especially concerning applications for assistance with home repair (Snyder 2018). East Houston is known for its history of socio-economic marginalization and environmental injustice. It is disproportionately burdened with the presence of landfills and superfund sites (Bullard 1987). Post-Harvey, FEMA has denied claims in this part of Houston, alleging that the reported damage is the result of deferred home maintenance. This FEMA policy is based on an erroneous understanding of disaster as a hazard with a limited temporal span, and not disaster as a historical process with a limited emergency phase. Granted, FEMA personnel may make the case that their agency has a limited budget, and that addressing issues of long term marginalization along lines of race and class lies beyond the resources they command. This reality only serves to underscore the need for disaster mitigation and recovery experts to recognize that disasters are historical processes of inequity. It also underlines the need to foreground equity not only in disaster recovery, but in disaster mitigation as well, long before a hazard manifests itself and sets off the response phase of a disaster. To put it another way, disasters are not anomalies; they are engendered in normatively accepted everyday societal practices (Oliver-Smith 1999). Disasters are not things that besiege society from the outside, they are created by society.

Since the late 1970s, the United States has supported policies around labor laws and tax revenue collection that glorify inequity as the natural and just result of an imagined meritocracy that is not affected by racism, classism, sexism, xenophobia, or ethnocentrism. The result of this policy trend has been a dramatic rise in inequality among American citizens (Obama 2016), let alone the inequities between citizens and "undocumented" immigrants, who are now one of the most vulnerable populations in disaster contexts. Disaster mitigation and risk reduction must become synonymous with inequity reduction and equity making. Disaster risk reduction specialists may be frustrated by this observation, replying that such a broad focus on inequity reduction makes their work impossible due to their institutional and legal jurisdiction. It is necessary to transform our thinking about disasters in a way that recognizes equitable society-building as a key pillar of mitigation.

Equity requires recovery processes to find worth in the unwritten words of the most marginalized communities that have been devalued to invisibility through socio-political structures and processes of extraction and attack. For equity to be true, it must be at the core of disaster response, recovery and rebuilding plans. Those most marginalized must be included in the conceptualization, not just the conclusion, of the plan. They must be given the opportunity to contribute thought leadership, not just tokenized affirmations.
To choose equity is to dare to achieve a higher state of our humanity. There must be a social agreement to advance and protect the human rights of all people, thereby no longer sacrificing the most marginalized in favor of the few that have been structurally guaranteed to succeed. There can no longer be a simple calculation of equal parts for distribution, benefit, or shared work going forward. Instead, the ability to value repairing past harms and aggregated impact through an equity and justice lens must be the starting point for recovery in the new climate reality.

III. Mitigation

We define mitigation as the process of reducing disaster vulnerability, especially before a catastrophe-triggering hazard presents itself. As noted in the introduction, in the early 20th Century, many people saw disasters as unavoidable acts of God or "nature." With the development of the vulnerability approach to disasters from the late 1970s to the 1990s, a new possibility emerged. If disasters were, in fact, processes shaped to a great extent by people's actions (e.g., unsustainable land use and development practices, social inequity-making), then perhaps they could be mitigated before they even occurred, if not avoided altogether. While there have been great advances in academic knowledge about disasters in the last forty years, it is unfortunate that actual disaster risk reduction has not kept pace. The Hyogo Framework for Action 2005-2015 (HFA), for example, was an international agreement among 168 member states of the United Nations designed to reduce disaster losses in the form of human lives and the destruction of socio-economic and environmental resources at a global scale (UNISDR 2015). The creation of the Hyogo Framework was accompanied by the establishment of a series of reports known as the Global Assessment Report on Disaster Risk Reduction, also known as the GAR, which were meant to track the progress achieved under the international agreement. In 2015, the milestone year that marked the completion of the Hyogo Framework’s timeframe, the GAR reported that:

"The expected outcome of the HFA has only been partially achieved. Twenty-five years after UN Member States adopted the International Decade for Natural Disaster Reduction (IDNDR) and ten years after the adoption of the HFA, global disaster risk has not been reduced significantly. While improvements in disaster management have led to dramatic reductions in mortality in some countries, economic losses are now reaching an average of US$250 billion to US$300 billion each year…More critically, both the mortality and economic loss associated with extensive risks in low and middle-income countries are trending up" (UNISDR 2015, XIV, emphasis added).

To more thoroughly explore why risks are trending up in many parts of the world, we now turn to the example of the Road Home to Recovery program in post-Katrina New Orleans.
i. Example 1: Road Home to Recovery

One of the key limitations of FEMA disaster recovery programs is that they often assume the recipients of aid are home-owning, college educated, middle class people who head heterosexual nuclear families. These assumptions did not map very well onto Pre-Katrina New Orleans, where more than 50% of city residents were renters (in public housing and also in generational rentals), who were poorly served by failing public schools, political representation was dominated by multi-national and fortune 500 corporations, and many experienced one of largest racial wealth divides in the country. Unfortunately, these realities present an ideal case study for identifying how current federal policies advance inequity in recovery. In addition, using these same outdated policies in coastal recovery against the backdrop of climate change is a missed opportunity to advance regional and system-wide mitigation efforts that use an equity framework.

The Road Home program of Louisiana was created to assist those New Orleanians who either did not have flood insurance, or whose flood and home owner's insurance payments failed to cover the cost of completely rehabilitating their homes after Hurricane Katrina. State grants for home repair were calculated using the market value of homes, the assessed damage, and the insurance payouts. Without an equity lens, this program allowed those who continue to benefit from historic systems of segregation and redlining to benefit once again. Legally mandated segregation was a main driver for locating Black communities in flood-prone areas, like the Lower 9th Ward. This area had the city’s highest rate of Black homeownership, in large part because this is where Black people were allowed to own homes. Some may even argue that the low rate of homeownership and the higher than national average rate of renters in New Orleans is as much about poverty as it is about which geographic locations Black families are supported/encouraged to enter the homeowner market.

Federally supported approaches of devaluing Black community assets through the process of historic redlining continue to drive market values of majority Black neighborhoods. In the aftermath of Katrina, homeowners in majority Black neighborhoods with the same square footage as homeowners in majority White neighborhoods were awarded fewer grant dollars to repair their homes (Greater New Orleans Fair Housing Action Center, 2011). Although materials and hourly construction work cost the same for both, only the homeowners with higher market value home qualified for enough money to completely recover their homes and swiftly return to the city.

The injustice in the valuation of damaged homes is one part of the missed opportunity. An additional missed opportunity relates to how and where homes could be rebuilt. During the recovery, planners presented green dot maps to residents of New Orleans as notice of what would be rebuilt and what would remain “green space”.
Because segregation led to high homeownership in flood prone areas, it was no surprise that a mathematical approach to urban redesign left minority communities out of the rebuilding plans. Community outcry helped to push for a more inclusive planning process that was never implemented – creating an even more tense recovery for residents dealing with new and generational trauma.

An equity approach to rebuilding New Orleans after Hurricane Katrina could have helped to usher in a process that addressed historic, current, and future threats to community property and autonomy. Instead of rebuilding back to the way things were, the recovery period in climate disaster presents an opportunity for the federal government to be a leader in developing policies that require new construction that mitigates current impacts of historic segregation of US cities, mitigates the likelihood of future flood (or wind) damage, and mitigates the role of the US in fossil fuel extraction and greenhouse gas emission by advancing solar and wind generated energy systems. With the right political will, mitigation using an equity lens allows for restorative justice, economic justice, and climate justice.

IV. Adaptation

Anatomically modern human beings (Homo sapiens) first appear in the archaeological record between 200,000 and 150,000 years ago. Originating in the African Continent, our species has radiated throughout the planet in the succeeding millennia, settling and devising means of subsisting and thriving in a variety of environments. From frozen arctic latitudes to coastal and mountainous regions, people have developed toolkits...
that include technologies, social organization, and cultural values that are key to their survival in very different localities. We call this ability to not only survive, but to thrive in a manner that is meaningful and sustainable over prolonged periods of time "adaptation."

A key challenge of understanding and operationalizing the concept of adaptation is that we often make a number of assumptions in speech or writing that do not bear out in the anthropological and historical record. One of these assumptions is the idea of stability and lack of change that can accompany the concept of adaptation. Adaptation, for example, might conjure visions in our minds of a harmonious and unchanging relationship between people and their environment, an ecological utopia. These visions of adaptation uphold the idea that there is first an environment that is then populated by people who devise ways of leaving it unchanged. In contrast, the archaeological and anthropological records reveal that human beings play an important role in modifying, if not altogether transforming, the environments in which they live. Even seemingly pristine environments populated by indigenous communities in the Amazonian rainforest, for example, have featured careful modifications on the part of people that transform the forest into a garden. While this transformation is invisible to the outsider's eye, for whom the forest continues to look like an unchanged environment, local populations know very well where they may harvest the fruits of their gardening labors. The key point here is that environments, with or without human presence, never remain unchanged (Descola 2005, Pickering 2008). In the last 200,000 years, new species have evolved (especially ours), others have become extinct, and no environment has remained static. The meanders of the body of water we call the Mississippi River, for example, have moved with or without human presence, and it is this movement that led to the development of the Mississippi River Delta itself (Pickering 2008).

While no environment has remained unchanged, what we must account for in order to understand equity issues in adaptation are changes in the rate of environmental change itself, especially since the mid 19th Century. Scholars who research the relationship between people and their environments (Descola 2005, Ingold 2000, Latour 1993) agree that all people, regardless of cultural background or historical period, have modified their environments. Nevertheless, they also agree that not all people have changed their environments in the same way and to the same effect, and they notice significant changes in human-environment relations beginning in the 16th Century era of European colonial expansion, and even more so following the onset of coal and oil driven industrial production in the 19th Century.

Colonization of the Americas in the 16th Century, for example, featured the dramatic disruption of agricultural production and ecological systems that had calamitous effects on local indigenous populations. Highly sustainable and well-adapted agricultural systems in Central Mexico and what is today's Central America were replaced with inequitable land tenure systems and cattle ranching that favored the economic interests of Iberian settlers, and dramatically impoverished indigenous peoples. The results of this were both environmental degradation and an exponential rise in mortality, claiming millions of indigenous lives. The environmental impacts of colonization compounded
with the colonial practices of ethnicity-based discrimination; gave form to the disasters of
the 20th Century. Some of these disasters, like the Guatemalan 1976 earthquake, were so
dramatic in their inequitable effects that they became exemplary studies of the role of
inequity in disaster vulnerability (O'Keefe et al. 1976). While the adaptations of pre-
Columbian indigenous populations were far from perfect, and sometimes resulted in
mismanagement of natural resources (as in the case of the 10th Century Central Maya
Lowlands), the impacts of colonization were dramatically more severe and had longer-
lasting implications. The inequities in access to natural resources and wealth distribution
instituted over colonization made it so small scale farmers are incapable of adapting to
their environment in many parts of Central America and Mexico to this day, as they are
besieged by land tenure laws, economic policy, and armed conflicts that impede their
ability to take ownership and stewardship of their territory (Barrios 2017, Jansen 1998,
Stonich 1993).

Concerns with adaptation must then take into consideration structural inequities
that inhibit the ability of certain groups (often differentiated along socially created lines
of race, class, ethnicity, and gender) to fully practicing their adaptive abilities. A case in
point here are the Native American communities of Alaska (Marino 2015), some of
which have resided in their present localities for over 1,000 years (Maldonado et al.
2015), which is evidence of their capacity for adaptation. Unfortunately, due to
anthropogenic climate change and its related polar ice cap melt and sea level rise,
communities like Shishmaref and Barrow, Alaska, are now facing the decision to
relocate. In this instance, the rate of environmental change is driven not by the practices
of these communities, but by industrialization that made other human beings wealthy in
remote locations; yet indigenous communities are the ones who must pay the ultimate
price of industrial development.

Prior to colonization, adaptation to a rising sea and melting North Pole would
have involved movement to a locality that would allow continuity of livelihood and
cultural patterns (Marino and Lazrus 2015) and, to this day, this is the vision of
successful relocation among members of these communities. Nevertheless, under
conditions of colonization that continue to this day, the movement of communities within
the territory of settler nation states is severely curtailed by foreign cultural values such as
private property ownership and foreign economic forces. Imposed conditions of inequity
introduced through colonization, then, inhibit the adaptive capacities of those
communities that are most impacted by anthropogenic climate change. Discussions of
adaptation and resilience that ignore histories of inequity, then, fall into the intellectual
trap of assuming all human beings affected by disasters or disaster risk enjoy the same
white colonial settler privilege, which they do not. An emphasis on equity in adaptation,
then, must recognize that human beings confronting the effects of coastal loss, sea level
rise, and anthropogenic climate change are not all on a level playing field, and that equity
in adaptation requires an environmental justice approach that preferentially allocates
resources to those who need them most, in order to make up for centuries of inequity.

Equity as Adaptation – New Orleans is often thought of as a coastal city. And while it sits
near the Gulf of Mexico and hosts the Mississippi River’s busiest, largest and oldest port,
New Orleans is not located on Louisiana’s coast – at least not yet. Louisiana loses the equivalent of a football field of land every hour, and it has lost land the equivalent of the Grand Canyon since the turn of the 20th century. The climate crisis has accelerated sea level rise around the globe, and the extraction of fossil fuels contribute to both extreme weather and the subsidence of land by the sea in deltas around the globe – including south Louisiana.

Land loss in south Louisiana necessarily means a different reality for the cities just north of the coast (like New Orleans) that depend on coastal land as disaster protection. Science proves that flooding once relegated to the lower parishes of Louisiana will now be an issue for communities further inland. To address this changing reality, various adaptation efforts are being considered and attempted. Adaption efforts, however, are not always connected to the climate crisis and the known realities expected in the near future.

In its Climate Ready Estuaries report, the US. Environmental Protection Agency (EPA) addresses adaptation options that preserve coastal land and development, focus on land use planning and management, land exchange and acquisition programs, and changes to infrastructure:

“These adaptation options primarily aim to preserve coastal land on which development is planned or already exists. Land use management involves using integrated approaches to coastal zone management as well as land use planning. Land exchange and acquisition programs allow for coastal land to be freed up for preservation uses. Changes to infrastructure can include limiting where hazardous and polluting structures can be built (including landfills and chemical facilities), as well as changing engineering structures that affect water bodies and will be impacted by climate change. Land use planning and management, as well as changes to infrastructure, would be appropriate adaptation options for programs looking to implement anticipatory changes. These options require working with various key stakeholders and a longer timeline for implementation. Land exchange and acquisition programs would be viable options for estuaries that have a management goal of acquiring more land in order to protect currently threatened areas” (2009, p. 10).

The Climate Ready Estuaries report (lists the creation of “permitting rules that constrain locations for landfills, hazardous waste dumps, mine tailings, and toxic chemical facilities” (2009, p. 10). As the reality of New Orleans becoming a coastal city draws closer every hour, adaptation planning and protocols must address the existing energy and economic infrastructure.

In March of 2018, Entergy – one of Louisiana’s three fortune 500 companies – successfully lobbied the New Orleans City Council to approve a $210 million gas-fired power plant proposed for New Orleans East. New Orleans East is home to the city’s largest Vietnamese community, a growing Latino immigrant community, and a long-standing middle-class African American community. It is also the area of the city that has
received the least amount (per capita) of recovery investment from the impacts of Hurricane Katrina in 2005. Asserted as a need to address peak power demand and provide electricity after storm impacts on electricity services, this Entergy gas-powered plant would be located in devastated marshland and shipping canals responsible for the region’s worst environmental damage during Katrina. In addition to the questions of its need and higher rates for basic utility services, residents of New Orleans East and community groups emphasize the dangers of the location of this gas-powered plant, especially during what will be more frequent, extreme weather that causes widespread flooding (Litten 2018).

As part of a new terminology to acknowledge the economic opportunity in disaster, the business of adaptation is often understood as part of a restoration economy. State and municipal budget gaps, unemployment, and disaster planning are integrated into plans for economic growth with concepts of fairness, justice or environmental protection rarely used as guides for decision-making.

Adaptation requires an acceptance of the science of climate change and the inevitable changes in land and land use. Adaptation with equity requires an understanding of socio-political realities facing all levels of society, and requires a reexamination of industry and infrastructure located in and impacted by these changes.

As South Louisiana grapples with adaptation efforts on its coasts, it faces a federal mandate, as well as an opportunity to achieve the EPA Climate Ready Estuary standards and “preserve coastal land on which development is planned or already exists.” Louisiana can do this by “limiting where hazardous and polluting structures can be built (including landfills and chemical facilities) as well as changing engineering structures that affect water bodies and will be impacted by climate change.” The battle is not with the climate reality, but rather with how political leaders and decision makers balance supporting the profit margins of large corporations with the safety, vulnerability, and human rights of generationally marginalized communities located in the impact zone for more frequent and more extreme weather – the frontlines of climate disaster.

V. Policy Recommendations

The notion of “equality” generally sets the high-water standard for work, planning, and even disaster recovery. Equality looks forward, and is rooted in the privileged assumption that all is equal and should remain equal. Equity, however, is rooted in the notion of justice, and necessarily requires an acknowledgement and commitment to repair past wrongs.

Too often, plans for a new and better tomorrow are made without the voices of people who experienced our planet’s most unjust and inhumane realities. Communities accessed only to affirm what has been decided for them are deprived of autonomy and, when done systematically for generations, have their human right to self-determination eroded. Equity in disaster recovery means that the people cannot just be consulted,
warned or put on notice, but rather should be invested in at the socio-political level to engage in processes that promote community autonomy, self-determination, and true democracy.

There is a current trend in policy that supports the reduction of state institutions and budgets charged with the task of providing society's most vulnerable populations with the resources they need (e.g., affordable housing, disaster recovery aid) in order live meaningful sustainable lives and recover from disasters. This logic upholds the idea that state resources are better spent on supporting the private sector, and that the private sector will one day provide the resources necessary for social wellbeing through trickle down economics. Another element of this policy movement is that environmental and labor regulations hinder the capacity of capital to replicate itself, and should therefore be diminished. This notion that market liberalization and the reduction of those governmental organizations that provide public services will lead to optimal social ends is known as neoliberalism. Neoliberal approaches to disaster recovery, however, are characterized by their willful ignorance of histories of inequity that make some populations disproportionately susceptible to the impacts of disaster and its aftermath. The case of the "recovery" of New Orleans highlighted in section II of this document is a case in point. Neoliberal approaches to disaster recovery uphold white middle class privilege, because they draw a purposeful curtain over the histories of racism and ethnocentrism that have limited the social and spatial mobility of ethnic and class minorities in disaster affected localities, and provide utopian solutions whose benefits are not accessible to members of historically marginalized groups. Consequently, disaster recovery, mitigation, and adaptation policy should never subject disaster survivors or populations living in conditions of disaster risk to cost benefit calculations. Instead, it must be understood that we have a collective societal debt to historically disenfranchised communities. Disasters present an opportunity to begin to ameliorate long-standing injustices.
References


